Proceeding
ICoHPS 2022

International Conference on Health Polytechnic Ministry of Surabaya

Poltekkes Kemenkes Surabaya

Health Polytechnic of the Ministry of Health Surabaya - Indonesia

PROCEEDING ICoHPS 2022
INTERNATIONAL CONFERENCEON
HEALTH POLYTECHNIC MINISTRY OF HEALTH SURABAYA

The 5th International Conference Health Polytechnic of Surabaya
Post Covid-19 Pandemic The Future of Health Care (Opportunities and Challenges)

28-29 September 2022
Poltekkes Kemenkes Surabaya
Surabaya, Indonesia

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PREFACE

Assalamu'alaikumWr. Wb.

Praise be to Allah SWT who has bestowed His grace and blessings, and with His permission we organised the 5th International Conference of Poltekkes Kemenkes Surabaya in 2022. From several explanations regarding digital transformation, the Poltekkes Kemenkes Surabaya will hold the 5th International Conference of the Poltekkes Kemenkes Surabaya in 2022 with the theme "Post Covid-19 Pandemic the Future of Health Care: Opportunities and Challenges" on 28-29 September 2022, implementing activities in the form of virtual conferences.

The objectives of the conference are:

1. Sharing knowledge, practices and experiences between experts on Opportunities and Challenges in Health Care after the Covid-19 Pandemic.
2. Achieving applicable and workable approaches to deal with Post Covid-19 Pandemic.
3. Increase public awareness on Pandemic resilience post Covid-19
4. Developing networks among experts and audiences from various disciplines to discuss about the Opportunities and Challenges of Healthcare after Covid-19 Pandemic

Creating collaboration among academics to conduct research on the topic of opportunities and challenges of health services after the Covid-19 Pandemic.

Finally, I would like to congratulate and thank you for your participation in the 5th International Conference of Surabaya Health Polytechnic.

May God Almighty and facilitate our work. Thus, the delivery of my remarks. Thank you.

WassalamualaikumWr. Wb

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WELCOME TO POLTEKKES KEMENKES.SURABAYA

Drg Bambang Hadi Sugito, M.Kes
Director
Poltekkes Kemenkes Surabaya

Assalamu'alaikum Wa rohmatullahi wa barokatuh.

May peace be upon you.
Distinguished guests, speakers, participants, ladies, and gentlemen.
Welcome to the 5th International Conference Health Polytechnic of Surabaya with theme "Post Covid-19 Pandemic the Future of Health Care: Opportunities and Challenges".
This event would have been impossible without the support of each and every one present here.
The Conference aims for sharing Knowledge, practice and experience among experts about Opportunities and Challenges for Health Services in post-Covid 19 Pandemic.
I ensure this event will be profitable and fruitful for everyone present here. Thank you for your participation. Have a great discussion.
Wassalamu alaikum wa rahmatullahi wa barakatuh

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WELCOME MESSAGE FROM THE ICOHPS GENERAL CHAIR

Assalamualaiakum Wr.Wb, Good morning

Director, Deputy directors heads of research and community service centres, heads of education development centres and heads of quality assurance centres, heads of departments and heads of study programs, heads of sections and coordinators at Poltekkes Kemenkes Surabaya, heads of institutions Co Hosts all participants, especially keynote and invited speakers

In the name of Allah, the Most Beneficent and the Most Merciful. May peace, mercy, and blessings of Allah be upon you.

Ladies and gentlemen, Post COVID-19 condition can affect a person's ability to perform daily activities such as work or household chores. At present, there is no specific medication therapy for people with the post-COVID-19 condition. However, there is data suggesting that holistic care, including rehabilitation, can be helpful. We are continuing to learn why some people develop this condition, the mechanisms behind the development of the post-COVID-19 condition, and how to best manage it.

From these points, Poltekkes Kemenkes Surabaya organizes the 5th International Conference Health Polytechnic of Surabaya (ICoHPS) with the theme "Post-Covid 19 Pandemic: Opportunities and Challenges for Health Services in The Future ".

This Conference brings all scholars, scientists, epidemiologists, medical doctors, nurses, allied health professionals, and even politicians to share their expertise on 28-29 September 2022, Implementation of Activities in a virtual conference.

The ICOHPS 2022 is the umbrella of different international conferences such as The 3rd International Conference on Electronics, Biomedical Engineering, and Health Informatics (ICEBEHI), The 2nd International Conference on Nursing and Public Health (ICoNPH), The 2nd International Conference on Midwifery (ICoMid), The 2nd International Conference on Medical Laboratory Technology (ICoMLT), The 2nd International Conference on Environmental Health (ICoEH), The 2nd International Conference on Nutrition (ICoN), The 2nd International Conference on Dental and Oral Health (ICoDOH)

This conference is proudly supported by our co-host from Universitas Mandala Waluya Kendari, Poltekkes Kemenkes Tanjung Pinang, Stikes Rustida Banyuwangi, Poltekkes Kemenkes Jayapura, Poltekkes Kemenkes Manado, Stikes Pamenang Kediri, Universitas Al Muslim Aceh, Poltekkes Kemenkes Kalimantan Timur, Poltekkes Kemenkes Palangka Raya, Poltekkes Pangkal Pinang, Poltekkes Kemenkes Jambi, Poltekkes Kemenkes Banten, Poltekkes Ternate, Poltekkes Tasikmalaya.

As an annual international conference, 5th ICoHPS is anexcellent platform to share innovative idea and experiences, exchange information, and explore collaboration among researchers, engineers, practitioners and scholars in the field of health science, and medical engineering.

We note that more than 600 participants attending this conference, consisting of oral presenters and participants.

The forms of activities are:
1. International Conference which will be attended by four keynote speakers from 4 countries namely Australia, Philippines, Thailand, Malaysia
2. International standard call for papers with International proceeding outputs, International journal and DIKTI Accredited journal.

All papers have undergone review from both external and internal reviewer. The keynote speakers come from world-class institution introducing the current research and development trends in the

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aforementioned fields. We are deeply indebted to all seven technical program committee members as well as our reviewers, who volunteered a considerable amount of their time and expert set ensure a fair, rigorous, and timely review. Many thanks should be given to our keynote and invited speakers who will share their experience in this conference.

We would like to thank the director, Head of Research and Development Centre and all leadership levels at Poltekkes, Kemenkes Surabaya, the head of the Co Host institution. Committee and all participants for their support in making the conference a success and which has allowed us to assemble a high quality technical program.

Welcome to 5th ICoHPS 2022 and hope you will enjoy this virtual conference.

With best regards,
Dr. Yessy Deasy Arna
General Chair

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THE 5th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA (ICOHPS)
2nd International Conference of Nursing and Public Health Science **(ICoNPHS)**

**TEENAGE GIRLS KNOWLEDGE ABOUT RISK FACTORS FOR CERVICAL CANCER
IN SMA NEGERI 7 SURABAYA**

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ABSTRACT
Cervical cancer is a malignant tumor that occurs in the cervix, an area in the female reproductive organs which is the entrance to the uterus, it is located between the uterus and the vagina. Several risk factors can increase the development of cervical cancer due to lack of knowledge about risk factors that cause cervical cancer. The purpose of this study is to determine teenage girls knowledge about the risk factors for cervical cancer. This type of this research is descriptive with a probability sampling technique of simple random sampling. The population is 598 female students, with sample of 86 female students. The results of research on knowledge of teenage girls about risk factors for cervical cancer show that more than half have less knowledge and a few have good knowledge. Knowledge of teenage girls based on age is less than half of those who have less knowledge are in the group of teenage girls aged 16 and 18 years. Teenage girls knowledge based on information sources, more than half of those who are knowledgeable lack information sources from the mass media. It is expected that teenage girls will always increase their knowledge about risk factors that cause cervical cancer by participating in health education, adding insight through textbooks or mass media. In addition, it is hoped that teenage girls can prevent cervical cancer in order to minimize the occurrence of cervical cancer.
Keywords: Knowledge, Cervical Cancer, Risk Factors, Teenage Girls

INTRODUCTION

Cervical cancer is one of the leading causes of death for women worldwide. In Indonesia, cervical cancer is the second most common type of cancer after breast cancer. Every two minutes a woman dies of cervical cancer. The number of cervical cancer cases is increasing every year in Indonesia. Every woman is at risk of cervical cancer regardless of age (Kemenkes RI, 2019). Cervical cancer is mainly caused by the HPV (Human Papilloma Virus). However, several factors can increase the chance of cervical cancer. Cervical cancer is a women's health problem in Indonesia in connection with the increasing incidence and mortality due to lack of knowledge about the risk factors that cause cervical cancer (Eva & Anna, 2014).

The incidence of cervical cancer in Indonesia ranks second after breast cancer with an incidence rate of 23.4 per 100,000 population and an average cervical cancer mortality rate of 13.9 per 100,000 population. While the incidence of breast cancer is 42.1 per 100,000 population, the average death rate is 17 per 100,000 (Kemenkes RI, 2019). The number of cervical cancer cases in East Java ranked first reaching 13,078 cases, followed by breast cancer reaching 12,186 in 2019 (East Java Health Office, 2019). In the city of Surabaya in 2019, out of 24,345 women who were screened for cervical and breast cancer, 325 women had positive VIA results, or 1.33%. Based on research from (Indryani, 2019) at SMAN 2 Model Watampone shows the conclusion that of the 70 respondents, most (55%) have a low level of knowledge, less than half (31%) have sufficient knowledge, and a small (14%) level of knowledge good.

Cervical cancer is a malignancy that occurs in the cervical tissue which is the lowest part of the cervix and protrudes to the top of the intercourse hole (Kemenkes RI, 2019). The cause of cervical cancer 90% is caused by the Human Papilloma Virus (HPV) which is transmitted through sexual intercourse. In addition to HPV, there are several risk factors that cause cervical cancer, including: low socioeconomic status, addiction to tobacco smoking, long-term use of oral contraceptives, impaired immunity, marriage before the age of 18 years, young age <18 years of sexual intercourse, multipartners in sexual intercourse, husbands who are not circumcised, poor personal hygiene of the genitalia, family history of cervical cancer, and history of sexually transmitted diseases (Kemenkes RI, 2017). An increase in the number of young couples when they first have sexual intercourse increases the risk of cervical cancer. The age of marriage due to sexual intercourse is ideally carried out by a woman at a mature age because the new mucosal cells mature after the woman is 20 years old and over. Maturity also depends on the mucus cells found in the skin membranes in body cavities (Rasjidi, 2009). The results of the study by (Sulistiya, 2017) showed that women who had sexual intercourse for the first time at the age of 20 years had a 2.41 times greater risk of developing cervical cancer compared to women who had their first sexual intercourse at the age of > 20 years. According to (Sadewa et al, 2014), another risk factor that causes cervical cancer is the lack of genital hygiene in women will increase pathogenic bacteria in the vagina so that it triggers disease, one of which is cervical cancer. According to research (Indrawati, T., Fitriyani, 2012), poor genital personal hygiene has a risk of cervical cancer 19,386 times greater than women who have good genital personal hygiene. Cervical cancer can be caused by HPV that comes from public toilets when the HPV virus is on a woman's hands and then touches the genital area so that this virus can move and infect the cervix. According to the World Health Organization (WHO) (2014) the relative risk of using oral contraceptives/pills increases by 1.19 times along with the length of use, while according to research (JodelinMuninggar, 2019) the use of IUD contraception will experience a risk of cervical

cancer 12.7 times higher than those who did not use the IUD. According to research (Tira, 2008) obtained an OR value of 12,048 the number of marriages more than 1 time is very at risk of cervical cancer. Seeing some of the risk factors above will have an impact on death in women and the high incidence of cervical cancer in Indonesia. The process of cervical cancer is very long, which is between 10 to 20 years to become a cancer which was originally from an infection. In the early stages of development it will be difficult to detect. Therefore cervical cancer can be prevented from an early age by providing knowledge to young women about the risk factors that cause cervical cancer.

Various efforts can be made to suppress the high incidence of cervical cancer, it is necessary to increase awareness about the knowledge of risk factors that cause cervical cancer, including: marrying at a mature age > 20 years, avoiding sexual intercourse at an early age, not taking turns sexual partners, avoid or stop smoking tobacco, avoid cleaning genital area with dirty water (Dinas Kesehatan Bandung, 2016). Apart from providing counseling, government efforts to reduce cervical cancer, namely: primary prevention by vaccinating HPV for couples who have not had sexual intercourse, secondary prevention by holding screening in the form of regular pap smear tests, namely once a year and if no lesions are found, it can be done every 5 years in health centers and in health clinics (Kemenkes RI, 2017). Based on the description above, the authors are interested in conducting research to determine the knowledge of young women about the risk factors that cause cervical cancer. The government's efforts to reduce cervical cancer, namely: primary prevention by vaccinating HPV for couples who have not had sexual intercourse, secondary prevention by holding screening in the form of regular pap smear tests, i.e. once a year and if no lesions are found, then it can be done every 5 years at the puskesmas or at the health clinic (Kemenkes RI, 2017). Based on the description above, the authors are interested in conducting research to determine the knowledge of young women about the risk factors that cause cervical cancer.

METHOD

This type of research uses quantitative methods with a descriptive research approach that aims to describe facts that are investigated systematically and factually by collecting data, processing, analyzing, and interpreting data (Sugiyono, 2013). This study aims to identify the knowledge of young women about risk factors that cause cervical cancer in SMA Negeri 7 Surabaya. The population in the study are subjects such as humans or clients who have met the requirements that have been set. The population in this study were students of class X, XI, and XII at SMAN 7 Surabaya with a total of 598 students in academic year 2021/2022 (Data for SMAN 7 Surabaya in 2021).

The sample consists of the affordable population that can be used as research subjects through sampling. The sample used in this study was from a population of students in grades X, XI, and XII in 2021 at SMA Negeri 7 Surabaya as many as 598 students where this sampling used the Slovin formula with a significant level of 10% (0.1). In this study, researchers took samples by lottery from a population of 86 students in grades X, XI, and XII of SMA Negeri 7 Surabaya. The method that the researcher uses in determining the sample is the probability sampling technique of the type of simple random sampling where this technique is said to be simple (simple) because the taking of sample members from the population is carried out randomly without regard to the strata that exist in the population (Sugiyono, 2013).

The data collection technique in this study was done by filling out a questionnaire that had been given through the google form link. Respondents were asked to fill out informed consent before giving answers to the answer choices provided in the google form column. Previously, respondents had been coordinated and explained about the filling procedure.

RESEARCH AND DISCUSSION

1. General Data

General data of this study include age and sources of information.

Table 1 Distribution of Age Characteristics of Teenage Girls at SMA Negeri 7 Surabaya

No	Age	Frequency	Percentage (%)
1.	16 years	23	27
2.	17 years	29	34
3.	18 years	22	25
4.	19 years	12	14
	Total	**86**	**100**

Based on the results of the study, it was found that from 86 young women at SMA Negeri 7 Surabaya, less than half (34%) were 17 years old and a small portion (25%) was 18 years old, (14%) was 19 years old.

Table 2 Distribution of Characteristics of Information Sources for Teenage Girls at SMA Negeri 7 Surabaya

No	Resources	Frequency	Percentage (%)
1.	Health Workers	10	12
2.	Mass Media	54	63
3.	Environment	6	7
4.	Not Getting Information	16	18
	Total	**86**	**100**

Based
 on the results of the study, it was found that out of 86 young women at SMA Negeri 7 Surabaya, more than half (63%) got sources of information about risk factors that cause cervical cancer from the mass media and a small part (7%) got sources of information about risk factors that cause cervical cancer. cervical cancer from the environment, (18%) did not get information.

2. Specific Data

Table 3 Distribution Knowledge of Teenage Girls about Risk Factors Causing Cervical Cancer in SMA Negeri 7 Surabaya

No	Knowledge	Frequency	Percentage (%)
1.	Good	3	4
2.	Enough	29	33
3.	Not Enough	54	63
	Total	**86**	**100**

Based on the results of the study showed that of the 86 young women in SMA Negeri 7 Surabaya more than half (63%) had less knowledge and a small portion (4%) had good knowledge.

Knowledge is the result of knowing and this occurs after people have sensed a certain object. Sensing occurs through the five human senses, namely: the senses of sight, hearing, smell, taste and touch. Knowledge and cognitive are very important domains for the formation of one's actions (Nursalam, 2011).

The results of this study are in line with research conducted by Indriyani (2019). In this study, it showed that most of the respondents had less knowledge as many as 38 students (55%) and a small proportion have good knowledge as many as 10 students (14%). However, the results of this study are not in line with previous research conducted by Tamara Fatricia (2017) where the results obtained were 23 young women (46%), with good knowledge and as many as 12 young women (24%) with poor knowledge.

The results of the research that has been done, it is known that 86 young women in SMA Negeri 7 Surabaya more than half of the young women have less knowledge. This lack of knowledge of young women is evidenced by from 30 questions there are 12 questions that are not known by young women, namely about the concept of cervical cancer and risk factors that cause cervical cancer, namely parity, poor personal hygiene of the genitalia, and age over 35 years. This lack of knowledge in young women is due to the absence of information about the risk factors that cause cervical cancer from the SMA Negeri 7 Surabaya. The student teacher of SMA Negeri 7 Surabaya said that until now there has been no education about the risk factors that cause cervical cancer in any form such as leaflets, print media, posters and others.

One way to provide information to young women is to provide health education which can be done by counseling and giving leaflets. The education contains an explanation of the risk factors that cause cervical cancer. The purpose of the activity to increase knowledge of young women about risk factors that cause cervical cancer is intended for young women to know how to prevent cervical cancer by knowing what risk factors cause cervical cancer so as to minimize the occurrence of cervical cancer.

Table 4 Distribution Knowledge of Teenage Girls about Risk Factors Causing Cervical Cancer in SMA Negeri 7 Surabaya by Age

No	Knowledge	Age (Years Old)								Total	
		16 Years		17 Years		18 Years		19 Years			
		F	%	F	%	F	%	F	%	F	%
1.	Good	0	0	0	0	1	33	2	67	3	100
2.	Enough	7	24	15	52	5	17	2	7	29	100
3.	Not Enough	16	30	14	26	16	30	8	14	54	100
	Total	23	27	29	34	22	25	12	14	86	100

Based on the results of the study, it was shown that of the 3 teenage girls who had good knowledge, more than half (67%) were 19 years old and none (0%) had good knowledge aged 16-17 years. More than half (52%) of 29 well-educated young women are 17 years old and a small proportion (7%) are 19 years old. Less than half (30%) of 54 young women with less knowledge are 16 and 18 years old, a small proportion (14%) are 19 years old.
Knowledge can be affected by age. At this age, teenagers are looking for their identity and like to oppose, where respondents are in the age category who can accept things that are easy to digest information into knowledge. (Widyaswara&Yuwono, 2017).

Based on the results of research that has been carried out, it is known that the majority of adolescent girls are in the late teens group, because age in late adolescence can affect the level of ability and maturity in thinking and receiving better information when compared to early adolescence, this age difference can affect power capture and patterns of someone's thinking. The older a person gets, the more the power and thinking patterns of a person develop so that the knowledge gained is getting better. Adolescent girls aged 16-17 years have less knowledge and on average answered incorrectly on questions that discuss risk factors that cause cervical cancer. The teenage girls who are at the age of 16-17 years are students of class X and XI. This is because class X students have not received material about disorders and disorders/diseases in the reproductive system where these subjects are given during class XI. As for the students of class XI from the results of interviews conducted by researchers due to lack of attention to the material presented when the learning process was in progress.

Based on the research above, it is recommended that all young women increase their knowledge about the risk factors that cause cervical cancer while also attending health education such as seminars on cervical cancer in order to minimize the occurrence of cervical cancer because the process of cervical cancer is very long, which is between 10 to 20 years to become a cancer. cancer that starts with an infection. In the early stages of development it will be difficult to detect. Therefore cervical cancer can be prevented from an early age by providing knowledge and information from the beginning to young women about the risk factors that cause cervical cancer intensively as a health promotion step to increase knowledge and minimize the occurrence of cervical cancer.

Table 5 Distribution Knowledge of Teenage Girls about Risk Factors Causing Cervical Cancer in SMA Negeri 7 Surabaya based on Information Sources

No	Knowledge	Resources								Total	
		Health Workers		Mass Media		Environment		Not Getting			
		F	%	F	%	F	%	F	%	F	%
1.	Good	1	33	1	33	1	33	0	0	3	100
2.	Enough	7	24	14	48	2	7	6	21	29	100
3.	Not Enough	2	4	39	72	3	6	10	18	54	100
	Total	10	12	54	63	6	7	16	18	86	100

Based on the results of the study showed that of the 3 young women with good knowledge, a small portion (33%) received information from health workers, mass media, and the environment. Less than half (48%) of the 29 young women with sufficient knowledge received information from the mass media and a small portion (7%) received information from the environment. More than half (72%) of the 54 knowledgeable young women did not get information from the mass media, a small portion (4%) got information from health workers and (18%) did not get information sources.

Source of information is a notification process that can make someone know information by hearing or seeing something directly or indirectly. The more information obtained, the wider a person's knowledge (Budiman &Riyanto, 2013).

The results of this study are in line with research conducted by Serlianti&Badriyah (2019) that respondents with good knowledge obtained information sources from health workers as many as 13 people (20%), and respondents with low knowledge obtained information from the mass media as many as 12 people (18%). However, the results of this study are not in line with research conducted by Jesiandra, et al (2018) that most of the respondents, namely 26 respondents (52%) received information through mass media. Some teenagers consider the mass media to be the most accessible source of information.

Based on the results of the research that has been done, it is known that less than half of the 86 young women in SMA Negeri 7 Surabaya have good knowledge and a small proportion of young women are knowledgeable enough to know about the risk factors that cause cervical cancer, namely through health workers. The place of residence and the location of the school for young women who are close to the puskesmas makes young women receive more information from health workers and more quickly capture information that is directly given from health workers, especially about cervical cancer. The results of the study said that more than half of the knowledgeable lack of information sources from the mass media. In the current era, teenagers prefer to find information through the internet because of the influence of globalization, namely sophisticated technology. Thus, teenagers will be reluctant to ask questions or share among friends, relatives, or family because they feel it is enough to get information through the internet. However, not all information from the mass media is real information, it can also be false/hoax. Thus, even though we seek information from the mass media (internet) we must also seek through trusted sources such as journals, articles, books, and others. The results of the study also said that a small proportion of young women who did not get a source of information about risk factors that cause cervical cancer were caused by indifference, lack of interest and enthusiasm, as well as a lack of awareness of young women that they needed knowledge and information about cervical cancer so that they could be more informed. understand the changes that occur in him, resulting in low knowledge.

CONCLUSION
From the results of the research that has been done, the following conclusions can be drawn:
1. Knowledge of adolescent girls about risk factors that cause cervical cancer is more than half of them have less knowledge.
2. Knowledge of young women about risk factors that cause cervical cancer in terms of age, more than half of them have good knowledge who are at the age of 19 years.
3. Knowledge of young women about risk factors that cause cervical cancer in terms of information sources, more than half of them have less knowledge than the mass media.

RECOMMENDATION

1.　Share the Research Place
After knowing the results of this study, it is recommended that the SMA Negeri 7 Surabaya school provide health education which is carried out by counseling and providing leaflets. The education contains an explanation of the risk factors that cause cervical cancer. In addition, the SMA Negeri 7 Surabaya can collaborate with health workers, for example the Puskesmas to provide counseling to young women at SMA Negeri 7 Surabaya about the risk factors that cause cervical cancer as a health promotion step to increase knowledge.

2.　For Teenage Girls
It is recommended that young women always increase their knowledge about the risk factors that cause cervical cancer by attending health education, adding insight through textbooks,

magazines, or mass media. In addition, it is suggested that young women can do cervical cancer prevention in order to minimize the occurrence of cervical cancer, pay attention to the teacher while in the learning process and read more to add insight other than what has been conveyed by the teacher.

3.   For Other Researchers

For other researchers, it is recommended that the results of the study can provide an initial picture to conduct further research on the knowledge of young women about the risk factors that cause cervical cancer and to increase the number of respondents as well as more specific research that refers to the results of the study.

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THE RELATION BETWEEN PARENTING STYLES AND ADOLESCENT SELF-CONFIDENT IN NGINDEN JANGKUNGAN SURABAYA

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ABSTRACT

Parenting styles have an important role in supporting the formation of self-confidence in adolescents. Parenting styles consist of authoritarian parenting, democratic parenting and permissive parenting. The purpose of this study was to determine the relationship between parenting styles and adolescent self-confidence in Nginden Jangkungan Surabaya. This type of research uses a correlation analytic method with a cross sectional design, and a total sampling technique with a total sample of 34 adolescents. The data obtained were then analyzed using the Spearman Rank correlation test. Data collection uses a parenting questionnaire compiled by Najibah (2017) and a self-confidence questionnaire compiled by Mubarok (2015). The results of this study indicate that adolescents with good self-confidence almost entirely come from adolescents with democratic parenting (95.2%), and adolescents with sufficient self-confidence mostly come from adolescents with permissive parenting (62.5%), while adolescents with with low self-confidence almost entirely come from adolescents with authoritarian parenting (80%). The conclusion of this study is that most of the teenagers in Nginden Jangkungan get democratic parenting from their parents, most of the teenagers in Nginden Jangkungan have good self-confidence and there is a relationship between parenting style and self-confidence of teenagers in Nginden Jangkungan. It is hoped that parents will be able to determine the right parenting pattern to increase adolescent self-confidence.

Keywords: Parenting Styles, Self-Confidence, Adolescent

BACKGROUND

Adolescence is one of the stages of growth and development in the human life cycle. Adolescents in their development experience various psychological stress, environmental influences, peer pressure, and emotional turmoil due to changes in themselves. The existence of these adolescent problems can be associated with a lack of self-confidence. This can cause problems in fostering relationships with other people (parents, family, teachers, and peers) (Zulfikar, 2017).

The Central Statistics Agency (BPS) of the City of Surabaya recorded that the number of adolescents in the city of Surabaya in 2020 was 418 thousand consisting of the age group of 10-14 years as many as 193 thousand and the age group of 15-19 years as many as 225 thousand (BPS City of Surabaya, 2020). This figure shows that the number of teenagers in the Surabaya area is quite large, which is around 14.44% of the total population. According to data (Riskesdas, 2018) shows the prevalence of personality disorders, namely the lack of self-confidence in adolescents in East Java Province reaching (26.88%) and in Surabaya City reaching (18.76%) of the total number of adolescents throughout Indonesia. An initial study that was conducted in Nginden Jangkungan Surabaya using Google Form media with 10 questions about self-confidence, in 10 teenagers, 80% of teenagers felt less confident. This is a worrying condition considering that teenagers are the nation's next generation who must improve their quality.

Entering the age of adolescence will begin to arise various problems. The results of Freda's (2006) research in (Elita et al., 2015) regarding various problems faced by adolescents in aspects of life, it was found that personality problems that most often arise in adolescents are problems of lack of self-confidence (26.88%). The influencing factors are emotional enhancement and the influence of social conditions. Many demands and pressures are felt by teenagers, for example they are expected to no longer act like children, they must be more independent and responsible for themselves. Based on research conducted (Adi Wibowo, 2016) stated that adolescents who have low self-confidence, will have more closed characteristics and behavior. As a result, teenagers will be reluctant to try something new, do not dare to express opinions, underestimate their own talents and abilities and are easily influenced by others. In addition, low self-confidence can also cause a person to experience difficulties in adulthood such as being unable to read opportunities in the world of work, difficult to build relationships and difficult to show competitiveness with others. Several factors that influence self-confidence are self-concept, physical condition, environmental influences and parenting patterns from both parents (Zulfikar, 2017). Good parenting can help the formation of a good self-concept for teenagers. Therefore, self-confidence in adolescents must be instilled from an early age with the assistance of proper parenting so that the quality of the younger generation can be optimal.

As a solution to increase self-confidence in adolescents, the government can facilitate youth youth activities as a forum for youth to socialize, discuss, and express opinions in public as well as promote counseling or seminars in the school environment and the community regarding the importance of increasing self-confidence in adolescents. In addition, efforts that can be made in terms of parents are to provide examples and good parenting patterns to increase adolescent self-confidence. Based on the description above, it is necessary to do research on "The Relation Between Parenting Styles And Adolescent Self-Confident In Nginden Jangkungan Surabaya".

RESEARCH METHODS

This research is a type of correlation analytic method with a cross sectional design. This study used a cross sectional design, where the research was carried out at the same time. This

study was conducted to identify the relation between parenting styles and adolescent self-confidence in Nginden Jangkungan Surabaya.

The sampling technique in this study was using the Total Sampling technique. The sample size in this study was taken based on the existing population quota, namely as many as 34 teenagers who were in Nginden Jangkungan Surabaya.

The data collection technique in this study was done by filling out a questionnaire sheet that would be distributed by the researcher. Before the research subjects were asked to fill out the informed consent and the questions on the questionnaire sheet given, the research subjects would be explained in advance by the researcher how to fill in the correct form directly.

After the data is collected through a questionnaire, the next step is to carry out the data processing stage by taking into account the completeness of the questionnaire sheet and informed consent. After all the data was collected, an analysis was carried out using the Spearman Rank correlation test to determine whether or not there was a relationship between parenting and adolescent self-confidence.

RESULTS

Characteristics of Respondents

The general data in this study is about the characteristics of adolescents in Nginden Jangkungan, namely age, gender and education. The details of general data in this study are as follows:

Table 1 Frequency Distribution Of Adolescent Characteristic Data In Nginden Jangkungan Surabaya

No.	Characteristics	Category	N	%
1.	Age	Early Adolescence (10 – 12 Years)	6	17,6%
		Middle Teen (13 – 15 Years Old)	12	35,3%
		Late Adolescence (16 – 19 Years)	16	47,1%
		Total	34	100%
2.	Gender	Man	16	47%
		Woman	18	53%
		Total	34	100%
3.	Education	SD	6	17,6%
		SMP	12	35,3%
		SMA	16	47,1%
		Total	34	100%

Demographic characteristics of adolescents in the Nginden Jangkungan Surabaya based on age, it was found that of the 34 adolescents, almost half (47.1%) were aged 16-19 years, and a small portion (17.6%) were aged 10-12 years. Most (53%) are female and most (47%) are

male. Most of the 16 teenagers (47.1%) had high school education and a small part of 6 teenagers (17.6%) had elementary school education.

Results

The specific data in this study is about the types of parenting styles, and adolescent self-confidence, as well as the relationship between parenting patterns and adolescent self-confidence in Nginden Jangkungan, Surabaya. The details of the specific data in this study are as follows:

Table 2 Frequency Distribution Of Data Characteristics Of Parenting Styles And Adolescent Self-Confidence In Nginden Jangkungan Surabaya

No.	Characteristics	Category	N	%
1.	Parenting Styles	Democratic	21	61,8%
		Permissive	7	20,6%
		Authoritarian	6	17,6%
		Total	34	100%
2.	Adolescent Self-Confidence	Good	21	61,8%
		Sufficient	8	23,5%
		Low	5	14,7%
		Total	34	100%

Characteristics of parenting styles and adolescent self-confidence in Nginden Jangkungan Surabaya showed that of the 34 adolescents, most of the 21 adolescents (61.8%) received democratic parenting and a small portion of 6 adolescents (17.6%) received authoritarian parenting. Most of the 21 adolescents (61.8%) had good self-confidence and a small portion of 5 adolescents (14.7%) had low self-confidence.

Table 3 The Relations Of Parenting Styles And Adolescent Self-Confidence In Nginden Jangkungan Surabaya

Parenting Styles	Adolescents Self-Confident								p value
	Good		Sufficient		Low		Total		
	n	%	n	%	n	%	n	%	
Democratic	20	95,3	1	4,7	0	0	21	100	
Permissive	1	14,3	5	71,5	1	14,2	7	100	0.001
Authoritarian	0	0	2	33,33	4	66,67	6	100	
Total	21	61,8	8	23,5	5	14,7	34	100	

Based on the results of the study, almost all of the adolescents with good self-confidence came from adolescents with democratic parenting (95.3%), and adolescents with sufficient

self-confidence mostly came from adolescents with permissive parenting (71.5%). with low self-confidence almost entirely came from adolescents with authoritarian parenting (66.67%). Based on the results of the Spearman Rank statistical test, it was obtained that the calculated p value = 0.001 or <0.05, it was found that there was a relations between parenting styles and adolescent self-confidence in the Nginden Jangkungan Surabaya.

DISCUSSION

Parenting Styles
Research conducted on adolescents in Nginden Jangkungan Surabaya on March 7, 2022 using a parenting style questionnaire from 34 adolescents, it was found that most of the adolescents received democratic parenting and a small proportion of adolescents received authoritarian parenting.

Parenting styles are a description of the attitudes and behavior of parents in interacting with children during parenting activities from an early age to form good child behavior towards the maturation process. Factors that influence parenting according to (Zulfikar, 2017) include parental education, environment, culture and economic status. The application of good parenting can help the formation of a good self-concept for adolescents. This is in line with research conducted by research (Oppie Dara Kesuma, 2019) which states that parenting has an impact on various adolescent characters. It was found (81.6%) that democratic parenting will make teenagers feel loved, protected, considered valuable, and supported by their parents.

The problem that occurs at this time is that there are still many parents who do not realize the importance of meeting the needs of teenagers, especially in terms of psychology. Many demands and pressures are felt by teenagers, for example they are expected to no longer act like children, they must be more independent and responsible for themselves. Even though this will be difficult to achieve without the guidance and assistance of parents. Parents need to understand the parenting method or the right way of parenting so that the goal of guiding teenagers to become good individuals is achieved. Because teenagers with good parenting tend to easily adapt to the environment and have a higher sense of responsibility (Santrock, 2011). For this reason, the role of parents is very important in forming a parenting pattern for adolescents, so that adolescents can grow and develop optimally and have a strong positive character, especially in terms of self-confidence. Parents can give appreciation for all the performance of teenagers, be good listeners, mentally train teenagers to learn to be independent and responsible and train teenagers to communicate with courage to express their opinions in front of others.

Adolescents Self-Confidence
Research conducted on adolescents in the Nginden Jangkugan Surabaya on March 7, 2022 using a self-confidence questionnaire from 34 adolescents, it was found that most of the adolescents had good self-confidence and a small proportion of adolescents had low self-confidence.

Self-confidence is one aspect of personality in the form of belief in one's own abilities so that it is not influenced by others and can act according to the will, happy, optimistic, tolerant enough, and responsible. According to the theory (Hurlock, 2011) explains that the development of self-confidence in adolescence is influenced by several factors including parenting, age maturity, gender, physical appearance, family relationships, peers. Self-confidence plays a role in making a meaningful contribution to the process of adolescent life. This is in line with research (Fitriyani, 2015) which proves that good self-confidence mostly

comes from individual characters in family relationships. Adolescents with good self-confidence (76.3%) come from good family support also.

The obstacle that occurs at this time is that most teenagers lack initiative and do not dare to try to do something. This is due to a lack of will and confidence in one's own abilities. Many teenagers are rarely appreciated and supported by their talents, so they are afraid to develop because there is no positive feedback from others. As a result, many teenagers have an indifferent attitude and do not believe in themselves. Teenagers will also be reluctant to try something new, do not dare to express opinions, underestimate their own talents and abilities and are easily influenced by others. Another impact that will arise later in adulthood is the lack of ability to read opportunities in the world of work, difficult to build relationships and difficult to show competitiveness with others. To increase self-confidence in adolescents, in addition to many government programs, it is necessary to instill a confident attitude from the first environment of adolescents, namely parents. Parents can provide examples of how it can be applied to increase self-confidence in everyday life. The better the adolescent's self-confidence, the better the self-concept and self-quality of the teenager.

The Relation Between Parenting Styles and Adolescent Self-Confident in Nginden Jangkungan Surabaya

Based on the results of the research, it can be seen from the results of the Spearman Rank statistical test that the p value = 0.001 or <0.05, it is found that there is a relationship between parenting styles and adolescent self-confidence in Nginden Jangkungan Surabaya.

In accordance with the theory put forward by Baumrind (in Idrus, 2018) it is revealed that parenting affects the growth of self-confidence in a person. Mouly (in Idrus, 2018) states that parental care plays a very important role in personality development. Hurlock (2011) explains that one of the factors that influence the development of self-confidence in adolescence is parenting, namely democratic parenting. This is in line with research (Mila Yuni Astuti, 2016) which shows that there is a significant positive relationship between parenting patterns and the self-confidence of children in Tarbiyatul Atfal Kindergarten Penanggulan, Pegandon District, Kendal Regency. The results of the study (Oppie Dara Kesuma, 2019) also show that there is a significant relationship between parenting patterns and adolescent self-confidence. This means that parenting has a relationship with the level of self-confidence of adolescents, namely the better the parenting pattern applied, the higher the level of self-confidence in someone, and vice versa. The worse the parenting pattern of parents, the lower the level of self-confidence in a person. Based on the results of the study, almost all of the adolescents with good self-confidence came from adolescents with democratic parenting patterns. Parents who apply democratic parenting can produce a loving and warm atmosphere. Adolescents are encouraged to participate in decision-making and there is two-way communication. Teenagers can practice self-confidence and can see their abilities, because this is supported by parents who can see and support the abilities of teenagers.

The problem at this time is that there are still many parents whose parenting patterns are not in accordance with the personality of teenagers. Not all youth can be mentored in the same way. Inappropriate parenting can affect personality development in adolescents, especially in terms of self-confidence. Authoritarian parents, namely assertive, pushy, and like to regulate usually cause teenagers to feel they have no room to develop and tend to be timid individuals. Permissive parents who are indifferent, indifferent and like to underestimate usually cause teenagers to feel unappreciated, unloved and feel that their life is too free and there are no limits so that teenagers do not know the good or bad of something. While democratic parents who are supportive, caring and caring can help the development of adolescents who are positive and more confident. If parents give attention in the form of good education, guidance and direction, it will be easier for teenagers to increase their self-confidence. Therefore,

efforts to increase optimal self-confidence in adolescents, one of which is the application of wise and appropriate parenting, in order to make it easier for adolescents to develop at school and in the community.

CONCLUSION
1. Most of the adolescent in Nginden Jangkungan Surabaya get democratic parenting from both parents.
2. Most of the adolescent in Nginden Jangkungan Surabaya have good self-confidence.
3. There is a relationship between parenting styles and adolescent self-confidence in Nginden Jangkungan Surabaya.

SUGGESTION
1. For adolescent
It is hoped that adolescent can have an attitude of initiative and be more daring to try to do something new. This can be improved by practicing public speaking, daring to express opinions in front of others, being able to make decisions for themselves and also through giving appreciation from parents in every adolescent activity.

2. For Parenting Stlyes
It is expected that parents are able to determine the right parenting pattern by being good listeners, mentally training teenagers to learn to be independent and responsible and train communication so that they dare to express opinions in front of others so that they can help good development, especially at the level of self-confidence of adolescents.

3. For Research Place
It is hoped that the community in Nginden Jangkungan can facilitate youth youth activities as a forum for youth to socialize, discuss, and express opinions in public as well as promote counseling or seminars in the school environment and the community regarding the importance of increasing self-confidence in adolescents.

4. For Other Researchers
It is hoped that other researchers will be able to develop research with other variables, other types of research, or increase the number of respondents to optimize the results of research that has been carried out and before research, researchers must know other trigger factors that can cause a lack of confidence in respondents.

5. For the Development of Nursing Science
The results of this study are expected to be used as information material to add insight and knowledge in identifying problems, especially those related to parenting patterns and self-confidence in adolescents for fellow nursing professions.

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The Effect of nursing intervention strategy by video to ability controll auditory halucination for patients with schizophrenia

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ABSTRACT

Hallucinations were most positive symptoms in schizophrenia. The prevalence of auditory hallucinations in schizphrenia were 64,3-84,3% (Thomas P, et al., 2007). Video as psychoeducation media for patients with auditory hallucinations in schizophrenia not popular. Some research publication about psychoeducation for patients not spesifically yet to cope auditory hallucinations problem in nursing. This research aim to evaluate the effect of nursing intervention strategy by video to ability to controll auditory hallucinations for patients with schizophrenia. Research design i   s preexperimental using pretest and post test with control group design. All Patients with auditory hallucinations in mental   hospital in Jambi in 2019 as sums 1343 person. Sampel
were recruited with random sampling methode as much 36 subjects both of each groups. This research conducted on February to October 2020. Both of groups were explained the process, watched video nursing or learned the module, and discussion by whatsup groups. Patients ability to controll hallucinations sheets used to evaluate before and one weeks after treatments. Data analized were using dependen and independen t-test. The results showed, there was a difference in the ability to control hallucinations before and after treatment by video (Pv 0.000) and the control group by the module (Pv 0.033). There is no differences the ability to controll auditory hallucinations between treatment and control groups after the treatment with P value 0.127. Mentall health nurse hope to provide nursing interventions to patients using videos as means of auditory hallucination controll for patients. Future research needs to be carried out with a longer treatment time.

Keywords: Auditory, Hallucinations, Ability, Controll, Schizophrenia

BACKGROUND

Schizophrenia is a common disorder in the world's population with a prevalence of about 1,5-7‰ in populations at risk (Vizwanath, and Chaturvedi, 2012). According to the World Health Organization (WHO, 2022), Schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%) worldwide. This rate is 1 in 222 people (0.45%) among adults. Onset is most often during late adolescence and the twenties, and onset tends to happen earlier among men than among women.
Based on the results of basic health research (Riskesdas, 2018) in Indonesia, the proportion of schizophrenic disorders increased when compared to the results of the Riskesdas (2013), the figure rose from 1.7 to 7 per mile. The prevalence of mental disorders in Jambi Province is 0.9 per mile, the highest is in Jambi City 3913 people, Merangin Regency 2.6 per mile, Sungai Penuh City 2.3 per mile, Tanjung Jabung Barat district 2.3 per mile. The lowest rates of severe mental disorders were lowest in Sarolangun, Kerinci, Batanghari, and Tebo. The

number of Schizophrenia patients who were treated with the main complaint of being admitted to the hospital with hallucinations was 1343 people (annualized patients book record in Alfa Ward of Jambi Mental Hospital, Desember 2019).

Schizophrenia shows negative or vague symptoms such as flat affect, alogia, avocation/ apathy, anhedonia/association, and attention deficit. Positive symptoms include delusions, hallucinations, thought disturbances, disorganized speech and strange behavior. Approximately 38-57% of schizophrenic patients experiencing auditory hallucinations are diagnosed with schizophrenia (Sommer, Koops, Blom, 2012); 93,4% (Schutte, et al, 2020).

Keliat, et al (2019), nursing actions for patients who experience hallucinations include training the patients on how to controll hallucinations by rebuking, ignoring, talking to others, taking medication, and doing scheduled activities. Buccheri, et al (2013), developed 10 teaching strategies for hallucinating patients including; 1) develop awareness of hallucinatory symptoms, 2) talk to someone, 3) listen to music, 4) watch television, 5) say "stop", ignore, disobey, 6) use earplugs, 7) manage anxiety, 8) maintain busyness, helping others, 9) taking drugs, 10) avoiding drugs and alcohol. This teaching strategy has been partially applied to patients with hallucinations at the Jambi Mental Hospital, including the strategy of saying "No" I don't want to hear", taking psychotic drugs, conversing with other people, doing scheduled activities, while other strategies have never been implemented. The teaching strategy to the patients has not been implemented in a structured manner. To overcome these problems, nurses need to teach patients how to deal with hallucinations. This is important so that patients participate actively in overcoming the problem of their own hallucinations.

Mental Health Education is one of the standards of mental nursing care that nurses need to provide to patients and their families. Bäuml, et al (2006) define psychoeducation as: 'systematic, structured, didactic information about illness and disease treatment, and includes integrating emotions to enable patients - as well as family members - to cope with illness. This definition implies that nurses have an important role in educating patients in overcoming the problems, especially those with auditory hallucinations.

Research on psychoeducation on patients with schizophrenia by video media is still limited. Maffei, et al (2015) examined the effects of using 6 films with a duration of 17 minutes each containing the symptoms, diagnosis, causes, warning signs, schizophrenia treatment and its effect on family and friends using a group setting by presenting nursing staff to 102 hospitalized respondents. The results showed that there was a significant increase in knowledge about schizophrenia ($p<0.001$), adherence ($P<0.01$), disease visibility ($P<0.01$), and quality of life ($p<0.001$) after watching a movie and remained stable for at least 6 months. The majority (84.9%) of patients found films to be interesting and informative. The material in the video is related to the treatment of schizophrenia and not yet specific about how to treat auditory hallucinations in patients. Daryanto., Irfan., Sari (2019) investigated the effect of psychoeducational enrichment on the ability of families to help control hallucinations in people with schizophrenia. The results of the study found that there was an effect of psychoeducational enrichment intervention before and after using the module on knowledge (PV $0.000 < 0.05$), family attitudes (PV $0.010 < 0.05$), family skills (PV $0.000 < 0.00$) in helping control hallucinations in people with schizophrenia. The use of the module in this study is still considered to limit the family to understand the content of the material in the module because they have to read even though the implementation is accompanied by explanations and examples as well as the practice of how to apply the content of the module to the family.

A preliminary study in the outpatient clinic of the Jambi Provincial Mental Hospital on December 22, 2019, by conducting interviews with the patients with auditory hallucinations. The patients stated that not be able to controll auditory hallucination at home. Families reported that the patients has not be able to controll auditory hallucinations. Interviews with 5

nurses reports that there was not specific guidelines of hallucinatory intervention by video media as a guide for how to care for their patients. This video is very important because it can be used as a practical for patients and their families in overcoming auditory hallucinations by playing videos repeatedly and getting a real visualization of how to deal with auditory hallucinations at home. In the meantime, the use of video media on how to deal with auditory hallucinations for patients and families has never been done.

The previus research publications have been revealed that nursing intervention conducted on people with schizophrenia have not been specific to address the problem of nursing auditory hallucinations. Video media as a way to provide support for the zchizophrenia patients with auditory hallucinations has not been exist yet. The research problem is how the effectiveness of video hallucinations nursing intervention strategy on the ability to control auditory hallucinations in patients with schizophrenia are ? The research goals were to analyze the effectiveness of video and modules of hallucinations nursing intervention strategies on the ability to control auditory hallucinations in schizophrenia patients.

RESEARCH METHODS

This study was a quantitative design using pretest and posttest with control group design. In this study, the treatment group received auditory hallucinations nursing intervention using Video Media and therapy as usual program at outpatient clinic. The control group used the hallucinatory nursing intervention module and therapy as usual program at outpatient clinic. The population were as sums of 1343 people of Schizophrenia patients with auditory hallucinations in the Jambi Regional Hospital Inpatient Room in 2019. The sample recruited uses randomize sampling between intervention and controll group as sums 36 subjects eaches.

<center>Schema 1 Research Design</center>

Pretest   Post Test

The research samples refers to Siswanto., Susila., Suyanto. (2016); Saryono and Anggraeni M.D. (2017), a single sample formula with hypothesis testing on the average of 2 populations as follows:

$$n1 = n2 = 2 \frac{(Z\alpha + Z\beta) . S^2}{(X1 - X2)}$$

Information:
n = Number of samples
α = Level of significance determined by the researcher = 0.05 (two-sided Z = 1.960)
S = Standard Deviation of the two groups obtained a value of 3.25 (Prost, 2013)
$Z\beta$ = Research Power determined by the researcher = 0.10 (two-sided Z = 1.645)

X1 and X2= the desired clinical difference, the researcher assigned the mean with a difference of 4 (x1=84, x2=80)

Schema 2. Conceptuals frame

Hypothesis
1. Ho : There is no difference ability to control auditory hallucinations before and 1 week after the intervention using Video Media compared to the module in schizophrenic patients with auditory hallucinations.
2. Ha : There is a difference ability to control auditory hallucinations before and 1 week after the intervention using video media compared to modules in schizophrenic patients with auditory hallucinations.

The research instrument
Data collection tool used in this study were a questionnaire and scale as follows:
1. *Socio-demographic Data*
The instrument consist of age, gender, education level, jobs, marital status, siblings, frequency hospitalisations, duration of illness, medication duration.
2. *Ability to Controll Auditory Hallucinations Sheets (ACAHS*). This instrument is to obtain an overview of the patient's ability to control his hallucinations. The instrument is in the form of an observation sheet consisting of 7 (seven items or statements with answer choices 1 to 4. If fully assisted, it is given a score of 1, partially assisted, 2, minimally assisted 3, independent 4. The skill score range is between of 7 to 28. Validity and reliability test proved valid and reliable.The results of the analysis obtained that the calculated R value was between 0.627-0.963 > from R table 0.553. The reliability value of family skills was 0.964.
Data were collected be analised using independent and dependent t test using computer and spss 16.

Ethical Approval
This research has been tested ethically by the health research ethics committee of the Jambi Health Polytechnic and it was declared ethically worthy. Researchers respect the rights of respondents. Every subjects received an explanation of the objectives, procedures and benefits of the research. Subjects are guaranteed not to experience any risk and all confidentiality will be guaranteed not to be disclosed except for research purposes only. Subjects received the same treatment and were chosen fairly to be selected as the treatment or control group. The controll group will get video material after the research evaluation is carried out.

RESULTS AND DISCUSSION

Respondent Characteristic

Tabel 1. Patients Characteristic distribution of intervention group of schizophrenia in Mental Hospital of Jambi regency 2020 (N=36)

No	Variable	Mean	SD	Min-Max	95% CI
1.	Patient age	34,39	11,482	16 - 60	30,50 – 38,27
2.	Numbers of siblings	4,03	1,978	0 - 8	3,36 – 4,70
3.	Frequency of hospitalisation	0,94	1,351	0 - 5	0,49 – 1,40
4.	Illness Duration (Years)	5,03	5,930	1 - 24	3,02 – 7,03
5.	Medication Duration	3,86	4,975	1 - 24	2,18 – 5,54

Tabel 2. Patients Characteristic of controll group of schizophrenia in mental hospital of Jambi regency 2020 (N=36)

No	Variable	Mean	SD	Min-Max	95% CI
1.	Patient age	34,39	11,482	16 - 60	30,50 – 38,27
2.	Numbers of siblings	4,03	1,978	0 - 8	3,36 – 4,70
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4.	Illness Duration (Years)	5,03	5,930	1 - 24	3,02 – 7,03
5.	Medication Duration	3,86	4,975	1 - 24	2,18 – 5,54

Tabel 3. Patients characteristic distribution of intervention and controll group of people with schizophrenia in mental hospitals of Jambi regency 2020.

No	Variable	Intervention		Controll	
		f	%	f	%
1.	Gender	f	%	f	%
	a. Man	19	52,7	20	55,6
	b. Wowan	17	47,3	16	44,4
2	Education Levels	f	%	f	%
	a. Primary School	14	38,9	14	38,9
	b. Junior High School	5	13,9	5	13,9
	b. Senior High School	13	36,1	11	30,6
	c. University	4	11,1	6	16,7
3.	Jobs	f	%	f	%

	a. Unemployment b. Employment	20 16	55,6 44,4	19 17	52,8 47,2
4.	Marital Status	f	%	f	%
	a. Married b. Not Married c. Widow/ widower	14 16 6	38,9 44,4 16,7	12 15 9	33,3 41,7 25
	Totals	36	100%	36	100%

Patients ability to controll Auditory hallucinations before and after treatment

Table 4. Scores distribution of the Ability of Schizophrenic Patients before and after Treatment at the Jambi Regional Mental Hospital in 2020 (N=36)

No	Variable	Mean	SD	Minimal-Maximal	95% CI
1	Patients ability of videos treatment group - Before	11,42	4,122	7 - 20	10,02 – 12,81
2	-After	14,08	4,299	8 - 24	10,02 -12,81
	differene	2,66			
1	Patients ability of modules treatment group - Before	12,25	4,717	7 - 21	10,65 -13,85
2	-After	12,94	3,876	7 - 20	11,63 -14,26
	Differences	0,69			

Table 4, illustrates that in the treatment group, the mean score of the patient's ability was 11.42 to 14.08 or the average difference in increase was 2.66 after treatment, while in the control group the mean scores was 12.25 to 12.94 or the average difference was increased by 0.69 after the treatment was given
The Effect of the Nursing Intervention Strategy by Video Auditory Hallucinations on the Patient's Ability to Control Auditory Hallucinations.

Table 5. Distribution of the Effect of the Nursing Intervention Strategy by Video Auditory Hallucinations on the Patient's Ability to Control Auditory Hallucinations at the Jambi Regional Mental Hospital in 2020 (N=36)

No	Variable	Mean	SD	SE	P Value

1	Patients ability of videos treatment group - Before	11,42	4,122	0,687	0,312
	Patients ability of module treatment group - Before	12,25	4,717	0,786	
2	Patients ability of videos treatment group - Before	11,42	4,122	0,687	0,000
	Patients ability of videos treatment group - After	14,08	4,299	0,716	
3	Patients ability of module treatment group - Before	12,25	4,717	0,786	0,033
	Patients ability of module treatment group - After	12,94	3,876	0,646	
4	Patients ability of videos treatment group - After	14,08	4,299	0,716	0,127
	Patients ability of module treatment group - After	12,94	3,876	0,646	

Based on table 5. The results showed that the treatment group (nursing video) there was a difference in the ability to control auditory hallucinations before and after treatment where the difference in scores was 2.66 (Pv 0.000). Meanwhile, the control group (module) also found a difference in scores of the ability to control auditory hallucinations before and after treatment with a difference in scores of 0.69 (Pv 0.033). There is no differences the ability to controll auditory hallucinations between the treatment and control groups after the treatment with P value of 0.127. Although both of groups experienced an increase in Ability Score after being given treatment. These results prove that in the intervention process span of 2 weeks, there has not been a significant change in the patient's ability to control auditory hallucinations.

It can be concluded that the Hallucinations Nursing intervention strategy by video has not been proven to be effective for measure the difference patient's ability to control auditory hallucinations in people with schizophrenia at the Jambi Regional Hospital. This means that the use of video as a learning tool for patients is beneficial in improving the patient's ability but it has not a significant effect compared by the module in controlling auditory hallucinations in people with schizophrenia.

DISCUSSION
The results of this study are contrary to previous studies where psychoeducation can help improve the patient's ability while in this study it was the opposite. Twistiandayani and Widati (2013) found that thought stopping had an effect on the patient's ability to control hallucinations. Thought stopping is a thought-stopping therapy applied in one administration with a duration of 15 minutes and evaluated one week later. The thought stopping technique used is one of the material substances in the video which is taught and watched to the patient and family member to guide the patient in controlling hallucinations. Although this study has not yet provided a real effect, if applied for a longer period of time it is estimated that it can help patients stop bad thoughts which are one of the stressors for patients so that hallucinations occur.

This findings relevant with Chadzynska and Charzynska (2011), that 84% of patients are willing to take psychoeducation to get information and prevent relapse. Maffei et al (2015), the majority (84.9%) of patients found films to be interesting and informative. It means that the patients willingness to learn how to solve their hallucinations problem, it's depending on the media used. Video is a good medium and easy for patients to learn skills how to auditory hallucination controll. The most problem is the patient's ability to remember is limited so that it would be difficult to master the educational material. On the other hand, psychoeducation by means of video will make it easier for patients to practice directly through the visualization in the video. The results of this study are almost similar to Prost E, Musician S, Okello ES, Hopman WM (2013) where there is an increase in general clinical impression between the psychoeducational session group compared to the usual care treatment, but does not show any significant difference. The results of previous studies even though showed almost similar results, but the treatment was different, namely not using video as a treatment.

Based on the results of the study and several previous studies, it was confirmed that psychoeducation using video media by providing additional material in the form of treating auditory hallucinations to the people with schizophrenia. This nursing intervention video is an integral part of nursing interventions with existing care materials. Nurses can use video media in providing patients psychoeducation which has barely worked. Through video media, the patients could watched and practice anytime at home easily. Besides, nurses could practiced of auditory hallucinations nursing care at hospital and patients home easily. This makes it easier for nurses to provide psychoeducation to patients where so far it has barely worked. Besides, the success of nursing services also needs to be supported by the patients families because they were the spearhead of the continuity of mental health services for patients in the family environment. For this reason, active family involvement from the beginning of care needs to be intensified so that the hard efforts and successes that have been carried out by nurses can be continued by the family. This leads to the continuation of the patient's recovery which is expected to last a long time.

CONCLUSION AND RECOMMENDATION

Conclusions
The overall conclusion is that hallucinations nursing interventions using videos are effective in improving the ability of families to help control hallucinations of people with schizophrenia. The conclusions in detail are as follows:
1. There was a difference in the patients ability to control hallucinations before and after treatment by video (Pv 0.000).
2. There was a difference in the scores of the ability to control hallucinations before and after treatment by module in people with schizophrenia (Pv 0.033).
3. The hallucinations nursing intervention strategy by video compared to module was not effective in improving the ability to control auditory hallucinations in people with schizophrenia (PV 0.127).

Recommendations
This research findings make implications in developving mental health nursing services. We have severals suggestions as follows :
1. Mental Health Nursing Services. Nurses at the Jambi Mental Hospital should be able to provide Auditory hallucinations nursing interventions to the people with schizophrenia as

a way to improve mental health nursing care services and additional standards that already exist at the Jambi Regional Mental Hospital.

2. Client's Family. Families of people with schizophrenia with auditory hallucinations are expected to partisipated to help control auditory hallucinations experienced by patients in their home.

3. Nursing Science Development. The Auditory hallucinations nursing intervention video for people with schizophrenia is expected to be used as a reference for lecturers and students in teaching and completing teaching materials for psychiatric nursing courses.

4. Future Nursing Research. This findings became the basis for further research in the form of assessing the effect of auditory hallucinatory nursing intervention videos on the patient's quality of life. This research is also used as the basis for further research in evaluating psychoeducational programs on the Burden and Expression of Emotions and Quality of Life of people with schizophrenia with auditory hallucinations.

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Level of Patient Dependence in Stroke Patients in Fulfilling Daily Activities (ADL)

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ABSTRACT

Stroke causes disruption of daily activities of stroke patients which causes dependence. Efforts are made to fulfill the activities of daily living (ADL). Aimed to family support determine the effect of a caregiver with daily equipment on the level of dependency in stroke patients. The design of this study used a quasi-experimental design with one group pretest-posttest. Respondents were taken by consecutive sampling of 15 respondents in the hospital RSUD A. W Sjahranie Samarinda city inpatient ward. Data were collected with an instrument sheet and questionnaire by Barthel Indeks. Data analysis used test Wilcoxon test. The results showed that there were differences in the level of dependency scores before and after (p = 0,009). The instrument used to measure differences in this study is standard, valid, and reliable Barthel Index. Family support as a caregiver using daily equipment has been proven to affect reducing the level of dependency in stroke patients. Family support as a caregiver with daily equipment can be applied in hospital interventions to reduce the dependence of stroke patients.

Keywords: activities of daily living, barthel index, family caregiving, hemiparesis, stroke disease.

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BACKGROUND

Stroke causes blood-brain disorders due to reduced oxygen and nutrients that are not met in the brain so that within a few minutes it will result in brain death and is an emergency problem so that quick help can minimize brain damage (Mayo Clinic, 2019). Stroke is an important problem in noncommunicable disease (NCD) the second leading cause of death and the third leading cause of disability after myocardial infarction and cancer, accounting for 70% and 87% of deaths and disabilities due to stroke globally (Johnson *et al.*, 2016).

Riskesdas 2008 stated that the incidence of stroke was 10.9 per 1,000 population in Indonesia, which decreased in the previous five years, 12.10 per 1,000 population increased compared to 2007 which was 8.3 per 1,000 population. (Kemenkes, 2018). Ischemic stroke patients who came late (delayed) in Ethiopia in the period 2012 – 2014 (*hospital's admission log books*) who came more than 24 hours resulted in 12% of deaths in the hospital (Gebremariam and Yang, 2016).

Stroke patients cause Hemiparesis or one side (Hemi) weakness (paresis) resulting in 8 out of 10 cases so that weakness or inability to move one side of the body such as affecting the arms, hands, legs, and facial muscles that affect daily activities such as eating, dressing and using the bathroom, so that rehabilitation treatment is needed, home exercises, equipment that can help recovery and mobility (Patterson, 2017). Stroke attacks require help management to avoid increasing length of stay, disability, and death (Gebremariam and Yang, 2016).

Stroke patients with hemiplegia or hemiparesis will experience dependence on ADL so that they need help and if not treated will cause psychological reactions that will indirectly affect the physiological aspects of stroke patients, the impact of depression that arises causes a slowdown in the recovery of

ADL function disability (Guajardo *et al*, 2014; Salter, 2013; Zikic *et al*, 2014). Families as caregivers are required to have a commitment and social role to recognize and carry out care (Plank, Mazzoni and Cavada, 2012).

Based on the above concept, researchers are interested in researching "the influence of family support as a caregiver in fulfilling daily activities will affect the level of dependence of patients who care for stroke patients".

RESEARCH METHOD

This study used a quasi-experimental approach with pre and post-test designs. The population is all patients and their families as caregivers who are treated at A.W Sjahranie Hospital, Samarinda. The sampling technique used consecutive sampling. The selected sample criteria are by the result criteria. The sample size in this study amounted to 15 hemiparetic stroke patients. Inclusion criteria for patients with muscle strength 1-3, patients diagnosed with ischemic stroke based on doctor's diagnosis, awareness of compos mentis and have been treated for 3 days in the hospital and can communicate well. The Barthel index was measured twice in the pre and post-tests carried out on the seventh day of action. The instrument used is the standard used to determine the level of dependence on stroke patients is valid and variable.

This research applies ethical principles and obtains ethical approval from the Ethics Committee of RSUD A Wahab Sjahranie Samarinda Number 140/KEPK-AWS/VII/2019. Data collection was carried out for 3 months (September - November) in the Treatment Room of A Wahab Sjahranie Hospital, Samarinda City, East Kalimantan. The data are presented descriptively. Data were analyzed using the Wilcoxon Signed Rank Test.

RESULTS AND DISCUSSION

The results of the analysis that describe the characteristics of patients based on age, sex, education, and weakness (hemiparesis) can be seen in Table 1

Table 1 Distribution of Respondents: Age, Gender, Education (n = 15)

Patient Characteristics		f (*n*= 15)	Percentage (%)
Age	< 46 – 55 years old	2	20
	46 – 55 years old	10	66,7
	56 – 65 years old	2	13,3
	Total		

Gender	Male	11	73,3
	Woman	4	26,7
	Total		
Education	Elementary School	5	33,2
	Junior high school	1	6,7
	Senior high school	7	46,7
	University	2	13,3
	Total		

Table 1 shows that the average age of most stroke patients is the age range 46-55 years as many as 10 people (66,7 %). The gender of most of the patients is male as many as 11 people (73,3%). The level of education of patients is almost half high school as many as 7 people (46.7%) and elementary school as many as 5 people (33.2%).

Table 2 The difference in the average level of dependence of patients before and after Family Support in Fulfilling ADL (n = 15).

Variable		f	Before (%)	f	After (%)
Level of dependence	Dependency	3	20.0	-	-
	Severe	10	66,7	7	46,7
	Moderate	2	13,3	6	40,0
	Slight	-		2	13,3
	Total				

Table 2 shows that the data on the level of dependence before family support in fulfilling daily activities in stroke patients is mostly the result of a severe dependence score of 10 patients (66,7%). Almost half the results of the severe dependence score for 7 patients (46,7%) and a score of moderate dependence for as many as 6 patients (40.7%) after family support was carried out in fulfilling daily activities.

Table 3 The difference in the average level of dependence of patients before and after Family Support in Fulfilling ADL (n = 15).

Variable		Median	(Min-Max)	SE
Level of dependence	Before	40	(15 – 18)	5,950
	After	50	(28 – 100)	5,414

Based on Table 3 shows the data on the level of patient dependence before family support is carried out in fulfilling daily activities is a score of 40, the lowest score is 15 and the highest score is 80 with a standard error (SE: 5,950) and a score of 50, the lowest score is 28 and the highest is 100 with a standard error (SE: 5,414) after carrying out family support in fulfilling daily activities.

Table 4 The difference in the mean level of dependence before and after Family Support in Fulfilling ADL (n= 15).

Variable	Median Before	Median After	Diff (*d*)	Z	*P*
Level of dependence *	40	50	-20	-2.617	0,009*

* Wilcoxon Signed Rank Test

Based on Table 4 shows the difference between the level of dependence before and after family support is 20 scales. Based on the results of the statistical calculation of the level of dependence, it is known that z count (2.617) > z table (1.96) significant number (p) < 0.05, then there is a significant difference in the level of dependence before and after family support in ADL. Hypothesis testing carried out with the Wilcoxon test (table 4) the level of dependence obtained p value <0.05 (p-value = 0.009) so that Ho is rejected and Ha is accepted, this shows that there is a significant difference in the level of dependence before and after family support is carried out in fulfilling daily activities in stroke patients in the ward. stay at the A. W Sjahranie Hospital, Samarinda City.

DISCUSSION

The results of the statistical test analysis of this study showed a significant difference in this data with a significant number (p) <0.05 level of dependence (p = 0.009) before and after family support exercises. On average, there was an increase in the BI 40 score (SE: 5,950) to the BI 50 score scale (SE: 5,414), this illustrates a decrease in dependence on stroke patients after being given family support in fulfilling daily activities for stroke patients carried out by the family as a caregiver.

The role of the family as a caregiver in the latest concept must support academics to be able to understand sustainable caregiving and family support as a caregiver, but also inform policymakers, service providers, and caring families on how to apply scientific findings to daily family needs (Gaugler and Kane, 2015).

The design of this research is families as caregivers for stroke patients, they are taught about basic daily needs, namely equipment for brushing teeth, wearing clothes/clothes, combing hair equipment, using the telephone, and using eating and drinking utensils and given leaflets on how to do it. Qualitative research in California that the need for the needs given to the family as a caregiver in caring for stroke patients in inpatient facilities, among others: to improve communication, support, and effective caregiver education (Camicia *et al.*, 2019).

The family as a caregiver has a role during a stroke crisis, based on an analysis of nursing facilities the role of staff in the room must be able to make communication, support, and education to caregivers so that it will have an impact on decreasing the level of ADL

dependence such as physical movement, personal hygiene support for stroke patients (Hesamzadeh *et al.*, 2017; Sato, Fujita and Yamamoto, 2017; Camicia *et al.*, 2019).

The psychological response of stroke patients experiences physical disturbances such as hemiparesis and or disruption of daily activities, this condition makes the patient unable to carry out activities and play a role as before resulting in low activity and lack of support which has the potential to cause a burden that leads to stress (Adientya and Handayani, 2012). Increased stress is associated with poor physical and mental health (Burns and Machin, 2013). This will affect the patient's recovery process and affect the level of dependence during treatment.

Support for families as caregivers has an important role that can help in the level of dependence of stroke patients by providing an overview with 7 strategies carried out by physical movements, personal hygiene support, nutrition, religious activities, filling spare time, facilitating transfers in financial matters (Hesamzadeh *et al.*, 2017).

Based on table 2 data the score of the level of dependence at the beginning before being given support, most 10 patients (66.7%) experienced a level of severe dependence, and after being given family support showed a decrease in the level of dependence after the intervention of almost half 6 patients (46,7%). Family members will usually be the caregivers to provide most of the long-term care (Kane and Ouellette, 2011).

According to the treatment procedure at AWS Sjahranie Hospital, researchers observed that ischemic stroke patients were given citicoline which affected the patient's recovery process. Citicoline is efficient and has a therapeutic effect on acute ischemic stroke and long-term administration is safe and effective, enhancing cognitive and functional recovery by enhancing endogenous mechanisms of neurogenesis and neuro repair that contribute to physical therapy and rehabilitation (Sabín and Román, 2013).

Psychological response in patients with physical disturbances who experience hemiparesis of stroke and disruption of daily activities. The condition of the patient when experiencing hemiparesis makes the patient unable to carry out activities and play a role as before, resulting in a lack of activity and lack of support which has the potential to cause a burden that leads to stress (Adientya and Handayani, 2012). Increased stress is associated with poor physical and mental health (Burns and Machin, 2013).

Family experience as a caregiver caring for stroke patients is a challenge as emotional, fear, and physical, but the importance of positive behavior is support for stroke patients that can affect the patient's physical condition (Sullivan and Miller, 2015; Alifudin and Ediati, 2019). Caregivers provide services that can provide satisfying results for loved ones when they are full of love because they are always together (Sullivan and Miller, 2015). Research in Iran supports the importance of family-centered empowerment programs that provide ADL capabilities will improve the quality of life of stroke patients (Deyhoul *et al.*, 2019).

CONCLUSION AND RECOMMENDATION

Family support in daily activities (ADL) must be carried out according to procedures, and repetitions that can be used as nursing interventions in reducing dependency levels. The need for understanding and family support for patients affects the recovery process of stroke patients. This action can be applied as a nursing intervention in a hospital.

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FACTORS WHICH INFLUENCE OCCURRENCE OF HYPERTENSION IN HYPERTENSIVE PATIENTS IN THE WORKING AREA OF THE PUSKESMAS TENGGILIS SURABAYA

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ABSTRACT
Hypertension is the third largest disease that can cause premature death. Hypertension can cause complications such as heart disease, blood vessels, or rupture of blood vessels in the brain. Hypertension occurs because it is influenced by two factors, namely factors that cannot be modified and factors that can be modified. Factors that cannot be modified include age, gender, genetics. While the modifiable factors include diet, obesity, smoking, coffee consumption habits, physical activity, and stress. The purpose of this study is to find out the factors that affect the occurrence of hypertension in hypertensive patients in the Working Area of the Puskesmas Tenggilis Surabaya.

This type of research is descriptive research. The sample was taken using purposive sampling technique with a sample number of 134 respondents. The data was obtained through the dissemination of questionnaires to respondents.

Based on the results of the study, almost half of hypertensive patients aged 56-65 years were 44 people (33%), most of them were female as many as 83 people (62%), most of them had a family history of hypertension as many as 79 people (59%), most hypertensive patients do not often consume salty foods as many as 69 people (51%), most often consume fatty foods as many as 76 people (57%), most of them are not obese as many as 90 people (67%), almost all hypertensive patients do not smoke as many as 110 people (82%), almost all hypertensive patients do not often consume coffee as many as 107 people (80%), most hypertension patients do not exercise regularly as many as 87 people (65%), and most of them experience stress as many as 89 people (66%).

Hypertension is a disease that generally does not cause symptoms. Hypertension can be prevented through a healthy lifestyle, dietary changes, and risk factor control. By knowing the risk factors for hypertension, it is hoped that hypertensive patients can change their lifestyle by reducing salt and fat intake, losing excess weight, reducing smoking and drinking coffee habits, and exercising regularly so that it can reduce the incidence of hypertension.
Keywords: Hypertension, Hypertension Risk Factor

BACKGROUND

Hypertension is a non-communicable disease with a high prevalence rate and continues to increase. Hypertension is the third largest disease that can cause premature death. Hypertension generally does not cause symptoms so that many hypertensive patients are not aware of their condition. A person only finds out about his condition when hypertension causes death due to complications in the heart, blockage of blood vessels, or rupture of blood vessels in the brain (Wahyuningsih, et al, 2013).

According to the results of the 2018 Basic Health Research (Riskesdas) measurement, the population with hypertension in Indonesia is 34.11%, with male characteristics 31.34% and female 36.85%. Based on the results of Riskesdas 2018, the prevalence of people with high blood pressure (hypertension) in East Java Province was 36.32% (Riskesdas Team, 2019).

The Health Profile of East Java Province in 2018 states that the number of people with hypertension in Surabaya is 26.21% or as many as 313,960 residents, with the proportion of men being 17.62% or 69,804 residents and women being 15.72% or 103,962 residents (Dinas Kesehatan Provinsi Jawa Timur, 2018). Meanwhile, the Health Profile of East Java Province in 2020 states that the number of hypertensive patients in Surabaya has increased, namely 724,582 hypertensive patients, of which 354,952 are male patients and 369,630 are female patients (Dinas Kesehatan Provinsi Jawa Timur, 2021).

Hypertension occurs because it is influenced by several factors. Factors that can influence the occurrence of hypertension are divided into two groups, namely factors that cannot be modified and factors that can be modified. Factors that influence the occurrence of hypertension include age, gender, genetics, diet, obesity, smoking, coffee consumption habits, physical activity, and stress (Sinubu R.B., 2015).

Age affects the occurrence of hypertension caused by changes in the structure of blood vessels such as narrowing of the lumen, hardening of the walls of blood vessels, and a decrease in elasticity which causes an increase in blood pressure (Yanita, 2017). Gender also affects the occurrence of hypertension. Men are more at risk of developing hypertension. A person who has a family history of hypertension has a two times greater risk of developing hypertension than people who do not have a family history of hypertension (Situmorang, 2015).

The wrong diet can also cause hypertension. Someone who consumes salt continuously, there will be an increase in blood pressure due to excess sodium in the body (Triyanto, 2014). Excess fat intake can cause fat levels in the body to increase, especially cholesterol which causes weight gain so that blood volume experiences a greater increase in pressure.

Obesity can also increase the incidence of hypertension. The greater the body mass of a person, the more blood is needed to provide oxygen and nourishment to the body's tissues. This is because fat can clog blood vessels so that it can increase blood pressure (Nurhidayat, 2015).

Smoking can increase blood pressure because cigarettes contain nicotine. Nicotine will trigger the adrenal glands to release adrenaline, causing blood vessels to narrow and blood pressure to increase (Nurhidayat, 2015). A person who smokes more than one pack per day is twice as likely to suffer from hypertension as a person who does not smoke.

According to Ayu Martiani, et al (2012), the habit of drinking coffee can increase the risk of hypertension. A person who drinks more than four cups of coffee a day can increase systolic blood pressure by about 10 mmHg and diastolic blood pressure by about 8 mmHg (Nurhidayat, 2015). Lack of physical activity can also cause a person to be obese and increase the risk of hypertension. Someone who does not do physical activity has a 1.57 times risk of suffering from hypertension compared to someone who does physical activity (Rini Anggraeny, 2014).

Hypertension can be prevented through a healthy lifestyle, dietary changes, and risk factor control. People can take actions such as changing their lifestyle. Lifestyle changes can be achieved by losing excess weight, reducing sodium intake, especially salt intake, reducing fat intake, stopping or reducing smoking and drinking coffee habits, and exercising at least twice a week (Pusdatin Kemenkes, 2015).

Based on the description of the background above, the authors are interested in conducting research on the factors that influence the occurrence of hypertension in hypertensive patients in the working area of the Tenggilis Health Center Surabaya.

RESEARCH METHODS

This research is a descriptive research design. The population in this study were hypertensive patients who came to visit the Tenggilis Health Center Surabaya for treatment. Samples were taken using purposive sampling technique with a total sample of 134 respondents. The variables in this study are factors that cannot be modified and factors that can be modified. These factors include age, gender, family history (genetic), diet, obesity, smoking, coffee consumption habits, physical activity, and stress.

Data was obtained through distributing questionnaires to respondents. Respondents were asked to fill out a questionnaire containing statements that match the characteristics of the respondents based on the risk factors for hypertension. After all the data has been collected, then data processing is carried out by re-checking the completeness of the questionnaire that has been filled out by the respondent.

RESULT AND DISCUSSION

Characteristics of Respondents

Table 4.1 Frequency Distribution of Hypertension Patient Characteristics in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Characteristics	Frequency	Persentage (%)
Education		
Did not finish elementary school/equivalent	7	5%
Graduated from Elementary School/Equivalent	25	19%
Graduated from Junior High School/Equivalent	26	19%
High School Graduate/equivalent	48	36%
Graduated Bachelor/Diploma	28	21%
Total	**134**	**100%**
Profession		
Civil servant	9	7%
Private Employees	29	22%
Self Employed	23	17%
Pensioners	18	13%
Housewife	45	34%
Did Not Work	10	7%
Total	**134**	**100%**

Characteristics	Frequency	Persentage (%)
Blood Pressure		
Normal	39	29%
High Normal	28	21%
Grade 1 Hypertension	52	39%
Grade 2 Hypertension	15	11%
Grade 3 Hypertension	0	0%
Total	**134**	**100%**
Long Time Suffering		
1-5 years	101	75%
6-10 years	28	21%
> 10 years	5	4%
Total	**134**	**100%**
Drugs Consumed		
Amlodipin	93	70%
Candesartan	26	19%
Catropil	15	11%
Total	**134**	**100%**

Based on table 4.1 shows that almost half of hypertension patients with high school education totaled 48 patients (36%), a small proportion of hypertensive patients with Bachelor/Diploma education amounted to 28 patients (21%), junior high school education totaled 26 patients (19%), elementary school totaled 25 patients (19 %), and did not finish elementary school as many as 7 patients (5%).

Based on table 4.1 shows that almost half of hypertensive patients are housewives totaling 45 patients (34%), a small proportion of hypertensive patients working as private employees totaling 29 patients (22%), self-employed totaling 23 patients (17%), pensioners totaling 18 patients (13%), civil servants amounted to 9 patients (7%) and 10 patients did not work (7%).

Based on table 4.1, it shows that almost half of hypertensive patients have blood pressure in the grade 1 hypertension group totaling 52 patients (39%) and the normal group totaling 39 patients (29%), a small proportion of hypertensive patients have blood pressure in the high normal group totaling 28 patients (21%) and 15 patients in the grade 2 hypertension group (11%), and none of the hypertensive patients had blood pressure in the grade 3 hypertension group with 0 patients (0%).

Based on table 4.1 shows that almost all hypertensive patients with hypertension for 1-5 years amounted to 101 patients (75%), and a small proportion of hypertensive patients with hypertension for 5-10 years totaled 28 patients (21%) and long time suffering from hypertension > 10 years amounted to 5 patients (4%).

Based on table 4.1, it shows that the majority of hypertensive patients taking medicine amlodipine amount 93 patients (70%), and a small proportion of hypertensive patients taking medicine candesartan amount 26 patients (19%) and taking medicine catropil amount 15 patients (11%).

a.   **Factors that cannot be modified**

Table 4.2 Frequency Distribution of unmodifiable Factors in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Factors that cannot be modified	Frequency	Persentage (%)

Age		
26-35 years old	4	3%
36-45 years old	16	12%
46-55 years old	31	23%
56-65 years old	44	33%
> 65 years old	39	29%
Total	**134**	**100%**
Gender		
Male	51	38%
Female	83	62%
Total	**134**	**100%**
Family History		
Have a family history	79	59%
Do not have family history	55	41%
Total	**134**	**100%**

1) Age

The results of this study indicate that almost half of hypertensive patients are aged 56-65 years and a small proportion of hypertensive patients are aged 26-35 years. This study is in line with the results of research conducted by Aris Sugiharto, where the age group of 56-65 years has a 4.76 times greater risk of developing hypertension when compared to the age of 25-35 years. Sugiharto (2007) stated that age has a significant relationship with the incidence of hypertension and is one of the risk factors for hypertension that cannot be modified. The older a person is, the more at risk of developing hypertension. This research is also supported by research conducted by Indrawati, Wedhasari, and Yudi (2009) that age is the risk factor that has the highest influence on the incidence of hypertension.

2) Gender

The results of this study indicate that the majority of hypertensive patients are female and almost half of hypertensive patients are male. This study is in line with research conducted by Sugiri which states that the prevalence of hypertension in women is higher than in men, where the prevalence rate is 6% in men and 11% in women. This study is also supported by the report Riskesdas (2013) which states that the prevalence of hypertension is dominated by women. According to researchers, men tend to suffer from hypertension more than women because men are thought to have an unhealthy lifestyle such as smoking habits that can increase blood pressure. However, the prevalence of hypertension in women increases after

entering menopause. Women who have menopause will experience hormonal changes so that blood pressure increases.

3) Family History

The results of this study indicate that most hypertensive patients have a family history of hypertension and almost half of hypertensive patients do not have a family history of hypertension. According to Nuraini (2015), the presence of genetic factors in the family causes the family to have a risk of developing hypertension. A person who has a family history of hypertension has a two-fold greater risk of developing hypertension than someone who does not have a family history of hypertension. If both parents suffer from hypertension, then 45% will be passed on to their children. Meanwhile, if only one of the parents suffers from hypertension, then 30% of the hypertension genes will be passed on to their children (Ekowati et al, 2013).

The results of this study are in line with research conducted by Abdul Hanif (2010) in the Binjai and Medan Regions that 50% of hypertensive patients are because they have descendants from their parents who suffer from hypertension. This study is also supported by the theory of Triyanto (2014) that 60% of hypertension patients are influenced by heredity. The results of this study are also in line with the research of Musfirah & Masriadi (2019) which showed that there was a significant relationship between family history and the incidence of hypertension. A person who has a family history of hypertension is 5.5 times more likely to have hypertension.

b. Factors that can be modified
   1) Eating Patterns
   Table 4.3 Distribution of the Frequency of Eating Patterns in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Eating Patterns	Frequency	Persentage (%)
Salt Intake		
Often	65	49%
Not Often	69	51%
Total	**134**	**100%**
Fat Intake		
Often	76	57%
Not Often	58	43%
Total	**134**	**100%**

The results of this study indicate that most hypertensive patients do not often consume salty foods and almost half of hypertensive patients often consume salty foods. This study is in line with research conducted by Mustamin (2010) at the Bojo Baru Health Center, Barru Regency which stated that there was no significant relationship between salt consumption and the incidence of hypertension. The results of this study also have similarities with research conducted by Rahajeng (2009) that consuming salty food is not a risk factor for the incidence of hypertension in Indonesia (OR=0.99).

This study states that there is a slight difference between hypertensive patients who often consume salty foods and those who do not often consume salty foods. This is because some patients realize that the habit of consuming salty foods is a risk factor for hypertension, so patients begin to reduce salt intake so as not to further increase their blood pressure. The results of this study indicate that most hypertensive patients often consume fatty foods and almost half of hypertensive patients do not often consume fatty foods.

The habit of consuming saturated fat is closely related to increasing body weight which is at risk for hypertension. Consumption of saturated fat also increases the risk of atherosclerosis, which is associated with increased blood pressure. This study is in line with research conducted by Margaret M. Harris, et al., that people who have a habit of consuming saturated fat will be at risk of developing hypertension 7.72 times compared to people who do not usually consume saturated fat. This study is also strengthened by research conducted by Aris Sugiharto (2007) which states that frequent consumption of saturated fat, which is 3 times a week, is proven as a risk factor that affects the incidence of hypertension (p=0.024, adjusted OR=7.72 and 95%. CI=2.45-24.38).

2) Obesity

Table 4.4 Distribution of Obesity Frequency in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

IMT Category	Frequency	Persentage (%)
Obesity	44	33%
Not Obese	90	67%
Total	**134**	**100%**

The results of this study indicate that most hypertensive patients are not obese and almost half of hypertensive patients are obese. This study is in line with research conducted by Filita Pratiwi (2014) in Tomohon Tengah District, Tomohon City that obesity does not have a significant relationship with the incidence of hypertension. This research is also in line with research conducted by Khoirunnisa (2019) which states that there is no relationship between body mass index and blood pressure. Likewise, Yezika's research (2017) states that there is no relationship between body mass index and blood pressure. The absence of a significant relationship between body mass index and blood pressure in this study may be due to the patient having maintained his diet so that he does not become obese.

3) Smoking

Table 4.5 Frequency Distribution of Smoking Habits in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Smoking Habits	Frequency	Persentage (%)
Smoking Activities		
Smoke	24	18%
Do not smoke	110	82%
Total	**134**	**100%**
The habit of smoking a number of cigarettes		
Habitual	8	6%
Not accustomed to	126	94%
Total	**134**	**100%**
Family Member Smoking		
Have a family members smokes	79	59%
Do not have family members smoke	55	41%
Total	**134**	**100%**
Exposed to Cigarette Smoke		
Often		
Not Often	72	54%
	62	46%
Total	**134**	**100%**

The results of this study indicate that almost all hypertensive patients do not smoke and a small proportion of hypertensive patients smoke. Most hypertensive patients have family members who smoke and almost all hypertensive patients are often exposed to cigarette smoke.

The results of this study are in line with research conducted by Yuliana (2013) with the title of the relationship between lifestyle and the incidence of hypertension in young adults in Pondok Village, Nguter District, Sukoharjo Regency that based on the Chi square test results obtained p value = 0.747, so it can be concluded that there is no there is a relationship between smoking habits and the incidence of hypertension in Pondok Village. This is evidenced by the number of respondents in the case group who smoked less than those who did not smoke. This is because there are more women in the case group and control group.

The results of this study are also supported by research by Waenly (2019) which shows that there is no significant relationship between smoking habits and the incidence of hypertension (p value= 1,000). Research by Suprihatin also proves that smoking has no relationship with the incidence of hypertension in the Nguter Public Health Center Surakarta (p=0.603).

Most of the hypertensive patients in this study did not smoke. This is because the majority of hypertensive patients are dominated by women and non-smokers, while only a few male patients smoke. However, smoking is a risk factor for the incidence of hypertension. This is evidenced by the average hypertension patient has family members who smoke and are often exposed to cigarette smoke so that they can be categorized as passive smokers.

4) Coffee Consuming Habits

Table 4.6 Frequency Distribution of Coffee Consuming Habits in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Coffee Consuming Habits	Frequency	Persentage (%)
Often	27	20%
Not Often	107	80%
Total	**134**	**100%**

The results of this study indicate that almost all hypertensive patients do not often consume coffee and a small proportion of hypertensive patients often consume coffee. This study is in line with research conducted by Budi (2021) which states that there is no significant relationship between coffee consumption habits and the incidence of hypertension (p>0.05). This research is also reinforced by the results of research from Mullo, et al (2018) with the title "The Relationship between Coffee Drinking Habits and Hypertension Incidence in the Work Area of the Paniki Bawah Public Health Center Manado City" which states that there is no significant relationship between coffee consumption and hypertension (p=0.380) because coffee consumption has not been shown to increase the risk of hypertension.

This is because the average person who has the habit of drinking coffee is male. While in this study, hypertension patients were dominated by women and not many like to consume coffee. This is evidenced by the results of research showing that almost all hypertensive patients do not often consume coffee because most hypertensive patients are female.

5) Physical Activity

Table 4.7 Distribution of Physical Activity Frequency in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Physical Activity	Frequency	Persentage (%)
Sports Habits		
Routine	47	35%
Not a routine	87	65%
Total	**134**	**100%**
Sport Duration		
Ideal	55	41%
Not ideal	79	59%
Total	**134**	**100%**

The results of this study indicate that most hypertensive patients do not exercise regularly with the ideal duration of time and almost half of hypertensive patients routinely exercise with the ideal duration of time. Physical activity greatly affects the stability of blood pressure. Lack of physical activity can increase the risk of obesity thereby increasing the incidence of hypertension. Someone who is not active tend to have a faster heart rate. This causes the heart muscle to have to work harder with each contraction, the harder and often the heart has to pump, the greater the force pushing against the arteries (Bianti Nuraini, 2015). A person is recommended to regularly do exercise with a time of 3 times/week with an ideal duration of 30 minutes/day.

The results of this study are in line with research conducted by Aris Sugiharto that people who do not usually exercise have a risk of developing hypertension by 4.73 times compared to people who have ideal exercise habits and people who usually do exercise with non-ideal times have a risk of developing hypertension by 3,46 times compared to people who have ideal exercise habits. Hernelahti M, Kujala UM, Kaprio J, et.al. also stated that someone who did not usually exercise would increase the risk of developing hypertension by 2.33 times compared to someone who used to exercise.

6) Stress

Table 4.8 Distribution of Stress Frequency in Hypertensive Patients in the Working Area of the Puskesmas Tenggilis Surabaya in March-May 2022

Stress Category	Frequency	Persentage (%)

Stress	89	66%
No Stress	45	34%
Total	**134**	**100%**

The results of this study indicate that most hypertensive patients experience stress and almost half of hypertensive patients do not experience stress. Stress is a common condition experienced by humans. However, excessive stress levels will have an effect on increasing blood pressure (AHA, 2014). The adrenaline hormone that increases when stressed results in the process of pumping blood carried out by the heart. The heart will pump blood faster, causing an increase in blood pressure (Nuraini, 2015). People who experience stress have 2.52 times greater risk of developing hypertension (Bhelkar et al., 2018).

This study is in line with research conducted by Dinda (2020) which states that there is a significant relationship between a history of stress and the incidence of hypertension. Respondents who have a history of stress have a 3,971 times greater risk of experiencing hypertension compared to respondents who do not have a history of stress. This study is also relevant to research conducted by Mayasari, Waluyo, Jumaiyah, & Azzam (2019) which showed that there was a significant relationship between stress and the incidence of hypertension.

CONCLUSION

Based on research on the factors that influence the occurrence of hypertension in hypertension patients in the working area of the Tenggilis Public Health Center Surabaya, it can be concluded as follows:

a. **Factors that cannot be modified**
   1. Almost half of hypertensive patients are aged 56-65 years.
   2. Most hypertensive patients are female.
   3. Most hypertensive patients have a family history of hypertension.

b. **Factors that can be modified**
   1. Most hypertensive patients do not often consume salty foods but often consume fatty foods.
   2. Most hypertensive patients are not obese.
   3. Almost all hypertensive patients do not smoke and are not accustomed to smoking more than two packs of cigarettes per day, most hypertensive patients have family members who smoke, and almost all hypertensive patients are often exposed to cigarette smoke.
   4. Almost all hypertensive patients do not often consume coffee.
   5. Most hypertensive patients do not exercise regularly and do not exercise with the ideal duration of time.
   6. Most hypertensive patients experience stress.

RECOMMENDATION

Based on the results of research and discussion of the factors that influence the occurrence of hypertension, the researchers can provide the following suggestions:

1. For Sufferers and Families

   It is hoped that hypertensive patients and their families will always have a healthy lifestyle by controlling their diet, reducing salt and saturated fat consumption, reducing

smoking habits, maintaining weight by exercising regularly, and carrying out routine care and treatment.
2. For Research Place
It is hoped that the research site will further improve health services related to hypertension prevention such as routine blood pressure checks.
3. For Researchers
Given the existence of other risk factors that can cause hypertension such as alcohol consumption and others, it is hoped that further research will examine other risk factors as factors that cause hypertension.

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The relationship between sedentary life and diet with obesity incidence in adolescent at Wachid Hasyim High School 2 Taman Sidoarjo

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ABSTRACT
Obesity is a problem that is quite troubling among adolescents (Proverawati, 2010 in Wulandari, et al, 2017). Obese adolescents throughout their lives have a higher risk of suffering from a number of serious health problems such as hypertension, cardiovascular disease, diabetes mellitus, cancer, osteoporosis, stroke, and others that have implications for reducing productivity and life expectancy (Ministry of Health RI, 2018). Factors causing obesity in adolescents are suspected to come from the adolescent diet, including not always having breakfast (65.2%), lack of consumption of vegetable and fruit fiber (93.6%) and frequent consumption of flavorful foods (75.7%), consuming large portions of food, eating high energy, high fat, high simple carbohydrates and low fiber, do less physical activity (42.5%). This study aims to analyze the relationship between sedentary lifestyle and diet with the incidence of obesity in adolescents at Wachid Hasyim 2 Taman Sidoarjo High School. This study is with a cross-sectional design, a large sample of 108 students taken by simple random sampling, data analysis using fisher exact test with a $\alpha = 0.05$. The results showed that there was no relationship between sedentary lifestyle and obesity ($p = 0,468$), there was no relationship between diet and obesity ($p = 0.479$). It is recommended that students can balance by doing physical activities that expend a lot of energy and maintain a healthy diet and the school can carry out health promotion in the form of posters or banners about sedentary lifestyle and diet.

Keywords: sedentary life, diet , obesity

BACKGROUND
The World Health Organization (WHO) says the childhood and adolescent obesity epidemic can no longer be underestimated. The latest data states that over a period of 40 years the population of children and adolescents in the world who are obese has increased 10 times from 11 million to 120 million (Ezzati M, 2017).   Obesity or commonly known as overweight is a problem that is quite troubling among adolescents (Wulandari, S. et al, 2017). Obese adolescents throughout their lives have a higher risk of suffering from a number of serious health problems such as hypertension, cardiovascular disease, diabetes mellitus, cancer, osteoporosis, stroke, and others that have implications for reducing productivity and life expectancy.   Obesity in adolescents also has an impact on the mental health of adolescents Obese adolescents can also experience stigmatization, poor body image, and low self-esteem further increasing their susceptibility to depression. . About 80% of obese adolescents with psychiatric and psychosocial problems are likely to continue to experience mental disorders into adulthood.

Some studies have found a link between obesity and mental health problems, such as depression, suicidal ideation, and suicide attempts, anxiety, behavioral problems, low self-esteem, and poor self-image . Obese adolescents can also experience stigmatization, poor body image, and low self-esteem further increasing their susceptibility to depression. The prevalence of obesity (Body Mass Index or BMI ≥ 25 - 27) in Indonesia based on SIRKESNAS data in 2016, was 33.5%. In obese adolescents, the prevalence was higher in women by 41.4% when compared to men by 24.0%. In East Java in 2018 the prevalence of obesity increased by 16% or as many as 1,163,118 population. In adolescents aged 13-15 years by 6.0%, in adolescents aged 16-18 years by 5.1% (Ministry of Health, RI. 2018). According to the health profile of the City of Surabaya in 2016, when weight measurements were taken for obesity examination, it was found that there were 3.58% of obese people. In 2017 it experienced an increase of 24.02%. In 2018, those affected by obesity in adolescents and adults were 15.51% or as many as 163,036 with male proprosy of 56,656 people 14.65% and women as many as 106,380 people 16.01% (Ministry of Health RI, 2016). In Sidoarjo Regency in 2017 the prevalence of obesity in adolescents and adults was 7.49% or as many as 37,089 population with a proportion of men of 5.9% or as many as 11,878 residents and women as much as 8.57% or as many as 25,211 residents (Sidoarjo Health Office, 2017). In 2018 the prevalence of obesity in adolescents and adults in Sidoarjo Regency increased by 37.80% or as many as 98,442 population with a proportion of men of 12.29% or as many as 31,752 residents, and women as much as 17.11% or as many as 66,870 residents (Sidoarjo Health Office, 2018). Based on data from the Global School Health Survey in 2015, it is stated that the main causes of obesity in adolescents include not always having breakfast (65.2%), most adolescents consume less fruit vegetable fiber (93.6%) and often consume delicious foods (75.7%). In addition, adolescents also tend to apply sedentary life patterns, resulting in less physical activity (42.5%) . Diet is an arrangement of the type and amount of food consumed by a person or group of people at a certain time consisting of the frequency of eating, the type of food and the portion of food (Tussakinah, Masrul, & Burhan, 2018). The diet that is the trigger for obesity is consuming large portions of food (exceeding the needs), eating high energy, high fat, high in simple carbohydrates and low in fiber. The impact of obesity is quite widespread on various degenerative chronic diseases such as hypertension, coronary heart disease, stroke, cancer and type 2 diabetes mellitus as well as bone disorders. Due to the many diseases that can be caused by obesity so that the morbidity and mortality rate of obese people is quite high (Siedel & Vischer, 2009 in Masrul, 2018). In addition, adolescents also tend to apply sedentary life patterns so that they do less physical activity (42.5%). (https://indonesiabaik.id/infografis/obesitas-ancam-remaja). Sedentary lifestyle is an activity related to energy expenditure ≤1.5 metabolic equivalents (METs), such as sitting, lying down/ lying down, watching television, playing games, playing laptops and gagdet (Mandriyarini, 2017). This study aims to analyze the relationship between sedentary lifestyle and diet with the incidence of obesity in adolescents at Wachid Hasyim 2 Taman Sidoarjo High School.

RESEARCH METHODS
The method used in this study was an analytical observational study that analyzed the relationship of life habits (sedentary lifestyle) and diet with the incidence of obesity in adolescents at Wachid Hasyim 2 Taman High School.The study population was intensive students of Wachid Hasyim 2 Taman Sidoarjo High School with a total of 150 students, and the research sample was some of the intensive students of Wachid Hasyim 2 Taman Sidoarjo High School totaling 108 people. The sampling technique uses a simple random sampling technique, which is a sampling technique based on the opportunity to be selected or not

selected as a sample (Nursalam, 2017 in Mukamala, 2019). Data collection online through google form using questionnaires that have previously been carried out validity   y   tests and reliability tests. Data analysis using chi square test to determine the relationship between variables (Hastono, 2016)

RESULTS

The results showed that of the 108 adolescent intensive students of Wachid Hasyim 2 Taman High School, there were 15 students (15%) aged 15 years, 42 students (39%) aged 16 years, and 17 students (51%) aged 17 years.   The gender of adolescents of intensive students of SMA Wachid Hasyim 2 Taman Sidoarjo shows that as many as 27 teenagers (25%) are male and 81 teenagers (75%) are female.

Tabel 1 : Age, Gender of Teenagers at Wachid Hasyim High School 2 Taman Sidoarjo.for the period of May 2021

Characteristic	Sum (n)	Percentage (%)	Total Amount	Total Percentage
Age				
15 years old	15	14		
16 years old	42	39	108	100
17 years old	51	47		
Sex				
Male	27	25		
Female	81	75	108	100

Sedentary lifestyle, diet and incidence of obesity in adolescents at SMA Wachid Hasyim 2 Taman Sidoarjo

The results showed that 44 adolescents or less than half (41%) had a high (sedentary lifestyle) and 64 adolescents or more than half (59%) had a low (sedentary lifestyle). . The results of the study on diet showed that more than half (61%) of respondents had a healthy diet and less than half (42%) had an unhealthy diet. The results of a study on the incidence of obesity showed that 8 adolescents or a small part (7%) experienced obesity events and 100 adolescents or almost all (93%) did not experience obesity events.

Furthermore, data on sedentary lifestyle, diet and obesity incidence can be seen in the following table:

Table 2: Sedentary lifestyle, diet and incidence of obesity in adolescents at Wachid Hasyim High School 2 Taman Sidoarjo for the period of May 2021.

Characteristic	Sum (n)	Persentage (%)	Total Amount	Percentage
Sedentary lifestyle				
High	44	41		
Low	64	59	108	100
Eating Patern				
Healthy	66	61		
Unhealthy	42	39	108	100
Incidence of Obesity				
Obesity	8	7		
Non Obesity	100	93	108	100

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The relationship of sedentary lifestyle with obesity.

Table 3. The Relationship between Sedentary lifestyle and obesity incidence in adolescents at Wachid Hasyim High School 2 Taman Sidoarjo for the period of May 2021.

Sedentary lifestyle	Obesity incidence				Total	
	Obesity		Non Obesity			
	F	%	F	%	F	%
High	2	4.5	42	95.5	44	100
Low	6	9.4	58	90.6	64	100
Total	8	7.4	100	92.6	108	100
Fisher exact test	p= .468					

The results of the fisher exact test obtained the number $p = 0.468$ ($p > 0.05$), meaning that there was no significant relationship between life habits (Sedentary Lifestyle) and the incidence of obesity in adolescents at SMA Wachid Hasyim 2 Taman Sidoarjo.

Relationship of diet with the incidence of obesity

Table 4. The Relationship between Diet and obesity incidence in adolescents at Wachid Hasyim High School 2 Taman Sidoarjo for the period of May 2021.

Diet	Obesity				Total	
	Obesity		Non Obesity			
	F	%	F	%	F	%
Healthy	6	9.1	60	90.9	66	100
Unhealthy	2	4.8	40	95.2	42	100
Total	8	7.4	100	92.6	108	100
Fisher exact test	p=.479					

The results of the fisher exact test obtained the number p= 0.479 (p > 0.05), meaning that there was no significant relationship between diet and the incidence of obesity in adolescents at SMA Wachid Hasyim 2 Taman Sidoarjo.

DISCUSSION

Sedentary lifestyle

The results showed that less than half (41%) of teenagers of Wachid Hasyim 2 Taman Sidoarjo High School have a high sedentary lifestyle. The results of this study are not much different from the results of a study conducted by Boulhana A, et al, which showed that 40.4% of adolescents had sedentary behaviors (Boulhana, A, Anarghou,H, Ihbour,S, Najimi,M, &Chigr,F, 2021). Research conducted by Nascente, et al showed different results where 66.8% of schoolchildren had sedentarylife behavior (Nascente, et al, 2016) . In modern times today most individuals facilitate themselves with various electronic devices such as cellphones (gagdet) and computers / laptops both adults and teenagers. These facilities are used to access the internet and social media which results in low energy because in general playing gagdet is done without moving other limbs besides fingers. The above activities are light activities that are at risk of causing obesity. Obesity is the accumulation of fat that occurs in a person's body excessively or is said to be with a body weight that exceeds normal limits (Fajanah, 2018). Sedentary lifestyle causes excess calories and fat accumulation in the body. The maintenance of body weight depends on the number of calories absorbed through food, physical activity and metabolism. a person with such behavior can store a lot of calories and expend only a little energy, causing obesity. Frazier RS (2021) stated that there are eight (8) signs felt in the body due to sedentary life, namely: experiencing general health problems, being lazy to move for more than half an hour, always feeling tired, changes in body weight and body metabolism, feeling confused, sleep quality disorders and mental health disorders.

The results of this study show that adolescents most often do sedentary lifestyle is playing gagdet and the habit of lying down / lying down in bed. based on a study, the use of gagdet is associated with low physical activity and high body mass index. This is due to the low energy because in general playing gagdet is done without moving other limbs besides fingers. Teenagers perform these behaviors in a sitting position, sometimes most teenagers do them in a lying down position, so that the energy released is lower. If the condition persists

continuously, it can be at risk of causing obesity. Therefore, adolescents must balance physical activities that require a lot of energy such as exercise, cleaning the house, reducing sitting leisurely activities, lying down to create energy balance in the body and launch the fat oxidation process so as to reduce the chances of obesity.

Diet

The results of this study found that less than half of 42 adolescents (39%) had an unhealthy diet. Dietary measurements are categorized into 3 groups, namely percentage data on each component, namely the eating menu (50%), frequency of meals (20%), portions of food (30%). In the frequency component of eating, namely the statement about "Eat 3 times a day (excluding interlude foods)" more than half of adolescents (51%) gave the answer "sometimes". The frequency of meals is how many meals a day (3 times) namely breakfast, lunch and dinner (Ministry of Health RI, 2014). Research on the diet of adolescents in schools in Ghana showed results that were no different from the results of this study, namely that 57% of students did not eat breakfast before going to school and as many as 50% of students were irregular in consuming vegetables and fruits. (Hormenu, 2022). Healthy diets recommended for adolescents include: eat 3 times a day plus healthy snacks, increase protein consumption and reduce fat in the diet, increase consumption of vegetables and fruits, reduce salt and drinks containing high sugar levels, increase consumption of water to prevent dehydration, According to Meilan, Maryanah and Follona (2018) the impact of an unhealthy diet is to be overweight, and increase the risk of developing various diseases including diabetes, heart disease and cancer.

To improve their health and prevent the occurrence of various diseases, adolescents must maintain a healthy diet by eating 3 meals a day, namely morning, afternoon and night, as well as consuming foods that contain balanced nutrition consisting of carbohindrat, vegetables, milk, and protein.

Incidence of Obesity

The results showed that a small percentage (7%) were obese, and almost all respondents (93%) were not obese. The results that are not much different are shown by a study conducted by Mulyani NS, et al (2020) which said that there are fewer adolescent girls who are obese than those who are not obese. Research on the prevalence of obesity in children conducted in 2019, showed different results from this study where the prevalence of obesity in children was 56.25% (Nila WB, et al, 2019).

According to Sari (2019) obesity is affected by several factors, some of these factors include physical activity factors and dietary factors. Overweight and obesity occur as a result of energy intake higher than the energy expended. A less active person needs a small amount of calories compared to a person with high activity. Sedentary lifestyle behavior or not doing balanced physical activity and consuming a lot of foods high in calories and fat, avoiding eating breakfast so as to increase the portion of lunch and dinner, often consuming unhealthy snacks, eating in large quantities and in a short time, overeating (large portions), and eating frequently (eating irregularly) will tend to be obese.

The cause of obesity in this study was the lack of physical activity carried out by adolescents, where adolescents tended to carry out life habits (sedentary lifestyle) and unhealthy diets. Research shows that there are several factors related to the incidence of obesity, including high socioeconomic status, consumption of soft drinks, lack of physical activity, sedentary life behavior and lack of knowledge about nutrition (Kedir S, et al, 2022). Therefore, adolescents can balance between sedentary lifestyle and diet, by continuing to carry out

activities that require a lot of energy such as exercise, cleaning the house and managing diet, while maintaining a regular frequency of meals as much as 3 times a day (breakfast, lunch, dinner).

The Relationship between Sedentary Lifestyle and Obesity Incidence
The results of the chisquare statistical test showed that there was no significant relationship between life habits (Sedentary Lifestyle) and the incidence of obesity in adolescents at Wachid Hasyim 2 Taman Sidoarjo High School. The results of this study are in line with similar studies conducted by Sinulingga PA, et al which showed that there was no relationship between knowledge and sedentary behavior at risk of obesity in adolescents in the city of Medan (Asyera, et al, 2021) . The findings of this study are also in line with a study conducted by Wismoyo Nugraha Putra entitled "The Relationship between Diet, Physical Activity and Sedentary Activity with Overweight at SMA Negeri 5 Surabaya" which stated that there was no relationship between sedentary activity and overweight. Different results are shown by research conducted by Kedir, et al (2022) which says there is a significant relationship between sedentarylife behavior and the incidence of obesity (Kedir S,et al, 2022).
Sedentary lifestyle is the habit of a person who does not do much physical activity or does not do much movement. Sedentary lifestyle is related to activity at the level of resting physical activity or is one of the light activities with energy expenditure equivalent to 1-1.5 metabolic equivalent (METs). (Puspasari I, et al, 2017). According to Setiawati, et al (2019) during the pandemic, the overall lifestyle situation has changed with more activities at home, fast food consumption becomes higher, boredom is also increasing so that it invites someone to dive deeper into the internet by using a gagdet or laptop and looking for other entertainment that causes physical activity can be lower so that energy use becomes less and triggers weight gain.
Adolescents with high sedentary life behaviors tend to be interspersed with frequent consumption of foods that cause a buildup of fat in the body. In addition, another possibility of obesity in adolescents is having an obese family background. This can be reduced by interspersed physical activity that expends a lot of energy. Physical activity is defined as the movement of the body, especially muscles that require energy and exercise is a form of physical activity. Low physical activity is the main factor causing obesity, where someone who does not regularly do sports has a risk of obesity of 1.35 times compared to someone who exercises regularly (Mulyani NS, et al, 2020).

The Relationship Of Diet With Obesity
The results showed that there was no relationship between diet and the incidence of obesity in adolescents at Wachid Hasyim 2 Taman Sidoarjo High School. The results of this study are in line with research conducted by Nuryani, et al in 2021 which stated that there was no significant relationship between diet and the incidence of obesity in adults in Gorontalo Regency, Indonesia. In contrast to the research conducted by Putra (2017) at SMA Negeri 5 Surabaya entitled "The Relationship between Diet, Physical Activity and Sedentary Activity with Overweight at SMA Negeri 5 Surabaya" which stated that there was a significant relationship between diet and the incidence of overweight in SMA Negeri 5 Surabaya students. Different results were also shown in a study conducted by Yuliana and Winarno ME (2020) which stated that there was a significant relationship between diet and obesity status in Junior High School students (Yuliana, Winarno ME, 2020).
The results of this study also show that there are adolescents who are not obese but tend to have an unhealthy diet. This is likely because the teenager has high activity or is actively moving which can increase energy use or metabolic processes increase so that the fat burning

process increases which eventually fat is not stored in the body. Other factors can be caused by the body's metabolic hormone ne factors, because the body's metabolic processes are fast so that food can be processed into energy and not become fat cells. The results of the study also show that there are some obese adolescents but have a healthy diet This can be caused by a family history of obesity. According to Proverawati (2010) in Sari, et al (2019) Gene or hereditary factors affect a person's talent to become obese. The presence of mutations in genes causes abnormalities of brain receptors to food intake characterized by the ability to increase or inhibit food intake. Gene transcription factors can influence the formation of fat cells on a person's nutritional status so that individuals who come from obese families have a 2 – 8 times greater probability of obesity compared to families who are not obese.

The absence of an association between diet and the incidence of obesity in this study is likely due to many other factors related to obesity which include lifestyle, hereditary or genetic factors, development, age increase, lack of sleep, stress and certain diseases.

CONCLUSION AND RECOMMENDATION
The results showed that there was no significant relationship between sedentary lifestyle and the incidence of obesity in adolescents at Wachid Hasyim 2 Taman Sidoarjo High School. There was no significant relationship between diet and the incidence of obesity in adolescents at Wachid Hasyim High School 2 Taman Sidoarjo. This research is useful for increasing adolescent awareness to reduce sedentary life and carry out a healthy diet. It is necessary to conduct further research on different samples with a balanced sample size between obese adolescents and adolescents who are not obese.

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KNOWLEDGE ABOUT MYOPIA IN SCHOOL STUDENTS AT SMPN 1 JABON SIDOARJO

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ABSTRACT
Myopia is often found in school student. Myopia develops simultaneously with development and growth, namely at puberty and usually stops developing by the age of 25 years. WHO data shows 10% of 66 million in school student suffer from refractive errors, myopia. The peak of myopia occurs in adolescence and is most common in girls compared to boys with a ratio of 1.4:1. Myopia is often found in school student. The purpose of this study was to describe the knowledge of in school student about myopia at SMPN 1 Jabon Sidoarjo.This type of research is descriptive through a cross sectional approach with the subject of 7th grade students of SMPN 1 Jabon Sidoarjo totaling 340 students.VThe results of the study on children at SMPN 1 Jabon Sidoarjo showed that less than half (43%) had good knowledge of the concept of myopia and more than half (52%) had good knowledge of the management and prevention of myopia.VThis study describes students' information about the concept and management of myopia prevention, mostly obtained from parents, the internet, and textbooks coupled with adequate parental education and experience from parents.Students are encouraged to improve their knowledge again, by obtaining it from books, internet, and parents. In addition, it is hoped that the school can cooperate with the closest health workers to provide counseling and parents are expected to accompany children to carry out regular eye examinations so that myopia in school-age children can be prevented and reduced.
Keywords: **Knowledge, Myopia, School Student**

INTRODUCTION
Myopia is the biggest problem because it involves the largest number of people with refractive errors and causes disturbances in daily life and work. In addition, it can interfere with learning or academic achievement, interfere with visual function, economic burden, psychology, quality of life and more severe permanent vision loss can occur. lyas, S. & Yulianti, S., 2012).
WHO data shows 10% of 66 million school children suffer from refractive errors, myopia. The peak of myopia occurs in adolescence and is most common in girls compared to boys with a ratio of 1.4:1. Myopia is often found in school children. The results of the Rapid Assessment of Avoidable Blindness (RAAB) conducted from 2014 to 2016 show that East Java is one of the 15 provinces with the largest contribution in Indonesia with a blindness prevalence of 4.4%, which is far above the national average (3%) (Ministry of Health RI, 2018).
Myopia is an eye disorder caused by the eyeball being too long so that the image of distant objects will fall in front of the retina (Purwoastuti & Elisabeth S, 2016).   Based on the degree of severity, myopia is divided into three criteria, namely mild, moderate and severe (Lyas, S. & Yulianti, S., 2012).

Myopia can be controlled in two ways, namely slowing the onset of myopia and reducing or preventing its development (Seo, 2017). Myopia prevention consists of increasing the time of outdoor activity, contact lenses or anti-radiation glasses. In addition, prevention can be in the form of regular eye health checks, adequate intake of nutrients and vitamins, resting the eyes and using adequate lighting when doing close-range activities. These various preventive efforts need to be carried out for students who do not experience myopia by reducing the risk of causing myopia and curative measures as a control for students who experience myopia so that they do not get worse so that permanent vision loss occurs (Saw, et al., 2019).

Blindness in school children can have an impact on long-term health, achievement in school, as well as children's emotional or social development. distance which ultimately makes the child unable to absorb the lessons given (Witantra DH and Putu AW, 2014).

Knowledge plays an important role in determining complete behavior because knowledge forms beliefs which can then perceive reality, become the basis for decision making and behavior towards certain objects (Novita, et al., 2014).

Knowledge about myopia will be influenced by internal and external factors. The external factor in question is the information obtained. The more knowledge a person has, the better the level of health he has. Knowledge about myopia in children is very important to know from an early age to prevent visual disturbances in children (Notoatmodjo, 2014).

RESEARCH METHODS

This research is a type of descriptive research with a cross sectional approach, namely research that aims to describe or describe situations or phenomena in determining new ideas (Irmamawarti & Nurhaedah, 2017). This study aims to describe the knowledge of school-age children about myopia at SMPN 1 Jabon Sidoarjo.

The population in this study were 7th grade students of SMPN 1 Jabon Sidoarjo in the 2021/2022 academic year, totaling 340 children. The sampling technique is in the form of Non Probability Sampling, namely the Total Sampling technique, which is taking the same sample as the existing population (Arikunto, 2013).

The sample in this study used all 7th grade students of SMPN 1 Jabon Sidoarjo (Total Sampling).The size of the sample or the number of respondents needed in this study were 340 respondents. The variables studied were knowledge of the concept of myopia (including definition, classification, signs and symptoms, risk factors) and knowledge of myopia prevention (routine eye examinations, nutrition, eye rest and myopia therapy) in students of SMPN 1 Jabon Sidoarjo.

Data analysis is data collection and then data simplification or grouping. Then the data is written in descriptive form. Furthermore, the data were analyzed and information was obtained which concluded about the description of the subject's knowledge. The data that has been concluded can be presented in the form of tables or frequency distributions, and tabulations. This research is ethically worthy with the ethical number EA/766/KEPK-Poltekkes_Sby/V/2022

RESULTS AND DISCUSSION

1. General data

Table 1 Characteristics of Respondents

Characteristic	Category	Frequency	Percentage (%)
Age	12 years old	260	76
	13 years old	80	24
Total		340	100
Gender	Man	135	40
	Woman	205	60
Total		340	100
Class	7A	34	10
	7B	34	10
	7C	34	10
	7D	34	10
	7E	34	10
	7F	34	10
	7G	34	10
	7H	34	10
	7I	34	10
	7H	34	10
Total		340	100
Parents' job	civil servant	34	10
	POLICE	24	7
	TNI	27	8
	retired	17	5
	Teacher	34	10
	Doctor	6	2
	Nurse	29	9
	Private sector	68	20
	employee	34	10
	Laborer	34	10
	Trader	12	4
	Breeder	21	6
	Farmer		
Total		340	100
Parental Education	S1	62	18
	D4	8	2
	D3	16	5
	SENIOR HIGH	118	35
	SCHOOL	85	25
	Vocational schools	34	10
	mother	10	3
	Young	3	1
	Mountain	2	1
	SD	2	1
	noodles		
Total		340	100

Bespectacled	Yes	68	20
	No	272	80
Total		340	100
Old man with glasses	Yes	136	40
	No	204	60
Total		340	100
Sources of Information About Myopia	Parent	137	40
	Book	51	15
	Internet	44	13
	Television	34	10
	Radio	4	1
	There isn't any	70	21
Total		340	100

Based on the results of the study in table 4.1 shows the frequency distribution of general data in the study of school-age children's knowledge about myopia at SMPN 1 Jabon Sidoarjo, the results of the characteristics of students in the study were mostly (76%), aged 12 years and a small portion (24%) aged 13. year. More than half (60%) of the students in the study were female and less than half (40%) were male. Less than half (30%) of parents work as civil servants/police/TNI/retirees, a small proportion (10%) work as teachers, doctors/health workers, less than half (30%) work of parents work as employees /private laborers, and a small portion (20%) of their parents work as farmers/breeders/traders. In this research, some students (20%) wear glasses and most (80%) students do not wear glasses. Less than half (40%) of parents wear glasses and more than a few (60%) parents do not wear glasses. Less than half (40%) of students' sources of information about myopia from their parents, a small portion (15%) of students' sources of information about myopia from books, a small portion (13%) of students' sources of information about myopia from the internet, a small proportion (10%) students source information about myopia from TV, a small proportion (1%) students source information about myopia from radio, a small portion (21%) do not know about myopia.

2. Results

Table 2. Knowledge of the repsondents about myopia

Knowledge	Frequency	Percentage (%)
Good	145	43
Enough	124	36
Less	71	21
Amount	340	100

Based on the results of the study, table 4.2 shows the frequency distribution of students' knowledge about the concept of myopia in children aged SMPN 1 Jabon Sidoarjo about the concept of myopia, which is less than half (43%) of students who are good. knowledgeable, less than half (36%) of students have sufficient knowledge and a small portion (21%) of students are less knowledgeable about the concept of myopia. The results of this study are in line with other research conducted by Ika Sarma Dosolix S at SMA Budi Murni 2 Medan in

2018 showing that most students have good knowledge of myopia. The results of the study were caused by factors of education, experience, and information.

According to Notoatmojo (2018) knowledge is the result of tau obtained after sensing or understanding objects through the senses of their eyes, nose, ears. According to Widyaswara & Yuwono (2018) knowledge is influenced by internal and external factors. Internal factors that influence are education and experience. While the external factors that influence in the form of sources of information. The level of education can also determine whether a person absorbs and understands the knowledge he has acquired or not. The experience that an individual has will affect a person's way of thinking and knowledge. Sources of information with information someone who gets information will increase the level of knowledge of something. In this study the sources of information were obtained from parents, the internet, and books in learning. Coupled with adequate parental education with an average of high school and college education, it makes it easier to get good knowledge. The results of this study, there are still many who have sufficient knowledge and some have less knowledge. Therefore, in seeking and receiving information through any media, it must be through a trusted and accountable source.The results of this study, there are still many who have sufficient knowledge and some have less knowledge. Therefore, in seeking and receiving information through any media, it is best to go through a trusted and accountable source. Likewise, the question of good knowledge about myopia because the child can answer correctly on number 1 is 95%. Knowledge of myopia is lacking because many answered incorrectly on question number 10, which is 55%.

Knowledge of the concept of myopia is very important, considering that during the pandemic, learning has turned online and various school assignments given by teachers require a lot of close activities, so it is necessary to prevent or reduce the incidence of myopia in the school environment. It is hoped that the school will provide effective health education regarding eye health, especially regarding myopia by collaborating with the nearest health worker to provide counseling. In addition, students are also encouraged to make more use of school facilities such as internet networks, libraries, and books with good intensity to obtain information about myopia and support the results of information obtained from counseling.

Table 3 Knowledge of respondents about the management and prevention of Myiopia

Knowledge	Frequency	Percentage (%)
Good	178	52%
Enough	103	30%
Less	59	17%
Amount	340	100%

Based on the results of the study in table 4.2 shows the frequency distribution of students' knowledge about the concept of myopia in children aged SMPN 1 Jabon Sidoarjo regarding the management and prevention of myopia, which is more than half (52%) of students are well knowledgeable, less than half (30%) of students have sufficient knowledge and a small percentage (17%) of students lack knowledge about the management and prevention of myopia.

The results of this study are in line with another study conducted by Anggita Tri Rohmatin at SDN Tondo in 2019 which showed that most students had good knowledge in myopia prevention.

Knowledge is the result of knowing and this happens after people feeling an object is certain. Factors that affect knowledge include information where someone who gets more

information will add a wider range of knowledge. Experience is something that can be felt and known, experience can be obtained from the experience of oneself and others (Lestari, 2015).

Stages of school-age children in obtaining knowledge obtained from various sources of knowledge. Experience and sources of information are the most important things to gain knowledge in this research. Someone who has previous experience has good knowledge, because the sources of information obtained are different so that the knowledge they have is good enough to get in-depth and accurate information. Experience in this case is parents with glasses and students with glasses so that individual experience also plays a role in adding to the information obtained.

Increasing children's knowledge about the management of medium myopia is very necessary, because good knowledge will encourage their actions to take preventive measures against this disease, so that through good actions, morbidity can be suppressed. With a simple and correct knowledge base, students are expected to behave and act more positively in preventing myopia and parents are expected to accompany their children to perform regular eye exams and do better.Supervise children in using gadgets by resting their eyes after close screen activities, as well as providing nutritional intake (vitamin A) so that myopia in children can be reduced or prevented.

CONCLUSION AND SUGGESTIONS

Based on the results of the study, it can be concluded that the knowledge of school-age children about myopia at SMPN 1 Jabon Sidoarjo is less than half had a good knowledge of the concept of myopia. More than half had good knowledge of myopia management and prevention.

The suggestions in this study are for students who have sufficient and less knowledge need to be encouraged to better understand myopia by utilizing trusted sources to obtain information about the concept, treatment and prevention of myopia through books, mass media, or the internet so as to reduce the occurrence of myopia in students.

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Application of the Orlando Nursing Model for Patients with Respiratory Failure with Progressive Mobilization Interventions for Decubitus Incidence in the Intensive Care Unit of the RSU Prof. Dr. RD Kandou Manado

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ABSTRACT
Nursing services are a major part of health services with the largest number of health workers. Quality nursing services can be assessed through several indicators, one of which is nursing services in the Intensive Care Unit (ICU). Intensive care unit is a unit that functions to treat patients with critical illnesses who experience acute failure or more vital organs that can threaten the patient's life so that close monitoring is needed, special staff and special equipment. The incidence of decubitus in the ICU room, Prof. Dr. RD Kandou Manado in patients who are on mechanical ventilators based on the findings and observations during the department of specialization, namely three patients with pressure sores (16.7%) and two with a risk of pressure sores (12.5%) out of eighteen patients at this time. The purpose of applying evidence based nursing is the effect of progressive mobilization in respiratory failure patients on the incidence of pressure sores through the Orlado nursing theory approach in the ICU room of RSU Prof. Dr. RD Kandou Manado. The method used is descriptive with a case study approach. About giving progressive mobilization with a duration of 2-3 minutes every 2 hours for 5 days in 4 patients. The results of the evaluation carried out by researchers on the four clients, after giving progressive mobilization actions from the four respondents, the skin conditions of the two respondents showed no signs of pressure sores. The study concludes that progressive mobilization intervention can prevent decubitus in patients with respiratory failure in the ICU.
Keywords: Orlando, Respiratory Failure, Progressive Mobilization, Decubitus.

BACKGROUND

Nursing services are a major part of health services with the largest health personnel. Quality nursing services can be assessed through several indicators, one of which is nursing services in the Intensive Care Unit (ICU) (Kress & Hall, 2014). According to the University of California Davis System, the intensive care unit is a unit that functions to treat patients with critical illnesses who experience acute failure or more vital organs that can threaten the patient's life so that close monitoring, special staff and special equipment are needed (in Aryanti, 2020).

According to Musliha, the Intensive Care Unit (ICU) is an inpatient unit in a hospital that has special staff and equipment to manage patients with life-threatening illness, trauma or complications (in Padmiasih, 2020). ICU patients who are attached to assistive devices tend to have limited activity (mobilization) to immobilization (Zomorodi & Darlaopley, 2012). While patients who experience decreased mobility for a long time have a high risk of developing pressure sores.

Decubitus is a localized damage to the skin and or underlying tissue caused by pressure that usually occurs in protruding bone areas (National Pressure Ulcer Advisory Panel, 2014). The incidence of pressure sores in the ICU is still a serious concern throughout the world with the incidence prevalence ranging from 1% to 56%. The incidence of pressure sores in Europe ranges from 8.3%-22.9%, in North America as many as 50%, in Australia and Jordan there are 29% cases (Tayyib, Coyer, & Lewis, 2013).

The incidence of decubitus in the ICU room, Prof. Dr. RD Kandou Manado in patients who are on mechanical ventilators based on the findings and observations during the department of specialization, namely three patients with pressure sores (16.7%) and two with a risk of pressure sores (12.5%) out of eighteen patients at this time. .

Proper prevention of pressure sores is very necessary in the delivery of nursing services. The American Association of Critical Care Nurses (AACN) has introduced several pressure sores (decubitus) management techniques, one of which is progressive mobilization intervention (Suzanne & Delgado, 2018). Research related to the effect of progressive mobilization has been carried out by Padmiasih (2020), who stated that there was a difference in pressure sores after being given progressive mobilization with a p-value <0.05.

Based on the above background, the author describes the application of the orlando nursing model in patients with respiratory failure with the intervention of progressive mobilization effect on the incidence of pressure sores in the ICU room of Prof. Dr. RD Kandou Manado.

RESEARCH METHODS

The design of this paper uses a descriptive case study type of research. Case study research is a research design that includes an intensive study of one research unit, for example a client, family, group, community, or institution. Although the number of subjects tends to be small, the number of variables studied is quite broad (Nursalam. 2016).

The population in this study were three clients with a diagnosis of respiratory failure in the ICU room of Prof. Dr. RD Kandou Manado in the last three months. The sample for this study is a total of 4 clients.sampling technique used in this study is the total *sampling technique.*

RESEARCH RESULTS

Based on the studies conducted on the four clients, the authors applied an intervention according to the EBN journal, namely *"Effectiveness Of Progressive Mobilization Level I And II On Hemodynamic Status And Decubitus Ulcer Risk In Critically Ill Patients"* by Ni Wayan Rahayu Ningtyas S.Tr. Kep.

In the implementation of this EBN, the four clients/respondents were given progressive mobilization interventions aims to prevent the occurrence / reduce decubitus in clients with long bed rest.

DISCUSSION

Prevention of decubitus is very important. Good preventive measures will improve the patient's quality of life. Right and left oblique mobilization is good for pressure ulcer prevention. According to Rosdahl & Kowalsk (2015) mobilization can accelerate blood circulation so as to accelerate wound healing, as well as maintain muscle tone and maintain body functions.

In the ICU room of RSUP Prof. Dr. R. D Kandau Manado the author studied 4 clients with long bed rest. The first week the author raised the case of a client on long bed rest with a diagnosis of respiratory failure, Myasthenia Gravis, Ny. IB is 44 years old with the main complaint that the whole body feels weak. In the second week the author raised a case of prolonged bed rest in a client with a diagnosis of Respiratory Failure, Pneumonia on Ny. AK is 52 years old with complaints of shortness of breath. The third week the author raised a case of prolonged bed rest in a client with a diagnosis of Peritonitis in Mr. ML is 68 years old with the chief complaint of abdominal pain. In the fourth week, the author raised a case of prolonged bed rest in a client with a medical diagnosis of Hypovolemic Shock in Mr. HB is 21 years old with the main complaint of decreased consciousness.

Based on the assessment conducted by the author on the four clients, the author raised 6 nursing diagnoses. Each client consists of 3 nursing diagnoses, tailored to the main complaint of each client. The five diagnoses are Impaired Spontaneous Ventilation, Impaired Skin Integrity, Activity Intolerance, Impaired Spontaneous Circulation, and Impaired Gas Exchange. From the nursing diagnosis of Skin Integrity Disorder, the author applies a progressive mobilization action intervention which aims to prevent decubitus in clients with long bed rest.

Prior to progressive mobilization, all four clients were examined for pressure sores or pressure sores previously. Of the four clients, the results showed that 2 clients had no previous pressure sores, while in Mrs. IB and Mrs. AK has a decubitus wound on the client's back and the size of the decubitus wound is ± 3.5 cm and ± 2 cm there is no exudate.

This study was conducted for approximately 5 days, in which the four respondents with respiratory failure were measured the degree of decubitus first and would be given progressive mobilization. for 2-3 minutes. After 2-3 minutes of giving progressive mobilization, the respondent's degree of decubitus was measured again. On the first day, the four clients were examined for pressure sores by looking for signs of pressure sores. Furthermore, on the third and fifth day, the four clients underwent a decubitus examination again, so that the total examination was 2 times.

After giving progressive mobilization from the four respondents, the skin conditions of the two respondents showed no signs of decubitus. While the client Mrs. IB and Mrs. In AK, the pressure sore that he had was slowly improving from Stage II to Stage I on the NPUAP Scale for Decubitus Grade Determination, and there were no signs of enlargement of the wound diameter or the presence of new wounds.

This is supported by the results of research from other EBN which say that the provision of progressive mobilization measures can prevent pressure sores. The results showed that before being given progressive mobilization therapy, most of the respondents had grade I pressure sores, as many as 4 people. After being given progressive mobilization therapy, most of the respondents did not experience pressure sores, as many as 6 people. And it can be stated that there are differences in pressure sores after being given progressive mobilization. (Ni Wayan Padmiasih, 2020)

The intervention results from the four clients are directly proportional to the theory of Orlando Pelletier which states that nursing is unique and independent because it involves individual needs for help, real or potential, in direct situations. The nursing process of resolving this helplessness is active and pursued in a disciplined manner that requires training. Orlando Pelletierl believes that one's actions should be based on reason not protocol (Nur Aini, 2018). So it can be said that the writer and the nurse who served in the ICU room of Prof. Dr. RD Kandau Manado Hospital succeeded in applying the theory of Orlando Pelletierl to the four clients because they succeeded in preventing/reducing the occurrence of pressure sores on the client.

CONCLUSION AND RECOMMENDATIONS

Conclusions

the Emergency Nursing Care that has been carried out The author can draw the following conclusions:

1. Assessment

    The results of the assessment obtained from 4 clients, 2 showed decubitus sores and 2 clients showed signs of decubitus sores on the client. In the examination of the risk of decubitus according to the NPUAP scale, it shows clients 1 and 2 at Stage II, while clients 3 and 4 at Stage I

2. Nursing Diagnosis

    . Each client consists of 3 nursing diagnoses, adjusted to the main complaint of each. From the six nursing diagnoses, it was found that there were similarities in nursing diagnoses between the four patients, namely that all four had the same 3 nursing diagnoses including spontaneous ventilation disorders, skin integrity disorders, and skin integrity disorders.

3. Planning

    Planning is an intervention that will be carried out by researchers both independently and collaboratively. In planning this nursing care, researchers focus on interventions, namely providing progressive mobilization actions as an *Evidence Based Nursing* (EBN) application according to the journal used

4. Implementation

    of nursing implementation is carried out based on planning nursing diagnoses made on the four clients. The implementation of the four clients is focused on providing progressive mobilization measures as an application of *Evidence Based Nursing* (EBN). Prior to intervention, the four clients were examined for pressure sores or pressure sores before. In the implementation process which was carried out for approximately 5 days, in which the four respondents with respiratory failure were measured the degree of decubitus first and would be given progressive mobilization for 2-3 minutes. After 2-3 minutes of giving progressive mobilization, the respondent's degree of decubitus was measured again. On the first day, the four clients were examined for pressure sores by looking for signs of pressure sores. Furthermore, on the third and fifth day, the four clients underwent a decubitus examination again, so that the total examination was 2 times.

5. Evaluation

    The evaluation conducted by the researcher on the four clients carried out during hospitalization was made in the form of SOAP. The results of the final evaluation carried out by the researcher on the four clients, after giving progressive mobilization actions from the four respondents, the skin conditions of the two respondents showed no signs of

decubitus. While the client Mrs. IB and Mrs. In AK, the pressure sore that he had was slowly improving from Stage II to Stage I on the NPUAP Scale for Decubitus Grade Determination, and there were no signs of enlargement of the wound diameter or the presence of new wounds.

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Sleep Quality in Teenagers

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ABSTRACT
Individuals need adequate sleep to maintain their optimum health. Students are the population at risk of sleeping disturbance for many reasons. The purpose of this study was to describe the sleeping quality of students. The study used descriptive design through cross-sectional approach. The study was conducted in GIKI 2 Junior High School in Surabaya. Samples of 95 students at 7th level were taken by consecutive sampling technique. The variable was the sleeping quality of students. The data were collected using Pitssburgh Sleep Quality Index. The data were presented in the tables of frequency. The study found that 24 (25%) of the student have good sleep quality, and 71 (75%) of the students have poor sleep quality. The contributing factors to the poor sleep quality of the students are the overload of activity at school and the addiction to online games. Parents are required to monitor their children when engaging with online games while schools need to provide counselling and guidance to their students.
Keywords: Sleep quality, Students, Sleeping disturbance

BACKGROUND
Sleep is a basic human need that is included in the physiological needs. Sleep is primary needs that must be met to maintain biological homeostasis and survival in each individual. Sleep is a condition where there is a change in the status of consciousness, namely the individual's perception and reaction to the environment becomes reduced. Sleep is very important for the ability to remember, concentration in learning and social adaptation. A person's cognitive, mental, and emotional stability are determined by the duration and quality of sleep (Candra, 2016). Sleep is needed by every individual to be able to maintain health status at an optimal level, but many teenagers experience sleep disorders (Zahara, 2018).
A previous study conducted on students of Vocational High School 1 Terbanggi Besar, Central Lampung majoring in 10th and 11th class stated that most of the sleep quality is less than 63% (Romayati, 2019). In 2015, the study in Jakarta stated that the prevalence of sleep disorders in adolescents varies from 15.3% to 39.2%, depending on the type of sleep disorder experienced. There are 140 students who experience sleep disorders by 62.9%, with sleep-wake transition disorders as the most common type of disorder (Awwal, 2015).
Sleep is influenced by several factors including physical illness, drugs, environment, lifestyle, stress levels and work schedules. Taking drugs that have certain side effects can affect sleep. Diuretic drug effects on nocturia so that individuals often wake up at night. Environmental factors around noisy rooms, having bed mates who have sleep problems and room conditions such as temperature, light, size, and bed comfort. The habit of consuming alcohol or caffeine makes it difficult for individuals to sleep. In addition, individuals who have a changing work schedule, such as changing shifts every week will affect sleep patterns. The state of stress experienced by individuals affects the individual's ability to sleep or stay asleep. Severe stress

is closely related to low hours of sleep. In addition, severe stress is very influential and positively associated with nightmares and sleep complaints. Emotional stress can cause individuals to have difficulty sleeping, often wake up during sleep or sleep too much, if prolonged stress can cause poor sleep habits (Iqbal, 2018). The impact of poor sleep quality is a decrease in daily activities, fatigue, weakness, poor vital signs, difficulty concentrating, sleepiness more often, and decreased immunity. In addition, poor sleep quality can also cause negative psychological impacts such as stress, depression, anxiety, lack of concentration, and ineffective coping (Budyawati, 2019).

Poor sleep quality greatly affects a person's activity. The way to maintain good sleep quality is to pay attention to several factors that support sleep, for example paying attention to the sleeping environment, try to make the environment where we sleep is comfortable and can stimulate us to sleep soundly. In addition, reducing interaction with gadgets before bed can help a person achieve better sleep quality. If we are still focused on gadgets, our brains will continue to work and stay awake so that we cannot be stimulated to sleep (Aprinda, 2021). The purpose of this study was to describe the sleeping quality of students at GIKI 2 Junior High School in Surabaya. An overview of students' sleep quality will provide us with information on how to fulfil these basic needs. The fulfilment of adolescent sleep needs affects their quality of life today and in the future. In addition, we can immediately take preventive measures to minimize the risk of sleep disorders since adolescence.

RESEARCH METHODS

This study used a descriptive design through cross-sectional approach. The population in this study were 126 students at 7th class of GIKI 2 Junior High School in Surabaya. Sample of 95 students who were taken by consecutive sampling trough Slovin formula. The variable is the sleep quality of adolescents taken using the Pitsburgh Sleep Quality Index (PSQI) (Anggraeni, 2020). There are 5 indicators assessed on the instrument including subjective sleep quality, sleep latency, sleep efficiency, use of sleeping drugs, sleep disturbances, sleep duration, and daytime sleep dysfunction. The PSQI instrument contains 20 statements including 6 positive statements and 14 negative statements. Answer options include yes and no. The choice of yes to the positive statement and the choice of no to the negative statement was given a value of 1, while the choice of no to the positive statement and yes to the negative statement was given a value of 0. The data collection was in February 2022. Sleep quality measurement was carried out only once through the google-form sent by what-app chat to respondents. Before filling out the questionnaire, it begins with filling out informed consent. Data in the form of sleep quality is classified as good if the value is <10 and bad if the value is ≥10. The data were analysed descriptively using the frequency value. This research was not conducted with ethically clearance.

RESULTS AND DISCUSSION

Table 1 Demographic Characteristics of Students at 7th Class in GIKI 2 Junior High School Surabaya, February 2022 (n=95)

Data Demographic	Frequency (n)	Percentage (%)
Gender:		
1. Man	34	35
2. Women	61	65

Age:		
1. 12 years	2	2
2. 13 years	34	36
3. 14 years	37	39
4. 15 years	22	23
Total	95	100

Table 2. Sleep Quality of Students at 7th Class in GIKI 2 Junior High School Surabaya, February 2022 (n=95)

Sleep Quality	Frequency	Persentase (%)
Good	24	25
Poor	71	75
Total	95	100

The study found 71 students (75%) experienced poor sleep quality. The result is in line with previous study by Zahara (2018) that poor sleep quality was also experienced by many teenagers in State Vocational High School 2 Pekan Baru, Riau, Indonesia. The daytime sleep of teenager where the normal hours that should be used to rest, are switched by teenagers to do other activities. Most of the 7th grade students of GIKI 2 Junior High School Surabaya said that it was difficult to start sleeping before 9 pm and often felt sleepy when doing activities in the morning. While pandemic period, the activities of teenegers were often carried out school assignments through online class, so that more and more tasks must be done by them at home. Many teenagers who have poor sleep quality use their sleep time to play online games as a means to release their tiredness after doing tasks (Zahara, 2018).

Poor sleep quality is often experienced by all students. They are included in several stages of adolescence, 36 students (38%) are in the early adolescence stage (12-13 years); and 59 students (62%) entered the middle adolescence stage (14-15 years). Previous study by Putro (2017) stated while development period, adolescents have many dreams and desires to realize its in the future. Their high dreams are not in accordance with their abilities, so that adolescents are enveloped by feelings of restlessness. This restlessness of teenager causes sleep disturbances and results in poor sleep quality.

Forty-two (44%) students who experienced poor sleep quality were mostly women. Previous research has shown the same condition that most adolescent girls experience poor sleep quality (Awwal, 2015). Adolescent girls spend more of their time participating in many activities at school and outside of school, including extracurricular activities, tutoring, as well as art and sports lessons. Poor sleep quality in adolescent girls can be influenced by their pubertal cycle. When young women experience menstruation, they often experience abdominal pain. This condition can disrupt sleep patterns, where they will find it difficult to start sleeping, and focus more on themselves to endure the pain they are experiencing. Teenage girls tend to have a competitive spirit, so they will use their time to continue learning in order to get achievements, especially high academic scores.

Most of the teenage girls in GIKI 2 Junior High School Surabaya have a habit of doing several activities before going to bed, including reading, making calls, watching television, and listening to music. This condition is also supported by the statement of the guidance and counselling teacher at GIKI 2 Junior High School Surabaya who said that there were still many students who were sleepy and some even fell asleep in class during the learning process. The habit of doing many activities before going to bed if it is continuously done can affect the quality of their sleep and activities in the morning. The negative impact of the lack

of fulfilment of students' sleep needs is that they fall asleep in class or lack concentration when studying in the morning at school. This condition needs to get attention from the school, especially the classroom teacher, teacher counselling guidance, and parental supervision, especially when doing activities at home. School guidance teachers need to immediately make efforts to repair problematic students, while still involving parents.

The results of this study showed 12 (13%) students had snored while sleeping. The results of this study are in line with Handoyo's research (2012) which says that a small proportion of adolescent in Muhammadiyah Gombong College of Health Sciences snore during sleep, especially adolescents who are obese. Airway narrowing due to excessive fat accumulation can cause dysfunction of the area under the diaphragm and within the chest wall which can compress the lungs, so that it interferes with ventilation efforts during sleep. A Fatty tissue in the neck and tongue reduces the diameter of the airways which predisposes to premature closure while the muscle tissue relaxes during sleep, and finally there is respiratory distress and shortness of breath/sleep apnea. Sleep apneu will cause sufferers to often wake up without realizing it in their sleep, so they always feel sleep deprived, even though they have slept enough. This condition needs to get attention from the school, especially counselling guidance teachers and parents through monitoring the eating patterns and sleeping patterns of students. Both of these conditions can affect students' sleep quality.

The data of this study showed 3 students (3%) took medication to help them fall asleep. The same condition was mentioned in Diarti's research (2017) that a small proportion of female students at the Health Sciences Study Program of UNITRI Malang took sleeping pills because they found it difficult to start sleeping early. Several types of drugs that affect sleep are included in the type of hypnotic drugs that must be accompanied by a doctor's prescription. The sleeping pills stimulate melatonin receptors in the area of the brain responsible for controlling sleep and wake cycles, so teens can sleep after taking these sleeping pills. Consumption of sleeping pills in the long term / continuous can cause dependence and several other diseases. The effect of the drug on asthmatics is the emergence of shortness of breath, and in general adolescents it can cause health problems such as diarrhea, dizziness, changes in appetite, and other health problems. Parents and schools should be able to monitor the health of their children/students, and consult with health workers if these habits are found to minimize the occurrence of unwanted health problems.

The research data showed that there were 8 students (8%) consuming caffeine. Caffeine consumption habits were also found in the results of a literature review by Meiranny (2022) which concluded that a small proportion of teenagers like to consume foods or drinks that contain caffeine. This condition is because nowadays teenagers have many activities that require them to stay awake and fresh. One way that is preferred by teenagers is to consume foods or drinks that contain caffeine, for example coffee. Caffeine found in coffee can help teenagers to stay awake while doing their daily activities. But on the other hand, caffeine consumption can also cause several health problems such as difficulty sleeping, headaches, nausea, vomiting, and other symptoms if consumed too much in a short period of time. Monitoring the intake of food and beverages consumed by teenagers by parents and the school, for example through a healthy canteen, and students are required to bring lunch from home, as well as a supply of drinking water that is sufficient for their needs while at school.

There are 71 (74%) students who do not exercise regularly in the results of this study. This result contrast with Sarmadani's research (2020) on Univeristas Muhammadiyah Sumatra Utara Medical Faculty students in Medan, North Sumatra, which concluded that a small proportion of adolescents who have poor sleep quality do not exercise regularly. Exercising regularly can affect the quality of sleep of adolescents. This increase in sleep quality occurs due to the body releasing the hormones adrenaline, serotonin, dopamine, and endorphins. When you exercise the hormone serotonin will increase and make the secretion of the

hormone cortisol decrease and cause the production of the hormone melatonin to increase. The hormone melatonin regulates the body's circadian rhythm, light-dark cycle, and sleepiness (Hall & Guyton, 2014). This causes adolescents who exercise regularly to have better sleep quality than adolescents who do not exercise regularly. The school can facilitate this. school and home environment that triggers teenagers to keep moving and doing physical activity and regular exercise.

CONCLUSION AND RECOMMENDATION

Most teenagers who the 7th grade at SMP GIKI 2 Surabaya have poor sleep quality.

Teenagers who have poor sleep quality can improve their sleep quality through simple things, namely getting used to starting sleep before 22.00 pm, sleeping for approximately 8 hours per day, avoiding food or drinks containing caffeine, and do exercise regularly. The GIKI 2 Junior High School in Surabaya should be make collaboration with parents and health care facilities. They should make collaborate with parents and health care facilities are able to provide education to students and parents about the importance of maintaining sleep quality in adolescents for their physical and emotional health.

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The Experience of School Health Unit's Coordinator in Non-Communicable Diseases Prevention Education for Middle School Students

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ABSTRACT
Non-Communicable Diseases (NCD) in Indonesia is increasingly worrying. The increasing trend of NCD is followed by a shift in disease patterns, threaten from the elderly group to the productive age group and even increasing cases at the teenagers. It is important to know the programs of School Health Unit (Unit Kesehatan Sekolah/UKS) implement NCD (Diabetes & Hypertension) Prevention Education for Middle School Students. A qualitative phenomenological design is used. The Participants were the coordinators and officers of UKS at 11 secondary schools in Surabaya City and Sidoarjo Regency who taken by purposive sampling. Using semi-structured, in-depth face to face interviews to 22 participants. Three 3 participants had educational backgrounds of nurses, and the remainders are classroom teachers with additional duties as coordinators. All participants were women with age 28-45 years. The themes identified in the initial coding process were then grouped into 6 main themes. The theme of implementing promotive and preventive efforts in the UKS program consists of 6 sub-themes, namely the implementation of the UKS program, the implementation of health education, the facilities provided at UKS, the contribution of the UKS program in preventing NCD, supporting factors, and inhibiting factors. All schools have not carried out educational activities in preventing NCD. They stated that these efforts need to be done because currently most students behave unhealthy which is a triggering factor for the incidence NCD. Schools actually have supporting factors including health screening activities, existing UKS facilities, and support from stakeholders. They believe that all the supporting factors that have been able to support the implementation of prevention education on prevention of NCD, if the government makes a policy of the NCD prevention program part of the UKS's goal.
Keywords: Non-Communicable Disease, Prevention Education, Teenagers, School

BACKGROUND

Non-Communicable Diseases (NCD) is a catastrophic disease with the highest cause of death in Indonesia in the pre-pandemic period. During and after the pandemic, it turns out that this group of diseases is increasing, and absorbs the largest costs in the National Health Insurance program, as stated by the Director of Prevention of Non-Communicable Diseases of the Ministry of Health of the Republic of Indonesia. Diabetes mellitus ranks 3rd after coronary heart disease and cancer in 2020.

Research results from the Health Research and Development Agency of the Ministry of Health show that currently the development of NCD in Indonesia is increasingly worrying.

The increasing trend of NCD is followed by a shift in disease patterns, if in the past, this type of disease was usually experienced by the elderly group, now it is starting to threaten the productive age group and even increasing cases at the age of 10-14 years (Kemenkes RI, 2020). A previous study on 113 children and adolescents with obese nutritional status in elementary, junior high and high school in Surabaya showed that the results of blood pressure measurements were mostly level II hypertension, and diastolic values were mostly in the prehypertension category. The results of measuring blood pressure on the systolic value of children aged 5-12 years who are obese are 0.816 times more at risk than those aged 13-18 years. The study also stated that obese children aged 5-12 years were 0.379 times more likely to suffer from systolic hypertension. The results of diastole data show that obese children aged 5-12 years have a 0.891-fold greater risk than those aged 13-18 years (Nimah L et al., 2019).

Although the prevalence of diabetes in the age group 15-24 years at Riskesdas 2013 and 2018 is still the same, namely 0.1 per mil, the vigilance of increasing cases must be watched out.

Data from the Indonesian Pediatrician Association (IkatanDokterAanak Indonesia/IDAI) presented at an event at the Directorate of Prevention and Control of Non-Communicable Diseases at the Ministry of Health of the Republic of Indonesia that the incidence of DM in children aged 0-18 years has increased by 700% over a period of 10 years.Children aged 5-12 years who are obese are 0.386 times more likely to suffer from diastolic hypertension and have the highest risk of 2.058 times to suffer from hypertension.

The high prevalence of NCD in Indonesia is caused by an unhealthy lifestyle. Data for Basic Health Research (Riskesdas) in 2018 shows that 95.5% of Indonesians consume less vegetables and fruits, 33.5% of people lack physical activity, 29.3% of people of productive age smoke every day, 31% have central obesity and 21 ,8% of obesity in adults. The challenges of health development in Indonesia are currently facing four transitions, namely the epidemiological transition, the demographic transition, the nutritional transition, and the behavioral transition. These four transitions ultimately lead to high rates of non-communicable diseases. Epidemiological transition is a changing trend from infectious diseases to non-communicable diseases (NCDs). In the demographic transition, people who are susceptible to NCDs in productive age and old age increase. Nutritional transition Problems of malnutrition or malnutrition, thin and short (stunting), overweight and obesity in children, adolescents, and adults are increasing. Stunting is still a problem in Indonesia, but on the other hand, the obesity rate is increasing, as happened in Jakarta in 2020, where 34% of the population is obese. The transition to sedentary behavior, low fiber consumption, and high sugar salt and fat (GGL), minimal alcohol and smoking habits, to stress will also increase the risk of non-communicable diseases (Putri, 2020; Irwan, 2020).

The increase in NCD cases at a young age will have a major impact on human resources and the Indonesian economy in the future, especially when Indonesia faces a demographic bonus in 2030-2040. This condition will make it difficult for the country to produce the next generation of a healthy and intelligent nation towards Advanced Indonesia in 2045. Changes to a healthier lifestyle should be made as early as possible as an investment in future health. Control of risk factors should also be done as early as possible. The public must have health awareness by understanding how their body condition is, so that it is easier to treat so it is not too late. This awareness is not only in the adult age group, but must also be a concern for the young age group. Early detection for healthy people is very necessary, because people often feel that they have no complaints, but not necessarily in a healthy condition. Health Screening at least every 6 months to 1 year for all residents.

The participation of all components of the nation, including educational institutions (schools) is no less important, because almost a third of the time children and adolescents are in school (primary-secondary). Since 2017 School Health Unit (Unit Kesehatan Sekolah/UKS) activities have been linked to teaching and learning in schools, by integrating curriculum and clean and healthy living behaviour (PerilakuHidupBersih dan Sehat/PHBS). This integration includes through student literacy activities together with teachers reading my health report book for socialization and education about PHBS, physical activity with stretching in class, and coaching cadres in schools such as little doctors. Habits from an early age to adulthood are expected to reduce the incidence of non-communicable diseases (NCDs) in the future (Directorate of Elementary Schools, 2022).

The School Health Unit (UKS) as a student health unit in schools can take a role by developing the benefits of UKS for student health by integrating efforts to prevent NCDs while continuing to prevent risky behaviour such as drug abuse (narcotics, psychotropics, and other addictive substances), unprotected pregnancy. unwanted abortion, unsafe abortion, sexually transmitted infections, adolescent reproductive health, accident and trauma. The results of health screening in the form of body mass index data from weight and height data can be used as screening data for further prevention of NCD in school students, in addition to additional screening for blood sugar levels and blood pressure in groups of students who are vulnerable or with a hereditary history of diabetes mellitus and hypertension.

RESEARCH METHODS

This research design uses a qualitative method with a phenomenological approach, to identify the unique meaning of each human experience or phenomenon. Participants in this study were selected using a purposive sampling technique, which is adjusted to the purpose or research problem. The Participant in this study were the coordinators and officers of UKS at 11 secondary schools in Surabaya City and Sidoarjo Regency. Data was collected by means of in-depth interviews, and making field notes. The interview guide was prepared based on the research objectives on the basis of the Community as Partner concept. Researchers found data saturation after interviewing 11 participants or UKS officers.

The interview and observation data were then analysed using the structure of the hermeneutic phenomenological research method. The themes and sub-themes that are set are the result of the meaning of the experiences conveyed and observations around the participants' domiciles. Determination of the theme is done by reading it over and over again, then giving a code in the form of a word or phrase that describes a certain meaning.

RESULTS AND DISCUSSION

Participants in this study were coordinators and officers of UKS. Three 3 participants had educational backgrounds of health workers (nurses), and the remainders are classroom teachers with additional duties as coordinators. All participants (100%) were women, and were between 28-45 years of productive age.

Researchers managed to identify various themes that were analysed from the results of interviews and observations. The themes and sub-themes that were determined were the result of the meaning conveyed as well as observations around the UKS location. Determination of the theme is done by reading it over and over again, then coded from a phrase or sentence that describes a certain meaning. The themes identified in the initial coding process were then grouped into 6 (six) main themes. The grouping of these main themes is based on the similarities or interrelationships between sub-themes.

Theme Analysis

The theme of implementing promotive and preventive efforts in the UKS program consists of 6 (six) sub-themes, namely 1) the implementation of the UKS program, 2) the implementation of health education, 3) the facilities provided at the UKS, 4) the contribution of the UKS program in preventing non-communicable diseases, 5) supporting factors, and 6) inhibiting factors for school health programs in preventing non-communicable diseases.

Sub theme 1: UKS Program Implementation

The activities carried out at the UKS for each school vary, according to the activities carried out by the Puskesmas in the school area. Of all the program participants, the same is the implementation of screening for new students.

"....activities that have been carried out in our UKS, especially before the pandemic, are blood donation, collaboration with PMI twice a year, screening of new students in collaboration with the Puskesmas ......the examination includes eye and ear health, there is also a youth health cadre program, trained by PMI, the number of cadres is 40 people from grades 1 and 2, social services carried out by adolescent health cadres, health education twice a year by health workers at the Puskesmas .... simple treatment if there are students who have headaches, stomachaches, abdominal pain due to menstruation, if the medicine has been given at the UKS the pain does not decrease, they are referred to the Puskesmas with the consent of their parents ... before the pandemic there was an Integrated Guidance Post (Posbindu) activity. held 4 times a year, 2 times for students, 2 times for teachers and staff, there is a health monitoring book for all students and teachers....Posbindu activities include measuring blood pressure, checking blood sugar, measuring upper arm circumference, measuring TB/BB...but Posbindu activities don't exist in schools now... they say they are in the community...." (P.2)

".....The activities carried out are following the activities from the Puskesmas Screening for new students. Health education from the Puskesmas....simple treatment, if there are complaints from students...there are none, ma'am..." (P3)

".......The UKS program that has been implemented in our UKS is first aid for accidents, prevention of dengue fever, collaboration with the Puskesmas by providing health education.... Then there are also health cadres, ma'am.... who join the OSIS management, specifically only 2 health cadres... we also carry out periodic checks every 1-2 months, which are carried out by UKS officers.... We also do simple treatment if there are students who complain of pain. Most students go to UKS because of menstrual pain....there is also a distribution of vitamins/FE for all female students every 3 months, vitamins from the Puskesmas.... (P7)

"....The activities at our UKS are PMR, school health cadres, screening of new students from the Puskesmas..........the checks include dental and oral hygiene, weight, height, we also organize blood donation ma'am.... The PMR children cooperate with PMI....because they are also fostered by PMI... The health center also conducts health education...well...in addition, ma'am...in our place there is a specialist clinic every Wednesday and Friday which is carried out by alumni who have become specialist doctors.... he said as a form of community service.... Specialist clinics which are open on Wednesdays and Fridays also carry out examinations on teachers and education staff who complain of illness..." (R.17)

"... I'm sorry ma'am... because of limited manpower.... UKS activities only follow those at the Puskesmas, ma'am...... Screening of new students and health counseling ....other activities do not exist.... There are also no student activities...the schedule is already packed in class...." (P22).

Sub-theme 2: Implementation of Health Education

> *".....There are health education activities from the Puskesmas....... sometimes from students from Airlangga University, Adi Buana University Surabaya and BNN. The schedule for the Health Penkes from the Puskesmas is only 2 times a year, but the timing is uncertain.... from Airlangga University and UNIPA are incidental in nature, when there are students who conduct research at SMA 4, the theme of the counseling is about the dangers of smoking, reproductive health and the dangers of drugs...."(P1, 2)*

> *"..... health education from the Puskesmas ... but there is no schedule for health counseling, for sure ma'am... if there is information from the Puskesmas, there will be health counseling, the UKS coordinator will prepare the students...." (P 3,4)*

> *"....Puskesmas ... provide counseling 2 times a year ma'am.... There is no definite schedule, but health education must be held 2x a year...the theme is... about PHBS, Kespro, and Drugs.... prevention of hypertension and DM does not yet exist ...." (P 5,6)*

> *"....there is counseling about drugs from BNN.... I often do health counseling myself.... I happen to be a midwife graduate... so I can still provide counseling myself.... The exact schedule hasn't been made yet, sir... usually health education materials are about drugs and health care..." (P 7,8)*

> *"..... Counseling is conducted in the school prayer room about healthy food. There is no specific schedule yet, but counseling is done about healthy food..."(P 9.10)*

> *".....Health counseling is carried out by health workers from Puskesmas ...... and students from PoltekkesKemenkes Surabaya .... Health counseling from the Puskesmas is 2 times a year but there is no definite schedule for when it will be implemented. Health education from Poltekkes is also incidental and unscheduled. The theme of health education is about the dangers of smoking, health care and recently about hepatitis...". (P. 11,12)*

> *"..... Health education is carried out by health workers from the Puskesmas..... and from UKS health workers. A separate schedule has not been made for health counseling, but this activity is carried out twice a year by the Puskesmas and is needed from time to time by Mrs. Ella (UKS Health Care Unit) . The theme of health education is about reproductive health, the dangers of smoking and drugs, HIV AIDS and hepatitis...."(P 13,14)*

> *Health counseling is not scheduled, but is included in the UKS program held at MTsN 1, the theme of health education is about the dangers of smoking, reproductive health. (P 15.16)*

> *".....There are no scheduled health education activities. The theme of health education is about the dangers of smoking and free sex, HIV, drugs..." (P 17, 18)*

> *"....There is no schedule of health outreach activities yet, but there are activities from the Puskesmas, the material is about the dangers of smoking and drugs..." (P. 19, 20)*

> *"....The implementation of health education is not scheduled, but it must be done twice a year from the Community Health Center. The material presented was about HIV/AIDS, drugs, juvenile delinquency, recently about hepatitis...." (R. 21, 22)*

> *"....The program from the Health Service through Puskesmas. Puskesmas carries out health education about the dangers of smoking, healthy living behavior, but some of them pay less attention because they are busy alone with their friends..." (P.25).*

Sub theme 3: Facilities at UKS

Some of the participants' UKS facilities were adequate and some were inadequate. There is a UKS room that must be shared with the student council room. Completeness of facilities and

infrastructure varies, there are schools that have complete facilities and infrastructure, but some are not complete. This facility data is the result of observation. Data as follows:

".... The facilities are quite complete, the room is 3x6 m2, there is 1 table, 2 chairs, 4 beds, medicine cabinet and medical equipment, there are posters posted on the walls about the dangers of smoking, prevention of hypertension ...." (P 1, 2)

".... Facilities are very minimal, there is no special UKS room, the room is mixed with the student council room, there is 1 bed, 1 table and 1 chair, no medicine cabinet and medical equipment. The room is 2 x 5 meters2 ...." (P 3,4)

".... The facilities are quite complete, the room is 6x5 m2, there are 6 beds, 1 set of guest table, examining table, 1 medicine cabinet and medical equipment, no health education poster ...."(P 5,6)

".... Minimal facilities, room measuring 2.5 x 5 m2, 2 beds available, bathroom, medicine cabinet and medical equipment, medical equipment available with mercury sphygmomanometer, stethoscope, tool to measure GDA, gloves, mask, weigh BB/TB, temperature measurement ...."(P 7.8)

".... Currently there is no special room for UKS, but activities are carried out in class with equipment: blood pressure meters and weight scales ...."(P 9, 10)

".... The room is 5 x 5 meters2, there are 3 beds, 1 cupboard, 1 table, 2 chairs. Air-conditioned room, There are posters of the anatomy of the human body. There are simple medicines, blood pressure measuring devices, weigh weight ...."(P11, P12)

".... Room size: 6x10 m2, 4 beds available, 1 medicine cabinet, 1 trolley for medical equipment such as masks, oximetry, oxygen saturation gauges, TB and BB measuring devices, blood pressure gauges, posters, health screening results and UKS activity reports ...."(R 13, R.14)

".... The room is 3 x 5 m2, there are 2 beds, 1 cupboard for medicine and medical equipment, one table and 2 chairs. Available medical supplies, 2 sphygmomanometers, measuring devices for TB and BB ...."(P15, 16)

".... The UKS room at the time of observation was still in the renovation stage, when the renovation was complete it would be moved to another room. Observation results UKS room currently occupied: temporary room. Room area 3 x 6 m2, 2 beds available, 1 cupboard containing medical supplies and medicines that students usually need, 1 table, 2 chairs, 1 computer, there are five posters about the dangers of smoking, HIV AIDS, hepatitis prevention, reproductive health, UKS has an ambulance from the alumni association (which is used to refer students to the Puskesmas or hospital ...."(P 17, P18)

".... The UKS room is one with the OSIS room, there is no separate UKS room. One room is divided into 2 : R. Osis and UKS. For UKS room size 3x 5 m2, there are 2 beds, no desk and cupboard. ...."(P19.20)

".... The UKS room has an area of 4x 5 m2, there are 2 beds, 1 cupboard, 1 table and 3 chairs, medicine and simple wound care are available, body temperature measuring devices, weight and TB weights ...."(P 21, 22).

Theme 4: The contribution of the UKS program in preventing non-communicable diseases

Almost all participating UKS have not implemented non-communicable disease prevention efforts. There is one Puskesmas that implements the Posbindu program in one participating UKS.

"...before the pandemic there was an Integrated Guidance Post (Posbindu) activity, held 4 times a year, 2 times for students, 2 times for teachers and staff, there was a health monitoring book for all students and teachers....Posbindu activities include

measuring pressure blood, check blood sugar, measure upper arm circumference, measure TB/BB...but now Posbindu activities are not in school...".

"…. In the past, one of our students had diabetes… they even injected themselves…. actually, ma'am… there should be a program to prevent high blood pressure and diabetes at UKS... today's children don't eat enough vegetables…. I like sitting playing cell phones….especially when studying online…. Sit still… I totally agree, ma'am…. If there is a program at UKS that is directed at preventing high blood pressure and diabetes…" (P1, 2)

"….our school has never had a non-communicable disease prevention program, ma'am… not from the Puskesmas…" (P5)

"….UKS has not carried out prevention of hypertension and diabetes, there is no blood pressure monitoring, there is no activity from the Puskesmas, ma'am…. Maybe it would be better if the UKS had blood pressure measurements for students, ma'am… so that they know their blood pressure…." (P 12)

"……there is no hypertension and DM prevention program for students, ma'am……..usually if there are health workers from the Puskesmas, school teachers check blood pressure and health consultations….I really support if there is a high blood pressure prevention program for students and the teacher…" (P20)

"…..The coordination between the Health Office and the Education Office related to UKS development has been going well. However, the focus has not been on preventing non-communicable diseases, which are currently occurring at the age of teenagers…… The current programs from the ministry of health regarding smoking are UBM (Efforts to Stop Smoking) and JIRONA (Soul, Cigarettes and Drugs) have been socialized and applied to junior high school students … .. through UKS…." (P24)

"…..At the time of screening, it was often found that teenagers with blood pressure exceeding normal because their parents had hypertension….adolescents who smoked because their families also smoked…..the UKS program has 8 goals set out in the UKS Pocket Book, namely cigarettes, juvenile delinquency , drugs, HIV/AIDS, pre-marital pregnancy/promiscuity, intestinal worms, anemia, Hepatitis B. Hypertension has not been included in the 8 programs….. actually, many students have found unhealthy lifestyles, including smoking, eating fast food. food, rarely eats vegetables, rarely does physical activity because he plays a lot of android…" (P 25).

Sub theme 5: Factors supporting school health programs in preventing non-communicable diseases

The supporting factors for the implementation of the UKS program are the support of the school principal, school committee, parents, alumni association, Community Health Center, Health Office, Education Office, Ministry of Religion. The supporting factor for the implementation of the hypertension and diabetes mellitus prevention program is the availability of examination equipment in several schools.

"... our principal is very supportive of UKS activities, if we propose funds to buy UKS needs... directly accrue..." (P1)

" …..support from parents of students,,, which happens to be many who are doctors… very big…. They participate in monitoring the lack of UKS needs… many of them become donors for the shortage of UKS…" (P14)

"…. Our UKS has the support of a very large school committee….the committee is involved in preparing the preparation of offline schools as well…." (P13)

"…. Our school is helped a lot by alumni associations…moreover, many of them have become doctors…there are specialist clinics, ambulances….all from alumni associations…"

"...Our UKS main support is from the Puskesmas....providing health education...a place of reference if a student is sick.... (P 20)
".... We UKS coordinators often receive guidance from the Health Service and Education Service..." (P,2)
".... Our school has received guidance from school supervisors assigned from the Ministry of Religion...." (P10)
".... In UKS, there is already a sphygmomanometer, measuring weight and TB that can be used ... if there is a hypertension prevention program ...." (P 8)
".... We already have a sphygmomanometer and a glucose test, ma'am... so if for example there is a hypertension and DM prevention program in schools... we are ready..." (P 8)
".... Our UKS received assistance from the tensimeter and glucose test school committee... which so far the tools are still for mothers and teachers.... he... he... he... not yet for students.... so if there is a hypertension and DM prevention program we are ready.... (P14)
"..... we got help from UKS partners.... Tensimeter and gluco-test....but not yet used for students...if there is a program we can measure their blood pressure...."(P20).

Sub-theme 6: Inhibiting factors of school health programs in preventing non-communicable diseases
The inhibiting factor that the school got was during a pandemic, all activities could not take place, funding was also felt by some participating UKS. Meanwhile, another obstacle is funding. Meanwhile, the obstacle is that the prevention program for hypertension and diabetes has not been implemented because there is no program at the UKS.
".... During the pandemic, all UKS activities will stop ma'am..." (P.2)
".....The inhibiting factor is that the prevention of hypertension and DM has not been implemented, because there is no program yet, so there is no budget for activities......" (P25)

The School Health Unit (Unit Kesehatan Sekolah/UKS) program has 8 goals contained in the UKS Pocket Book, namely cigarettes, juvenile delinquency, drugs, HIV/AIDS, pre-marital pregnancy/free sex, intestinal worms, anemia, Hepatitis B. Non-communicable diseases (hypertension and diabetes mellitus) are not included in the UKS program. 8 of these programs. Many students have found unhealthy lifestyles, including smoking, eating fast food, rarely eating vegetables, rarely doing physical activity because they play a lot online through gadget or other electronic devices. Coordination between Ministry of Health and Ministry of Education related to UKS development has been going well. However, the focus has not been on preventing non-communicable diseases, which are now occurring at a young age.
 The results of discussions with the Ministry of Health, Ministry of Education, and Ministry of Religion explained that there was very little physical activity for teenagers at home, games that required energy were no longer done, teenagers played more games. Exercise is carried out at school according to the sports lesson schedule. Food vendors around the school with a variety of interesting dyes, cannot be controlled by each school. The school canteen is also not fully trained on the types of preservatives and dyes that are harmful to the human body.
Monitoring ideal body weight has not become UKS program, so students have not done it. Programs from the ministry of health regarding smoking are UBM (UpayaBerhentiMerokok/Efforts to Stop Smoking) and JIRONA (Jiwa, Rokok, dan Narkotika/Soul, Cigarettes and Drugs) have been socialized and applied to junior high school

students in Surabaya through UKS. It is hoped that the UBM and JIRONA programs can control teenagers so that they don't smoke, drink alcohol and prevent mental disorders.

The school environment is an important driving factor for adolescents to prevent PTM, especially hypertension and diabetes mellitus. Family understanding about healthy living behaviour needs to be instilled, so that the school environment can be a role model for teenagers. The provision of health education for family's needs to be implemented so that knowledge about healthy living behaviour can be implemented. The addition of UKS goals from eight to nine goals by adding the prevention of non-communicable diseases including hypertension and DM is very important and must be done immediately. Students who are in junior and senior high school for a minimum of 6 hours, this time is very effective if it is also used for behaviour change. The availability of facilities and infrastructure as well as UKS partners also greatly supports the implementation of non-communicable disease prevention efforts. Support from the UKS coordinator and officers is an important factor in the implementation of non-communicable disease prevention efforts through the UKS program.

CONCLUSION AND RECOMMENDATION

UKS's officers and coordinators in several high schools in Surabaya City and SidoarjoDistrict have not carried out educational activities or specific efforts in preventing non-communicable diseases, especially hypertension and diabetes mellitus. They stated that these efforts need to be done because currently most students behave unhealthy which is a triggering factor for the incidence of hypertension and diabetes mellitus. Schools actuallyhave supporting factors including health screening activities (early entry to school and periodically every year), existing UKS facilities, and support from the health authorities; education authorities; and the religious authorities, and several other supporting organizations. They believe that all the supporting factors that have been able to support the implementation of prevention education on prevention of non-communicable diseases, especially hypertension and diabetes mellitus, if the government makes a policy of the NCD prevention program part of the UKS's goal, including planning for financing.

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THE CORRELATION BETWEEN MEAL PATTERN WITH NUTRITIONAL STATUS IN TODDLERS AT BANGSRI VILLAGE MAGETAN DISTRICT

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ABSTRACT
One of the health problems faced by Indonesia is malnutrition which makes the level of health of the Indonesian people not increase significantly. The body will get a good nutritional health condition if the habit of eating patterns is formed in quantity. A good diet needs to be established as an effort to meet nutritional needs and an inappropriate diet will lead to excess nutrient intake or vice versa. The type of research used is correlational analytic with cross sectional approach. The population in this study were all mothers who have children under five aged 2-5 years in Rw 2 Bangsri Village, Magetan Regency with a total of 36. The sampling technique used was the Non Probability Sampling technique. The data obtained was then processed by the Chi Square Test method. The results of this study indicate that toddlers with proper eating patterns all have normal weight while toddlers with inappropriate eating patterns are mostly underweight. The results of the analysis showed the relationship between diet and nutritional status in children aged with the Chi Square test results obtained p value = 0.000 < = 0.05. Children's health is something that parents need to take seriously. Efforts are made to arrange a balanced diet to suit their nutritional needs. A balanced diet and the selection of the right food ingredients are things that must be done because the food intake needed by toddlers can be fulfilled.
Keywords: Feeding Pattern, Nutritional Status, Toddler

BACKGROUND

Good feeding patterns need to be established as an effort to meet nutritional needs and inappropriate feeding patterns will lead to excess nutrient intake or vice versa. Excess intake leads to overweight and other diseases caused by excess nutrition. On the other hand, less intake than needed will cause the body to become thin and susceptible to disease. (Sulistyoningsih, 2012).

Based on the results of Riskesdas 2018 Indonesia shows 17.7% of infants under the age of 5 years are still experiencing nutritional problems. This figure consists of toddlers who are malnourished by 3.9% and those who suffer from malnutrition by 13.8%. In fact, the limit for health problems set by WHO in 2019 was at 10%. (Riskesdas, 2018).

There are nutritional problems that can be directly affected by inadequate nutritional intake. The description of the lack of nutritional intake can be seen from the habit of eating patterns (Omage & Omuemu, 2018). Eating disorders occur due to several reasons for eating patterns, such as consuming unhealthy foods or eating too much.

The nutritional needs of children at the age of 2-5 years are increasing because they are still in a period of rapid growth and their activities are increasing. Likewise, children already have a choice of favorite foods, including snacks. A balanced and safe daily diet is useful for achieving and maintaining optimal nutritional and health status. (Almatsier, 2017). Therefore, the amount and variety of food should receive special attention from the mother in order to choose a nutritionally balanced diet.

One of the breakthroughs made by the Ministry of Health to make human resources superior is through increasing the target of providing additional food (PMT) for underweight toddlers, nutrition education efforts in increasing exclusive breastfeeding, providing infant and child food (PMBA) and promoting balanced nutrition guidelines (Kemenkes RI, 2013). 2019).

Based on the above background, the problem is formulated as follows "How is the Relationship between Diet and Nutritional Status in Toddler Age Children in Bangsri Village, Magetan Regency?".

RESEARCH METHODS

This study uses a correlational analytic research method with a cross sectional approach and uses the Non Probability Sampling technique with a population of all mothers who have children under five aged 2-5 years in Rw 2 Bangsri Village, Magetan Regency with a total of 36. The independent variable in this study is nutritional status while dependent variable diet.

Data collection in the study was carried out door to door. To find out the toddler's eating pattern, it was obtained from the mother by filling out the CFQ questionnaire. Meanwhile, to determine the nutritional status of children under five, it was obtained from the results of the examination of the toddler's weight using the bath scale and the assessment of nutritional status using the BB/U.

Data analysis was carried out in a computerized manner using data processing software with univariate and bivariate analysis. Univariate is a data analysis that explains and describes each research variable while bivariate is an analysis that is carried out more than or equal to two variables that serves to determine the relationship between diet and nutritional status of children under five, in analyzing using the Chi Square test to determine whether or not there is a relationship pattern. eating with nutritional status in toddlers.

RESULTS AND DISCUSSION

1. Socio-demographics of respodents

Table 4.1 Demographic characteristics of mothers and toddlers at Bangsri Village Magetan District

No	Characteristic	Category	F	%
1.	Mother's Age	< 22 years	1	3
		24-28 years	6	17
		> 28 years	29	80
2.	Mother's Education	College	1	3
		SMA	29	80
		SMP	6	17
3.	Mother's Profession	PNS	1	3
		Laborer	4	11
		Wiraswasta	5	14
		IRT	26	72
4.	Toddler Gender	Boy	21	58
		Girl	15	42
5.	Toddler Age	25-36 months	4	11
		37-48 months	10	28
		49-59 months	22	61
	Total		36	100

Demographic data of mothers based on age found almost all of them were >28 years old (80%). Based on the mother's education, almost all of them have high school education (80%). Based on the mother's occupation, most of the household workers (72%), a small proportion worked as civil servants (3%).

Demographic characteristics of children under five based on gender found that most of them were male (58%) and almost half of them were female (42%). Based on the age of toddlers, most of them were aged 49-59 months (16%) and a small proportion were aged 25-36 months (11%).

2. RESULTS

Table 4.2 Frequency distribution of meal pattern in toddlers at Bangsri Village Magetan District 2022

Meal Pattern	F	%
Good > 55% - 100%	26	72
Bad < 55%	10	28
Total	36	100

It was found that most of the toddlers had a good diet and almost half of the toddlers had a bad diet. This is in line with the research of Waladow, (2013) in that study, most of the toddlers had a good diet. According to Nasution (2016) the eating pattern that is formed is very closely related to children's eating habits, consuming good food will allow them to achieve good health conditions.

Based on the results of the study, most toddlers have a good diet, this is because parents who realize the importance of health in the family will teach children good eating habits with a regular diet and always pay attention to the nutritional content that refers to balanced nutrition. As for toddlers with poor eating patterns, almost half of them are obtained, according to the results of the answers, which show this is due to several factors, namely the environment where there are a lot of snack vendors, so that children like to eat snacks outside and like to eat ciki, besides that other factors are because children have difficulty eating.

Table 4.3 Frequency distribution of nutritional status in toddlers at Bangsri Village Magetan District 2022

Nutritional Status BB/U	F	%
Severely underweight (Z score < - 3 SD)	1	3
Underweight (Z score -3 SD sd < -2 SD)	7	19
Normal (Z score -2 SD sd +1 SD)	28	78
Overweight (Z score > +1 SD)	-	-
Total	36	100

The results of research on the nutritional status of toddlers in Bangsri Magetan Village show that almost all toddlers have normal nutritional status and a small pr oportion have very poor nutritional status.
This is in line with the research of Mery Sambo et al (2020) in this study which showed that almost all toddlers had normal nutritional status (82%). Nutritional status is the state of the body as a result of food consumption and use of nutrients. Nutritional status is a reflection of the size of the fulfillment of nutritional needs (Rahmi, et al., 2017).
Based on the results of the study, almost all children under five had normal nutritional status. This shows that mothers of children under five in the Bangsri Magetan sub-district are aware of the importance of adequate nutritional intake for the development and growth of toddlers. So that parents are able to choose and process the right food to be given to their children so that the nutritional needs of children are achieved properly. However, a small proportion of toddlers have poor nutritional status, according to the results of the answers because children have a habit of eating outside and parents pay less attention to food intake factors.

Table 4.4 The correlation between meal pattern with nutritional status in toddlers at Bangsri Village Magetan District 2022

Meal Pattern	Nutritional Status BB/U								Total		p value
	severely underweight		underweight		Normal		Overweight				
	F	%	F	%	F	%	F	%	F	%	
Good	-	-	-	-	26	100	-	-	26	100	
Bad	1	10	7	70	2	20	-	-	10	100	0,000
Total	1	3	7	19	28	78	-	-	36	100	

Based on the results of the analysis with the chi square test, it is stated that there is a relationship between diet and nutritional status in children under five in the Bangsri sub-district, Magetan Regency, which is indicated by a p value of 0.000 or less than 0.05.

The results of this study are in line with the Suseno 2021 research, which shows that there is a relationship between diet and nutritional status in toddlers with p value = 0.011. Poor eating patterns of toddlers will affect nutritional status. According to Damaiyanti in (Nasution et al., 2016) that consuming good food will make it possible to achieve good health and nutritional conditions. If the selection of food is not right, unhealthy and in excess or less, it will also cause nutritional problems.

In this study, toddlers with good eating patterns all had normal weight. This shows that mothers of children under five in the Bangsri Magetan sub-district have realized the importance of maintaining diet and nutritional intake to achieve good nutritional status and for the development and growth of children under five.

CONCLUSION

From the results of the research that has been done, the following conclusions can be drawn:

1.Toddlers in Bangsri sub-district, Magetan Regency, mostly have a good diet and almost half have a bad diet

2.Toddlers in Bangsri sub-district, Magetan Regency, almost all have normal nutritional status, and a small proportion have very poor nutritional status

3.Toddlers with good eating patterns all have normal weight in the Bangsri sub-district, Magetan Regency.

RECOMMENDATIONS

1. Parents of toddlers

Clients are expected to fulfill nutrition with the right diet for toddlers to maintain good nutritional status in toddlers

2. Health workers and cadres

It is hoped that it can be a continuous educator and facilitator for parents of toddlers about the importance of proper eating patterns and fulfilling toddler nutrition

3. Researcher

Future researchers are expected to be able to use it as a source of data for further research based on other factors, different variables, with a larger number of samples.

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Study of Determinants of Contraceptive Use, Maternal and Child Health Services on the Risk of Stunting in Central Kalimantan Province
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ABSTRACT
Stunting has a risk of morbidity and mortality, this will be a problem when Indonesia faces a demographic bonus in 2038. Indonesia Demographic and Health Survey (IDHS) in Indonesia in 2017, the percentage of babies born less than 2.5 kg or Low Birth Weight (LBW) at the age of mothers 20-34 (6.9%). The 2017 IDHS for Central Kalimantan Province is above the national percentage for LBW at maternal age 20-34 years (9.4%) and maternal age 35-49 years (11.2%). Data from the *Badan Kependudukan dan Keluarga Berencana Nasional* (BKKBN) Representative for Central Kalimantan, the highest percentage of the use of this type of contraception is injectable contraceptives (60%). The purpose of this research is to see the relationship between the determinants that cause the risk of stunting. This study uses secondary data from the women of childbearing age IDHS of Central Kalimantan Province in 2017, the research subjects were 221 children born from 2012 to 2017 along with mothers of toddlers. With purposive sampling, only children whose weight and body size were listed would be research subjects. Using chi square analysis with alternative fisher exact test. The results showed that there was a relationship between the reasons for stopping alcohol and the baby's birth weight 0.034 <0.05; there is a relationship between age at first marriage with baby's weight at birth 0.002<0.05; there is a correlation between parity and baby's weight at birth 0.014<0.05; and there is a relationship between the place of delivery and the baby's weight at birth 0.016 <0.05. There is a relationship between the reasons for stopping alcohol and the baby's body size at birth 0.000<0.05; there is a relationship between the measurement of maternal weight gain during pregnancy with the baby's body size at birth 0.000 < 0.05; there is a relationship between receiving hepatitis B vaccination at birth with the baby's body size at birth 0.014. Socialization and monitoring of the availability of MKJP contraception to increase coverage, but also look at the needs of acceptors when choosing contraception. Maximizing genre ambassadors in BKKBN to be able to approach teenagers through social media, discussion forums and others, so that teenagers who decide to marry young can be reduced. Coordination with regional leaders to make policies not to marry according to religion or custom, children under the age of 18, and provide clear sanctions. Research can be continued by analyzing the role of schools through adolescent reproductive health programs to assist adolescents to avoid teenage marriage.

Keywords: Contraception, maternal health, child health, stunting, IDHS 2017

BACKGROUND
The problem of short children (stunting) is a nutritional problem today. Stunting causes high rates of morbidity and mortality in children under five, brain development is hampered, so that motor development is also delayed (National Team for Prevention of Poverty Reduction *(Tim Nasional Pencegahan Penanggulangan Kemiskinan* (TNP2K), 2018). Stunting is a

chronic nutritional problem caused by inadequate nutritional intake for a long time due to feeding that is not in accordance with nutritional needs (Agustin and Rahmawati, 2021). Stunting occurs when the fetus is still in the womb and only appears when the child is two years old. Factors for the occurrence of stunting such as maternal health during pregnancy, low birth weight (LBW), infectious diseases, gestational age, number of children, birth spacing, are factors related to the risk of children under five experiencing stunting (Achadi, Kesehatan and Universitas, 2018).

National Medium Term Development Plan in 2024 targeting stunting is 14%. The results of the Indonesian Nutrition Status Study in 2021 the prevalence of stunting in Indonesia (24.4%) is still very high (Kementerian Kesehatan, 2021). Data in Central Kalimantan Province (Kalteng) for toddlers aged 0-23 very short months in 2020 (5.1%) and short toddlers 0-23 months (10.4%), which are among the top 10 provinces with the highest stunting rate compared to other provinces and national level figures (*Dinkes Provinsi Kalimantan Tengah*, 2019). IDHS in 2017, the percentage of babies born less than 2.5 kg or Low Birth Weight (LBW) at maternal age 20-34 (6.9%) has increased, because the 2012 IDHS showed the percentage of LBW in maternal age 20-34 years (6.8%), and 2017 IDHS data, Central Kalimantan Province is above the national percentage of LBW at maternal age 20-34 years (9.4%) and maternal age 35-49 years (11.2 %). Even very small babies did not experience a decline based on the 2012 IDHS and the 2017 IDHS for mothers aged 20-34 years (1.9%) remained at the same percentage for 5 years The 2018 Central Kalimantan Province health profile report, the percentage of LBW is 1.9%, and the BPS report in 2020 the percentage of LBW in Central Kalimantan (2.2%) shows an increase (Dinas Kesehatan Kota Palangka Raya, 2019). Based on data from the Indonesian Ministry of Health, Director General of Public Health, Directorate of Nutrition, Central Kalimantan, the percentage of stunting aged 0-59 months as much as 2016 (34.1%) and 2017 (39.0%).

Malnutrition at an early age increases infant and child mortality, the cognitive abilities of sufferers are also reduced (Prado *et al.*, 2016), resulting in long-term economic losses for Indonesia, especially when Indonesia faces a demographic bonus which is a strategic issue related to population control and strengthening population governance; (Kemenkes RI, 2020a); (Mardiani, Ita., Purnomo, 2018). The factors that determine the occurrence of LBW that cause stunting risk are the use of contraception, where the function of contraception is to regulate birth order, birth spacing, and also regulate fertility rates (Mardiani, Ita., Purnomo, 2018); (Khusna and Nuryanto, 2017).

The factor for the occurrence of stunting in children is the number of parity, this is related to the availability of contraception for mothers who want to regulate the distance and number of births (Khusna and Nuryanto, 2017); (Sumiaty, Pont[b] and Sundari[c], 2017). IDHS data in 2017 the percentage of unmet need for contraception in Indonesia is 10.60%, while the national mid-term development plan target in 2024 is 7.4%. Data from the BKKBN Representative for Central Kalimantan, the highest percentage of the use of this type of contraceptive is injectable contraceptives (60%), but there are 6 percent of married women whose family planning needs have not been met who need to provide adequate supply of acceptors. The conditions in 2020, which are currently experiencing a global Covid-19 pandemic, make acceptors worry about going to health workers who provide family planning services, while injectable contraceptives are usually carried out in health services or health workers (Kemenkes RI, 2020a).

One of the efforts of the BKKBN to overcome the problems mentioned above, based on the BKKBN regulation of the Republic of Indonesia No. 6 of 2020 concerning the BKKBN strategic plan for 2020-2024, through the *Bangga Kencana* program, the BKKBN seeks to achieve harmony, harmony, and balance between quantity, quality, and population distribution. and the environment, as well as improving the quality of the family so that there

can be a sense of peace and hope for a better or independent future in realizing physical prosperity and inner happiness. BKKBN plays a role in priority programs of national mid-term development plan IV 2020-2024, such as improving access and quality of health services; Improving Maternal and Child Health, Family Planning and Reproductive Health, and Accelerating Community Nutrition Improvement. Use of contraception, maternal and child health services by regulating gestational age, number of children, spacing of pregnancies, and health services during pregnancy, childbirth and the postpartum period. Family planning service regulate the number of children and the spacing of pregnancies, ensure the availability of contraceptive needs, the practice of feeding infants and children, the practice of breastfeeding according to age. weight and body size at birth, breastfeeding status according to age, immunization, prevalence of ARI and diarrhea, consumption of macronutrients in children are factors that have an influence on the incidence of stunting. The purpose of this study was to examine the determinants of contraceptive use, maternal and child health services on the risk of stunting in Central Kalimantan Province (2017 IDHS data analysis) and analyze the most influencing determinants to be used as the basis for policies in preventing stunting risk in children under five.

RESEARCH METHODS
Cross sectional research design which aims to see directly at the same time the determinants of contraceptive use, maternal and child health services on the risk of stunting in Central Kalimantan Province (IDHS 2017 data analysis) and descriptive method, which aims to provide an overview and explanation of the determinants contraceptive use, maternal and child health services on the risk of stunting in Central Kalimantan Province (IDHS 2017 data analysis). Using secondary data from the IDHS 2017 report for Central Kalimantan Province and secondary data from the BKKBN for Central Kalimantan Province Representatives in 2020 (January–June period). The research subjects were women of childbearing age with their children under five (12 – 59 months) who were reported in the 2017 Central Kalimantan IDHS report with a total sample of 163 live births in the 5 years prior to the survey (born between 2012-2016). Sampling technique with purposive sampling, inclusion criteria for women of childbearing age families who have live births 5 years before the survey who have a report of weight, either recorded or maternal memory and have data in accordance with the variables to be studied, and meet the data required by the researcher. Using chi square analysis with alternative fisher exact test.

RESULTS AND DISCUSSION
This study is based on secondary data from the women of childbearing age, IDHS in Central Kalimantan Province, the research subjects were children born alive in the 5 years prior to the survey, namely between January 2012 to 2017 (before the survey). The number of live births was selected (based on the questionnaire part 2 of the birth history of the IDHS questionnaire number 211) from 586 household samples, then looked at the variables of body size at birth, weight and history of ARI 2 weeks before the 2017 IDHS survey. There were 13 variables analyzed in the study. this and the following are variable frequency distribution data whose categories have not been combined into simpler categories (dichotomies).

Contraceptive Use
The following Table 1 shows the variables of contraceptive use used by 221 women who have toddlers as research subjects, the sub-variable on contraceptive use is the selection of contraceptives with the highest percentage of injecting (72.3%), while the long-term contraceptive method has the highest percentage. very small below 1%. the highest percentage of family planning needs were met for the purpose of limiting the number of

births (46.6%) and also the need for distance management (34.8%), and the reason for stopping using the last recorded use was due to health problems (75.2%)

Table 1. Contraceptive Use (N=221 mothers of infants/toddlers)

Variables	f	(%)
Selection of contraception/methods		
Pill	30	13,6
IUD	2	0,9
Inject	182	72,3*
male condom	1	0,5
Abstinence periodically	2	0,9
Withdrawal	1	0,5
Implants/Norplant	2	0,9
Lactational amenorrhea (LAM)	1	0,5
Family planning needs that have not been met		
The need to adjust the distance has not been met	6	2,7
Limiting needs have not been met	4	1,8
Use to set distance	77	34,8
Using to limit	103	46,6*
Failed to set distance	1	0,5
Failed to limit	1	0,5
There are no unmet needs	16	7,2
Not married and not having sex in the last 30 days	7	3,2
Menopause, infertile		
Reasons for discontinuing the use of Alkon		
Want to get pregnant	6	2,7
Husband doesn't agree	6	2,7
Health problems	33	14,9
Access, availability	164	74,2*
Want a more effective method	1	0,5
Uncomfortable to use	2	0,9
Cost	5	2,3
Difficult pregnancy, menopause	1	0,5
Marriage Divorce	1	0,5
Other	1	0,5
Don't know	5	2,3
	2	0,9

* variable with the highest percentage

Maternal Health Service

Table 2 is the variable of maternal health services consisting of the sub-variable place of delivery, measurement of weight gain during pregnancy. Approximately (38%) mothers gave birth at home, but during pregnancy their weight gain was measured (80.1%).

Table 2. Maternal Health Services (N=221 mothers of infants/toddlers)

Variables	f	(%)
Place of Delivery		
Respondent's house	84	38,0
More houses	24	10,9
Goverment hospital	31	14,0*
Government health services	15	6,8
Private hospital/clinic	19	8,6
Other private sector	25	11,3
Unknown	23	10,4
Measurement of weight gain Weight gain during pregnancy		
Not	11	5,0
Yes	177	80,1*
Unknown	33	14,9

* variable with the highest percentage

Child Health Services

Table 3 is a child health service variable consisting of sub-variables breastfeeding the baby after birth or known as early breastfeeding initiation (51.1%) mothers immediately breastfeed their babies immediately after the baby is born, and (53.4%) vaccinations hepatitis B based on the mother's report, which was recorded on the card (33.5%).

Table 3. Child Health Services (N=221 Infants / Toddler Last Birth 2012 to 2017)

Variables	f	(%)
Breastfeeding Baby After Birth		
Within 1 day	30	13,6
1 hour	78	35,3
Quick	113	51,1*
Hepatitis B vaccination at birth		
Not given	29	13,1
Vaccination date on card	74	33,5
Report from mother	118	53,4*

* variable with the highest percentage

Stunting Risk

The results of the 2017 IDHS data noted that only (6.8%) had a birth weight of less than 2.5 kg. Meanwhile, the data on the size of the baby at birth is based on the mother's memory, not based on records in maternal and child health book, and (12.2%) is small from the average, very small (0.9%).

Table 4. Risk of Stunting in Babies Based on Body Weight Birth and Size at Birth

Variables	f	(%)
Weight at birth of the last child recorded in the Maternal Child Health book		
< 2.5 kg	15	6,8
2.5 - 4 kg	197	89,1*
> 4 kg	9	4,1
Baby's Body Size at Birth		
Very large	3	1,4
Bigger than average	39	17,6
Average	127	57,5*
Small than average	27	12,2
Very small	2	0,9
Unknown	23	10,4

* variable with the highest percentage

Based on table 5, it can be seen that the mother's education level (56.1%) is secondary education and those who have no education are only (0.5%). Based on the number of children, the highest percentage has children 2 children (62.9%), but for the age of first marriage, the highest percentage is at the age of 8-16 years (80.5%) meaning that many are married at the age of children because they are not yet 18 years old.

Table 5. Characteristics of Mothers of Infants/Toddlers

Variables	f	(%)
Level of education		
No education	1	0,5
Base	57	25,8
Intermediate	124	56,1
higher education	39	17,6
parity		
number of children >4	12	5,4
number of children 3-4	70	31,7
number of children 2	139	62,9
Age of First Marriage		
8-16 yrs	178	80,5
17 yrs +	43	19,5

* variable with the highest percentage

The following Table 6, is a bivariate analysis, which wants to see whether the correlation between two variables has a significant relationship. The test used is the chi square test because the data used is nominal scale, but for the expected value < 5 using an alternative with the Fisher exact test, the correlation coefficient is determined to assess the level of strength of the relationship. The categories of the variables changed to meet the requirements of the chi square test, so merging and simplification of categories was carried out on each variable.

Table 6. Relationship between Contraceptive Use, Maternal Health Services and Child Health Services with Baby Weight at Birth

Variables	Baby Weight at Birth			ρ	r
	< 2,5 kg	2,5 - 4 kg	> 4 kg		
Distance from Last Birth to Previous Birth					
≤ 2 years	2 (0,9%)	9 (4,1%)	1 (0,4%)	0,263	0,109
> 2 years	13 (5,9%)	188 (85,1)	8 (3,6%)		
Reasons for discontinuing contraception					
Want to get pregnant	0	37 (16,7%)	4 (1,8%)	0,034 *	0,212
Health problems	13 (5,9%)	153 (69,2%)	5 (2,3%)		
Availability, Access	2 (0,9%)	7 (3,2%)	0		
The last method was discontinued in the last 5 years	15 (6,8%)	193 (87,3%)	9 (4,1%)	0,780	0,340
Non Longterm contraceptive method	0	4 (1,8%)	0		
Long term contraceptive method					

Measurement of weight gain during pregnancy					
No	0	5 (2,3%)	0	0,623	0,053
Yes	15 (6,8%)	192 (86,8%)	9 (4,1%)		
Age of First Marriage				0.002 *	0,227
8-16 years old	7 (3,2%)	163 (73,8%)	8(3,6%)		
>17+ years old	8 (3,6%)	34 (15,4%)	1 (0,4%)		
Level of education					
No education	0	1 (0,4%)	0	0,638	0,138
Base	7 (3,2%)	48 (21,7%)	2 (0,9%)		
Intermediate	7 (3,2%)	112 (50,7%)	5 (2,3%)		
higher education	1 (0,4%)	36 (16,3%)	2 (0,9%)		
Total Parity					
number of children >4	3 (1,3%)	9 (4,1%)	0	0,014 *	0,231
number of children 3-4	7 (3,2%)	58 (26,2%)	5 (2,3%)		
number of children 2	5 (2,3%)	130 (58,8%)	4 (1,8%)		
Breastfeeding Baby After Birth	0	28 (12,7%)	2 (0,9%)		
Within 1 day	8 (3,6%)	67 (30,3%)	3 (1,3%)	0,376	0,137
1 hour	7 (3,2%)	102(46,2%)	4 (1,8%)		
Quick					
Receiving Hepatitis B Vaccination at Birth					
Not vaccinated	8 (3,6%)	133(60,2%)	6 (2,7%)	0,533	0,075
Vaccinated	7 (3,2%)	64 (29%)	3 (1,3%)		
Unfulfilled family planning needs					
There is	2 (0,9%)	11 (4,5%)	0	0,467	0.014
There isn't any	14 (6,3%)	186 (84,2%)	9 (4,1%)		
Place of birth					
House	8 (3,6%)	94 (42,5%)	6 (2,7%)	0,016 *	0,229
Government facilities	7 (3,2%)	37 (16,8%)	2 (0,9%)		
Private facilities	0	66 (29,9%)	1 (0,4%)		

*significant at α 0.05

In table 6, the reasons for discontinuing the use of alcohol have a relationship with the baby's weight at birth 0.034 < 0.05 with a moderate/weak relationship strength level r (0.340). Age at first marriage has a relationship with baby weight at birth 0.002 <0.05 with a weak relationship strength level r (0.227), parity number has a relationship 0.014 <0.05 with a weak relationship strength r (0.231), and place of birth has a relationship with the baby's weight at birth where 0.016 <0.05 with a weak relationship strength level (moderate) r (0.229).

Table 7. Relationship between Contraceptive Use, Maternal Health Services and Child Health Services with Baby Weight at Birth Baby's Body Size at Birth

Variables	Baby Body Size At Birth		ρ	r
	Small than average	Bigger than average		
Distance from Last Birth to Previous Birth				
≤2 years	0	12 (5,4 %)	1.000*	0,067
> 2 years	16 (7,2%)	193 (87,4%)		
Reason for Discontinuation of Alkon	11 (4,9%)	30 (13,6%)	0,000	0,340
Want to get pregnant	5 (2,3%)	166 (75,1%)		
Health problems	0	9 (4,1%)		
Availability, Access				
The last method was discontinued in the last 5 years	16 (7,2%)	201 (91%)	1,000*	0,038
Non Long Term Contracetive Method	0	4 (1,8%)		
Long Term Contracetive Method				
Measurement of Weight Gain during Pregnancy				
Not	3 (1,3%)	2 (0,9%)	0,000*	0,296
Yes	13 (5,9%)	203 (91,9%)		
Age of First Marriage				
8-16 years old	14 (6,3%)	164 (74,2%)	0,743*	0,49
>17+	2 (0,9%)	41 (18,6%)		
Level of education				
No education	0	1 (0,4%)	0,455	0,108
basic education	2 (0,9%)	55 (24,9%)		
Middle education	12 (5,4%)	112 (50,7%)		
higher education	2 (0,9%)	37 (16,7%)		
Total Parity				
number of children >4	1 (0,4%)	11 (4,9%)	0,836	0,040
number of children 3-4	4 (1,8%)	66 (30%)		
number of children 2	11 (4,9%)	128 (58%)		
Breastfeeding Baby After Birth	2 (0,9%)	28 (12,7%)		
Within 1 day	2 (0,9%)	76 (34,4%)	0,107	0,141
1 hour	12 (5,4%)	101 (45,7%)		
Quick				
Receiving Hepatitis B Vaccination at Birth				
Not vaccinated	15 (6,8%)	132 (59,7%)	0,014*	0,159
Vaccinated	1 (0,4%)	73 (33%)		

Unfulfilled family planning needs				
There is	11 (4,9%)	5 (2,3%)	0,170	0,027
There isn't any	99 (44,8%)	106 (48%)		
Place of birth				
House	10 (4,5%)	98 (44,3%)	0,272	0,108
Government facilities	4 (1,8%)	42 (19%)		
Private facilities	2 (0,9%)	65 (29,5%)		

Based on Table 7, it was found that the one that had a significant relationship with body size when the baby was born was the reason for stopping alcohol 0.000 <0.005 with the level of strength of the relationship r(0.340) still weak, Measurement of weight gain during pregnancy 0.000 <0.05 with r (0.296) and the variable receiving hepatitis B vaccination at birth was 0.014 < 0.05 with r (0.159) where the strength of the relationship was very weak.

Based on the maternal health service variable, the category of the sub-variable for the selection of contraception is in the injection category (72.3%), the consistency of contraception with injection is very low, because the factor of forgetting from family planning acceptors to the date of re-injection is very large, especially in the midst of the Covid-19 pandemic, going outside is strictly restricted. The importance of choosing the right contraception because it can prevent stunting (Torlesse *et al.*, 2016), by limiting the number of births, parents can pay more attention to the growth of their children (Putri and Rong, 2021).

In addition to injectable contraceptive methods, a high percentage is the contraceptive pill method of contraception, the two methods above are short-term contraceptive methods, with a very high rate of family planning failure. There are several factors that acceptors choose contraception instead of long term contraceptive method, such as wanting to get pregnant and the number of children being less than 2 people and husband's support (Bahu, Hasania and Hilamuhu, 2019). In the 2017 IDHS secondary data analysis research, in Central Kalimantan the number of parity 2 people was still very high (62.9%) and (14.9%) stated that they had stopped using contraceptives because their husbands did not approve. The reason for stopping the use of contraception turned out to have a significant relationship with the baby's weight at birth and the size of the baby's body at birth where each value <0.05 but the relationship is still weak, meaning that if there are other variables that are more dominant, it can change the relationship. the. Several studies state that parity has a relationship with infant mortality because the mother's body is not ready to face pregnancy (Sitorus and Siahaan, 2018), also during pregnancy will affect the readiness of the mother's body to provide maximum nutrition(Hasan *et al.*, 2019), the more children the mother's body is tired of being able to care for (Wahyuni, 2019), especially if birth spacing is too short, in this study the highest percentage distance was at a distance of 2 years (Kemenkes RI, 2020); (Wahyuni, 2019).

Age at first marriage also has a significant relationship with baby's body weight at birth 0.002 <0.05 with the highest percentage of age at marriage based on the 2017 IDHS data analysis in Central Kalimantan province (80.5%) married at age < 17 years. This also makes the percentage of education levels still at the level of basic education (25.8%) and secondary education (56.1%), even though education affects mothers' perceptions in implementing appropriate parenting patterns for children, especially for child nutrition (Muniroh and Ni'mah, 2015); (Karundeng, Ismanto and Kundre, 2015). Pregnancy during adolescence also affects parenting patterns as well as the physical readiness of prospective mothers who are less ready to provide maximum nutrition to the fetus (Haque *et al.*, 2022); (Larasati, Nindya and Arief, 2018)

The role of health care facilities is closely related to the baby's weight at birth and the size of the baby's body at birth, this is in line with several studies which say that by accessing health services the family will receive health education during pregnancy, childbirth, postpartum and during monitoring of child growth and development.(Hafid, Badu and Laha, 2018); (Kurniawan and Melaniani, 2019)In this study, the place of delivery and the baby's weight at birth had a relationship where $0.016 < 0.05$. Awareness of the utilization of health care facilities in the 2017 IDHS data in Central Kalimantan province is good, indicated by a low percentage of deliveries at home (38%) and other homes (10.9%) the rest choosing to give birth in government facilities and private facilities. When the family uses health facilities, during pregnancy the mother's health will be monitored, especially the mother's nutrition, in this study (80.1%) admitted that during pregnancy weight gain was measured, this also resulted in a relationship between the measurement of weight gain during pregnancy and the size of the baby's body at birth where $0.000 < 0.05$. Monitoring maternal weight gain during pregnancy prevents mothers from experiencing chronic energy deficiency (KEK) which can affect fetal body size (Kurniawan and Melaniani, 2019); (Wicaksono and Harsanti, 2020).

Access to health care facilities also makes babies born to receive hepatitis B vaccination immediately after birth, in this study the percentage of infants who received hepatitis B vaccination was higher than those who did not receive hepatitis B vaccine immediately after birth. Getting the vaccine based on the mother's report (53.4%) and recorded on the card (33.5%), and the results of the correlation test showed a significant relationship between the administration of hepatitis B vaccine at birth and the size of the baby's birth weight $0.014 < 0.05$. Vaccination is an effort to prevent newborns from being exposed to infectious diseases, and this is in line with several studies that infectious diseases that occur during childhood growth will cause stunting (Kasim, Malonda and Amisi, 2019);

CONCLUSION AND RECOMMENDATION

There was a relationship between the reasons for stopping alcohol and the baby's weight at birth $0.034 < 0.05$; there is a relationship between age at first marriage with baby's weight at birth $0.002 < 0.05$; there is a correlation between parity and baby's weight at birth $0.014 < 0.05$; and there is a relationship between the place of delivery with the baby's weight at birth $0.016 < 0.05$. There is a relationship between the reasons for stopping alcohol and the baby's body size at birth $0.000 < 0.05$; there is a relationship between the measurement of maternal weight gain during pregnancy with the baby's body size at birth $0.000 < 0.05$; there is a relationship between receiving hepatitis B vaccination at birth with the baby's body size at birth 0.014.

Socialization and monitoring of the availability of long term contraceptive method to increase coverage, but also look at the needs of acceptors when choosing contraception. Maximizing genre ambassadors in BKKBN to be able to approach teenagers through social media, discussion forums and others, so that teenagers who decide to marry young can be reduced. Coordination with regional leaders to make policies not to marry according to religion or custom, children under the age of 18, and provide clear sanctions. Research can be continued by analyzing the role of schools through adolescent reproductive health programs to assist adolescents to avoid teenage marriage. The conclusion should compatible between the study purpose and the core findings of the study. Provide a statement whether or not the research question of the study is answered. The study importantly needs to state the implications of the study and attract further investigation.

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The Effect Of Education To Nurses on The Implementation of Discharge Planning In Patients In The Edelweis Room

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ABSTRACT

Discharge planning program is a process of preparing patients to get continuity in care and maintain their health status until the patient feels ready to return to his family environment, the process starts from the moment the patient comes to a health care place. The purpose of this study was to determine the effect of education on nurses on the implementation of discharge planning in patients in the Edelweiss Room, Bhayangkara Hospital Manado. This study used a Quasy Experimental Design using a Pretest-Posttest Control Group Design with 60 samples, which were divided into 30 respondents in the experimental group and 30 respondents in the control group. The sampling technique used is purposive sampling, this method uses the criteria selected by the researcher in selecting the sample. The measuring tools used are the Extension Program Unit of discharge planning and questionnaires. The statistical tests used were paired sample t-test and independent sample t-test. The results obtained from the statistical paired sample t-test and independent sample t-test with SPSS resulted in a sig (2-tailed) value of 0.002. This means that sig (2-tailed) < 0.05, so Ha is accepted. The conclusion shows that there is a significant difference between the pre-test and post-test of the experimental group who were given education to nurses about discharge planning. And there is a significant difference between the experimental group and the control group with sig values. (2-tailed) 0.000 means < 0.05. It is expected that nursing services carry out discharge planning according to the stages that have been made and patients are expected to be able to carry out the results of the discharge planning so that they can improve their quality of life.

BACKGROUND

At this time there are still many complaints reported by the public regarding health services in hospitals that are less than optimal. One of the service activities that have not been optimal is the implementation of discharge planning (Safrina, Putra 2019). Discharge planning programs can reduce the length of days of patient care, prevent recurrence, improve the patient's health condition, reduce the burden on the patient's family and reduce mortality and morbidity rates. Implementation of a good discharge planning will affect the improvement of the patient's health quality.

Ignorance or inability of patients and families regarding how to care at home has an impact on health problems or the patient's unpreparedness to face discharge after the patient is hospitalized. This causes an increased risk of complications and results in re-hospitalization (Safrina, Putra 2019).

One of the roles of nurses in nursing services is as an educator. Nurses provide health education to patients and help patients to improve their health through the provision of knowledge related to nursing and medical treatment received so that patients and families gain important knowledge. Nurses in carrying out their role as educators are also part of the discharge planning implementation.

Discharge planning education needs to be delivered to nurses through short courses or internal training as an effort to encourage awareness, willingness, and ability of patients to be more independent in handling their health status. In Indonesia, nursing services have designed various forms of patient discharge planning formats, the flow has been arranged in detail to make it easier for nurses to carry out their duties as well as possible, but only used in the form of documenting resumes of patients returning home, in the form of information that must be conveyed to patients who are going home such as medical and non-medical interventions that have been given, control schedules, and nutrition that must be met after being at home (Azimatunnisa, 2019).

Information is only given when the patient is declared allowed to go home, even though discharge planning begins on the first day the patient is admitted to the hospital. This cannot be said to be discharge planning, because it is given in a short time and the information is very limited so that it does not guarantee the achievement of a change in the behavior of the patient and family.

Based on research conducted by Safrina, et al (2019) regarding the implementation perception of the importance of discharge planning at the Banda Aceh Hospital, it shows that as many as 67.2% of respondents perceive discharge planning as important to implement. Another study conducted by Purnamasari (2012), regarding the evaluation of the implementation of discharge planning at the Tugurejo Hospital Semarang stated that 46.6% of respondents were in the sufficient category when carrying out discharge planning. This means that discharge planning at Tugurejo Hospital Semarang has not been carried out optimally.

Based on the results of an initial survey conducted on January 25, 2019 in the Edelweiss room of the Bhayangkara Hospital Manado, from interviews conducted with the head of the room and nurses in the Edelweiss room, it was known that discharge planning was carried out after the patient was allowed to go home and had been examined by a doctor. In providing discharge planning to patients, nurses provide education regarding control schedules and taking medication regularly to patients. Therefore, researchers are interested in conducting research on the effect of education to nurses on the implementation of discharge planning in patients in the Edelweiss Room Bhayangkara Hospital Manado.

RESEARCH METHODS

This research uses Quasy Experimental Design by using Pre Test-Post Test Control Group Design. The independent variable (independent) in this study is education for nurses and the dependent variable is the implementation of discharge planning for patients.

The population in this study were all nurses in the Edelweiss room with a total of 18 nurses and patients in the last 1 month who were hospitalized in Edelweiss Room and Internal Surgery with a total of 298 patients. The sample size in this study used the Arikunto formula, namely 298 (population) x 20% = 59.6 rounded up to 60 samples, which were then divided into 30 patients in the Edelweiss room as the experimental group and 30 patients in the Internal Surgical room as the control group.

The instrument used in this study is the Extension Program Unit for education to nurses and a questionnaire given to patients to measure the implementation of discharge planning carried out by nurses. Univariate analysis produces frequency distribution and percentage of each variable, and bivariate analysis for data obtained if normally distributed, the researcher uses the T test, with $\alpha \leq 5\%$, assisted by the SPSS (Statistical Product and Services Solutions) version 25 program for Windows.

RESULTS AND DISCUSSION
A. Research results
    1. Univariate Analysis
      a. Characteristics of respondents

        Table 1. Distribution of Respondents by Age in the Edelweiss Room and Internal Surgery

Age	Experimental Group		Control Group	
	N	%	N	%
15-25 Age	7	23.3	8	26.7
26-35 Age	5	16.7	6	20.0
36-45 Age	3	10.0	3	10.0
46-55 Age	9	30.0	7	23.3
56-65 Age	6	20.0	6	20.0
Total	30	100.0	30	100.0

Table 1 shows that of the 60 respondents in the experimental group and the control group, based on age the most in the experimental group were aged 46-55 years as many as 9 people (30.0%) and the most age in the control group was aged 15-25 years as many as 8 people (26.7 %).

Table 2. Distribution of Respondents by Gender in the Edelweiss Room and Internal Surgery

Gender	Experimental Group		Control Group	
	N	%	N	%
Male	12	40.0	17	56.7
Female	18	60.0	13	43.3
Total	30	100.0	30	100.0

Table 2 shows that of the 60 respondents in the experimental group and the control group, based on the sex of the experimental group there were 12 males (40.0%) and 18 females (60.0%). While in the control group there were 17 males (56.7%) and 13 females (43.3%).

b. Discharge Planning Implementation

Table 3. Distribution of Respondents Based on the implementation of discharge planning in patients before and after being given education to nurses in the Edelweiss room

Variable	Category						Total	
	Good		Enough		Less			
	N	%	N	%	N	%	N	%
Pre-test	5	16.7	20	66.7	5	16.7	30	100.0
Post-test	21	70.0	5	16.4	4	13.3	30	100.0

Table 3 shows that the implementation of discharge planning of respondents before being given education to nurses on the implementation of discharge planning in patients in the poor category was 5 people (16.7%) and the implementation of discharge planning of respondents after being given education to nurses was mostly in the good category, there were 21 people (70.0%).

Table 4. Distribution of Respondents Based on Test results in the Internal Surgery Room.

Variable	Category			Total
	Good	Enough	Less	

	N	%	N	%	N	%	N	%
Test Result	3	10.0	4	13.3	23	76.7	30	100.0

Table 4 shows that the test results of respondents as a control group in the poor category were 23 people (76.7%).

2. Results of bivariate analysis
   a. Normality test results

Table 5. Normality Test Results for the Experimental Group and the Control Group

Statistical test	Significance value	Meaning
Kolmogorov-Smirnov Test		
Experiment Group and Control Group	0.200	Normal distribution

Table 5 shows that the normality test in the experimental group and the control group has a significant value of 0.200 > 0.05, so the normality test is normally distributed.

b. Homogenity test

Table 6 Test of Homogeneity of Experimental Group and Control Group

Statistical test	Significance value	Meaning
Experiment Group and Control Group	0.818	Homogen

Table 6 shows that the homogeneity test in the experimental group and the control group has a significant value, namely 0.818 > 0.05, then the data distribution is homogeneous or the same.

c. The results of the analysis of respondents before and after being given education to nurses on the implementation of discharge planning in patients can be seen in table 7.

Table 7. Results of Analysis of the Implementation of Discharge Planning in Pre-Test and Post-Test Patients in the Experimental Group Using the Paired Sample T-Test

	T	Df	Sig.(2-*tailed*)

		-3.459	29	.002
Pair 1	*Pre test-post test*	-3.459	29	.002

Table 7 shows that the value of sig. (2-tailed) 0.002 < 0.05, it can be concluded that there is a significant difference between the pre-test and post-test of the experimental group who were given education to nurses on the implementation of discharge planning in patients.

Table 8. Independent Test Results Sample T-Test in the Experimental Group and Control Group t-test for Equality of Means

		T	Df	Sig.(2-*tailed*)
Result	*Equal variances assumed*	7.424	28	.000
	Equal variances not assumed	7.424	57.385	.000

Table 8 shows that the value of sig. (2 tailed) 0.000 < 0.05, it can be concluded that there is a significant difference between the experimental group which was given education to nurses on the implementation of discharge planning and the control group which did not educate the nurses.

B. Discussion

The results of the study are presented based on the research objectives, namely knowing the implementation of discharge planning in patients before educating nurses, knowing the implementation of discharge planning in patients after educating nurses and analyzing the differences in the implementation of discharge planning between before and after education for nurses in the Edelweis Room Manado Hospital Bhayangkara.

1. Implementation of discharge planning in patients before and after nurses were given education in the Edelweiss Room.

   Based on the research conducted, it was found that the implementation of discharge planning of respondents before being given education to nurses from 30 respondents based on table 6 was in the less category with a presentation of 16.7% or 5 respondents and after educating nurses on the implementation of discharge planning in patients, the category with the highest presentation high category is either 70% or 21 respondents.
   The results of statistical tests in this study used a paired t-test with a significant value of 0.002. This means that the significant value < 0.05. Because the significant value is <0.05, it can be concluded that Ho is rejected and Ha is accepted. So it can be said that there is an effect of education on nurses on the implementation of discharge planning in patients in the Edelweiss Room Bhayangkara Hospital Manado.
   Another study conducted by Hidayat (2018) concluded that there was an effect of providing discharge planning on increasing patient and family knowledge about post-cataract surgery.

Another study conducted by Nurjanah and Irwan (2019) also concluded that there was a significant difference in self-efficacy between the treatment group and the control group with a p value of 0.002 < 0.05.

According to researchers, discharge planning education for nurses is very important to increase nurses's knowledge about the implementation of discharge planning. The implementation of discharge planning must always be carried out by nurses to assist patients and their families in preparing for the patient's return. The implementation of discharge planning must be given to the person closest to the patient starting when the patient enters until the patient is ready to return to his environment.

2. Differences in the implementation of discharge planning in patients in the Edelweiss Room and the Internal Surgery Room.

The effect of education to nurses on the implementation of discharge planning in patients in the Edelweiss Bhayangkara Hospital Manado. The calculation of the results using post-test data of the experimental group and control group data that have been analyzed statistically states that there are differences in the results of the experimental group and the control group. The average post-test value of the experimental group was 68.77 while the average value of the control group was 39.60. The results of statistical tests in this study used an independent sample test with a significant value of 0.000. This means that the significant value < 0.05. Because the significant value <0.05, it can be concluded that Ho is rejected and Ha is accepted. So that it can be said that there is a significant difference between the experimental group that was educated on nurses and the control group that did not educate the nurses.

The results of this study are supported by the research of Wijayanti et al. (2019), there is a difference in the average value of patient readiness in facing discharge between the control group and the intervention group, the significant value of p = 0.000 is lower than the P Value (0.05). So it was concluded that there was an effect of discharge planning on the patient's readiness to face discharge.

This study is supported by research conducted by Ernita, et al (2017) It was concluded that there was a significant difference between the readiness of pulmonary TB patients to face discharge in the experimental group before and after being given discharge planning by nurses at ArifinAchmad Hospital with statistical test results p < 0.05. In this study, there were differences in the experimental group and the control group after being given education to nurses.

According to researchers, education for nurses is important to increase nurses's knowledge about the implementation of discharge planning, nurses who have good knowledge about discharge planning will be able to carry out discharge planning implementation in patients well, so that they can help families and patients to prepare patients to go home. Meanwhile, nurses who have less knowledge about discharge planning will carry out less than optimal discharge planning.

CONCLUSION AND RECOMMENDATION

There are differences in the implementation of discharge planning to patients before and after the nurse provides education and there are also differences in the implementation of discharge planning to patients between the experimental group and the control group, so it is recommended that after the nurse is given training on discharge planning, it can maximally encourage awareness and willingness and ability of the patient to handle health after returning home, and for hospitals to improve health services that are integrated in the

implementation of the discharge planning implementation process provided by nurses to patients and families, and can conduct further research.

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PLAY THERAPY AS SUPPORT FOR THE GRIEVING PROCESS OF POST TRAUMATIC STRESS DISORDER DISASTER IN CHILDREN : LITERATUR REVIEW

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ABSTRACT
Post-traumatic stress disorder (PTSD) in children is a condition or condition that occurs after a child experiences a traumatic event or bad event in his life. PTSD often occurs in children aged 4-12 years. Children as disaster victims who are prone to experiencing Post Traumatic Stress Disorder (PTSD) need to get serious treatment so that the consequences are not prolonged and hamper their development. One form of intervention that can be applied to restore the psychological condition of children affected by disasters is through play therapy. This study aims to analyze articles about the effect of play therapy as a support for the PTSD grieving process in children. This article uses secondary data from 5 articles obtained through the database, 155 articles were obtained from both databases until there are 5 selected articles that will be reviewed. This research method uses literature review by determining keywords, collecting inclusion/exclusion using PECOS. From the research of the five journals, it shows that there is a significant effect before and after play therapy. Prior to play therapy, children experience emotional disturbances characterized by sadness, anxiety, loss, and fear. After doing play therapy can reduce trauma in children, reduce anxiety and fear, and reduce post-traumatic stress. Play therapy is a therapeutic process that uses play as therapy to easily see a child's natural expressions that cannot be expressed in verbal language. Games are an alternative to reduce PTSD in children, this is because the provision of support, direction and motivation given to children will have an influence on decreasing PTSD levels.

Keywords: Play therapy, PTSD, Children

BACKGROUND

Every disaster event can cause deep sorrow, making the victims feel very uneasy, fearful, and endlessly anxious until they easily experience panic (Maspupatun, 2017). An event that is more severe than the occurrence of a disaster is when there is a loss of one that is owned by a person, it is possible for each individual to feel ongoing stress and the situation becomes traumatized if a person does not have the ability to balance and manage his life properly after the traumatic event he experienced. (AzizatulAvivah et al., 2019)

Children are the group most affected by disasters. Every year, more than 100 million children worldwide fall victim to disasters. One of the biggest impacts of disasters is trauma. Post-traumatic stress disorder (PTSD) is a psychological disorder of individuals who experience a traumatic event. In Edgar-Bailey's research (2010), 3-15% of girls and 1-6% of boys experience PTSD (Post traumatic stress disorder), the behaviors shown by children

include disruptive, impulsive, inattentive, low academic achievement, and withdrawal. self from others, regressive behavior such as enuresis, encopresis and thumb sucking. Several studies have shown that post-disaster psychological disorders can cause anxiety, depression, and post-traumatic stress disorder. In Torres' research, 2015 individuals who have experienced trauma will show greater constant physical problems, including chronic pain, gastrointestinal disorders, headaches, and heart attacks (Yustiana et al., 2020)

Undetected and untreated PTSD can lead to permanent medical and psychological complications such as trauma, perceptual disturbances, difficulty sleeping, difficulty concentrating, depression, anger, poor physical health, negative emotional feelings (fear, horror), social isolation. , have no aspirations or hopes, experience psychosis, until the victim can commit suicide which has an impact on disrupting the social life and work of the sufferer (W. Subagyo, 2016)

Appropriate psychological services are urgently needed to deal with complications. One of these services is trauma healing activities for children using play therapy. Play therapy is a form of therapy based on systematic theory using a psychological theoretical framework by emphasizing the power of play as a tool in helping clients solve the problems they face. The purpose of this activity is to assist children in overcoming psychological problems, to help achieve growth and development in accordance with developmental tasks optimally. Homeyer and Morrison (2008) revealed that play therapy is an effective way to address children's mental health needs as a valuable intervention according to developmental stages. Play therapy has more promising potential than drug therapy which is an alternative solution in helping a traumatic child return to a mentally healthy person and develop optimally (Riani, 2011).

RESEARCH METHODS

The research design used is the Literature Review method. Science direct, Pubmed, Google Scholar is Data Based which is used in article search, through the PECOT/PICOT framework P (patient/problem): Post-traumatic stress disorder (PTSD); E/I(exposure/implementation): Play Therapy ; C(control/comparative intervention) : No comparison factor, O(outcome): Play therapy as a support for post-traumatic stress disorder disaster.

This literature review is to analyze the effect of play therapy as a support for the grieving process of post-traumatic stress disorder disaster.

Inclusion Criteria
Population
The population in this study are children who are victims of disasters
Exposure of interest
Exposure of interest in this study refers to the incidence of PTSD

Outcome
The outcome determined in this study is Play therapy as a support for the grieving process of post-traumatic stress disorder disaster

Types of Studies
The articles selected in this literature review have a research design using a cross sectional study approach

Data Search Strategy

The search engines used are Pubmed and Google Scholar with article searches starting from January 2012 to June 2022. The article search uses the PECOT/PICOT framework P (patient/problem): Post-traumatic stress disorder (PTSD); E/I(exposure/implementation): Play Therapy ; C(control/comparative intervention) : No comparison factor, O(outcome): Play therapy as a support for post-traumatic stress disorder disaster.

In the search for articles in the database using Indonesian or English.

Article Quality Rating

Peneliti	Judul	Sampel	Variabel	Instrumen	Analisa	Hasil

The instrument used to assess the quality of the article is the DSVIA (Design, Sample, Variable, Instrument and Analysis)

Data Extraction
After assessing the quality of the research methodology, articles will be grouped based on research including quantitative research with a cross sectional approach. The data was extracted by the researcher to include data in the form of article title, author, country, year of publication, research design, number of samples, instrument, PTSD.

Data Synthesis
In carrying out the data synthesis process, this step combines and synthesizes research articles using descriptive techniques. This technique is used to provide a descriptive summary of the studies conducted.

Research time
This Literature Review research was conducted in March – July 2022.

RESULTS AND DISCUSSION
The data search results obtained as many as 155 articles taken from both databases. There were 75 duplicate articles reviewed, 80 articles were selected to read the title and abstract, 53 articles were excluded because they were not in accordance with the PECOS framework, then 27 articles were searched for the full text and assessed based on inclusion criteria. A total of 21 articles were excluded because they did not meet the inclusion criteria. Thus, there are 5 selected articles that will be reviewed

| Anggraini, Sapariah, Martini, Margaretha (2011) | Pelaksanaan *Play Therapy* Dalam Menurunkan Gejala Ptsd Pada Anak Korban Pasca Bencana Kebakaran Di Kelurahan Alalak Selatan Banjarmasin. | 45 chid(3-12 years old) | PTSD | kuesioner*Post Traumatic Stress Disorder* (PTSD) *Symptom Scale For* DSM V(CPSS-V SR). | AnalisisUni variat | The findings of PTSD symptom activities in the target group of activities before play therapy were 37.82 and after play therapy were 25.69 as measured by the PTSD Symptom Scale For DSM V (CPSS-V SR) questionnaire. This finding shows that Play Therapy activities for disaster victims will help children reduce trauma. |

EviAfiati, AlfiandyWarihHandoyo, Siti Muhibah, IbrahimAl Hakim (2020)	Terapibermainbagisiswa korban bencana tsunami di kecamatansumurbanten.	37 student	PTSD	Instruments that used are unstructured interviews and anecdotal notes.	AnalisisDeskriptifUnivariat	The results showed that Play therapy services for students who are victims of the Sunda Strait Tsunami can reduce students' anxiety and fear and relieve the psychological burden they experience.

Yustiana, Yusi Riksa Rusmana, Nandang Suryana, Dodi (2020)	*Group play therapy for the treatment of post-traumatic stress disorder in* child victim *of* tsunami *in* Banten *province.*	25 students	PTSD		Uji t	Based on the t-test, the calculation result is 2 = 0.003 because the value of 1 > 0.05 means Ho is not accepted, thus traumatic counseling through group play therapy techniques has an effect on reducing victims of post-traumatic stress disorder. tsunami disaster in Banten Province. In addition, group play therapy techniques to treat tsunami victims of post-traumatic stress disorder in the Province of

Pertiwiwati, Endang Maulana, Irfan Zahra, Fitriani Az Yuliana, Ida (2021)	*Play Therapy As A Method Of Trauma Healing In* Ptsd *Children Victims Of Flood Disaster In West*Martapura.	35 child with PTSD (4-6 years old).	PTSD	Kuesioner PTSD versi PLC C.	uji Wilcoxon.	From the results of the Wilcoxon test, p value = 0.000, which means there is a significant difference in PTSD questionnaire scores before and after trauma healing intervention with play therapy method. This shows that trauma healing with the play therapy method is effective in improving mild to moderate PTSD to a normal state.

Mukhadiono, WidyoSubagyo, Wahyudi (2016)	Pemulihan PTSD Anak-Anak Korban Bencana Tanah LongsorDengan Play Therapy	Children who are victims of landslides aged 4-12 years who experience psychological disorders after the disaster	PTSD	kuesioner.	*paired t test dan independent t test.*	The results showed that there was a significant difference in the intervention group with PTSD scores before and after play therapy (p 0.001). In the control group there is no difference

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According to (Kar, 2011) (H. Wahyuni, 2016) Posttraumatic stress disorder (PTSD) is a condition or state of psychological disorders that occurs after a person experiences a traumatic event or bad event in his life such as post-disaster can cause anxiety, depression and post-disaster stress disorder. traumatized. Trauma is a condition when a person experiences an event that makes him shaken or experiences ongoing anxiety or psychological disorders either directly or indirectly (Handoyo, 2015). According to research theory (Anggraini, Sapariah, Martini, 2011) Trauma to children requires appropriate treatment so that the trauma experienced does not cause something bad during its growth and development. Prolonged trauma experienced by children can cause symptoms such as restlessness, fear, anxiety and feeling easy to panic, and have anxiety if the incident happens again. In addition to having difficulty sleeping, PTSD sufferers also often experience nightmares (Callen et al, 2018 in (EviAfiati, AlfiandyWarihHandoyo, Siti Muhibah, 2020).

One way that can help children reduce PTSD is to invite children to do play therapy. By playing, children are given the opportunity to be in their natural world as children, so that children will feel safe in expressing and exploring themselves, both thoughts, feelings, experiences and behavior. Play therapy has more promising potential than drug therapy (Mukhadiono, WidyoSubagyo, 2016) (Schultz, 2016). According to (EviAfiati, AlfiandyWarihHandoyo, Siti Muhibah, 2020), play therapy is an activity to help overcome individual problems by using one or several media and techniques in the form of 1) drawing: children are asked to draw traumatic/ unpleasant events/events experienced, then ask the child to tell the picture he made. 2) Playing balloons: playing looking for balloons, bursting

balloons with the sound of balloons popping, the therapist helps children deal with traumatic situations that have been faced by children and creates unrealistic fears. 3) Playing puzzles: by sticking or putting together pictures and stimulating cognitive abilities, helping children change irrational beliefs that interfere with emotions and daily activities. 4) Hand in hand: children hold hands with each other in an elongated way, this is done to form a sense of empathy, cooperation and mental strengthening and motivate children to stay strong and tough (Mulyasih& Putri, 2019).

Several research articles on play therapy show that there are differences before and after play therapy. Prior to play therapy, the child experienced emotional disturbances characterized by sadness, anxiety, loss, fear, difficulty sleeping, and having nightmares. After doing play therapy can reduce trauma in children, reduce anxiety and fear, and reduce post-traumatic stress. In the study (Mukhadiono, WidyoSubagyo, 2016) the results of the study were significant differences before and after play therapy (p 0.001). According to research (Anggraini, Sapariah, Martini, 2011), the findings of PTSD symptoms before play therapy were 37.82 and after play therapy 25.69. According to research by EviAfiati, AlfiandyWarihHandoyo, Siti Muhibah, Ibrahim Al Hakim (2020), the results of play therapy research can reduce students' anxiety and fear and ease their psychological burden. According to Yustiana, YusiRiksaRusmana, NandangSuryana, Dodi (2020), the results of the t-test obtained a calculation of a value of 2 = 0.003 because the value of 1 > 0.05 then Ho is not accepted, thus play therapy has an effect on reducing victims of post-traumatic stress disorder. . According to Pertiwiwati, Endang Maulana, Irfan Zahra, Fitriani Az Yuliana, Ida (2021), Wilcoxon test results obtained p value = 0.000 there is a significant difference in PTSD scores before and after play therapy.

Play therapy or play therapy is an intervention approach/method based on psychological theory, both preventively and rehabilitatively, on the development of children's mental health, emotions, and behavior. The goal of play therapy is to change a child's inappropriate behavior into expected behavior. With play therapy, children can change their behavior in a fun way. Play therapy can be given to children aged 4-12 years who experience trauma, feel anxious, stressed, sad and feel lost. By doing psychological play therapy, the child gets better again, the child can adapt to the traumatic conditions around him. Play therapy is one of the effective measures to help overcome PTSD symptoms in children with disaster victims. Play therapy is a therapeutic process that uses play as therapy to easily see a child's natural expressions that cannot be expressed in verbal language. Games are an alternative to reduce PTSD in children, this is because the provision of support, direction and motivation given to children will have an influence on decreasing PTSD levels.

CONCLUSION AND RECOMMENDATION

Based on the journals that have been reviewed, the six journals discuss play therapy as a support for the post-traumatic stress disorder disaster in children, it can be concluded that there is a significant effect before and after play therapy. Prior to play therapy, children experience emotional disturbances characterized by sadness, anxiety, loss, and fear. After doing play therapy can reduce trauma in children, reduce anxiety and fear, and reduce post-traumatic stress.

For further researchers, it is hoped that they will be able to apply the support for specific post-traumatic stress disorder grieving processes in group play therapy

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SOCIAL CULTURAL PERSPECTIVES IN SUCCESSFUL EXCLUSIVE BREASTFEEDING: LITERATURE REVIEW

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ABSTRACT (Uppercase Bold, 12 pts)
The low coverage of exclusive breastfeeding in Indonesia compared to other developing countries and ASEAN countries certainly contributes to the unfavorable impact of the baby's health. Globally, the rate of exclusive breastfeeding has not met the national target, the coverage of exclusive breastfeeding is only about 41% of infants under the age of six months who are exclusively breastfed. Mother's success in providing exclusive breastfeeding can be influenced by various factors including socio-cultural. The purpose of this Literature Review is to analyze the relationship between social culture and the success of exclusive breastfeeding. The research design used is the Literature Review method. Science direct, Pubmed, Google Scholar is Data Based which is used in article search, through the PECOT/PICOT framework P (patient/problem): Breastfeeding Mother; E/I(exposure/implementation): Socio-Cultural Factors ; C(control/comparative intervention) : No comparison factor, O(outcome): Success of exclusive breastfeeding. The results of the article review found that there was a relationship between socio-cultural factors and the success of exclusive breastfeeding. In addition, the traditional factor also has a very large role in the success of exclusive breastfeeding. Socio-culture is the values, habits, beliefs and traditions contained in society. Socio-cultural factors are in fact one of the factors that play a role in the success of exclusive breastfeeding
Keywords: Socio-Cultural, Success, Giving, exclusive breastfeeding

Keywords: Abstract, Guidelines, Authors, Methods

BACKGROUND (Uppercase Bold, 12 pts)

Mother's milk (ASI) is the first nutrient that is very important in the growth and development of infants. Breastfeeding to babies is given for six months after birth without giving any additional food except ORS, drops, and syrup (vitamins, minerals, and drugs) or called exclusive breastfeeding 1. Exclusive breastfeeding can prevent death in toddlers, prevent infectious diseases, reduce the risk of obesity, stunting, wasting, and underweight (Mubarokah & Muniroh, 2020). The low coverage of exclusive breastfeeding in Indonesia compared to other developing countries and ASEAN countries certainly contributes to the unfavorable impact on infant health (Husaini & Anasril, 2020).

Based on data from the WHO in 2018, 41% of infants aged 0-6 months who received exclusive breastfeeding were. This figure is still low when compared to the Global Nutritions Targets 2025, which is to increase exclusive breastfeeding by at least 50% and the target in 2030 of 70%4. Nationally, the coverage of exclusive breastfeeding for infants aged 0-5 months is 37.3%5. The coverage of exclusive breastfeeding in Bangkalan Regency is still low when compared to other cities/regencies in East Java. Based on Riskesdas Data for East Java

Province, the coverage of exclusive breastfeeding in Bangkalan Regency is 29.1% (Fajar et al., 2018)

The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) recommend: early initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding for the first 6 months of life and introduction of nutritional and safe complementary (solid) foods at 6 months together with continued up to 2 years or more. However, many infants and children do not receive optimal feeding, where only about 36% of infants aged 0 to 6 months worldwide are exclusively breastfed (U. N. Sinaga et al., 2020)

WHO recommends exclusive breastfeeding for 6 months. Experts state that the benefits of breastfeeding will increase if the baby is only breastfed for the first 6 months of life. The increase was in accordance with exclusive breastfeeding, as well as the duration of breastfeeding plus solid food after the baby was 6 months old. International guidelines that recommend exclusive breastfeeding for 6 months are based on scientific evidence about the benefits of breastfeeding for infant survival, growth, and development in addition to exclusive breastfeeding for 6 months, another standard of feeding for toddlers is to provide complementary foods after 6 months. and continued breastfeeding for up to 2 years (U. N. Sinaga et al., 2020)

Nationally, the coverage of infants receiving exclusive breastfeeding is 61.33%. This figure has exceeded the 2017 Strategic Plan target of 44%. The highest percentage of exclusive breastfeeding coverage is in West Nusa Tenggara (87.35%), while the lowest percentage is in Papua (15.32%) and North Sumatra Province (45.74%) (3) Government Regulation no. 33 of 2012 concerning exclusive breastfeeding, also explains the responsibility of the central and local governments and their families in ensuring the fulfillment of the right of babies to receive exclusive breastfeeding from birth to six months of age by paying attention to their growth and development, with the hope that what is the target of the Millennium Development Goals. (MDGs) in 2015 can be achieved. However, if you look at current conditions, in fact the various achievements in exclusive breastfeeding coverage in Indonesia are still disappointing so that it can have an impact on the high Infant Mortality Rate (IMR) in Indonesia (U. N. Sinaga et al., 2020).

There are various factors that influence the attitude of mothers in giving exclusive breastfeeding, both direct and indirect factors. Culture is one of the indirect factors that affect exclusive breastfeeding, both culture for mothers while breastfeeding and culture for babies. Research conducted in the village of Sidotopo, Semampir, Surabaya shows that beliefs and traditions in the family are associated with exclusive breastfeeding. The culture that exists in society will influence a person to behave as he believes. Some individuals who believe that giving honey and sweet water can make babies strong will do this to their babies (Fajar et al., 2018)

RESEARCH METHODS

The research design used is the Literature Review method. Science direct, Pubmed, Google Scholar is Data Based which is used in article search, through the PECOT/PICOT framework P (patient/problem): Breastfeeding Mother; E/I(exposure/implementation): Socio-Cultural Factors ; C(control/comparative intervention) : No comparison factor, O(outcome): Success of exclusive breastfeeding.

This literature review is to analyze the relationship between social culture and the success of exclusive breastfeeding.

Inclusion Criteria

Population
The population in this study were breastfeeding mothers

Exposure of interest
Exposure of interest in this study refers to socio-cultural factors

Outcome
The outcome determined in this study is the success of exclusive breastfeeding

Types of Studies
The articles selected in this literature review have a research design using a cross sectional study approach

Data Search Strategy
The search engines used are Pubmed and Google Scholar with article searches starting from January 2012 to June 2022. The article search uses the PECOT/PICOT framework P (patients/problems): Breastfeeding mothers; E/I(exposure/implementation): Socio-Cultural Factors ; C(control/comparative intervention) : No comparison factor, O(outcome): Success of exclusive breastfeeding.
In the search for articles in the database using Indonesian or English.

Article Quality Rating
The instrument used to assess the quality of the article is the DSVIA (Design, Sample, Variable, Instrument and Analysis)

Data Extraction
After assessing the quality of the research methodology, articles will be grouped based on research including quantitative research with a cross sectional approach. The data was extracted by the researcher to include data in the form of article title, author, country, year of publication, research design, number of samples, instrument, frequency of exclusive breastfeeding.

Data Synthesis
In carrying out the data synthesis process, this step combines and synthesizes research articles using descriptive techniques. This technique is used to provide a descriptive summary of the studies conducted.

Research time
This Literature Review research was conducted in March – July 2022.

RESULTS AND DISCUSSION
The data search results obtained as many as 102 articles taken from both databases. A total of 47 duplicate articles were reviewed, 55 articles were selected to read the title and abstract, 23 articles were excluded because they were not in accordance with the PECOS framework, then 32 articles were searched for the full text and assessed based on inclusion criteria. A total of 22 articles were excluded because they did not meet the inclusion criteria. Thus, there are 10 selected articles that will be reviewed.

Table 1. Characteristics of Research Articles

No	Author, year and title of research	Sample Size	Respondent	Research design	Instrument	Data analysis	Exclusive Breasfeeding
1	Fajar et al, 2018 Hubungan Pemberian Asi Eksklusif Dalam Prespektif Sosial Budaya Di Kota Palembang (Fajar et al., 2018)	220 respondent	Breastfeeding Mother	crosssectional	Interview format	Qualitative analysis	70%
2	Anis Zaiti Mubarokah, Lailatul Muniroh, 2020 The Effect Of Socio-Culture Of Nutrition On Exclusive Breastfeeding Of Maduranese In Bangkalan Public Health Center, Madura Anis (Mubarokah & Muniroh, 2020)	87 respondent	Breastfeeding Mother	crosssectional	questionnaire	Logistic regression	23%

3	Padeng el al, 2021 Hubungan Sosial Budaya terhadap keberhasilan Pemberian ASI Ekslusif Di Wilayah Kerja Puskesmas Waembeleng, Manggarai, NTT (Padeng et al., 2021)	55 responden	Breastfeeding Mother	Quantitative research with descriptive correlation method using a cross-sectional approach	closed questionnaire	Chi-square test	29%
4	Hubungan Sosial Budaya Dengan Pemberian Asi Pada Bayi Di Wilayah Kerja Puskesmas Keruak Kabupaten Lombok Timur (Rhokliana et al., 2019)	80 responden	Breastfeeding Mother	analytical observation	questionnaire format	product moment correlation	17,5%
5	Hubungan Sosial Budaya Dengan Pemberian Asi Eksklusif Diwilayah Kerja Puskesmas Pabatu Kota Tebing Tinggi Tahun 2019 (T. U. N. Sinaga et al., 2019)	76 Responden	Breastfeeding Mother	quantitative research with cross sectional approach	Questionnaire sheet	Chi Square	42,1%

6	Pengetahuan, Kepercayaan Dan Tradisi Ibu Menyusui Berhubungan Dengan Pemberian Asi Eksklusif (Dewi, 2021)	55 Responden	Breastfeeding Mother	quantitative type using cross sectional design	Interview format and questionnaire sheet	Chi Square test	30,9%
7	Pengaruh Sosial Budaya Terhadap Pemberian Asi Eksklusif Di Wilayah Kerja Puskesmas Batunadua Kota Padangsidimpuan Tahun 2015 (Batubara et al., 2016)	67 Responden	Breastfeeding Mother	explanatory research approach	questionnaire sheet	multiple logistic regression test	20,9%
8	*Hubungan Sosial Budaya Ibu Menyusui dengan Pemberian ASI Eksklusif di Kabupaten Bener Meriah Tahun 2013.* (Anggraini, 2014)	102 Responden	Breastfeeding Mother	Survey research with a Cross Sectional approach	questionnaire sheet	multiple logistic regression	53,9%
9	Aspek Budaya Dalam Pemberian Asi Eksklusif Di Kelurahan Bubulak Kota Bogor Tahun 2010 (Firanika, 2010)	10 Responden	Breastfeeding Mother	qualitative research	in-depth interview and observation method	NA	100%

1 0	Pengaruh Pengetahuan dan Budaya terhadap Pemberian ASI Eksklusif di Wilayah Kerja Puskesmas Woyla Barat Kabupaten Aceh Barat (Husaini & Anasril, 2020)	32 Responden	Breastfeeding Mother	analytical survey research by crosssectional design	Interview format and questionnaire sheet	Chi-Square test	28,1%

From the research articles, it was found that there was a relationship between socio-cultural factors and the success of exclusive breastfeeding. In addition, the traditional factor also has a very large role in the success of exclusive breastfeeding. Socio-culture are the values, habits, beliefs and traditions contained in society (Pratiwi et al., 2021). In fact, socio-cultural factors are one of the factors that play a role in the success of exclusive breastfeeding. Socio-cultural factors have a close relationship with exclusive breastfeeding behavior, this is found in all research articles reviewed. There is a relationship between socio-cultural (including habit and myth variables) on exclusive breastfeeding (Ardhani et al., 2020). There are socio-cultural barriers that support the success of exclusive breastfeeding. A good social culture will support the success of exclusive breastfeeding, otherwise a bad social culture will hinder the success of exclusive breastfeeding (Pratiwi et al., 2021)

The success of breastfeeding cannot be separated from the cultural order, meaning that every breastfeeding from mother to child will be related to the social and cultural habits that apply in the community. Everyone is always exposed and touched by environmental habits and is influenced by the community in their environment, either directly or indirectly. The behavior of breastfeeding mothers has been formed by the habit and belief that exclusive breastfeeding will have a very significant impact on the motivation and desire of mothers to exclusively breastfeed. Mothers who are in a supportive socio-cultural environment will find it easy to succeed in exclusive breastfeeding. Belief/social culture comes from what we see and what we know. When trust has been formed, then it will be the basis of one's knowledge about what can be expected from a particular object. (Mubarokah & Muniroh, 2020).

Mothers who have good beliefs are followed by good knowledge because mothers they know more information about exclusive breastfeeding and are easier to trust and mothers who have less trust are more trusting with those closest to them without finding out the actual source of information. Most of the mothers do not give exclusive breastfeeding to their babies due to the mother's habit in addition to breastfeeding, they also give other foods. Family support is very important given to mothers who want to give exclusive breastfeeding so that there is a desire for mothers to exclusively breastfeed because mothers feel that they are also cared for by their families (Rhokliana et al., 2019).

Breastfeeding cannot be separated from the cultural order, meaning that every breastfeeding from a mother to her child will be related to the socio-cultural that exists in the community. Behavior is shaped by habits that are colored by social culture. Everyone is always exposed

and touched by environmental habits and is influenced by society, either directly or indirectly. Behavior that has been shaped by habits and beliefs about exclusive breastfeeding will have an impact on the mother's desire to give exclusive breastfeeding to her child. This socio-cultural will affect the success of exclusive breastfeeding, respondents who have a supportive social culture will show success in exclusive breastfeeding. Family social culture that is not supportive due to the habit of giving food/drinks from an early age while waiting for breast milk to come out (T. U. N. Sinaga et al., 2019).

Socio-cultural beliefs come from what we see and what we know. Once trust has been formed, it will form the basis of one's knowledge of what one can expect from a particular object. Trust can develop from personal experience, what other people tell and emotional needs are the main determinants in the formation of trust. Trust is not always accurate, sometimes trust is formed precisely because of the lack or absence of correct information about the object at hand (Siregar, 2019).

CONCLUSION AND RECOMMENDATION

Socio-culture has a close relationship with exclusive breastfeeding behavior found in all research articles. There is a relationship between socio-cultural (including habit and myth variables) on exclusive breastfeeding found in 8 articles. There are socio-cultural factors that hinder or support exclusive breastfeeding. Therefore, mothers and prospective mothers need to increase knowledge about exclusive breastfeeding. Health workers/health stakeholders to improve the practice of exclusive breastfeeding by promoting health regarding the importance of exclusive breastfeeding and proper exclusive breastfeeding practices, conducting socialization efforts regarding culture related to the habit of giving additional food before the baby is 6 months old to community leaders and community leaders. local religion.

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Empowering Mothers in Preventing and Intervention Stunting through Maternal Assistance in Stunting Locus Areas

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ABSTRACT
Chronic nutritional intake and repeated infections in the first three years, failure to thrive is caused by a lack, thus educational mothers is essential.This study aims to provide training and assistance methods for mothers. The first was to develop a Mother Empowerment Model in the prevention and intervention of stunting in toddlers were used a survey with a Cross-Sectional design for validation the model Implementation using Quasi-Experimental at a second stage. The nonrandomized Control Group Pretest Posttest was designed to compile Practical Guidebooks and VCD. In the 3rd phase, the experimental research used the Posttest–Only to a Control Group design carried out in the 2nd year for determining its effects. Mothers' empowerment and maternal characteristics strongly influence stunting. The t-statistic of mothers empowerment is 3.351, and the maternal characteristicsare8.629 > t-table 1.96. Empowerment has an indirect effect through exclusive breastfeeding. Mother's characteristics indirectly affect knowledge, children's physical health and nutritional status. In addition, family support indirectly affects stunting through motivation and exclusive breastfeeding. Socioeconomic conditions, greatly determine the mother's ability to make efforts to prevent and treat stunting. Family support increases the mother's motivation giving exclusive breastfeeding, which affects the incidence of stunting in children.
Keywords: Empowerment, Mother, Preventing, Intervention, Stunting

BACKGROUND
It is growing scientific consensus that decreasing global illness burden and stimulating economic development needs a high focus on combating childhood stunting. Stunting is most common in Africa (40%) and Asia (112 million stunted children), primarily in South-Central Asia (Dewey & Begum, 2011). Stunting has both a direct cause of short adult height and impaired function later in life. It indicates the underlying mechanisms that lead to poor growth and other adverse outcomes in early life (Perkins et al., 2017). Stunting has been linked to decreased chances of surviving, good health in childhood and adulthood, as well as impaired capacity for learning and production (Vilcins, Sly, & Jagals, 2018). Stunting prevention must be a top priority. Preconception through two years of life should focus on intervention techniques, which include therapies that have been shown to have a favorable influence on linear growth (Perkins et al., 2017). Research needs to be done to corroborate observations for different regions comprehend the routes by which stunting can have sustained impacts. It is imperative to identify pathways through which the non-genetic transfer of nutrition impacts is induced in succeeding generations (Dewey & Begum, 2011). Specifically, the Indonesian province of Magetan Regency has a reported stunting rate of 10.45 percent. Malnutrition in toddlers has lately been recorded in this region for various

reasons. Therefore, low birth weight, infectious disease history, early breastfeeding, the number of families, and maternal education are recommended (Werdani, Isnaini, & Kusumawati, 2019). Then this study fills a significant gap in the few studies on maternal education and stunting undertaken in scholarly attention (Darwis, Abdullah, Amaliah, Bohari, & Rahman, 2021). The Mothers Empowerment Model in the Preventing and Intervention of Stunting was studied using The Stunting Preventing and Intervention Model in the particular stunting locations. Scholars and academics will benefit from the findings of this investigation. The study includes a literature review, a conceptual model, data techniques and methods, results, conclusions, and further discussions.

LITERATURE REVIEW

These two kinds of Inadequacies must have distinct differences at their root for researchers' minds. First, wildly understanding divergent reactions to a single nutritional deficit and how its education should take place. Second, how the body needs and processes nutrients must be considered to determine what shortfall is present; both factors are related to nutritional education and awareness. The consequences of different types of deficiency are examined concerning the assessment of the possibility of the widespread shortfall. Because of the monotony of the diet, those living in poverty are more likely to be deficient in particular "growth" nutrients than the average person. As a result, growth will be modest (Golden, 1991). Generally speaking, people appear to be aware that social influences on food intake can affect their own. Some highly social eaters can accurately report the social effects on their food intake.

In contrast, low social eaters seem to reject these influences (Spanos, Vartanian, Herman, & Polivy, 2014). For reasons related to social awareness, lack of education, and poverty, nutritional health studies require further exploration in future studies. A lack of nutritional intake causes failure to thrive under five years old for a long time, and repeated infections in the early three years have been reported (Carolina, 2021). Nutritional food habits have been widely criticized for their negative impact on health. Many dangers could arise if the mother and child are not adequately cared for. However, the benefits are more significant if one can overcome these challenges, resulting in both physically and intellectually sound (Eze et al., 2017; Fallah, Pourabbas, Delpisheh Veisani, & Shadnoush, 2013). Dietary knowledge is a direct result of parental education, particularly that of women. Poor infant feeding habits (PIFP) contribute to infant malnutrition, illness, and death directly and indirectly (Sethi, Kashyap, & Seth, 2003). A lack of knowledge and awareness causes stress and disparities in human conduct. It has been shown that maternal stress is a factor in obesity and obesity-related chronic disease. This could harm their children's weight and health. There is a need for evidence-based interventions that address both psychological stress and diet (Kennedy, Hosig, Ju, & Serrano, 2019). Because of the detrimental effects of stress on human health and well-being, it is necessary to employ positive psychology, strategic thinking, and responsible behavior to deal with stress effectively (Abbas, Ekowati, & Suhariadi, 2021; Abbas, Saud, Suhariadi, Usman, & Ekowati, 2020; Abbas, Saud, Ekowati, Usman, & Suhariadi, 2021).

The importance of parent behavior in child upbringing is vital (Neitzel& Dopkins Stright, 2004). Children's health is influenced by education, especially maternal education, which is a significant predictor of adult well-being and productivity. At the same time, the link between maternal education and child health has received much attention. Research attempting to show causation in the context of underdeveloped nations has only lately been conducted (Güneş, 2015). When it comes to children's nutrition, parental engagement can significantly impact their knowledge and ability to make informed decisions. Parents' perceptions of the difficulty of nursing may have a lasting impact on how they raise their children (Freeman, Klein, Townsend, & Lechtig, 1980). If understood correctly, it is connected to undernutrition

in children and stunting (Caballero, 2002). In light of these facts, parents' motivation for nursing and childcare development changes accordingly (El-Nmer, Salama, &Elhawary, 2014). As a result of a lack of support from their families, breastfeeding mothers are more likely to experience difficulty in this activity (Chezem, Friesen, & Boettcher, 2003). Motivated by the support of their families, parents were compelled to learn more about the changing nutritional needs of their children (Clifford & McIntyre, 2008; Grassley &Eschiti, 2008). Having the support of one's own family makes it easier for parents to deal with their children's nutritional and health problems, contributing to stunting (Asbar & Tamrin, 2020; Ball et al., 2015). Poor management upbringing impacts all of these elements, which are inextricably linked. It is critical to reducing stunting as early as feasible to avoid long-term consequences like stunted infant development. As a result of the harm done to a child's brain development, stunting, adults are less productive, and youngsters are more vulnerable to sickness (Khosiah & Muhardini, 2019).

The results of Basic Health Research in 2018 revealed that the prevalence of stunting in Indonesia is 19.3%. This increased stunting child rate has created a worrisome scenario in health care, requiring immediate intervention. This tendency recorded an increase from previous years, i.e., 2013, where the rate was 19.2%, while the speed reached in 2007 was 18%. Government efforts have managed to prevent this stunting rate, however. It is a sign that the World Health Organization's stunting barrier is ready to be crossed. Although this is essential, it is more important that the rate is higher than this in some parts of Jawa and needs to be addressed right now. Stiffed children are becoming a significant problem in Indonesia, particularly in the Java region.

Magetan Regency has a stunting rate of 10.45% or 3665. At this time, Magetan Regency has a stunting rate of 10.45%. At the NG Health Center, where stunting is prevalent (21.89%), a preliminary investigation found 206 stunting toddlers among 941 toddlers aged 0-59 months and 122 children aged 7-36 months (33.88 percent). According to data from the Health Office, there are still many sub-districts with high rates of stunting, including districts L, TL, T, and P (Department, 2018). According to the findings shown above, the health centers of these regions must have a stunting rate of at least 20% to meet the World Health Organization's standards (Pusdatin, 2017).

Magetan region moms who have children under two were interviewed as part of a recent study. When it came to their children's physical appearance, mothers who had not been exposed to information about stunting were found to be unaware. Because of this ignorance, parents were less concerned than they should have been about the physical appearance of toddlers. Some women believe that the genetic factor is to blame for their children's miniature stature. As a result, they refuse to seek medical attention for their children. Pregnancy nutrition promotion does not benefit from the intervention of health care professionals. The mother's knowledge and the health of the mother and kid are affected (Arrish, Yeatman, & Williamson, 2017). Children under the age of five who are at risk of being stunted can be prevented through direct nutrition interventions or indirect efforts that include providing food, clean water, sanitation, poverty alleviation, education, and social services by involving the community. A study health Ministry in Indonesia in 2016 demonstrates that the government is making a substantial effort in this regard. Even yet, authors believe that the significance of mother education and empowerment and family support should be more widely recognized in light of the literature mentioned above. Therefore, this study was developed and framed to fill this void in knowledge.

Authors believe that short-term effects of stunting are increased morbidity and mortality, suboptimal cognitive, motor, verbal growth and development in children, and increased health costs. While the long-term effects are shorter body posture than usual, increased risk of obesity and other diseases, decreased reproductive health, learning capacity, poor

performance at school, as well as suboptimal productivity and work capacity. Stunting poses a threat to Indonesia's government and people in the short and long term. It could result in a generation with a severely deformed future generation. Research posit that increasing the general populace's nutritional status is a component of improving health status. Nutritional status helps detect early risk of health problems (Astuti & Ayuningtyas, 2018). Monitoring nutritional status is used as anticipation in planning to improve children's health status. Government efforts to improve nutritional status need to involve community participation with direct participation (Hidayat and Azi, 2008).

The Indonesian government realizes maternal empowerment. A report revealed that mentoring activity aimed at increasing the ability of families to prevent and overcome nutritional problems for their family members (Ministry of Health, 2007). Empowerment of mothers is carried out by providing counseling, training, and mentoring to mothers. Stunting can be prevented and treated with the help of moms who utilize weight and height measurements to assess their children's nutritional status, as well as community education and support (Mardiati et al., 2021). This argument is especially valid for mothers with young children. Early Detection and Early Intervention of Stunting is one of the efforts to improve the quality of children and is one of the Ministry of Health of the Republic of Indonesia programs. In addition, it is mainly conducted by cadres and mothers of toddlers through the provision of supplement food. As a result, it has no immediate effect because it is not yet particular and not yet focused. At least 90 blood-added tablets, supplementary food, and nutritional fulfillment for pregnant women, delivery with an expert doctor or midwife, exclusive breastfeeding until the age of six months old, provision of complementary food from the period of six months to two years, complete basic immunizations and vitamin A, and monitoring on the growth of toddlers at the nearest Integrated Center for Child Development (Saputri, 2019).

In 2021, Magetan was included in the Stunting Locus focus location area in East Java. Therefore, research on empowering mothers in carrying out stunting intervention by training and assisting in designing specific food menus for toddlers who experience stunting is vital and appropriate. It is expected that mothers can immediately practice and feed their children to deal with stunting to suppress/reduce stunting. This study posits all these concerns in its investigation (Saadah, 2021).

RESEARCH METHODS

This research implemented3 phases. Phase I develops a Mothers Empowerment Model in the Prevention and Intervention of Stunting in Toddlers using a theory of Health promotion model, community empowerment theory, motivation theory, stunting theory, and independence theory, using a survey with a Cross-Sectional design. Phase II is the model implementation using Quasi-Experimental,the Nonrandomized Control Group Pretest Posttest Design. Furthermore, Phase III is the Experimental research through Posttest - Only Control Group Design (Nursalam, 2016).

The research location is in the Posyandu area of 9 Public Health Centersin 15 villages, the Stunting Locus area in Magetan Regency in 2021. The research population is all mothers of children under five years old in the Posyandu of 15 Locus Stunting Villages. The sampling technique is Multistage random sampling, starting with grouping the sample based on the region or population location (Nursalam, 2013). Stratification and selection are conducted through Systematic Simple random sampling. The research sampling process selected 9 Public Health Centers, theStunting Locus in Magetan Regency, in 2021 in 15 villages in the Public Health Centers area taken proportionally. The samples were further grouped based on the inclusion criteria.

RESULTS AND DISCUSSION

Result

The table below describes the characteristics of the research respondents.

Table 1. Description of the Demographic Characteristics of Research Respondents

Variable	Indicator	Frequency	%
Mothers' age	20 - 35 Years Old	219	94.4%
Mother's Education	Senior High School	97	41.8%
Socio-Economic	Moderate	111	46.30%
Mother's Occupation	Housewife	138	57.5%
Prevention of stunting	Any	148	62%
Intervention of stunting	None	155	64.5%
Healthy	Once	131	54.5%
Sick	Once	131	54.5%

Based on the table above, it is known that the 240 mothers involved mainly were aged 20-35 years old by 219 (94.4%) mothers. Based on the education, it shows that most of the mothers have high school education (41.8%), moderate socioeconomic (46.30%), and are housewives (57.5%). Furthermore, 62% of the mothers did stunting prevention, while 64.5% did not intervene the stunting. Most children had experienced illness by 54.5%, and 89.5% received exclusive breastfeeding. Most mothers received 96.25% family support, 98.3% intrinsic motivation, and 96.25% extrinsic motivation. Most mothers do not have awareness and do not empower to prevent stunting.
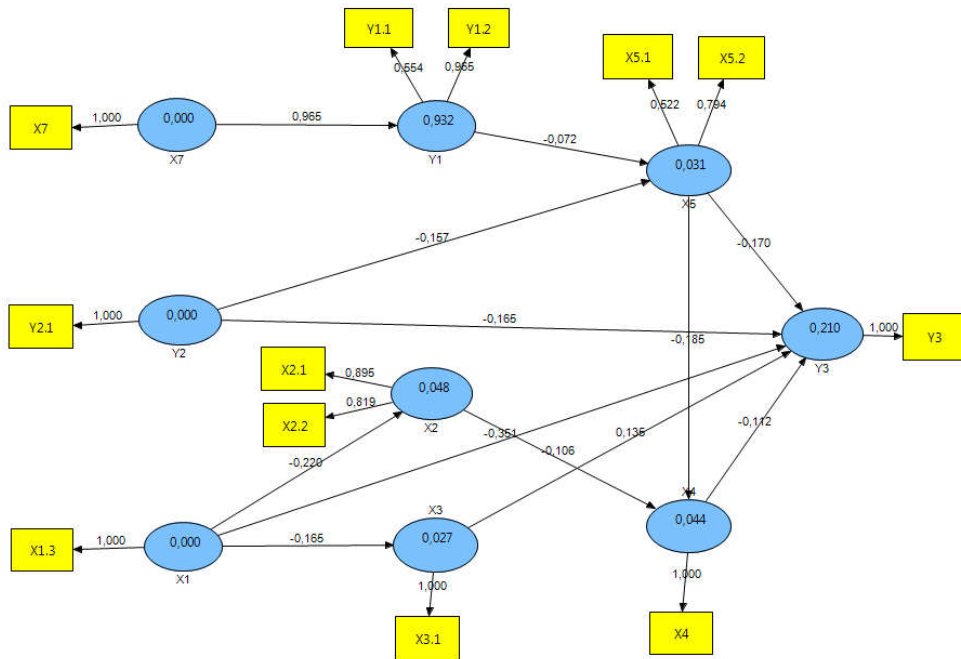
Figure 1 Best Model (fit model) Empowering Mothers in Prevention and Intervention Stunting
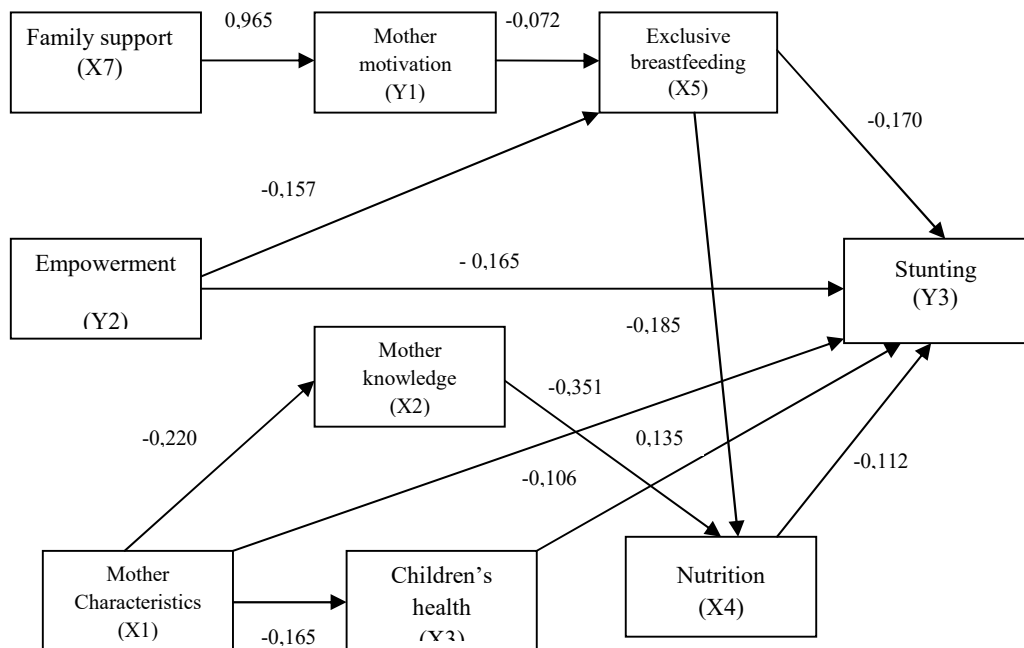
Figure 2 New Finding "Mother empowerment model in Stunting Prevention and handling in stunting special locations"

Path Analysis

Based on the best model formed, there are 12 hypotheses assessed, as shown in the following table:

Table 2 Hypothesis Significance Test Results

Path	Hypothesis	Coefficient	T-Stats	Significance (>1.96)
Exclusive Breastfeeding → nutrition	H1	-0.185	2,727	Received
Exclusive Breastfeeding → Stunting	H2	-0.170	5.017	Received
Support → Motivation	H3	0.965	56.549	Received
Nutrition → Stunting	H4	-0.112	2,270	Received
Characteristics → Health	H5	-0.165	3,531	Received
Characteristics → Knowledge	H6	-0.219	4,850	Received
Characteristics → Stunting	H7	-0.351	8,629	Received
Health → Stunting	H8	0.135	3,334	Received
Motivation → Exclusive Breastfeeding	H9	-0.072	4.025	Received
Empowerment → Exclusive Breastfeeding	H10	-0.157	2,610	Received
Empowerment → Stunting	H11	-0.165	3,351	Received
Knowledge → nutrition	H12	-0.106	2,298	Received

Discussions

The effect of maternal characteristics (age and mother's education) on the prevention and intervention of stunting

The current study obtained that most mothers were aged 20-35 years old (early adulthood), so there was a significant effect of maternal age during pregnancy on the incidence of stunting. The age of 19-35 years old is the productive age group when a person reaches maturity in terms of productivity. In addition, they have maturity in rational and motor terms so that they have sufficient maturity (Thesa 2020).
Previous research conducted by Fall et al. (2015) showed that children of mothers aged less than 19 years old have a high risk of experiencing growth and development disorders. Their age is relatively short, namely two years by 30-40%. Zukhra (2017) stated that a person's age could affect knowledge. The older a person is, the more knowledge and experience he has.

The age of 20-35 is a mature age for a mother who has received sufficient knowledge of caring for and caring for children, so that child development goes well. Furthermore, a mother's education level is very influential on child development. Compared to women with greater levels of education, mothers with lower levels of education have a more challenging time stimulating their child's growth (Kumalasari, Tjekyan, & Zulkarnain, 2018).

Effect of Exclusive Breastfeeding on Nutritional Status

The effect of Exclusive Breastfeeding on Nutrition shows the t-values of 2.727, i.e., >1.96, indicating a significant impact of exclusive breastfeeding on nutrition. The nutritional status of children has a significant indirect effect on the stunting factor. Failure to grow and develop after birth reflects inappropriate exclusive breastfeeding and causes stunting (Rahmadi, 2016). Efforts to reduce the incidence of stunting are by optimizing exclusive breastfeeding for six months (Kramer and Kakuma, 2012). Exclusive breastfeeding is proven to affect the nutritional status of children. Many factors influence mothers' awareness in giving exclusive breastfeeding to their children. Increasing women's empowerment, the quality of health services, and the diversity of food certainly impact maternal and child nutrition. Understanding the benefits of exclusive breastfeeding for children starts with young women before marriage. Continuous motivation to realize the importance of exclusive breastfeeding affects children's nutritional status.

Influence Exclusive Breastfeeding to Stunt

The effect of exclusive breastfeeding on stunting shows the t statistic value of 50.017, i.e., >1.96, indicating a significant impact on stunting. Previous research conducted by Dewi (2015) obtained that children who are not exclusively breastfed tend to have a 5.54 times risk of stunting compared to exclusively breastfed children. Children who are not exclusively breastfed have a more significant percentage of suffering from stunting. Conversely, breastfed children have a more substantial portion of normal nutritional status (Handayani et al., (2019).
The benefit of exclusive breastfeeding is that it supports children's growth, especially height because breast milk calcium is more efficiently absorbed than formula milk. Breast milk nutrition suitable for children's development can ensure that children's needs are met. Stunting can be prevented in children by exclusively nursing because of their nutritional status. Especially first breastmilk must be done because it contains various nutrients that are incredibly beneficial for child development.

The Effect of Family Support on Mother's Motivation

The effect of family support on motivation shows the t-values of 56.549, i.e., > 1.96, showing a significant impact between family support and inspiration.
Saadah (2020) stated that strong family support for mothers in conducting the prevention and intervention of stunting in children has a significant effect on stunting. Family/husband support is substantial for mothers teaching stunting prevention and intervention. Such family support can be in the form of moral and material support. Furthermore, a large family affects the low incidence of stunting because families take care of children besides parents. Those are grandmothers and grandfathers who help fulfill daily needs, including food intake (Rahmawati et al., (2019).
Family support is significant and contributes to stunting children, especially husbands and other families such as uncles, aunts, grandmothers, and grandfathers. With family support,

mothers have a strong commitment to dealing with growth problems in their children. To help children under five have healthy nutrition, families must play an active role. Decrease the number of children who are stunted. Increasing the family's position can be done by giving them information and understanding how the family does its job, especially when it comes to toddlers. It includes giving them various foods, like vegetables and fruits, and regularly eating small amounts of these food sources.

Effect of Nutritional Status on Stunting

The effect of nutritional status on stunting shows the t-value of 2.270, i.e., >1.96, proving a significant effect of nutrition on stunting. Ruaida (2018) said that children's poor diet in the first year of life, poor women's food before and during pregnancy, and poor sanitation practices prevailing in households and communities encourage stunting. The research that Picauly and Toy have conducted (2013) further claimed that for every 1 SD increase in the nutritional status of TB/U children, the child's learning achievement increases by 0.444. Likewise, if the TB/U decreases by 1 SD, the child's learning achievement decreases by 0.444. Empowering mothers in preparing nutritious food for children is needed because the nutritional status of children is closely related to parenting patterns in feeding children. The mother's level of education, knowledge, willingness, motivation, socioeconomic factors, and family support influence it.

The Influence of MaternalCharacteristics on Children's Physical Health

The effect of maternal characteristics on health shows t-values of 3.531, i.e., > 1.96, which significantly influences maternal traits and health. This study also obtained that most children had never been sick. Children had mild illnesses. When they were ill, they were immediately treated so that it did not interfere with the growth and development of children. Saadah (2020) stated that most mothers are aged 20-35 years old (early adulthood). Maternal characteristic factors have a significant direct effect on the stunting factor. In addition, maternal characteristics have a significant indirect impact on stunting through the mother's knowledge, child's physical health, child's nutritional status, and family support regarding early detection, prevention, and intervention of stunting. The mother's maturity causes the ability to take care of her child so that the growth and development are also good (Julia & Indra, 2019).
It is essential to pay attention to the child's physical health to remain healthy. His growth and development usually run. If the child is often sick, the child's activities and appetite are automatically low. If this happens repeatedly, the child's nutritional intake will decrease and cause weight reduction of a child. The child is lazy to move, and cognitive abilities also decline, which triggers and causes impaired growth (stunting) and child development.

The Influence of Mother's Characteristics on Mother's Knowledge

The effect of maternal characteristics on knowledge shows the t-value of 4.850, i.e., >1.96, showing a significant influence between Mother's Characteristics on Mother's Knowledge. Mothers' learning is one of the essential factors that mothers of toddlers must have as people who play a role in preparing family meals. One of the reasons for mothers' low knowledge is their irregular visits to the Integrated Health Post (Posyandu). Knowledge of nutrition for mothers of children under five can be obtained through health counseling conducted by health workers/cadres at the Posyandu. In addition to food, children also need to achieve

optimal growth, attention, and attitude (care) of parents in feeding. Mistakes in choosing food have a terrible impact on children both now and in the future (Milda, 2018).

The selection of food processing and how to provide healthy and nutritious food for toddlers requires high maternal knowledge and education. Understanding the importance of nutrition and health can be more readily accepted by mothers with higher education.

Effect of Mother's Characteristics on Stunting

The effect of maternal characteristics on stunting shows the t-values of 8.629, i.e., >1.96, indicating a significant effect between the Mothers' Characteristics and Stunting. The level of parental education affects parents' knowledge regarding nutrition and childcare patterns, where inappropriate parenting increases the risk of stunting. The educational level involves how well receiving information is taking place. Mothers with higher education levels are more receptive to information than mothers with lower education levels. This information is used as a provision for mothers to take care of their toddlers in daily life (Ni'mah, 2016).

Nutritional knowledge can be easily absorbed and understood by a person's degree of education and their mother's educational level. The higher the mother's education level, the greater the mother's ability to absorb knowledge through formal and non-formal education, including TV, newspapers, radio, and social media. In this case, knowledge, education, socioeconomic are the basis for preventing stunting, especially by improving the nutrition of children under five years old.

The Effect of Children's Physical Health on Stunting

The effect of children's physical health on stunting shows the t-value of 3.334, i.e., >1.96, indicating a significant impact between children's physical fitness and stunting. The study conducted by Probosiwi et al. (2017) mentioned that childhood infectious diseases cause mal-absorption, malnutrition, wasting, stunting, and reduced cognitive function in the future. Contagious diseases have an attachment to a nutritional status that causes child development disorders. On average, children with infections also experience decreased appetite, even though sick children need adequate dietary intake to speed up the recovery process. The analysis results show that the child is unhealthy for a maximum of 7 days. If he is sick two times in the last three months, it will impact the child's growth and development. Suppose the infection occurs over a long period and is repeated. In that case, the child's growth is stunted and eventually becomes short.

It is essential to pay attention to the child's physical health to remain healthy. Their growth and development usually run. If the child is often sick, the child's activity and appetite will automatically be below. If this happens repeatedly, the child's nutritional intake will decrease and cause their weight to reduce. They become lazy, and their cognitive abilities also decline. This will cause their growth (stunting) and development to be disrupted.

The Effect of Mother's Motivation on Exclusive Breastfeeding

The effect of a mother's motivation on exclusive breastfeeding was evaluated. Results show the t-value of 4.025, i.e., >1.96, showing a significant impact of motivation on exclusive breastfeeding. According to Harseni (2019), many moms with excellent intrinsic motivation did not exclusively breastfeed their newborns due to a lack of support from their husbands or relatives. Therefore, the mothers have not optimally provided breast milk and combined it with other food/drinks. The family has a significant influence on forming a person's behavior. The results of this study are different from the research conducted by Armini (2015)

regarding the differences in the mother's intrinsic and extrinsic motivation in giving exclusive breastfeeding. In this research, family/husband support influences the mother's push to provide exclusive breastfeeding.

In order to exclusively breastfeed their child, mothers must be motivated both within and outside. Husband and family support plays a vital role in the psychological problems of breastfeeding mothers. It is imperative to give health education to mothers to motivate mothers to provide exclusive breastfeeding because mothers understand the benefits of exclusive breastfeeding for their children.

The Effect of Empowerment on Exclusive Breastfeeding

The effect of empowerment on exclusive breastfeeding shows the t-values of 2.610, i.e., >1.96, proving a significant effect between empowerment and exclusive breastfeeding. The role of empowering mothers related to the household is essential because it can improve the nutritional status of children. Mothers are expected to be active in health efforts, especially nutrition, to reduce the incidence of stunting (Setiadi et al., 2020). Martini's research (2018) stated that the attitudes and behavior of health workers also affect the family and social environment, which will strengthen a person's behaves. Home visits teach women and their families how to live a clean and healthy life by watching them and providing information that helps them emotionally and practically.

Because the nutritional status of children is linked to how parents feed them, it is essential to teach mothers how to make healthy food for their children. This includes education level, knowledge, mother's willingness and motivation, socioeconomic factors, and family support.

The Effect of Empowerment on Stunting

The effect of empowerment on stunting shows the t statistic value of 3.351, i.e., > 1.96, indicating a significant impact between empowerment and stunting. Nurbeti, M (2019) mentioned the characteristics of empowered citizens. Nubeti, namely being able to understand themselves and their potential, plan to anticipate future changing conditions, direct themselves, have negotiating power, have adequate bargaining power in conducting mutually beneficial cooperation, and take responsibility for their actions. An activity or program can be categorized into community empowerment if the movement grows below. It is non-instructive and can strengthen, increase, or develop the potential of the local community to achieve the expected goals.

The mother's character in dealing with the problem must be clear about the results obtained. The mother makes efforts to get the best for her child about good child growth and development so that stunting does not occur. Young women should possess this awareness and understanding long before they get married to maintain excellent and quality physical conditions to produce quality generations.

The Effect of Mother's Knowledge on Children's Nutritional Status

The effect of knowledge on children's nutrition shows the t-values of 2.298, i.e., >1.96, showing a significant influence between knowledge and child nutrition. Liswati (2016) said that there is no meaningful relationship between maternal age and the nutritional status of children under five years old. Maternal age is a factor that indirectly affects the nutritional quality of children under five. Sukmawati also stated that there was no relationship between the mother's level of knowledge and the child's nutritional status. Other factors include the mother's attitude during parenting, diet, and exclusive breastfeeding. In this study, the

mother's age range includes mature age. It is supported by education and socioeconomic levels. Mothers are expected to commit consistently to preventing and dealing with stunting. From the results of several studies above, it is explained that the nutritional status of children is closely related to the mother's parenting patterns in feeding children. This is influenced by many factors, including the level of education, knowledge, willingness, and motivation of the mother, and socioeconomic factors and family support. Mother's wisdom, poor feeding, economic problems, and infectious diseases contribute to the incidence of stunting. Increased knowledge occurs due to the willingness of the mother to know and participate in health programs. It explains that mothers can apply this knowledge to improve child growth and development by providing nutritious food and stimulating good child growth and development.

CONCLUSION AND RECOMMENDATION

Mother's characteristics, especially socioeconomic conditions, greatly determine the mother's ability to prevent and treat stunting. Public awareness of the importance of stunting prevention determines the capacity of community empowerment in stunting prevention. Family support increases the mother's motivation in giving exclusive breastfeeding, which affects the incidence of stunting in children.

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Case Study Of The Knowledge Of Female Teenagers About Breast Self-Examination (SADARI) In Kencat Bangkalan

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ABSTRACT

Adolescence is a period in which a transition from childhood. It is obvious that the knowledge of female teenagers to perform early detection of breast cancer through Breast Self-Examination (SADARI in Indonesia) is considerably limited. The study aims to identify the level of knowledge of female teenagers to perform SADARI. The study is conducted in Kencat village, Bangkalan. The population of the study is 201 students and using a purposive sampling procedure, 50 female teenagers were chosen as the sample. The variable of the study is the knowledge of female teenagers to perform SADARI. The data were collected using a set of questionnaires and descriptively analyzed. The results are presented in the table of frequency and narration. The analysis found that 20 (40%) of the respondents have a good general knowledge of SADARI. Also, 21 (42%) of the respondents have a moderate understanding of SADARI and poor knowledge of application level of SADARI (23 or 46%). The study concludes that the application of knowledge in performing SADARI is poor among the female teenagers at the research site. It is suggested that female teenagers need to perform SADARI on the 10th day at the date of menstruation.

Keywords: Knowledge, Breast Self-Examination, Female Teenagers

BACKGROUND

Knowledge is the result of knowing, and this occurs after people have sensed a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through the eyes and ears (Notoatmodjo, 2010). During adolescence, there are various changes, both physically, socially and spiritually, which at first were difficult to accept, but with increasing age and understanding, adolescents began to accept these changes. Public knowledge, especially for female teenagers in the Kencat village to detect early signs of possible breast cancer through breast self-examination (SADARI) is still very little, this happens due to lack of information about early detection of breast cancer likewise in the Kencat village, there wasn't any counseling about SADARI. Even though, there were quite a lot of women who had breast cancer or tumors. Dissemination of information about risk factors and early examination of breast cancer may be less spread out in the community, this is what makes a lot of women still not aware of the importance of early detection of breast cancer. In fact, if a lump is found in the breast early, the chances of recovery will be even greater and will not suddenly come to the hospital in an advanced stage (Handayani, 2008).

Global Cancer Observatory 2018 data from the World Health Organization (WHO) shows that the most common cancer cases in Indonesia are breast cancer, which is 58,256 cases or 16.7% of the total 348,809 cancer cases. The low awareness of early detection causes breast cancer cases in Indonesia to be quite high. Based on data presented by the Directorate General of Disease Prevention and Control of the Indonesian Ministry of Health (2019), it is

stated that the highest incidence rate for women is breast cancer, which is 42.1 per 100.00 population with an average death rate of 17 per 100.00 population. This means that from 100,000 population there are 17 women affected by breast cancer. Most breast cancer generally affects women aged 40 years and over. However, now breast cancer also attacks a lot of those who are younger and even teenagers (Kompas, 2011). Based on data released by the East Java Provincial Health Office, in 2019, the number of patients with tumors or breast cancer reached 12,186 cases (KominfoJatim, 2020). The results of preliminary data conducted through interviews with 3 feemale teenagers in the Kencatvillage aged 14-17 years showed that there was only 1 person who knew and understood about breast self-examination (SADARI) as an early detection of breast cancer.

The exact cause of breast cancer is not clearly known, but it could be due to lack of knowledge about ways to detect breast cancer early. What is known is the risk factors that can increase the occurrence of breast cancer, namely poor diet (high in fat and low in fiber, containing preservatives/dyes), first menstruation at the age of less than 12 years, menopause, having had surgery on the breast caused by benign tumor abnormalities or malignant tumor, and among family members there are breast cancer patient. The high mortality rate from breast cancer is caused by breast cancer patients who come to health services in an advanced stage that is difficult to cure. Whereas an examination of the possibility of breast cancer can be detected by herself by doing a breast self-examination(SADARI) to feel whether there is a lump in the breast or not which can be done herself at home at any time and at no cost, because this examination will affect the rise and fall of the cancer cases and mortality from breast cancer.

Promotive and preventive efforts in order to improve the degree of public health and to reduce the incidence of breast cancer can be done by implementing breast self-examination (SADARI) which can be done at any time. Breast self-examination or commonly referred to as SADARI is an effort made to find out any abnormalities that exist in the breast which should be done as early as possible to speed up treatment if there are abnormalities in the breast. Health workers play an important role to remind and recommend detecting breast cancer by conducting breast self-examination (SADARI), especially for women aged 20 years who are at risk of developing breast cancer. Nurses need to provide explanations about the importance of doing SADARI and nurses also need to demonstrate how to do it so that adolescents and women who are at high risk of breast cancer can recognize clinical signs of abnormalities in the breast.

RESEARCH METHODS

The design used based on the type of research is descriptive research with a case study approach. The population of this research is 201 female teenagers in Kencat village, Bangkalanwith a sample of 50 people who were selected using purposive sampling method, namely sampling based on certain considerations such as population characteristics or previously known characteristics.

The research tool used by the researcher is a questionnaire. After the data is collected, data processing is carried out. The data that has been collected then recorded and grouped according to the research objectives. This research uses descriptive analysis in the form of narration and tables. Data collection activities were carried out by taking into account and emphasizing research ethics including informed consent, anonymity and confidentiality.

RESEARCH RESULTS

Table 1

Age Distribution of Female Teenagers in Kencat village, Bangkalan in January 2022

Age	Frequency	Percentage (%)
15	5	10
16	13	26
17	11	22
18	21	42
Total	**50**	**100**

Table 2

Distribution of Female Teenagers Education in Kencat village, Bangkalan in January 2022

Education	Frequency	Percentage (%)
SMP (Junior High School)	10	20
SMA (Senior High Scool)	40	80
Total	**50**	**100**

Table 3

Distribution of the General Knowledge Level of Female Teenagersabout SADARI in Kencat village, Bangkalan in January 2022

Knowledge	Frequency	Percentage (%)
Good	20	40
Enough	19	38
Not Good	11	22
Total	**50**	**100**

Table 4

Distribution of Knowledge Level (Knowing Level) of Female Teenagers about SADARI in Kencat village, Bangkalan in January 2022

Knowledge	Frequency	Percentage (%)
Good	18	36
Enough	22	44
Not Good	10	20
Total	**50**	**100**

Table 5

Distribution of Knowledge Level (Understanding Level) of Female Teenagers about SADARI in Kencat village, Bangkalan in January 2022

Knowledge	Frequency	Percentage (%)
Good	19	38
Enough	21	42
Not Good	10	20
Total	**50**	**100**

Table 4

Distribution of Knowledge Level (Application Level) of Female Teenagers about SADARI in Kencat village, Bangkalan in January 2022

Knowledge	Frequency	Percentage (%)
Good	13	26
Enough	14	28
Not Good	23	46
Total	**50**	**100**

DISCUSSION

A. General Knowledge Level of Female Teenagersabout SADARI

The results of the study in table 4 can be seen that the description of the general level of knowledge of female teenagers about SADARI in the Kencat village, Bangkalan is that most of the respondents are included in the good category, namely as many as 20 female teenagers(40%).

The results of this study included in the good category indicate that the level of general knowledge about SADARI in adolescent girls in the Kencat village, Bangkalan is influenced by the environment around the respondent lives, because actually the health facilities are quite good, namely the Kencat area is close to the Pustu, so to obtain information about health will be easier to get. Environmental factors are very influential on the process of entering knowledge into individuals who are in the environment, this happens because of reciprocal interactions or not which will be responded to as knowledge by each individual. This is also in line with the theory which states that the results of several experiences and observations in the field (society) that a person's behavior includes the occurrence of health behavior, begins with one's experiences and the presence of external factors (physical and non-physical environment) (Notoatmodjo, 2010).

B. Knowledge Level (Knowing Level) of Female Teenagersabout SADARI

The results of the study in Table 5 can be seen that the overall description of the level of knowledge (knowing level) of female teenagersabout SADARI in the Kencatvillage is that most of the respondents are included in the sufficient category, namely as many as 22 female teenagers(44%).

The level of knowledge with sufficient results can be influenced by factors of age and education because some of the respondents in this study were aged (15-17 years) within junior high school education level. A person's mindset and grasping power will develop with age so that the knowledge gained will be more and more, as well as a person's level of education, the higher a person's education level, the easier it is for a person to receive information. However, it should be emphasized that someone with low education does not mean absolutely low knowledge. Increased knowledge is not absolutely obtained from formal education, but also can be obtained from non-formal education. Apart from age and education factors, this sufficient level of knowledge can be influenced by the information obtained by female teenagersabout SADARI, they only know about the meaning and abbreviations of SADARI and do not find out more about what is meant by SADARI.

In addition to information, other influencing factors are personal experiences and from their families. This is supported by the theory of (Notoatmodjo, 2010) which states that experience is the best teacher, the saying can be interpreted that experience is a source of knowledge or experience is a way to obtain a truth of knowledge. Therefore, personal experience can be used as an effort to gain knowledge. This is in accordance with the research (Berek, et al. 2019) with the title "Description of the Knowledge Level of FemaleTeenagersabout Breast Self-Examinationat SMA Negeri 1 Atambuta". With the results of the study at the level of knowing that they had sufficient knowledge as many as 63 respondents (40.9%) of 154

respondents, this is because some of the teenagers are more likely to look for friends on social media just to make friends, get to know the opposite sex, search for identity, and use time to make friends. learn to achieve goals (academic education).

C. Female TeenagersKnowledge Level (Understanding Level) about SADARI

The results of the study in table 4.6 can be seen that the overall picture of the level of knowledge (level of understanding) of female teenagersabout SADARI in the Kencatvillage is that most of the respondents are included in the sufficient category, namely as many as 21 female teenagers(42%).

The knowledge obtained by female teenagersabout SADARI in the Kencatvillage area at the level of understanding is included in the sufficient category, because this is influenced by a person's level of understanding in obtaining information and knowledge about SADARI. Because if someone's understanding is included in the good category, there will be an increase in vigilance along with appropriate treatment in cases of breast cancer which is believed to reduce the number of deaths due to breast cancer.

Understanding an object is not just knowing, not just being able to mention, but must be able to interpret correctly about the known object. Adolescents who understand about breast self-examination (SADARI) will be able to explain and apply it in daily life as an effort to detect breast cancer-causing lumps. This is supported by the theory (Notoatmodjo, 2012) which states that understanding is defined as the ability to explain correctly about known objects and can interpret the material correctly. This is in accordance with research (Lubis, 2017) with the title "Female Teenagers Knowledge of Breast Self-Examination(SADARI) with SADARI'sbehavior at MA AlfatahNatar", the results showed that the level of knowledge at the understanding level was included in sufficient knowledge of 36 respondents (51.4 %) of 70 respondents due to the lack of intention of female teenagersin seeking information about SADARI and respondents never received teaching about reproductive health, especially early detection of breast cancer (health education about SADARI).

D. Knowledge Level (Application Level) Female Teenagersabout SADARI

The results of the study in table 4.7 can be seen that the overall description of the level of knowledge (level of application) of female teenagersabout BSE in the Kencatvillage is that most of the respondents are included in the less category as many as 23 female teenagers(46%).

This lack of knowledge is caused by the lack of female teenagersgetting information about SADARI which should be obtained by finding out on social media. This may also be due to the fact that SADARI is an activity related to the female reproductive complementary organs, namely the breasts, so it is still a taboo subject (unusual to be discussed/done by female teenagers). This shows that female teenagersneed to understand well about breast cancer and its application in conducting breast self-examination so that they understand the development and changes in the breasts early and correctly, to protect themselves from various risks that threaten their health and safety as an effort to prepare for the healthy and bright future and develop responsible attitudes and behaviors. So that it is still necessary to increase the knowledge of female teenagersabout SADARI, namely by frequently implementing health education about SADARI in the village, with the intention that the potential for breast cancer attacks can be recognized early and get the right and correct solution.

The above statement is supported by the theory of (Notoatmodjo, 2012) which states that application is defined as the ability to use the material that has been studied in real situations or conditions. This is in accordance with research conducted by (Lubis, 2017) with the title "Female Teenagers Knowledge of Breast Self-Examination (SADARI) with SADARI'sbehavior at MA AlfatahNatar", the results showed that the level of knowledge at the application level was included in the lack of knowledge, namely 56 respondents (80%) of 70 respondents due to many reasons expressed by respondents including lazy, not having

time, shy, not knowing about SADARI techniques and some who think that SADARI is not important to do.

CONCLUSIONAND RECOMMENDATION
The conclusion of the study from the level of general knowledge of female teenagersabout breast self-examination (SADARI) in the Kencat village,Bangkalan area is in the good category, with the distribution of the level of knowledge, the results are: The level of knowledge (knowing level) is mostly classified in the level of knowledge of the sufficient category, the level of knowledge (understanding level) Bangkalan mostly belong to the level of knowledge of the sufficient category, and the level of knowledge (application level) mostly belongs to the level of knowledge of the category of less.

The results of the discussion and conclusion of the assessment about the level of knowledge of female teenagersabout SADARI that have been described by researchers, it can be suggested for the researchers: It is hoped that this research can be useful as a means to apply knowledge, especially those related to knowledge about breast self-examination (SADARI) for early detection of breast cancer. The respondent: It is recommended for female teenagersto further optimize in doing SADARI at home, namely on the 7th to 10th day of menstruation counting from the first day of menstruation and are also expected to take part in health education activities about SADARI as early detection of breast cancer. Place of research: It is expected to carry out or conduct health education more often about SADARI as a form of breast cancer prevention efforts. Health workers: It is recommended for local health workers to conduct health education about SADARI so that prevention or detection of tumors or breast cancer can be overcome by the community early.

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Case Study Mother's behavior in detecting stunting at RW 02 Bogo Village, Nganjuk

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ABSTRACT

Stunting refers that children having failed to reach their growth potential as a result of disease, poor health, and malnutrition. A child is defined as 'stunted' if they are too short for their age. The study aims to investigate the mothers' behavior in detecting stunting. This is a descriptive study conducted in RT 02 Bogo Village Nganjuk. The study uses a population study of thirty mothers at the research site. The research variable is the mothers' behavior in detecting stunting. The data were collected using questionnaires and descriptively analyzed, displayed in the tables of frequency. The data analysis shows that 96.5% of mothers possess good knowledge of stunting prevention. Moreover, all mothers have a positive attitude and practices to tackle the growing problem among their children. The study resumes that the mother's behavior in detecting stunting is workable to prevent the health issue. It is suggested that mothers to maintaining this positive behavior to reduce their children getting stunted.

Keywords: Behavior, mothers, stunting, detection

BACKGROUND

The problem of malnutrition and stunting is still a big problem that needs to be addressed immediately. Failure to carry out early initiation of breastfeeding (IMD), failure to provide exclusive breastfeeding (ASI), and early weaning can be one of the factors for stunting. (Kementerian Kesehatan, 2018)

Data on the prevalence of stunting under five collected by the World Health Organization (WHO), Indonesia is included in the third country with the highest prevalence in the Southeast Asia region. The 2013 Basic Health Research (Riskesdas) data shows that one in three children under five in Indonesia experiences stunting. The average prevalence of stunting under five in Indonesia in 2005-2017 was 36.4%. East Java is one of the provinces that has a high prevalence of stunting in 2015 which is 34.8% (East Java Health Office, 2016). One of the districts in East Java that has a stunting prevalence of more than 20% in 2015 is Nganjuk Regency, which is 20.66%. Meanwhile, in RW 02 Bogo Village, Nganjuk, there are 4 or 12% children aged 15 months who are stunted in 2021.

Stunting (dwarf) is a condition where toddlers have a length or height that is less than their age. This condition is measured by a length or height that is more than minus two standard deviations of the median standard deviation of child growth from the World Health Organization (WHO).

Maternal health and nutrition conditions before and during pregnancy and after delivery affect fetal growth and the risk of stunting. The factors that cause stunting do not just happen right away, but stunting is a condition of malnutrition problems that occurred in the past starting from adolescence who were already malnourished, continued during pregnancy with insufficient intake, until when giving birth to a baby experiencing malnutrition. and continues to the next life cycle. Other factors affecting the mother are the mother's body

posture (short), the distance between pregnancies is too close, the mother is still a teenager, and the intake of nutrients is lacking during pregnancy.

Monitoring the growth of children under five at the posyandu is a very strategic effort to detect early growth disorders. Early prevention is one of the best ways to reduce the prevalence of stunting, the most important procedure of early prevention is routine screening and persistent follow-up of toddler height. The Posyandu program created by the government has been very good and has become a concrete solution to reach all levels of society. The routine screening process for height/age should be a mandatory agenda in every activity carried out at the posyandu (Setyowati&Retno, 2015). The Directorate of Community Nutrition has implemented a community nutrition improvement program in accordance with the 2013 Lancet recommendations, namely specific nutrition interventions that directly target the 1000 HPK group, namely micronutrient supplementation for pregnant women, supplementary feeding for pregnant women with nutritional problems, counseling and promotion of PMBA (Feeding Feeding). Infants and Children), micronutrient supplementation for toddlers, handling of children with acute nutritional problems (malnutrition). Sensitive nutrition intervention activities carried out by the non-health sector are aimed at addressing indirect problems from nutritional problems, including increasing household food security (agriculture), increasing access to sanitation and clean water (PUPR and Health), social protection (social), increased participation in learning, especially for women (education). (Ministry of Health, 2020)

RESEARCH METHODS
This research design uses descriptive research with a case study approach. The study was conducted in RW 02 Bogo Village, Nganjuk Regency in 2021, using questionnaires and the number of presentations of each existing characteristic will be calculated. Then analyzed and discussed in the form of descriptions and presentations. The population in this study were all mothers who had children in RW 02 Bogo Village, Nganjuk with a total of 30 mothers. In this study, using samples from the entire population that had been determined as research respondents, namely 30 mothers.

RESULTS AND DISCUSSION
RESULT
1. Frequency distribution of mother's knowledge

    Table 4.3 Mother's knowledge about stunting prevention in children under five in Bogo Village RT 06 RW 02 Nganjuk in January 2022

Knowledge	Frequency	Percentage (%)
Good	29	96,6
Enough	1	3,4
Not Good	0	0
Total	30	100

Based on table 4.3, it can be seen that the knowledge of mothers about stunting prevention in children under five, mothers have good knowledge of 29 with a percentage of 96.6%.

2. Frequency distribution of mother's attitude

Table 4.4 Mothers' attitudes about preventing stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk in January 2022.

Attitude	Frequency	Percentage(%)
Positive	30	100
Negative	0	0
Total	30	100

Based on table 4.4, it can be seen that the attitudes of mothers about preventing stunting in children under five as many as 30 mothers with a percentage of 100% have a positive attitude.

3. Distribution of the frequency of mother's actions

Table 4.5 Mother's actions on preventing stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk in January 2022.

Action	Frequency	Percentage(%)
Good	30	100
Not Good	0	0
Total	30	100

Based on table 4.5, it can be seen that the actions of mothers regarding stunting prevention in children under five, all mothers have good actions as many as 30 mothers with a percentage of 100%.

DISCUSSION

A. Mother's Knowledge About Stunting Prevention in Toddlers.

The results of the research that have been carried out are that the knowledge of mothers about early detection of stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk is almost entirely well-informed with a percentage of 96.6% and moderately knowledgeable with a percentage of 3.4%. The results of the research on mother's knowledge were mostly good and there were mothers with sufficient knowledge due to the factor that they had never received insight into stunting in children.

Previous research was also conducted by (Husnawati, SyamsaLatief, JumiarsihPurnama AL, 2020) the results obtained were mothers with more or less knowledge than those with good knowledge, namely as many as 20 mothers with a percentage of 70%. Husnawati, et al. assumed that mother's knowledge had an effect on the incidence of stunting in children aged 12-59 months. Parental knowledge can help improve the nutritional status of children to achieve growth maturity. Knowledge is one of the most important factors for the formation of one's actions. Knowledge based on understanding will foster a positive attitude in stunting prevention efforts.

Mothers who have good knowledge about early detection of stunting in children under five are because mothers understand stunting in children. The results of the analysis of knowledge can be concluded, mothers who have children under five are fairly good from the results of the questionnaires that have been answered correctly on the choice of questionnaires that are classified as important about the definition of stunting, the incidence of stunting, exclusive breastfeeding for children, and others. Another factor that affects knowledge is that there are still some mothers who have never even heard of

and know about stunting in children, so that knowledge about stunting prevention is still lacking.

B. Mothers' Attitudes about Prevention of Stunting in Toddlers

Data from the research that has been done, the attitude of mothers about preventing stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk, that all mothers have a positive attitude about preventing stunting in children under five, as many as 30 mothers (100%).

Previous research conducted by (Sri Anita, DwiYunita, Mila Triana, 2020) showed that most 56 (76.8%) mothers had positive attitudes and 16 mothers (51.6%) had negative attitudes towards stunting prevention efforts. Sri Anita, et al assumed that high knowledge supported by a good attitude would be reflected in positive behavior. So that it can be interpreted that high knowledge with a good attitude can be realized in good prevention efforts. The positive attitude shown by mothers who have toddlers in Bogo Village proves that mothers pay attention to how mothers behave in preventing stunting. Stunting prevention efforts are not only carried out by mothers but also must be supported by health workers. Stunting prevention efforts that can be carried out by health workers are specific protection and secondary prevention by conducting early detection to see stunting findings. As well as providing an understanding of stunting for mothers, so that there will be changes in attitudes that are expected to achieve optimal health levels. (Sri Anita, DwiYunita, Mila Triana, 2020).

The results of the attitude analysis can be concluded that mothers who have toddlers are fairly positive from questions about attitudes, all mothers answer questions correctly about stunting prevention attitudes, stimulate child growth and development, pregnancy checks in health workers such as midwives / doctors / health centers, and what to do. consumed and not consumed when the mother is pregnant. So from the results of the analysis, mothers in Bogo Village have an aware and positive attitude towards stunting in children so that it does not occur until the next generation.

C. Mother's Actions on Prevention of Stunting in Toddlers

It was found from the results of the research that was carried out in table 4.3 of the actions of mothers regarding stunting prevention in children under five in Bogo Village RT 06 RW 02 Nganjuk, that as many as 30 mothers had good actions with a percentage (100%) of early detection of stunting.

Mothers with good actions, because mothers understand and understand the actions taken to prevent stunting in their toddlers. Meanwhile, mothers with bad actions, because mothers lack sufficient knowledge about stunting, so to take preventive measures, mothers do not understand what actions can be taken to detect stunting in toddlers early. Actions are various tendencies to act from a practical point of view. Attitude does not necessarily manifest in the form of action. To turn attitude into action, an enabling condition is needed, such as facilities and infrastructure. (Wardiah, 2016)

The results of the action analysis can be concluded that most mothers have good actions regarding early detection of stunting in toddlers from action question items, most mothers answer correctly such as preventing early stunting in children through independent actions in daily life, for example providing food containing carbohydrates, fats, minerals, protein and vitamins for daily food, routinely giving deworming medicine every 6 months, getting used to washing hands from an early age, taking children to posyandu regularly and others. From Posyandu data in RW 02 Bogo Village, it was found that mothers routinely go to Posyandu once a month, so that from the KMS graphic data for children under five in RW 02 Bogo Nganjuk Village it looks like it is going up, nothing is decreasing unless the child is sick, but the graph is back up after the child recovers.

CONCLUSION AND RECOMMENDATION

A. Conclusion

The results of the research on maternal behavior regarding the prevention of stunting in toddlers in the village of Bogo RT 06 RW 02 Nganjuk obtained the following results:

1. Mother's knowledge about stunting prevention in under-five children in Bogo Village RT 06 RW 02 Nganjuk most of the mothers belong to the good category of knowledge level.
2. Mother's attitude about preventing stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk all mothers are classified as having an attitude with a positive category.
3. Mother's actions regarding prevention of stunting in children under five in Bogo Village RT 06 RW 02 Nganjuk most of the mothers are classified as having good actions.

B. Recommendation

From the results of the research that has been carried out, it is expected that mothers who have children under two years old, pregnant women, and newly married women who plan to have children in RW 02 Bogo Village become more aware of the risk of stunting that occurs in their respective children and also increase mother's knowledge more information about the actual incidence of stunting. Mothers can also conduct regular consultations with the Puskesmas/Faskes and be more active in seeking information about stunting.

It is hoped that the Nursing Profession, especially Puskesmas Nurses, will provide counseling in several village areas in Nganjuk about Stunting, so that all mothers in Nganjuk understand what and how to prevent Stunting.It is recommended for Bogo Village to provide facilities and infrastructure for Puskesmas Nurses for routine counseling about Stunting in Bogo Village.Further researchers are advised to add data on the results of measurements of TB and BB of children every month, children's charts in the KMS book so that the results of researchers better analyze the data so that research results can be more accurate and comprehensive.

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Dimensions of holistic health in the elderly

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ABSTRACT
The elderly have undergone various changes in bio, psycho, socio, spiritual and cultural aspects. The achievement of optimal health quality for the elderly will increase life expectancy in the elderly. The purpose of this study was to identify holistic health dimensions in the elderly. This research uses a descriptive method. The number of participants in this study were 220 elderly people who live in Central Java and East Java. All participants were interviewed and filled out the provided questionnaire. The research instrument developed by the researcher is valid and reliable. The results showed that holistic health conditions consisted of mostly good biological health, mostly adequate psychological aspects, mostly adequate social aspects, mostly good spiritual aspects and mostly good cultural aspects. Suggestions that can be given are for families with the elderly to provide care support so that holistic health conditions can be improved.

Keywords: holistic, health, elder

BACKGROUND
Almost all countries that have aged people currently do not live with children and families so that this condition will increase the health vulnerability of the aged people. The age factor in the aged people will face many limitations (various physical, psychological, social, and spiritual declines), thus requiring assistance in improving the welfare of the aged people (Samsudrajat, 2011). Meanwhile, the aged people who have no potential are the aged people who are helpless and always depend on others.

The increase in the number of aged people is due to the progress and improvement of the community's economy, environmental improvements and advances in science, especially due to advances in medical and health sciences, so as to increase life expectancy in the aged people. The results of research by Rosmalina, and their colleagues in (2003) showed that social activities have a significant relationship with the level of physical fitness of the aged people which of course can affect the quality of life for the aged people. With increasing age, there will be changes in the way of life such as feeling lonely and aware of death, living alone, changes in economic terms, chronic illness, weaker physical strength, mental changes, reduced psychomotor skills, psychosocial changes, namely retirement, will lose resources. income, loss of spouse and friends, and loss of work and reduced activity.The purpose of this study was to analyze physical health condition for elderly.

RESEARCH METHODS

The research population was all elders living in Central Java and East Java, especially the cities of Yogyakarta, Surabaya, and Sidaorjo, from May to September 2022. The samples 220 aged people. The research variable is the physical health condition of the elderly with the sub-variables being biological aspects, social aspects, spiritual aspects, and cultural aspects.The data used in this research were primary data, directly collected from the aged respondents who visited thePosyandu. Measurement of the characteristics of the old people and their health skills using questionnaires that contain checklists and interviews.

RESULT AND DISCUSSION

Table. 1
Frequency Distribution of Holistic Health Conditions

Indicator	Category	Frequency	Percentage
X1.1. Biological Aspect	Less	66	30
	Enough	83	37.7
	Good	71	32.3
	Total	220	100
X1.2. Psychological Aspect	Less	32	14.5
	Enough	152	69.1
	Good	36	16.4
	Total	220	100
X1.3. Social Aspect	Less	68	30.9
	Enough	137	62.3
	Good	15	6.8
	Total	220	100
X1.4 Spiritual Aspect	Less	17	7.7
	Enough	28	12.7
	Good	175	79.5
	Total	220	100
X1.5 Cultural Aspect	Less	13	5.9
	Enough	96	43.6
	Good	111	50.5
	Total	220	100.0

The holistic health condition variable consists of five indicators, namely biological, psychological, social, spiritual and cultural. On the biological indicators, the answers were mostly sufficient, namely 83 people or 37.7%, then good answers were 71 people (32.3%) and there were 66 people or 30% less answers. Psychological indicators of answers, more than 50% of respondents answered in the sufficient category, namely 152 people or 69.1%, then 36 people answered well (16.4%) and 32 people answered less or 14.5%. Social indicators answers more than 50% of respondents answered in the sufficient category, namely 137 people or 62.3%, then there were 68 people or 30.9% less answers and the least good category answers were 15 people (6.8%). The spiritual indicator of the dominant answer in the good category is 175 people or 79.5%, then there are 28 people or 12.7% enough answers

and the least answer in the less category is 17 people (7.7%). Cultural indicators answered that more than 50% of respondents answered in the good category, namely 111 people or 50.5%, then there were 96 people or 43.6% less answers and the least good category answers were 13 people (5.9%). Overall, it can be seen that the highest holistic health condition of the respondents in the good category is spiritual and then cultural.

CONCLUSION AND RECOMMENDATION

The holistic health condition variable consists of five indicators.The holistic health condition consists of the majority of good biological health, the majority of psychological aspects are sufficient, the majority of social aspects are sufficient, the majority of spiritual aspects are good and the cultural aspects of the majority are good. Suggestions that can be given so that families with the elderly provide care support so that holistic health conditions can be improved

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IDENTIFICATION OF BARRIERS TO THE IMPLEMENTATION OF ASSESSMENT AND MANAGEMENT OF DELIRIUM IN THE INTENSIVE CARE UNIT: LITERATUR REVIEW

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ABSTRACT

Background: Critically ill patients have a high incidence of delirium. Delirium is a serious disorder associated with increased length of stay in the ICU, delayed functional recovery and increased morbidity and mortality. Many studies over the years have found knowledge gaps and lack of evidence-based practice of critical care personnel, so further research is needed for this reason.

Purpose: To systematically review the barriers to nurses in implementing delirium screening and delirium management in patients admitted to the intensive care unit.

Method: This literature study uses the scoping review method. Electronic literature searches were performed using the Sciencedirect, PubMed, Google Scholar, and Proquest databases, using the keywords barrier, delirium assessment, ICU, intensive care unit. A total of 9,986 articles were taken, but only 7 articles that met the inclusion and exclusion criteria were included in the analysis.

Results: From the nine articles studied, three themes emerged related to obstacles in the implementation of assessment and management of delirium in the intensive care unit. The inability of nurses is the biggest obstacle in carrying out the assessment and management of delirium.

Conclusion: There are several obstacles in the implementation of assessment and management of delirium in the intensive care room, including the use of assessment tools, the inability of nurses and obstacles in the work environment. More research is needed on this topic.

Keywords: Obstacle, assessment of delirium, delirium management, intensive care.

BACKGROUND (Uppercase Bold, 12 pts)

Critically ill patients have the potential for reversible dysfunction in one or more organs that are life threatening and require treatment in the ICU (Ireland, 2011; AACN, 2016). The prevalence of critically ill patients admitted to the ICU continues to increase every year. According to the World Health Organization (WHO) in 2016, deaths from critical to chronic illnesses increased by 1.1 – 7.4 people and there were 9.8% – 24.6% of critically ill patients treated in the ICU per 100,000 population in the world. (Garland *et al.*, 2013).

Critically ill patients have a high incidence of delirium. Delirium is a serious disorder associated with increased length of stay in the ICU, delayed functional recovery and increased morbidity and mortality. Delirium is the most common and serious condition, especially in patients with lanjut usia yang dirawat dirumah sakit, dan menyerang sekitar 30

% Some of them are obtained from a study conducted by Bootger (2014) where the prevalence of delirium is 10-31% when the patient is admitted and the incidence is 3-29% during the hospitalization period. The risk increases exponentially in the intensive care unit, with a prevalence of up to 80% and in palliative care units where the prevalence is reported to be 85%. Higher rates are also found in surgical conditions with a reported incidence of 10-70% after surgery, especially in patients who have had cardiothoracic surgery, emergency orthopedic procedures, vascular surgery, or cataract surgery. (Muster, 2009).

Delirium is one of the nonpulmonary disease conditions in critically ill patients that contributes to a high mortality rate. Delirium has received minimal attention in the ICU for several reasons, namely: it is rarely the main reason for patients to enter the ICU, is often believed to be an iatrogenic condition due to drugs, is often described as a condition of "ICU psychosis," and is believed to have no adverse consequences in outcome. patient outcome (Elly, et al., 2004). Whereas according to Khan et al. (2013) delirium is associated with increased mortality, longer duration of mechanical ventilation, serious sequelae after leaving the ICU (such as dementia and longer neuropsychological impairment).

Delirium is characterized by changes in mental status, awareness that is acute and fluctuating. Because it is fluctuating, delirium is difficult to detect. Some forms of delirium show signs of hyperactivity (agitation, tachycardia, and shaking), hypoactivity (calm, passive), and mixed (Adiwinata, Oktaliansah, & Maskoen, 2016). The prevalence of agitation-delirium in the ICU was generally 31% and 82% in ventilator-assisted patients, respectively. In elderly patients, hypoactive delirium is more common and has a worse prognosis (Girard, Pandharipande, Ely, 2008 & Banerjee, Ely, Pandharipande, 2011).

Pain conditions, agitation and delirium that often occur in the ICU indicate not only patient discomfort, but also have a harmful effect on the patient himself and ICU staff and have a contribution to patient outcomes. This makes it important for health workers to be able to recognize and manage pain, agitation and delirium well. Delirium often causes agitation in patients in the ICU and is a sign of the severity of the systemic disorder experienced, and has a poor outcome. (Widodo, 2014).

Nurses have an important role in providing nursing care to patients with delirium while being treated in the intensive care unit. Interventions that can be done by nurses are to assess delirium, identify risk factors for delirium and reduce the effects of sedation that can cause delirium. In addition, nurses must be accurate in interpreting delirium status and must not mis-validate in perceiving the patient's cognitive status (Bulechek, Butcher & Dochterman, 2013).

To prevent delirium, nurses must have knowledge in identifying risk factors (predisposing and precipitation) and implementing prevention strategies. Once a change in mental status occurs, it is critically important to recognize delirium (and its different motor subtypes) and the steps needed to provide safe and effective treatment. The nurse is the primary provider in the treatment room. However, a systematic review of the literature revealed several studies that cited a lack of knowledge of nurses regarding delirium (Fick. 2007).

It is important to carry out delirium screening in the ICU. This is an effort to improve the care of delirium patients and to facilitate the prevention of delirium in the ICU. Identification of patients at high risk is very important, because they are vulnerable and need protection. In addition, it can prevent the occurrence of unintentional side effects of injuring patients, reduce treatment costs and reduce costs *length of stay (LOS)*. In the end, predictions about the risk of delirium in ICU patients can provide relevant information to health workers and families. This information can also stratify future delirium in ICU patients, and affect the efficiency of applying research results (Heriot et al., 2017). Assessment is of paramount

importance for effective management, and many studies have identified deficits in assessment practice such as using clinical observation rather than validated tools (MacSweeney et al., 2010) or lack of routine assessment for all ICU patients (Patel et al., 2009). However, there has been little prior review of the barriers to the assessment of delirium in critical care nurses, and this review aims to explore and establish the reported barriers to recommended practice.

RESEARCH METHODS

Literature study is done by making a summary of the articles related to the research questions and objectives. The search method uses several electronic databases, namely Sciencedirect, PubMed, Google Scholar, and Proquest with the keywords barrier, delirium assessment, ICU, Intensive care unit. The inclusion criteria in this literature study are research articles that have titles and content that are relevant to the research question/objective, year of publication from 2007 to 2022. While the exclusion criteria are articles that are review papers, the content of the article is not in accordance with the research objectives, and does not have a complete article structure such as abstract, introduction, method, result, discussion, conclusion, and references. The quality of the research was analyzed using Critical Appraisal with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Checklist.

RESULTS AND DISCUSSION

Using keywords, obtained from Sciencedirect 10 articles, PubMed 6 articles, Google Scholar 9,970 articles, and Proquest 0 articles. After sorting based on inclusion criteria, it was obtained from Sciencedirect 4 articles, PubMed 1 article, Google Scholar 20 articles, and Proquest 0 articles. There are 2 similar articles so that it becomes 23 articles. Then further sorting was carried out based on the title, abstract and article content as well as the exclusion criteria, obtained 18 articles that met the inclusion and exclusion criteria. Next, reading the article by scanning and skimming to see the description of the article content, 9 articles were excluded because as many as 4 articles had complete data, 5 articles were review articles. So that 9 articles were obtained that met the inclusion and exclusion criteria. For more details, it is explained through the following tables and charts:

Tabel 1 Literature search results (articles)

Database	Literature search results (articles)	Number of articles obtained	Those who meet the inclusion criteria
Google Scholar	9.970	20	6
Proquest	0	0	0
Sciencedirect	10	4	2
PubMed	6	1	1
Total	**9.986**	**81**	**9**
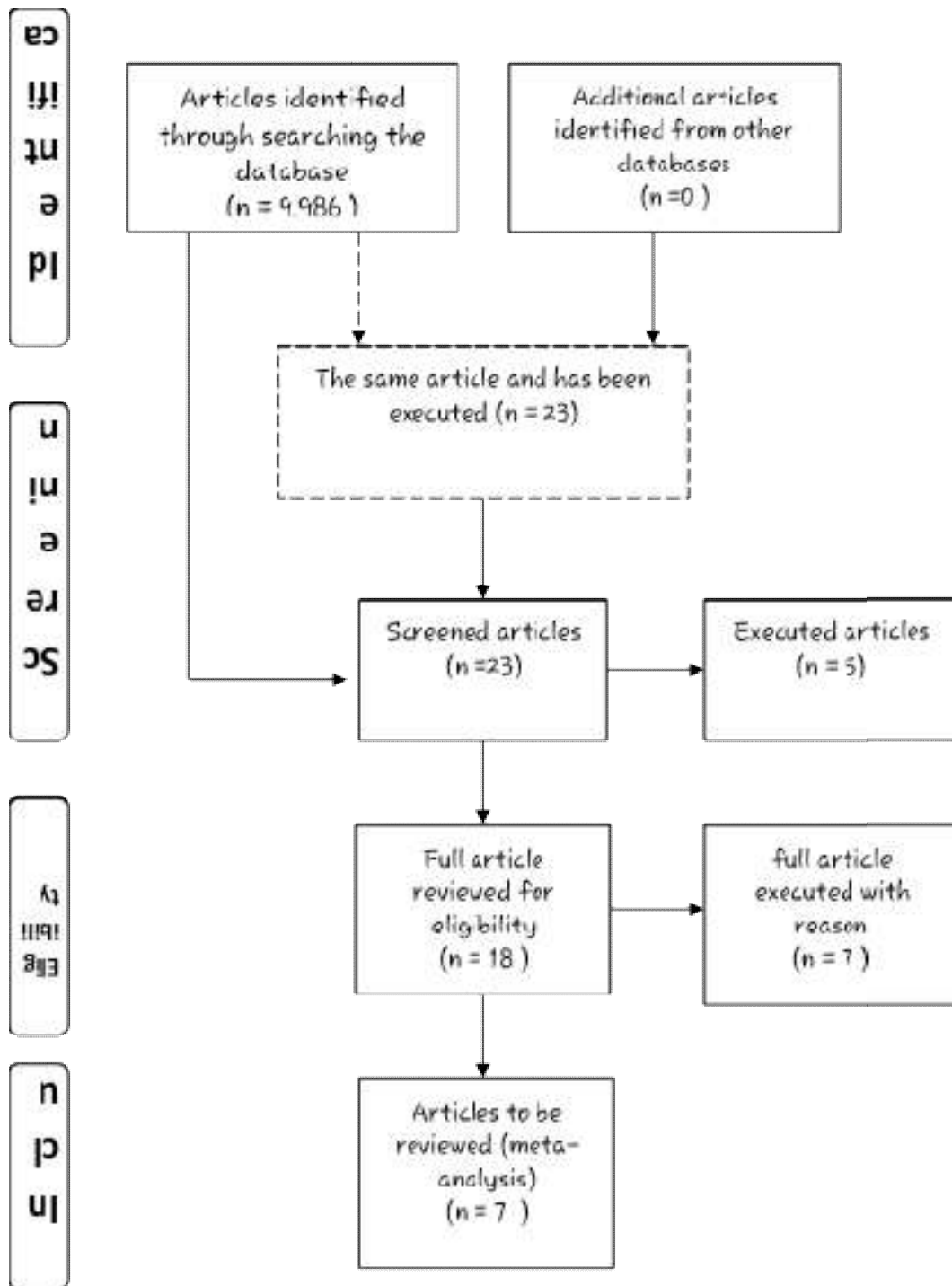
Image 1. Article sorting/sorting flowchart

Of the 7 articles, 6 articles were obtained using the survey method, both through paper, electronic and web, and 1 article with the descriptive cross-sectional method using qualitative study methods to see the obstacles in the implementation of assessment and management of delirium in the intensive care unit. The summary and characteristics of the articles are described in table 2.

Tabel 2. Summary of exercises and article characteristics

Researcher	Research sites	Research design	Number of Respondents	Results
Devlin et al. (2008)	16 ICU in Massachusetts, USA	Paper/web survey	331 Nurses	Intubated patients (38%) The complexity of the assessment tool (34%) Inability to assess patient for sedation (13%)
Flagg et al. (2010)	medical-surgical and intensive care units from 2 midsized hospitals in the Midwest	descriptive cross-sectional study using a convenience sample	61 Nurses RN	Nurses' confidence level in conducting delirium assessment (delirium identification 3.32 (SD, 0.76), delirium management 3.42 (SD, 0.80), and the ability to explain to the patient's family 3.25 (SD, 0.87).
Eastwood et al. (2012)	Austin Hospital in Melbourn University, Australia	Survey	174 ICU nurses	CAM-ICU It is well accepted by nurses who almost universally feel that the assessment and treatment of delirium is an important part of ICU care. This is despite many people's thinking that the CAM-ICU is not more accurate, but more difficult and time consuming to perform than their own unstructured assessment..

Law et al. (2012)	Baltimor, USA	Web-based survey with ICDSC	84 critical nurse training	Staff medis (42%) Lack of feedback from performance (27%) Time (27%) Lack of knowledge about delirium (24%) Lack of sources to ask questions (20%) Lack of confidence for assessment tools (11%) Lack of support from leaders (8%)
Scott et al. (2013)	General Hospital in Central Scotland.	Pre and post education questionnaire surveys	47 ICU nurses	Difficulty assessing intubated patients (42%) Inability to assess intubated patients (40%) Inability of nurses to assess ICU CAM (25%)
Andrews et al (2015)	General ICU in a tertiary care hospital in Virginia, United States of America.	Electronic survey	20 ICU nurses	Lack of confidence in doing evaluation. Difficulty of use in ventilated patients. Lack of response to findings.
Trogrlic et al. (2016)	Six ICUs from six hospitals in the south-west Netherlands.	Electronic survey	360 staff ICU	Lack of knowledge. Lack of trust in assessment tools. Lack of nurse-physician collaboration. Lack of time.

This article uses a variety of methodologies and results, but it is possible to use thematic analysis to categorize barriers to the implementation of the delirium assessment in 3 themes, namely: assessment tools used, barriers in the ability of nurses and barriers in the work environment.

Assessment tools used:

The assessment tools used in this article are CM-ICU and ICDSC. Research conducted by Devlin et al. (2008) mentions that the tools used are complex. This is supported by research conducted by Easwood et al. 2012 which states that the CAM-ICU is not more accurate, but more difficult and time consuming to perform than their own unstructured assessment. In addition, Trogrlic et al. (2016) and Law et al. (2012) mentioned that the lack of time hinders the use of the assessment tool for delirium patients. This result is different from the research conducted by Bergeron et al., (2001); Pun et al., (2005); Roberts et al., (2005) who said that the two assessment tools used by nurses in the study studied were ICDSC and ICAM-ICU, both of which have been proven to be fast and easy to use. It is not clear why, perhaps this is due to nurses' unfamiliarity with the tools used in the study and distrust of the tools used (Trogrlic et al., 2016) and skepticism about assessment tool (Zamoscik, Godbold, & Freeman, 2017). This is a problem with the education they receive on the use of assessment tools prior to implementation

Barriers in the ability of nurses

The ability of nurses to become obstacles in carrying out delirium assessments, namely the inability of nurses to assess sedated patients, intubated patients, difficulties in assessing intubated and ventilated patients, inability to use assessment tools and lack of knowledge about delirium. (Devlin et al., 2008, Law et al., 2012, Scott et al., 2013, Hosie et al., 2014, Andrews et al., 2015, Trogrlic et al., 2016). This causes nurses to have no/lack of self-confidence in carrying out assessments and management of delirium (Law et al., 2012, Trogrlic et al., 2016, Zamoscik, Godbold, & Freeman, 2017). This will have an impact on the nurse's lack of ability to explain the patient's condition to the family (Flagg et al, 2010) and the lack of value in listening to the patient and family involved. (Hosie et al., 2014). The end result is the dissatisfaction of nurses and patients as well as families during treatment in the intensive care room and can have an impact on the patient's final outcome.

Barriers to the work environment

Some studies mention barriers can be related to the work environment, such as time (Devlin et al., 2008; Law et al., 2012; Trogrlic et al., 2016), lack of leadership support (Law et al., 2012), and lack of response to positive outcomes (Devlinet al., 2008; Scott et al., 2013; Andrews et al., 2015; Trogrlic et al., 2016). Law et al. (2012) also found that medical staff was considered a significant barrier to the assessment of delirium. In addition, research conducted by Trogrlic et al. (2016) mention the lack of collaboration between nurses and doctors can be an obstacle in the implementation of assessment and management of delirium in the ICU. It is easy to understand how a lack of response to outcomes will prevent nursing staff from prioritizing assessment. And it is clear that increased interest in delirium and increased interest from all levels of staff will motivate those involved in assessing patients. In addition, further education on the impact and outcome of delirium in the ICU could help change nursing perceptions in the future.

CONCLUSION AND RECOMMENDATION

There is still little research on the barriers to conducting delirium assessment and delirium management, so further research and research is needed to overcome obstacles in the future. These results provide some insight into the reasons why nurses do not assess delirium and the barriers they feel. Effective leadership and organizational support will remove barriers that occur, and overcome other barriers by providing more comprehensive education related to delirium to reduce misunderstandings that occur in some nurses. Further research can explore

the impact of a delirium education program on the implementation of delirium guidelines in the intensive care unit. This study is limited because it only uses 9 articles with a fairly small sample and a fairly short intervention time. So it is necessary to do further research on the quality of life in heart patients with the number of articles and using a larger sample.

The conclusion should compatible between the study purpose and the core findings of the study. Provide a statement whether or not the research question of the study is answered. The study importantly needs to state the implications of the study and attract further investigation.

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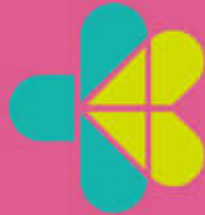
Proceeding

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Title

Therapeutic Communication on the Intensity of Labor Pain in the Active Phase I

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ABSTRACT

In the labor process, not all mothers can face calm due to pain due to uterine contractions that cause discomfort that can affect labor. There are various ways that can reduce labor pain non-pharmacologically by providing therapeutic communicationefforts to reduce pain. This research aims toKnowing the Effectiveness of Therapeutic Communication Against the Intensity of Labor Pain in the First Stage of Active Phase.The research design method used is quasi-experimental with a one group pretest-posttest design. The sample of this research is mothers giving birth with a total of 20 respondents. At Tk II Hospital RW Mongisidi Teling Manado. Data analysis using Wilcoxon test by using an observation questionnaire,The results of the research on pain intensity before therapeutic communication were averaged 6.90 and after therapeutic communication was 4.20, and the results of the analysis of p value 0.001 <0.05 concluded that there was an effect of therapeutic communication affecting the intensity of labor pain in the first stage of the active phase on the intensity of labor pain in the first stage of the phase. Active.

Keywords: Active Phase I Labor, Pain Intensity, Therapeutic Communication

BACKGROUND

The process of childbirth is often perceived as scary and causes excruciating pain. Some mothers also feel traumatized by the process of their first delivery due to various difficulties and pain during childbirth so that they are afraid to plan to have another child. Copper, MA (2009) The level of pain in the labor process felt by every mother giving birth is subjective. It

does not only depend on the intensity of his or her but also depends on the mental state of the mother when facing labor. Experience with pain perception, in general, primiparas have more sensitive pain sensors than multiparas. Prawirohardjo (2016)

Pain during labor is caused by uterine contractions and dilatation of the cervix and lower uterine segment. The intensity of pain is proportional to the strength of the contractions and the pressure that occurs, the pain increases when the cervix is fully dilated due to the baby's pressure on the pelvic structures followed by stretching and tearing of the birth canal. Mander (2013)

Pain that is not handled properly can cause other problems, namely increasing anxiety during childbirth so that the production of adrenaline increases and causes vasoconstriction which causes maternal blood flow to the fetus to decrease. Walsh (2007)

Decreased blood flow and oxygen to the uterus and tissue ischemia cause the fetus to experience hypoxia and the mother will experience a prolonged labor process and create more pain impulses Sumirah (2009). Therefore, this can increase the number of maternal and infant morbidity rates.

Based on the performance achievements of the Indonesian Ministry of Health in 2015-2017, the number of cases of maternal mortality decreased from 4,999 in 2015 to 4912 in 2016 and in 2017 (semester 1) as many as 1712 cases (Kemenkes RI, 2017).

Long parturition often occurs in the first stage of labor, so the first stage is a alert point for midwives to find out whether the patient can give birth normally or not. Stage I is the longest stage with pain caused by his and cervical dilatation that the patient has to deal with. For primi, they are given 1 hour to open the cervix by 1 cm and for multi it is only half an hour to open the cervix by 1 cm. her birth.

According to the Survey Data of the North Sulawesi Provincial Health Office (2018), the maternal mortality rate is 50 mothers. The causes of maternal death in North Sulawesi were bleeding in 19 mothers (38%), hypertension in pregnancy 9 mothers (18%), infection in 4 mothers (8%), and others 18 mothers (36%). Meanwhile in Manado City, the maternal mortality rate is 10 mothers (20%). The causes of maternal death in Manado City are bleeding in 1 mother (2%), hypertension in pregnancy for 2 mothers (4%), infection in 1 mother (2%), and other 6 mothers (12%).

The initial survey was conducted in February 2019 at Tk.II Hospital RW Mongisidi Teling Manado. The data found at Tk.II Hospital RW Mongisidi Teling Manado in 2018 normal deliveries amounted to 847 mothers, on average mothers who gave birth normally experienced labor pain with different pain intensities.

Labor pain can cause stress which causes excessive release of hormones such as catecholamines and steroids. This hormone can cause smooth muscle tension and vasoconstriction of blood vessels. This can result in decreased uterine contractions, decreased uteroplacental circulation, reduced blood and oxygen flow to the uterus, and the development of uterine ischemia which increases pain impulses. Sumirah (2009)

According to research conducted by Lajuna, et al (2014) with the title The Effectiveness of Therapeutic Communication Against the Intensity of Labor Pain in the Active Phase I (4-8 cm) at the Regional Public Service Agency of the Mother and Child Hospital Banda Aceh, concluded that there is an effect of effective Therapeutic Communication can reduce the intensity of labor pain in the active phase of the first stage (4-8 cm) in the Regional Public Service Agency of the Banda Aceh Mother and Child Hospital.

Therapeutic communication is communication that is consciously planned and purpose centered for the patient's recovery. This therapeutic communication aims at the Effectiveness of Therapeutic Communication Against the Intensity of Labor Pain to reduce the burden of

feelings and fears that exist in patients, reduce patient doubts and can affect other people, the physical environment and themselves. Taufik (2009)

Based on the previous description, the researcher is interested in conducting research on "The Effectiveness of Therapeutic Communication Against the Intensity of Childbirth Pain in Active Phase I at Tk II Hospital RW Mongisidi Teling Manado".

RESEARCH METHODS

The research design used in this study was a quasi-experimental method that was one group pretest-posttest, namely an intervention to identify the effect of therapeutic communication with first stage labor pain in inpartum mothers before and after therapeutic communication. Research location at Tk.II Hospital RW Mongisidi Teling Manado. Samples were taken as many as 20 people, with the technique of taking acidential sampling. The instruments used in this study were the Informed Consent sheet and the observation sheet. Data analysis using Wilcoxon test. This research has gone through the ethics committee and is ethical.

RESULTS ANDDISCUSSION
Respondents Overview
Tabel 1.

No	Characteristics	F	%
1.	Age group 20-35 ≤20 atau ≥35	8	40
		12	60
2.	Education		
	basic education	4	20
	Middle education	16	80
3.	Pain Intensity	0	0
	Moderate Pain	18	90
	Great Pain		

Based on table 1. Shows age20 years or 35years is the largest respondent with a total of 70%. It Shows that the majority of respondents' education is high school by 80%.it was found that all mothers did not work by 100%.

Table 2. Distribution of respondents based on pain intensity Before being given therapeutic communication measures

No	Pain Intensity	F	%

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No	Pain Intensity	F	%
1.	Moderate Pain	5	25
2.	Great Pain	15	75
	Amount	20	100

Based on table 2. Shows the intensity of pain before therapeutic communication is mostly 75% severe pain

Table 3. Distribution of respondents based on pain intensity After being given therapeutic communication measures

No	Pain Intensity	F	%
1.	Mild Pain	5	25
2.	Moderate Pain	15	75
3.		20	100

Based on table 5. It can be seen that the intensity of pain after therapeutic communication is mostly experienced moderate pain as much as 75%.

Table 4. Differences in pain intensity before and after therapeutic communication

No	Pain Intensity	F	mean	SD	value
1.	Pre test	20	6,90	1,3334	0,001
2.	Post test	20	4,20	1105	

Based on table 6. Shows the average (mean) before therapeutic communication is 6.90 and after therapeutic communication is 4.20. p value 0.001 <0.05 means that there is an effect of pain intensity before and after therapeutic communication

1. **Characteristics of Respondents**

Effect of age on pain intensityBased on the results of the study, it can be seen that from 20 samples it was found that most of the respondents were of reproductive age, namely <20 or >35 years by 60%. This means that physically the reproductive organs of most mothers are not ready to carry out reproductive tasks. Developmental differences will affect the pain reaction to childbirth. These developments, namely physically, organs at an age less than reproductive age will not be ready to carry out reproductive tasks and the development of psychological maturity causes reactions to pain that arise to be more severe. This is in accordance with Yanti's (2010) theory that an age that is too young will be difficult to control labor pain. Effect of mother's education on pain intensity.Based on the results of the study, it can be seen that from the 20 samples, it was found that most of the respondents had a high school education of 80%. Education will be able to have an impact on the mother's knowledge about childbirth including about labor pain and how to manage pain. This is in accordance with Ye's theory (2015) which states that mothers

who have a good. understanding of the labor process have a lighter level of pain than mothers who have a poor understanding. (8)

The effect of mother's work on pain intensityBased on the results of the study, it can be seen that from the 20 samples, it was found that most of the respondents did not work, namely 100%. Mother's work can be related to the state of fatigue experienced by the mother. Mothers who work outside during pregnancy will experience more fatigue than mothers who do not work

2. **Pain Intensity Before Therapeutic Communication**

   Based on the results of the study, it was found that from 20 samples, the average pain intensity before therapeutic communication was 6.90. This is because respondents who said severe pain had a high sense of fear and anxiety about the labor process they were going through, as well as a lack of support. given to the mother. Prior to therapeutic communication, the average mother experienced severe pain. This is due to several factors, one of which is when an observation is made, on average the mother has entered the first stage of the active phase, namely opening 4-8 where Muryunani's theory (2010) at opening 4-8 the pain feels intense, stabbing and stiff caused by by uterine contractions that are getting stronger, more than 3 times in 10 minutes for 40 seconds or more, and the lowering of the lower part of the fetus that presses and pulls on the parts of the pelvic area. In addition, one respondent with another respondent has a different pain threshold, and the emotional condition of the mother is tense and weak, which greatly affects the mother's coping mechanism to cope with the pain she is experiencing.

   This is in accordance with the theory put forward by Sarwono (2008) which states that the feeling of pain at the time of his is very subjective, not only depending on the intensity of his, but also on the mental state of the person. Mothers who are relaxed and confident are calmer than mothers who are tense and less ready to face the labor process. Labor pain becomes milder as pain control becomes more frequent and effective. Bonica 1990 says that alerting women to an impending labor can reduce pain. Emotional tension from anxiety to fear can exacerbate the perception of pain during labor. Pain or the possibility of pain can induce fear so that anxiety arises which ends in panic, fatigue and lack of sleep that can exacerbate pain (the dick-read method). According to Bobak's (2000) theory that previous childbirth experiences can also affect the mother's response to pain (9). For mothers who do not have experience giving birth or mothers who give birth for the first time, they will feel anxious and afraid in the face of childbirth. Physiological stress or fear can cause uterine contractions to become more painful and painful (Indarsita et al., 2014).

   The results of this study are in line with research conducted by Sari (2014) at the Delima Clinic, Medan, also conducted a similar study on the method of counseling/therapeutic communication in reducing labor pain and the results obtained that the respondents' pain intensity before therapeutic communication was mostly at the level of severe pain. as many as 20 people (47.6).

3. **Pain Intensity After Therapeutic Communication**

   Based on the results of the study, it is known that from 20 samples of pain intensity after therapeutic communication the average (mean) is 4.20. This is because respondents who say moderate pain is more psychologically ready to face the labor process so that mothers are more confident and not afraid to face the birth process. As stated by Sari (2014), that if mothers are cared for and given support during labor and birth and know well about the delivery process and the care they will receive, they will get a sense of security and good outcomes. The steps that can be taken in communicating include:establishing a pleasant relationship with the client, being present to accompany the client, listening to client complaints,

The importance of therapeutic communication in reducing pain caused by childbirth is very necessary, therefore midwives in labor must be able to help create a sense of self-confidence, because if the client himself feels nervous in the face of childbirth, whether physically or mentally not ready, a sense of fear arises so that feelings of anxiety arise. pain will increase (Indarsita et al., 2014).

This is in accordance with previous research conducted by Bangun (2012) related to the effect of the midwife's therapeutic communication on the intensity of labor pain at the Santi Medan Clinic. which means (P<0.05). These results indicate that therapeutic communication has a significant effect in reducing labor pain.

4. **Effect of Pain Intensity Before and After Therapeutic Communication**

Based on the results of statistical tests, it was found that p value of 0.001 <0.05 means that there is an effect of pain intensity before and after therapeutic communication. This is in accordance with previous research conducted by Yusnita (2012), who also conducted a similar study on therapeutic communication and the results obtained were that there was an effect of therapeutic communication on labor pain in parturient mothers in the obstetrics and maternity ward at the Pidie District General Hospital based on the results of statistical tests. p value <0.05 (0.004) so that the alternative hypothesis in this study is accepted. This significant influence is influenced by many things, including those related to the attitude, behavior and communication of midwives in interacting which are considered to have an effect on the conditions experienced by the mother.

According to the research results of Setiawan and Tanjung, therapeutic communication is an effective therapy in reducing the level of anxiety and fear of patients. So it can be concluded that labor pain caused by fear, anxiety and panic will be overcome with these therapeutic communication techniques and labor pain will feel lighter.

The purpose of therapeutic communication itself is the realization or acceptance of oneself, more control and control of emotions, reducing the burden of feelings and thoughts, reducing self-doubt and influencing others, the physical environment and themselves. Bangun. (2012)

According to Sari (2014) therapeutic communication in childbirth is the provision of assistance to mothers who will give birth by providing guidance on the delivery process. Communication is carried out by midwives by providing reinforcement to mothers in labor. So it can be concluded that according to several existing theories that labor pain that arises because of anxiety, fear and panic, which can aggravate labor pain will be able to be overcome by providing therapeutic communication, which shows that the purpose of the therapeutic communication is to reduce the burden of the mind of fear. and anxiety faced by the patient

CONCLUSIONAND RECOMMENDATION

Based on the results of the analysis of the effectiveness before and after therapeutic communication on the intensity of labor pain in the active phase of the first stage of the Wilcoxon test, it is known that p value 0.001 <0.05 means that there is an effect of pain intensity before and after therapeutic communication.It is hoped that every maternity mother can control her attitude and emotions so, that the intensity of the pain she experiences can be controlled according to the opening of the cervix.

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THE EFFECTIVENESS OF VIRGIN COCONUT OIL (VCO) AND MORINGA LEAF (Morinaga oleifera) ON BREST MILK PRODUCTION IN POSTPARTUM MOTHER AT TUMINTING PUBLIC HEALTH CENTER MANADO 2019

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ABSTRACT
Breastmilk (Air Susu Ibu/ASI) is food and drink given by the mother to her baby. According to Riskesdas 2013, exclusive breastfeeding in Indonesia only reached 30.2% while the expected target was 80%. From the Manado City health profile data the coverage of exclusive breastfeeding in 2017 was 32.7%, while in Tuminting Public Health Center in 2017 was 18%. The coverage is still below the national target of 80%. From interviews with a number of puerperal women in Tuminting, 25% of them did not provide exclusive breastfeeding because of the small production of breast milk. This is one of the reasons for conducting research on "The effectiveness of Virgin Coconut Oil (VCO) and Moringa leaf (Morinaga oleifera) combination on breast milk production in postpartum mothers at Tuminting Public Health Center in Manado in 2019. The research method used in this study was an experimental posttest only control group design. The population in this study all third trimester pregnant women who visited the Tuminting Public Health Center in Manado. The research sample consisted of 30 treatment groups, 30 control groups. The sampling technique was done by purposive sampling technique. The results of this study indicate that there is an increase in breastmilk production in the treatment group. So there is an effect of providing a combination of Virgin Coconut Oil (VCO) and Moringa leaf (Morinaga oleifera) on the production of breast milk in postpartum mothers. With the results of this study, it is expected to contribute to the success of government programs especially maternal and child health in reducing infant and child mortality rate and support the success of exclusive breastfeeding programs.
Keywords: VCO, Morinaga leaf, Breastmilk production

BACKGROUND
Breastmilk (Air Susu Ibu/ASI) is food and drink given by the mother to her baby. The Indonesian Pediatrician Association (Ikatan Dokter Anak Indonesia/IDAI) states that ASI provides all the nutrients needed by babies. According to Riskesdas 2013, exclusive breastfeeding in Indonesia has only reached 30.2% while the expected target is 80%. From the Manado City health profile data the coverage of exclusive breastfeeding in 2017 was 32.7%, while in Tuminting Public Health Center in 2017 was 30%. The coverage is still below the national target of 80%. The low level of exclusive breastfeeding can be caused by various factors including socio-cultural factors, the influence of the promotion of formula milk, the support of health workers, maternal health that have an impact on reduced milk

production, knowledge and attitudes of mothers. In Indonesia, Moringa is a local food material that has the potential to be developed in nursing mothers because it contains phytosterol compounds that function to increase and facilitate breastmilk production.

RESEARCH METHODS

The research method used in this study is the posttest only control group design. The treatment group was treated while the control group was not, the two groups were compared. In the experimental group treatment was carried out by giving a combination of Virgin Coconut Oil (VCO) and Moringa leaf (Morinaga oleifera) as much as 1 (one) tablespoon 2 times day for 5 weeks while in the control group no treatment was given.

RESULTS AND DISCUSSION
Respondent characteristic (Univariate analysis)

Table 4.1. Respondent Distribution by Age

No.	Age	Treatment Group		Control Group	
		N	%	N	%
1	<20 y.o & >35 y.o	3	10.0	5	16.6
2	20 -35 y.o	27	90.0	25	83.4
	Total	30	100	30	100

Table 4.1 shows the majority of respondents aged 20 to 35 years as much as 90% in the treatment group and 83.4% in the control group

Table 4.2. Respondent Distribution by Parity

No	Parity	Treatment Group		Control Group	
		N	%	N	%
1	1-3	28	93.3	26	86.7
2	>3	2	6.7	4	13.3
	Total	30	100	30	100

Table 4.2 the shows that majority of respondents parity is 1-3 as much as 93.3% in the treatment group and 86.6% in the control group

Table 4.3. Respondent Distribution by Breastmilk Production on Pospartum Mother

No	Breastmilk Production	Treatmant Group		Control Group	
		N	%	N	%

No	Breastmilk production					
1	≤ 3 (Less breastmilk production)	0	0	3	10.0
2	4-5 (Moderate breastmilk production)	3	10.0	25	83.3
3	6-7 (Good breastmilk production)	27	90.0	2	6.7
	Total	**30**	**100**	**30**	**100**

Table 4.3 shows that most of the respondents with good ASI production ie 90% in the treatment group and ASI production was 83.3% in the control group

Bivariate Analysis (Analysis of treatment and control group outcome)

Table 4.4 Difference of breastmilk on treatment and control group.

No	Breastmilk production	Mean	Standard Deviation	95% Confidence Interval of the Difference		p-Value
				Lower	**Upper**	
1	Treatment Group	6.67	0.661	-2.263	-1.804	0.001*
2	Control Group	4.63	0.890			

Table 4.4 the mean value in the treatment group is greater than the control group and the value of p = 0.001

Based on the study results of the frequency distribution of the treatment group most of the respondents with good ASI production was 90%, moderate ASI production was 10%, less ASI production was than 0% whereas in the control group good ASI production was 6.7%, moderate ASI production was 83.3% and less ASI production was than 10%.

There was an increase in breastmilk in the average treatment group (mean) before treatment 6.67 compared to the control group 4.63 after the intervention. The value of p = <α is 0.001 p <0.05 and this result shows that there is a significant difference between the production of breast milk in the treatment and control groups.

This research is supported by several studies conducted by Mutiara et. al. in 2012 stating that Moringa leaf flour can significantly increase milk production. Giving Moringa flour doses above 42 mg/kg body weight of white Wistar rats, markedly increased the secretion of the mother's milk and the weight of the rat child. Subsequent research in 2018 Indri et al. Moringa oleifera leaf extract can increase breastfeeding hormone levels in increasing the quantity and quality of breast milk. The abundance of nutrients in the leaves of Moringa (Morinaga oleifera) such as phytosterol compounds (lactogogum effect) in increasing levels of breastfeeding hormones and iron can have a positive impact on baby's health. Zakaria in 2016 shows that the average volume of breast milk increased significantly in both groups before and after the intervention (p <0.001), the Moringa extract group increased by 263.1 ±

40.8 ml (66.2%) and the Moringa flour group increased by 151.4 ± 9.4 ml (33.7%). The difference in the increase in milk volume between the Moringa extract group was significantly higher than the Moringa flour group (p = 0.040). Average changes in breast milk quality were not significantly different (p> 0.05) between the intervention and control groups on iron nutrition (0.8 ± 1.0 vs 0.7 ± 0.9 mg / L); vitamin C (48.6 ± 12.7 vs 45.1 ± 11.4 mg / L); and vitamin E (5.2 ± 2.0 vs 5.6 ± 2.5 mg / L).

In Indonesia, Moringa is a local food ingredient that has the potential to be developed in nursing mothers because it contains phytosterol compounds that function to increase and facilitate production (lactogogum effect). The use in increasing milk production is by consuming plant leaves either steamed or boiled as vegetables, can also use Moringa flour to make drinks. Moringa powder contains: Vitamin A, 10 times more than carrots, Beta Carotene, 4 times more than carrots, Vitamin B1, 4 times more than pork, Vitamin B2, 50 times more than sardines, Vitamin B3, 50 times more than beans, Vitamin E, 4 times more than corn oil, Protein, 2 times more than milk, Protein, 9 times more than yogurt, Amino acids, 6 times more than garlic, iron, 25 times more than spinach, Potassium, 15 times more than bananas, Calcium, 17 times more than milk, Zinc, 6 times more than almonds, Fiber (Dietary Fiber), 5 times more than vegetables in general, GABA (Gamma) -aminobutyric acid), 100 times more than brown rice, Polyphenol, 2 times more than red wine. The many nutritional content in the leaves of Moringa (Moringa oleifera) such as phytosterol compounds (lactogogum effect) in increasing levels of the hormone prolactin and iron can have a positive impact on baby's health because breast milk is the baby's natural food most important and best.

This research is in accordance with the theory that the benefits of VCO for pregnant and postpartum women: VCO is very good to be consumed by pregnant women because VCO contains lauric acid with the highest levels such as breast milk which is useful as anti-microbial, anti-virus and anti-protozoa, protecting babies from harmful microorganisms, and increase the baby's immunity level from virus attacks. During pregnancy in general, mothers are susceptible to infection with several viruses such as the herpes virus and cytomegalo virus, VCO can help the absorption of nutrients for babies, pregnant women who consume VCO, can also reduce the risk of birth defects or miscarriages at the time of birth, VCO optimizes metabolism so that the body burns more calories and increases energy quickly and endurance, which is very important for pregnant women for uterine contractions and straining strength during labor. VCO helps to streamline the body after giving birth, VCO is useful to facilitate breast milk and can improve the quality of breast milk, which increases the amount of lauric acid in breast milk. In 1 tablespoon a combination of Virgin Coconut Oil (VCO) and Moringa leaf (Morinaga Oleifera) contains:

No.	Test name	Repeats			Mean
		U1	U2	U3	
1.	Protein test	4.226	4.228	4.230	4.228 mg
2.	Lipid test	13.25 %	13.24%	12.25%	12.91%
3.	Flavonoid	7.624	7.622	7.559	7.601mg
4.	Alcoloid	4.256	5.111	5.119	4.829 mg
5.	Antioxydant	8.32961	8.32961	8.32961	8.32961mg

| 6. | Phenol | 78.2 | 77.4 | 86.2 | 80.6 mg |
| 7. | Calcium | 8.101 | 8.105 | 8.102 | 8.102 mg |

CONCLUSION AND RECOMMENDATION

The average breastmilk production in the treatment group was 6.67 (good production). The average milk production in the control group was 4.63 (moderate production). The mean value in the treatment group was greater than the control group and the p-value= 0.001. There is a significant difference between the production of breast milk in the treatment group and the control group. There is an effect of giving a combination of Virgin Coconut Oil (VCO) and Moringa leaf (Morinaga oleifera) on milk production.

This research is expected to contribute to the success of government programs especially maternal and child health in reducing infant and child mortality rate and to support the success of exclusive breastfeeding programs.

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Health Education on Women's Self-Care Ability With Post Sectio Caesarea (A Systematic Review Approach)

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ABSTRACT

Postpartum health education increases knowledge and attitudes as well as self-confidence and is part of maintaining health promotion and preventing disease and complications. This study aims to determine the effect of health education on women's self-care ability Post Sectio Caesarea. The study was conducted by having systematic review approach and the article selection conducted through the google scholar, Proquest, EBSCO, and Oxford based on the criteria related to the published the self-care ability of Post Sectio Caesarea women, which were published from 2015 to 2020. The results of the study showed that 10 journals wrote Health education can affect the ability to care for mothers after Sectio Caesarea. The importance of health education for self-care after surgery is to increase the knowledge, attitudes and behavior of mothers in caring for themselves after giving birth. the ability to take care of oneself is an intervention activity that is educative because individuals can actually do self-care or take care of themselves.

Keyword : Health Education, Self-Care Ability, Sectio Caesarea

INTRODUCTION

Health education is health information provided to the community, both individuals, groups, and families, that will affect the pattern of life. In this case, health workers, especially midwives, are very influential in providing health education.(Suryanti, 2021) The purpose of health education is to change the public's perspective on health to prioritize health, be independent in achieving the goals of a healthy lifestyle, and be able to use existing health facilities appropriately . (Maidina Putri, 2019)

Based on the Indonesian Health Demographic Survey (IDHS) in 2017, as many as 17% of national deliveries of Sectio Caesarea were of the total number of deliveries. According to the 2018 Basic Health Research (Riskesdas), the prevalence of Sectio Caesarea in childbirth is 17.6%. From the percentage of the number of Sectio Caesarea deliveries carried out in government hospitals, it is 30–35%, while in private hospitals it is higher, around 30-80%. The highest was in DKI Jakarta (31.3%) and the lowest was in Papua (6.7%).(Sulistianingsih, 2019)

Postpartum care is carried out for both postpartum women with Bring Forth and with Sectio Ceasarea. Postpartum care intervention activities are educational because they empower individuals to take care of themselves. Therefore, health education for postpartum women is needed to help them adapt to life in the postpartum period.(Sambas, 2017)

METHOD

This research method uses a systematic review with *Preferred Reporting Items For Systematic Reviews and Metaanalies(PRISMA)*. Search articles through databases such as Google Scholar, Proquest, Oxford, and EBSCO in accordance with research criteria related to health education on self-care after Sectio Caesarea published in 2015 to 2020. Search articles on 9-10 February 2022 with the keywords health education, self-care skills and sectio caesarea that match the inclusion and exclusion criteria. Articles that have been found later in synthesis and analyzed according to the criteria of inclusion and exclusion

The inclusion criteria in this systematic review are:

a. The Google Scholar site published a journal on the impact of health education on self-care ability in post-section Caesarean women.

b. Journals published between 2015 and 2020

c. Full-text journal includes abstracts, introductions, research methods, research and discussion results, as well as conclusions and suggestions.

The exclusion criteria in this systematic review are:

   a. Unpublished journal.

   b. The journal only displays the abstract.

   c. Journals cannot be downloaded or purchased.

Journal published in 2014.

Figure 1. Flow Chart And Selected Articles

RESULT

In the article searching 30 articles were found and they were then screened by implementing inclusion and exclusion criteria and finally 10 articles of 10 journals that matched to the research criteria were obtained.

Table 1. Research Appropriate to the Topic

Research Title	Result
Maidina Putri (2019) with the title: The effect of providing health education about early mobilization of post Sectio Caesarea on the level of knowledge of postpartum mothers of Sectio Caesarea at Setio Husodo Hospital Kisaran 2019. The method used in this study was Quasy Experiment with a population of 30 post sectio caesarea mothers. . The instrument used in this research is a questionnaire sheet with accidental sampling technique. (Maidina Putri, 2019)	The provision of early mobilization health education can increase the knowledge of post-partum Sectio Caesarea women at Setio Husodo Kisaran Hospital with an average knowledge of 7.97% before being given health education and increasing to 10.57% after being given health education.
Domas Nurchandra Pramudianti (2017) about the effect of postpartum education with booklet media on mothers after Sectio Caesarea on parenting self-efficacy in the early postpartum period at the Klaten area hospital. The method used is Quasy Experiment with pre-test and post-test with control group design involving 66 respondents who are divided into 2 groups, pre and post .(Pramudianti, 2017)	Postpartum education with booklet media has an effect on increasing parenting self-efficacy in the early postpartum period for post-Sectio Caesarea women.
Diah Astutiningrum (2016) with the title Increasing parenting self-efficacy in mothers after sectio caesarea through counseling. The method used is Quasy Experiment with pre-test and post-test with control group. The instrument used is the significant self-efficacy scale (PSES) with a population of 66 which is divided into 2 groups, namely the control group and the intervention group. (Diah Astutiningrum, 2016)	Counseling using booklets has an effect on parenting self-efficacy in postpartum women with Sectio Caesarea.

Jayanti Imansari (2019) with the title Providing communication, information, education (kie) with mother's motivation in doing early post section mobilization. The research design used a Quasy Experiment with a one group pretest posttest approach with a sample of 30 respondents. The data collection technique used consecutive sampling. The tool used for research is a questionnair (Jayanti Imamsari, 2019)	There is a correlation between the provision of communication, information, and education (KIE) with the mother's motivation in early mobilization post Sectio Caesarea at RSIA Melati Husada Malang.
Etty Komariah Sambas (2017) with the theme The effect of health education on postpartum maternal care with Sectio Caesarea on the ability to care for oneself at RSUD Dr. Soekardjo, City of Tasikmalaya. The research design used Quasy Experiment with a one group pretest posttest approach with a population of 24 respondents with data collection techniques using purposive sample (Sambas, 2017)	Health education regarding postpartum care significantly increased the ability of postpartum sectio caesarea women with the three domains with a p-value of 0.000 (alpha 5%).
Cici Ratmiwasi (2017) with the title The effect of early mobilization health promotion on the implementation of early mobilization in postpartum mothers of Sectio Caesarea at RSPB Pekanbaru. The method used is the Quasy Experiment method with one group pretest posttest with a total of 30 respondents and the technique used in this study is Quota Sampling and observation sheets used to measure the implementation of early mobilization (Cici Ratmiwasi & Utami, 2017)	There are differences in the implementation of early mobilization before and after being given health education.
Gathut Pringgotomo (2019) with the theme The effect of health education on discharge planning on patient knowledge about diet after Sectio Caesarea surgery. The method used in this study was a pre-experimental method with a one group pre-post test design approach. The research sample technique is non-random sampling with purposive sampling with a sample of 20 respondents.(Gathut Pringgotomo, 2019)	There is an effect of health education about discharge planning on patient's knowledge about diet post caesarean section.

Ratna Yuliati (2018) with the title Describing breastfeeding practices in post-SC mothers after health education through demonstration methods and android-based videos at RSI Kendal. The method used in this research is descriptive research with a survey approach. The number of respondents is 33 respondents and the data collection technique uses pouposive sampling. (Ratna Yulianti, 2018)	Respondents' education supports learning by using technological developments and financial capabilities sufficient to use android videos because, by seeing, hearing, and practicing themselves, respondents absorb 90% of the material provided.
Mariati (2015) with the title Knowing the effect of providing early mobilization health education in post-SC surgery patients with long hospitalization days. The research method uses Quasy Experiments with a sample of 42 respondent. (Mariati et al., 2015)	There is a significant effect of providing health education on the length of hospitalization in post-SC patients with $p = 0.00$.
Tetti Solehati (2020) with the title Knowing the effect of health education on nutrition on knowledge of postpartum mothers. This study uses a Quasy Experiment design with a one group pre-test and post-test approach. The instrument used is a questionnaire with pourposive sampling data collection technique with a sample of 9 respondents (Tetti Solehati, 2020)	Knowledge of postpartum women regarding nutrition has increased after health education (100%). It can be concluded that health education has an effect on increasing knowledge in postpartum women.

DISCUSSION

Postpartum health education is part of maintenance and promotion, prevention of disease and complications, health recovery during the postpartum period so that it can adapt to all changes that occur and be able to carry out the role of parents well. (Pramudianti, 2017) Health education has various methods that can be applied according to the situation and conditions of the recipients of education. Good knowledge and attitude will increase self-confidence, which in turn helps mothers adapt to physical, emotional, functional and social changes after giving birth. (Diah, 2016)

The purpose of health education is to change the understanding of individuals, groups, communities in the field of health so that health becomes something of value, is independent in achieving the goals of healthy living, and can use existing health facilities appropriately and appropriately. (Maidina Putri, 2019) The selection of health education methods given individually called counseling is based on the belief that each individual is unique and has different interests and needs, so that counseling is the right choice in an individual and structured educational method.

Delivery through surgery or Sectio Caesarea can cause different problems with mothers who give birth normally. In addition to experiencing physiological changes during the puerperium, in mothers with Sectio Caesarea (SC) when the anesthetic effect is lost, there will be pain around the surgical incision

There are two factors that influence the medical indications for Sectio Caesarea surgery, namely fetal factors and maternal factors. Factors from the fetus include the following, namely the baby is too big, fetal location abnormalities, the threat of fetal distress, abnormal fetus, placental factors, umbilical cord abnormalities, and twins. While maternal factors consist of age, number of children born, pelvic conditions, birth canal obstruction, birth contraction abnormalities, premature rupture of membranes (KPD), and pre-eclampsia. (Sulistianingsih, 2019)

The ability to care for post sectio caesarea is part of the knowledge, attitudes and behavior of mothers in caring for themselves after giving birth. The ability to take care of oneself is actually educative because each individual is able to do and take care of himself. Knowledge in self-care is obtained from experience and education provided by health workers. Attitude in self-care is defined as an emotional response or reaction that is formed through social interactions experienced by individuals. (Induniasih, 2018) While behavior is defined as an action taken to maintain personal health after surgery by paying attention to diet, rest and activities carried out

According to Etty Komariah Sambas, it shows that health education regarding postpartum care can improve the ability of postpartum mothers with Sectio Caesarea. (Sambas, 2017) An effective health education method and the choice of most postpartum mothers is individual health education. In addition to the problems experienced by each mother, individual methods are also more private.

CONCLUSIONS AND RECOMMENDATIONS

Health education has a significant impact on post-Septio Caesarea women's ability to care for themselves.The ability to take care of oneself is an intervention activity that is educative because individuals can actually take care of themselves. The health education method provided by counseling is based on the belief that each individual is unique and has different interests and needs, so that counseling is the right choice in an individual and structured educational method.

SUGGESTION

In the future, health workers, especially midwives, should educate more about the needs of post-section caesarean women to improve their ability to care for themselves through counseling and counseling conducted before and after surgery so as to increase patient knowledge.

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RELATIONSHIP OF HISTORY MATERNAL RISK FACTORS WITH LOW BIRTH WEIGHT AT KAYANGAN PUBLIC HEALTH CENTER

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ABSTRACT
Low birth weight babies affect the high rate of morbidity and mortality in infants. One of the indicators of a country's success in improving public health is by decreasing the infant mortality rate (IMR). For Indonesia, the IMR reaches 24 per 1000 live births, which is still far from Indonesia's target in the 2020-2024 National Mid-Term Development Plan, which is 16 per 1000 live births. Low birth weight babies are caused by various risk factors, one of which is maternal risk factors which include mothers who are too young (<20 years of age), too old (>35 years of age), too close (<2 years of gestation), too many (<2 years of gestation). parity >4) . The purpose of this study was to determine the relationship between the history of maternal risk factors and the incidence of low birth weight. Methods This research uses an analytic survey research type with a case control design and uses a retrospective approach. The population in this study were mothers who gave birth at the Kayangan Health Center for the period January-December 2021. The sampling technique used purposive sampling and the sample size was 237 samples. Results. This study proves that the results of statistical tests show that there is a relationship between maternal risk factors and the incidence of LBW. The conclusion of this study There is a relationship between the history of maternal risk factors with the incidence of LBW. It is necessary to increase integrated ANC monitoring and counseling to mothers with risk factors, so that they can overcome LBW as well as complications of pregnancy and childbirth.
Keywords: Maternal Risk Factors, LBW

BACKGROUND
One of the indicators of a country's success in improving public health is by decreasing the infant mortality rate (IMR) . Based on data from The World Bank, the infant mortality rate in the world in 2019 reached 28.2 per 1000 live births. For Indonesia, the IMR reaches 24 per 1000 live births, which is still far from Indonesia's target in the 2020-2024 National Mid-Term Development Plan, which is 16 per 1000 live births. Based on data from the Directorate of Family Health in 2020, of all reported neonatal deaths in Indonesia, 72.0% (20,266 deaths) occurred at the age of 0-28 days. In 2020, the most common cause of neonatal death is low birth weight, which is 35.2%. Babies with low birth weight have a higher risk of death in the first 28 days of life. In childhood, infants with lower body weight have a higher risk of stunting, lower intellectual abilities so that they can pose a threat to the quality of human resources in the future, and can even cause death .

Based on Riskesdas data, 2018 the incidence of low birth weight in Indonesia reached 6.2%, for West Nusa Tenggara (NTB) the incidence of low birth weight reached 5.7%. Based on

data from the West Nusa Tenggara (NTB) Provincial Health Office, LBW throughout 2021 as many as 2,361 babies. For North Lombok Regency, Based on Local Regional Monitoring data, the coverage of neonatal complications found the highest cause of complications was low birth weight. From the data for the last 3 years, there was an increase in the incidence of LBW in 2019 and in 2021 the incidence was 340 cases and 21 cases of death. caused by LBW For the Kayangan Health Center, North Lombok Regency from the Local Area Monitoring Data is one of the Puskesmas that has a fairly high coverage of neonatal complications caused by LBW, for the last 3 years data from 2019 to 2021 there has been an increase in the incidence of LBW, namely 47 cases LBW and 4 cases of death. The coverage of neonatal complications in North Lombok district is caused by the condition of the mother (4) . Low birth weight babies are caused by various risk factors such as maternal factors, fetal factors and environmental factors. Risk factors from the mother include mothers with a risk of 4 Too (too young (pregnant age < 20 years, too old (pregnant age > 35 years), too often/meeting (gestational distance < 2 years), too many/grandemulti (Child > 4 years) .

Based on the Indonesian Maternal and Child Health Profile in 2020, it shows that the percentage of mothers aged less than 20 years who gave birth to babies weighing less than 2.5 kg had the second highest percentage, namely 15.41%. The highest percentage of low birth weight babies is experienced by mothers who are pregnant at an old age, namely 16.85%. Similar to teenage pregnancy, old age pregnancy also has a risk of pregnancy complications that can cause babies to be born with low birth weight. From the annual report on family health in North Lombok Regency, it is stated that the high pregnancy rate at adolescence is 7.8% of 5,202 pregnant women, this condition causes complications in the neonatal, namely low birth weight.

According to Nasution, 2018 from his research which showed that in the case group as many as 70.8% of mothers whose pregnancy interval (<2 years) gave birth to LBW and 29.2% of mothers whose gestational distance (≥2 years) gave birth to LBW, and from the results of the analysis obtained the value OR: 3,199: 95% (1: 1,548-6,611) which means that mothers whose pregnancies are spaced (<2 years) have an estimated risk of 3,199 times will experience low birth weight

Parity 4 (Grandemultipara) is the risk parity of a mother. The more often pregnant women give birth, the closer the distance between pregnancy and delivery, the elasticity of the uterus is increasingly disturbed, as a result the uterus does not contract perfectly and results in post-pregnancy bleeding and premature birth or low birth weight.

The government's efforts to reduce the incidence of LBW are by increasing integrated ANC during pregnancy in order to detect complications and risks of pregnancy, and orienting the Birth Planning and Complications Prevention Program, as well as handling low birth weight babies. Therefore, researchers are interested in conducting research on the relationship between a history of maternal risk factors 4 too and the incidence of LBW.

RESEARCH METHODS

This study uses an analytic survey research type with a case control design and uses a retrospective approach. The population in this study were mothers who gave birth at the Kayangan Health Center from January to December 2021. The sampling technique used purposive sampling and the sample size was 237 samples . Analysis of the data used is Univariate, Bivariate (Chi Square Test , Odds Ratio). This study uses secondary data by looking at labor registers and maternal medical records at the Kayangan Health Center for the period January 1 to December 2021. The method of data collection is that the researcher looks for data on the delivery register according to the inclusion and exclusion criteria and then records the medical record numbers of 237 mothers. maternity., With the medical record number that has been recorded. The researcher took data in the medical record room to record

the data needed and to be completed, the researcher checked the completeness of all data and recorded it in the data collection format and if there was some data from the sample that was incomplete then the researcher looked back at the birth register book until the sample data required are met. The data collection instrument used is a data collection format.

RESULTS AND DISCUSSION

RESULT
Results and Discussion can be in one part but separation is also advisable. Should any tables, pictures, or graphics, the authors need to provide a caption and put them within the text. The caption title should be placed at the top of tables or photos. The title, the tables, and the content of the table should be typed in a single space. In the case of a qualitative study, the particular information (quotes, vignettes) of the informants appears in italic.

In Discussion Section, authors need to provide their interpretation of the study, the meaning of the data or information. Importantly, authors need to extensively compare the results of their study to the previous studies (no later than 10 years). Describing the novelty of their study by introducing a new insight, solution, or approach to deal with the existing problem is the key tone of the authors' finding. However, authors also need to honestly describe the flaws and weaknesses of their study inquiring further studies.

DISCUSSION
Relationship History Risk Factors Maternal Age Too Young With Low Birth Weight Incidence.

The results of this study found a significant relationship between the age of the mother being too young and the incidence of low birth weight babies. Maternal age is one of the factors that influence the incidence of low birth weight. According to Effendi, 2009 which revealed in general, a woman is said to be physically ready if she has completed her body growth, which is around the age of 20 years, so that the age of 20 years can be used as a guide for physical readiness and the ideal gestational age is in the age range of 20-35 years. When the mother's age is < 20 years, the reproductive system is not mature enough to accept a pregnancy. This condition causes the supply of blood flow to the uterus to be not optimal, so that the intake of food for the growth of the mother and fetus is not good, and results in premature birth or low birth weight (Kemenkes RI, 2014). Pregnancy in adolescence has a risk for the birth of LBW babies because they tend to receive less adequate prenatal care and many do not even receive services at all (Cashion, Perry, 2013).

This theory and research is strengthened by Winarsih's research, 2017 which shows there is a significant relationship between maternal age and the incidence of LBW with a p-value of 0.022 and an odd ratio value of 2.3 (95% CI 1.171-4.697). This means that mothers aged <20 years have a 2.3 times greater risk of experiencing LBW events compared to mothers aged 20-35 years. This study is also in accordance with Susanti's research, 2018 which stated that the results of statistical analysis of the relationship between maternal age and the incidence of LBW were obtained by mothers who gave birth to LBW babies with a risky age of 55.6% while mothers who gave birth without LBW with a risk age of 35.2%. and statistical test obtained p-value of 0.003 means it can be concluded that there is a relationship between maternal age and the incidence of LBW. And the results of research analysis Indrasari, 2012 showed a significant relationship between maternal age and the incidence of low birth weight (LBW), where p value = 0.001 and OR = 4.262 with 95% CI: 1.759 -10.327, OR = 4.262 means mother with age at risk, have a risk of 4.2 times greater for low birth weight (LBW) than mothers who do not have age at risk.

However, this study is not in line with the research of Kristiana and Juliansyah, 2017 from statistical tests using Chi-Square obtained P = 0.082 meaning that there is no significant relationship between age and the incidence of LBW and Yulisa, Refni's research, 2018 which shows the results of statistical tests with Chi-Square at = 0.05, the P-value 0.135 > 0.05 can be said that the null hypothesis (Ho) is accepted, which means that there is no relationship between maternal age during pregnancy and the incidence of LBW in RSUDZA Banda Aceh. In the view of the researchers, this study is in accordance with the opinions expressed by experts, where the researchers found a relationship between maternal age and the incidence of LBW due to the large number of pregnant women in their teens under 20 years of age, at this age the development of the reproductive system is not optimal and psychological readiness to accept pregnancy so that it affects the baby's birth weight.

Relationship History Risk Factors Maternal Age Too Old With Low Birth Weight

The results of this study showed a significant relationship between maternal age and the incidence of low birth weight babies. According to Sendangsari, 2019 Pregnancy with a mother who is too old 35 years will have risks because at this age the uterine organs are aging, the birth canal is stiffer, there is a high possibility that pregnant women will have children with disabilities, low birth weight babies (<2500gr), childbirth occurs congestion and bleeding. At the age of too old will increase medical complications and childbirth, at the age of too old (Pregnant Age 35 years) The age of the mother also affects her trophic capacity, so that older mothers tend to have babies with lower body weight. At the age of 35 years or more, maternal health has decreased, as a result pregnant women at that age have a greater chance of having children with disabilities, prolonged labor and bleeding. In addition, the most worrying thing if the age of the mother is above 35 years is the quality of the eggs produced is also not good. Mothers who are pregnant at this age have 4 times the risk than before the age of 35 years. According to the theory contained in Alya, 2014 pregnancies of more than 35 years of reproductive organs are less fertile and increase the risk of birth with congenital abnormalities and are at risk for premature birth.

This theory and research is strongly supported by the research of Maryam, 2014 which results of the analysis of the proportion exposed to risk factors statistically with a p-value of 0.003 and an OR value of 2.126. These results can be interpreted that the relationship between maternal age at risk (less than 20 years and more than 35 years) is proven as one of the maternal factors with the incidence of Low Birth Weight Babies up to 2 times greater than the age of mothers who are not at risk. This study is also in accordance with the research of Davoudi-Kiakalayeh et al., 2017 which states from the results of statistical tests that mothers with age >35 get a p value = 0.001 and an OR value: 1.21 which can be concluded that there is a relationship between maternal age being too old and the incidence of weight gain. low birth. The results of this study are also in line with Mubasyiroh's 2016 research conducted in Indonesia, namely mothers who gave birth at the age of > 35 years had a 2.43 times risk of giving birth to LBW babies, as well as according to the results of Jumhati et.al (2018) research conducted in hospitals. Permata Cibubur Bekasi with research conclusions there is a significant relationship (p = 0.000 <0.05) and the value obtained is OR = 0.009

However, this study is different from Sujianti's research, 2018 which shows that the statistical test results obtained p value = 0.504, so it can be concluded that there is no difference in the proportion of LBW events between at-risk and non-risky ages (there is no significant relationship between maternal age and the incidence of LBW). Fitri Kurnia Rahim et al, 2018 conducted in the Kuningan Regency area with the conclusion of the study stating that there is no significant relationship between maternal age and the incidence of LBW with a p-value of 0.535.

In the view of the researcher, this study is in accordance with the opinion expressed by the experts, where the researcher found a relationship between maternal age and the incidence of LBW because in women aged over 35 years, the function of the reproductive organs has decreased so that it will affect their pregnancy, also along with the addition of Maternal age changes will occur in blood vessels and also decrease the function of hormones that regulate the reproductive cycle. If the age of the mother is included in the age that is not at risk, then the chance of developing LBW is also low, on the other hand, for the mother with a high risk age, the higher the chance of the occurrence of LBW or in other words, the incidence of LBW is likely to occur in mothers with a high risk age.

Relationship of History of Risk Factors Maternal pregnancy distance is too close to the incidence of low birth weight.

The results of this study have a significant relationship between the distance of pregnancy that is too close to the incidence of low birth weight babies. According to Prasetyawati, 2012 the distance between pregnancies that are too close is a maternal factor that affects the incidence of low birth weight. When the distance between pregnancies is too close from one to the next < 2 years (24 months), the condition is that the mother's uterus has not fully recovered and the mother's time to breastfeed and care for her baby becomes less. Mothers with pregnancies that are too close together can pose risks such as: miscarriage, anemia, premature birth, low birth weight, congenital defects, and not optimal growth and development of toddlers.

Physiologically, a mother takes 2-3 years after giving birth to return to a good condition in the following pregnancy. Short pregnancy intervals cause the inability to meet nutritional reserves so that it can lead to pregnancy complications, Prematurity, Neonatal Death, Low Birth Weight (LBW), and Impaired Fetal Growth (IPM) due to short pregnancy intervals (Smith, GC, Pell, JP & Dobbie). , 2013)

This theory and research is strongly supported by Mahayana research (2017) The shorter the distance between two births, the greater the risk of giving birth to LBW, this is because the uterine wall in the healing period requires a lot of energy so that the nutrients needed must also be a lot. These results are in line with the concept that a mother needs 2 to 3 years between pregnancy to recover physiologically and her previous delivery and prepare herself for the next pregnancy. The shorter the distance between the two births, the greater the risk of giving birth to LBW. In the study of Suhartati et al., 2016 also showed that there was a significant relationship between the distance between the mother's pregnancy and the incidence of LBW. From the results of his research, mothers whose pregnancies are less than 2 years apart are 24 times more likely to give birth to babies with low birth weights compared to mothers whose pregnancies are > 2 years apart. This study is also in accordance with Nasution, 2018 from his research which showed that in the case group as many as 70.8% of mothers whose pregnancy interval (<2 years) gave birth to LBW and 29.2% of mothers whose gestational distance (≥2 years) gave birth to LBW, and from The results of the analysis obtained the OR value: 3,199: 95% (1: 1,548-6,611) which means that mothers whose pregnancy interval (<2 years) have an estimated risk of 3,199 times will experience low birth weight.

However, this study is different from the research of Rahfiluddin, Cynthia Putri and Siti Fatimah, 2017 which states that the Chi Square test results show a P-value of 0.534, which means P value > 0.05. So H0 is accepted, which means that there is no significant relationship between the distance between pregnancies and the incidence of LBW. OR results showed 1.476 and CI 0.430-5.062; means OR < 1 and includes the number 1 so that mothers who have a pregnancy distance of 2 years are not yet a risk factor for LBW.

In the view of the researcher, this study is in accordance with the opinion expressed by the experts, where the researcher found a relationship between the distance between the mother's pregnancy and the incidence of LBW due to the fact that in mothers with a pregnancy distance that is too close, it will affect the condition of the mother's uterus that has not fully recovered, so that It can cause premature birth or low birth weight.

The Relationship between Maternal Parity History and the Incidence of Low Birth Weight.

The results of this study showed a significant relationship between too much parity and the incidence of low birth weight babies. According to Wikjnosatro, 2010 that mothers with parity 4 children are at risk for giving birth to LBW and can pose a risk for impaired fetal growth in the womb, causing the birth of babies with LBW. Each process of pregnancy and childbirth causes physical and psychological trauma, the more trauma left behind causes complications in subsequent pregnancies and childbirth. A grandemultipara (high parity) pregnancy causes a decrease in the flexural power (elasticity) of tissues that have been repeatedly stretched by pregnancy so that it tends to arise abnormalities in the location or abnormality of placental growth and fetal growth, resulting in giving birth to babies with low birth weight which can affect the supply of nutrients from the mother to the fetus and increasingly The higher the parity, the higher the risk of giving birth to LBW. Mothers with parity more than four have decreased reproductive system function, lack of fulfillment of nutritional supply and are often tired (Rochyati, 2011).

According to Soetjiningsih, 2012 parity is one of the triggering factors for LBW. A mother will be weak if her body is often pregnant, giving birth, breastfeeding, and caring for her children. This often results in various problems such as maternal anemia, malnutrition, and even bleeding after delivery which can endanger the mother's life. The risk of giving birth to babies with disabilities and LBW also increases after four births.

The theory and results of this study are strongly supported by Winarsih's research, 2017 which shows a significant relationship between parity and the incidence of LBW with a p-value of 0.015. Mothers with parity 4 had a 2.3 times greater risk of experiencing the incidence of LBW compared to mothers with parity 2-3 (95% CI 1.196-4.379). This study is also in accordance with the research of Sandra Surya Rini, 2012 from the results of the analysis that the number of parity is related to the incidence of LBW in the working area of UPT Kesmas Gianyar II with a p value of 0.000. Pregnant women who have a parity number 4 have a 52.1 times greater risk of giving birth to LBW than pregnant women who have a parity number of 2-3. The results of the Chi Square test show a P-value of 0.02, which means P-value <0.05. So that H0 is rejected, which means that there is a significant relationship between maternal parity and the incidence of LBW and research by Junitha, 2019, the results showed that of the 41 respondents with high parity who experienced LBW as many as 20 respondents (48.8%), greater than 50 Low parity respondents who experienced LBW were 12 respondents (24.0%) with a p-value of 0.025, which means that there is a significant relationship between maternal age and the incidence of LBW at Datoe Binangkag Hospital, Bolaang Mongondow in 2017.

However, this study is different from the research by Pinontoan and Tombokan, 2015 from the results of statistical tests showing the value of value = 0.137 (α > 0.005) which can be concluded that there is no parity relationship with the incidence of low birth weight and Widiastuti's study, 2021 the results of Chi-Square analysis the p-value (0.885) > (0.05), which means that there is no relationship between parity and the incidence of LBW at the Samuda Health Center in 2019 (January-December) to 2020 (January-October).

In the researcher's view, this study is in accordance with the opinions expressed by experts, where the researchers found a relationship between maternal parity and the incidence of LBW due to parity mothers who are at risk of experiencing loosening of the uterine muscles and there is scar tissue due to previous pregnancies, scar tissue This can cause problems with the placenta so that fetal development is disrupted, mothers can give birth to babies with low birth weight and at the time of data collection there are many mothers who are less interested in using contraceptives to regulate their pregnancies so that many mothers have children >4.

CONCLUSION AND RECOMMENDATION

There is a relationship between the history of maternal risk factors and the incidence of LBW. It is necessary to increase integrated ANC monitoring and counseling to mothers with risk factors, so that they can overcome LBW and complications of pregnancy and childbirth.

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Relationship between Nutrition Intake and Economic Level with Stunting Incidence in Toddlers Age 24-59 Months in the Work Area of TalangAur Health Center

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ABSTRACT
Stunting is one of the problems related to chronic nutrition that occurs in toddlers, which is characterized by shorter height measurements compared to children their age. Stunting mainly occurs in the First 1000 Days of Life (HPK) (Ministry of Health RI, 2018). The purpose of this study was to determine the relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the working area of the TalangAur Health Center. This type of research is an analytical survey with the Cross Sectional method. The population of mothers under five aged 24-59 months is 301 respondents with a sample using purposive sampling technique as many as 120 respondents. Data were collected using a nutritional intake and economic level questionnaire that had been tested for validity and reliability and then processed using the Spearman Rho statistical test and the Ordinal Regression test with a value of = 0.05. Most of the respondents as many as 59 children under five (72.0%) received good nutritional intake with normal height and most of the respondents as many as 52 families (58.4%) with low economic levels had toddlers with normal height. The results of the Ordinal Regression statistical test obtained a significance value of p = 0.006 for adequate nutritional intake and p = 0.015 at a low economic level with = <0.05 so that H1 was accepted. The results of the analysis can be concluded that there is a relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the work area of the TalangAur Health Center. There is a relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the working area of the TalangAur Health Center. So it is recommended for mothers to be able to meet the nutritional intake of their children from an early age so as to prevent stunting.
Keywords: Stunting, Nutritional Intake, Economic Level

BACKGROUND
Quality nutrition will create a generation that has optimal competitiveness in facing global developments. One of the nutritional problems currently being faced by toddlers, even in the world, is stunting. Stunting is one of the problems related to chronic nutrition that occurs in toddlers, which is indicated by the results of measurements of shorter height compared to children their age. Stunting mainly occurs in the First 1000 Days of Life (HPK) (Ministry of Health RI, 2018). Stunting is a multifactorial problem that can be caused not only by individual factors but also by family factors (Tsaralatifah, 2020).
Nutritional intake in the form of adequate energy and protein intake has a major effect on the incidence of stunting in toddlers. Adequate energy is needed in metabolic processes in the

body. Lack of energy can cause an energy imbalance in the body which results in a body weight below normal so that if it occurs in children, it will inhibit the process of growth and development of children. In addition to energy sufficiency, protein adequacy is also needed in the process of forming biomolecules and as the main component of enzymes that are biocatalysts in various metabolic reactions of the body (Tanzil and Harfiani, 2021). This is reinforced by research Khimariyah, Motherland and Prastia (2021) There is a tendency for toddlers who get less energy intake to experience stunting more than 53.6% compared to toddlers who get enough energy intake, which is only 7.4%. In addition, in another study conducted by Wardani (2019) It is also found that there is a tendency for toddlers who get less protein intake with stunting toddlers more than 75% compared to children who get adequate protein intake by 47.3%. According to research conducted by Qolbi, Munawaroh and Jayatmi (2020) that toddlers who have poor nutrition coverage will be at risk of stunting 4,048 cal greater than toddlers who have good nutrition coverage.

In addition to nutritional intake, the economic level in the family can affect the occurrence of stunting. Economic level is related to family income in meeting primary, secondary and tertiary needs. Family income affects the quality and quantity of food consumed so that it affects the nutritional status of the family (Marbun, Pakpahan and Tarigan, 2019). In a previous study conducted by Nursyamsiyah, Sobrie and Sakti (2021) states that there is a significant relationship with the socioeconomic status of families with low economics resulting in suboptimal nutritional status in the family so that families with incomes below the regional minimum wage (UMR) are at risk of 3.2 times having children suffering from stunting. In another study conducted in Thailand, stating that economic level is the strongest factor in the occurrence of stunting in children, children in the poorest quintile are twice as likely to be stunted as children in the richest quintile (Cetthakrikul et al., 2018).

Based on data on the prevalence of stunting under five from the World Health Organization (WHO) in 2005-2017, Indonesia is the third ranked country with the highest average prevalence of stunting at 36.4% in the Southeast Asia/South-East Asia Region (SEAR) (Ministry of Health RI, 2018) . Report Health Reasearch and Development Agency shows that the prevalence of stunting under five in Indonesia has decreased significantly over the last four years . Even the prevalence of stunting in Indonesia in 2021 continues to show a downward trend to 24.4%. Although the prevalence of stunting has decreased, this condition is still far from the average that must be fulfilled according to the categories set by WHO of 20% (SSGI, 2021). Not much different from Indonesia, the prevalence of stunting in South Sumatra Province in 2021 is still 24.8% and OganIlir Regency is 29.2%. Although the prevalence of stunting has decreased, this condition is still far from the national and provincial averages (South Sumatra Provincial Health Office, 2021).

As a result of the high incidence of stunting in children under five in OganIlir Regency, this is due to the high percentage of poor people in OganIlir Regency of 66.4%, even 42.3% do not have a job, resulting in a low level of economy in the family. This also affects the fulfillment of daily nutritional intake for toddlers because 59.9% of households in OganIlir Regency still receive Non Tuna Food Assistance (BPNT) or basic food programs that are given to families with socioeconomic conditions that fall into the 25% category. lowest in the implementing area. So that the nutritional intake of toddlers and the family's economic level can influence each other and are interconnected with the incidence of stunting in toddlers (BadanPusatStatistik, 2021).

The impact of stunting in children if not handled properly can cause long-term and short-term events such as children will be susceptible to disease, growth and development and intelligence are less than optimal, children have a shorter height than their peers, even have an impact on children. Economic losses due to stunting can result in human resources that are less than optimal and less able to compete with other nations (Saadah, 2020).

Based on the above background, researchers are interested in conducting research on the relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the working area of the TalangAur Health Center.

RESEARCH METHODS

This study uses an analytical survey research design with the Cross Sectional method. This research was conducted in the working area of TalangAur Health Center. Data were collected from January 17, 2022 to May 13, 2022. The population in this study were mothers with toddlers aged 24-59 months who were registered in the work area of the TalangAur Health Center as many as 301 mothers and children. Samples were taken using the purposive sampling technique by taking into account the inclusion criteria in the study so that 120 respondents were obtained in the study.

The independent variables in this study were nutritional intake and economic level and the dependent variable in this study was the incidence of stunting in toddlers aged 24-59 months. Initial data was taken by identifying according to the criteria in the study by looking at the report of the cohort of children under five. The instrument in this study was a questionnaire used to determine nutritional intake and economic level and to measure height using a microtoise. Before conducting the research, the researcher explained in advance to the respondents about the purpose of the study, gave informed consent and signed a letter of consent to become a respondent. Then performed univariate analysis using frequency distribution, bivariate analysis using Spearmen Rho statistical test, and multivariate analysis using Ordinal Regression using the IBM SPSS Statistic 26 application. EA/966/KEPK-Poltekkes_Sby/V/2022 on 27 April stated that this research was ethically worthy and received approval in carrying out the research.

RESULTS AND DISCUSSION

The results of the descriptive analysis of the respondent's character data are presented as follows.

Table 1 Frequency Distribution of Toddler and Parents Characteristics

No	Characteristics	Category	Frequency (f)	Percentage (%)
1	**Gender**	Man	60	50.0
		Woman	60	50.0
	Amount		**120**	**100.0**
2	**Age**	24-35 Months	31	25.8
		36-47 Months	35	29.2
		48-59 Months	54	45.0
	Amount		**120**	**100.0**
3	**Father's occupation**	Doesn't work	4	3.3
		Working	116	96.7
	Amount		**120**	**100.0**
4	**Mother's Job**	Doesn't work	69	57.5
		Working	51	42.5
	Amount		**120**	**100.0**

Table 1 shows that half of the respondents as many as 60 children under five (50.0%) are male, almost half of the respondents are 54 children (45.0%) aged 48-59 months, almost all of the respondents are 116 people (96.7%) with working fathers, and most of the respondents as many as 69 people (57.5%) with mothers who do not work.

Table 2 Frequency Distribution of Nutrient Intake, Economic Level and Stunting Incidents in Toddlers

No	Characteristics	Category	Frequency (f)	Percentage (%)
1	Nutritional Intake	Not enough	3	2.5
		Enough	35	29.2
		Well	82	68.3
	Total		**120**	**100.0**
2	Economic level	Low	89	74.2
		Currently	11	9.2
		Tall	20	16.7
	Total		**120**	**100.0**
3	Category TB/U	Very short	17	14.2
		Short	25	20.8
		Normal	78	65.0
	Total		**120**	**100.0**

Table 2 shows that most of the respondents as many as 83 children under five (68.3%) received good nutritional intake, most of the respondents were 89 families (74.2%) with family incomes in the low category, and most of the respondents as many as 78 toddlers (65%) had high normal body.

Table 3 Relationship between Nutrition Intake and Stunting Incidence in Toddlers

Nutritional Intake	Category TB/U						Total		p-value
	Very short		Short		Normal				
	f	%	f	%	f	%	f	%	
Not enough	0	0.0%	0	0.0%	3	100.0%	3	100.0%	
Enough	9	25.7%	10	28.6%	16	45.7%	35	100.0%	0.023
Well	8	9.8%	15	18.3%	59	72.0%	82	100.0%	
Total	17	14.2%	25	20.8%	78	65.0%	120	100.0%	

Table 3 shows that most of the respondents as many as 59 toddlers (72.0%) received good nutritional intake with normal height, while all respondents as many as 3 toddlers (100.0%) received inadequate nutritional intake with normal height.

This research is in line with research Subani et al., (2022) which shows that there is a relationship between nutritional intake and the incidence of stunting in children under five in the TanjungAgungPalik Health Center, North Bengkulu Regency. Other research conducted Putri and Dewina (2020) states that there is a significant relationship between nutritional parenting and the incidence of stunting in children aged 2-5 years. Study Nurjanah (2020) said that there was a relationship between nutritional intake and the incidence of stunting, so to avoid the occurrence of excess or undernutrition in toddlers, it was necessary to pay attention to good feeding patterns and adjusted to the age of the toddler.

According to Permenkes No. 14 of 2014 concerning balanced nutrition guidelines, toddlers aged 2-5 years are said to have adequate nutritional intake if children eat regularly 3 times a day starting with breakfast, lunch and dinner which are the main meals by consuming a variety of foods according to balanced nutrition and the right portions. such as carbohydrates contained in rice, tubers, flour, corn as much as 3-4 servings a day, protein contained in tofu, tempeh, fish and eggs as much as 2-3 pieces per day, eggs and fish are highly recommended to be consumed by children because rich in Omega 3, DHA, EPA which are beneficial for children's growth and children's brain intelligence and it is recommended to consume healthy

snacks that are not too sweet, salty and fatty. Expand to consume vegetables with a portion of 1-2 servings every day and consume 2-3 pieces of fruit every day, drink milk once a day and drink 6-7 glasses of water per day. It is recommended to change the menu every day so that children do not get bored and eat regularly (KementerianKesehatan RI, 2014).

The importance of providing nutritional intake to children plays an important role in the process of growth and development, so that lack of nutrition can affect the health status of children (Imelda, Rahman danNur, 2020). A person who falls into the category of poor nutritional status will occur if there is one or more essential nutrients lacking in the body. Lack of nutrients in children has a negative impact in the short term (acute) and long term (chronic). The short term impact will make the child look physically weak and the long term impact will result in the disruption of the child's growth such as the child being shorter than children his age (NoorhasanahdanTauhidah, 2021). Wardani, Harumi and Yuniarti (2022) argues that the role of parents is very important in meeting the nutritional needs of children because children have not been able to choose the type of nutritious food so that children will tend to choose types of food that are attractive in color and taste good without being concerned with nutrition in it. However, at this time most parents do not have food challenges in giving food to toddlers and even providing fast food and some parents do not monitor the diversity of foods on the diet consumed by toddlers.

The results of this study indicate that most toddlers get a good nutritional intake. This good nutritional intake was obtained because of the habits of the people of OganIlir Regency who like to consume pempek as a side dish or as a staple food for breakfast in the morning. Pempek is a typical food from the city of Palembang made from wheat flour or starch and soft ground fish and other additives such as eggs and salt. Foods that are rich in protein such as fish and eggs are highly recommended for children to consume because they contain good quality protein so that children get good nutritional intake in line with the growth experienced by toddlers.

Table 4 Relationship between Economic Level and Stunting Incidence in Toddlers

Economic level	Category TB/U						Total		p-value
	Very short		Short		Normal				
	f	%	f	%	f	%	f	%	
Low	17	19.1%	20	22.5%	52	58.4%	89	100.0%	
Currently	0	0.0%	3	27.3%	8	72.7%	11	100.0%	0.004
Tall	0	0.0%	2	10.0%	18	90.0%	20	100.0%	
Total	17	14.2%	25	20.8%	78	65.0%	120	100.0%	

Table 4 shows that most of the respondents as many as 52 families (58.4%) with low economic levels have toddlers with normal height, while most of the respondents as many as 8 families (72.7%) with moderate economic levels have toddlers with high normal body.

Economic level is inseparable from a person's income level. In determining the quality and quantity of food consumed in a family is the level of income. Low income will result in weak purchasing power so that it cannot meet optimal food needs, especially for children, while increased income affects health and nutritional conditions (Purwanti and Nurfita, 2019).

This research is in line with research AtinNurmayasanti and TriasMahmudiono (2019) that family income has a significant relationship with the incidence of stunting that low family income has a 3,178 times greater risk of stunting. Other research by Wahyuni and Fithriyana(2020) shows that there is a significant relationship between family income and the incidence of stunting. The high income that is not matched by adequate nutritional knowledge will cause a person to become very consumptive in his daily diet, so that the selection of a food ingredient is based on considerations of taste rather than nutritional aspects. Different

from research Hasbiah, Widyarni and Inayah (2021) that most respondents with low family incomes have more children under five who are not stunted, than respondents with high family incomes. So that there is no relationship between the respondent's family income and the incidence of stunting in toddlers in the Pekauman Health Center Work Area, Banjarmasin City in 2021.

Family income is related to the ability of the household to meet the needs of life, both primary, secondary, and tertiary. High family income makes it easier to meet the necessities of life, on the contrary, low family income has more difficulty in meeting the necessities of life. Low income will affect the quality and quantity of food consumed by the family (Marbun, PakpahandanTarigan, 2019). The food that can be obtained will usually be less varied and in small quantities, especially in foods that function for the growth of children, sources of protein, vitamins, and minerals, thereby increasing the risk of malnutrition. These limitations will increase the risk of a toddler experiencing stunting. Low income levels and weak purchasing power make it possible to overcome eating habits in certain ways that hinder effective nutrition improvement especially for their children (Sari, OktarinadanSeftriani, 2020).

Family income is also influenced by the work owned by the parents of children under five. A working father allows a family to meet the needs needed in a family. Likewise if the mother works so that the income in a family increases. However, working mothers will cause a lack of attention to children due to low time with children so that they are not optimal in monitoring the development and growth of children compared to mothers who do not work (PutridanDewina, 2020).

This study shows that the economic level in a family in the working area of the TalangAur Health CenterSebian is in the low category but has toddlers in the normal height category. This is because the type of work in TalangAur village is mostly farmers so that they can fulfill their daily needs with the results of farming. So that even though the income is low but can manage nutritious food with simple and cheap ingredients, the baby's growth will also be good.

Table 5 Relationship between Nutritional Intake and Economic Level with Stunting Incidents in Toddlers

Variable	Estimate	SE	Wald	df	p-value	95% CI		OR
						Lower Bound	Upper Bound	
TB/U (Very Short)	-3.917	0.836	21,935	1	0.000	-5.556	-2,278	
TB/U (Stunting)	-2,590	0.793	10,653	1	0.001	-4.145	-1.035	
Nutrition (Less	19,176	0.000		1		19,176	19,176	
Nutrition (Enough)	-1.133	0.414	7.511	1	0.006	-1,944	-0.323	3.105
Nutrition (Good)	0			0				
Economy (Low)	-1,949	0.802	5,901	1	0.015	-3,522	-0.377	7,022
Economy (Medium)	-1,217	1.049	1.347	1	0.246	-3,274	0.839	
Economy (High)	0			0				

Table 5 shows thatthere is a relationship between nutritional intake and economic level with the incidence of stunting in children under five. Lack of nutritional intake affects 3,105 times the incidence of stunting in toddlers compared to toddlers who get good nutrition, while the low level of economy in family income affects 7,022 times the incidence of stunting in toddlers compared to families with high economic levels.

The results of this study found that there was a relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the work area

of the TalangAur Health Center. Lack of nutritional intake affects 3,105 times the incidence of stunting in toddlers compared to toddlers who get good nutrition, while the low level of economy in family income affects 7,022 times the incidence of stunting in toddlers compared to families with high economic levels.

Adequate nutrition in children is an important thing for children's growth and development and inadequate nutrition can affect the health status of children (Yanti;,Betriana and Kartika, 2020). So that the type of food given must be in accordance with the body's needs and digestibility in toddlers, types of food that are more varied and have sufficient nutritional value are very important to prevent toddlers from experiencing malnutrition (Marantika and Sarwinanti, 2021). In addition, stunting is associated with the effect of low family income, forcing families to meet their dietary needs by choosing nutritionally poor food as an alternative. At the same time more children are becoming malnourished due to the deteriorating quality of their diets and resulting nutritional disorders in toddlers (Yanti and Fauziah, 2021).

According to Friyayi. and A. (2021) that the relationship between family income and the incidence of stunting is influenced by factors including low family income, low economic status and low family income below the minimum wage, especially in rural areas. In addition, research Apriluana and Fikawati (2018) also argues that nutritional status has a significant influence on the incidence of stunting in children and has a risk of experiencing stunting of 3.82 times and low household income is identified as a significant predictor of stunting in children under five of 2.1 times.

*Stunting*associated with low economic productivity at the time of productive age. The level of income in a family greatly affects the variety of types of food consumed because a family must adjust the purchase price to the size of the income received (Langi et al., 2019). Low income can prevent an individual or a family from consuming nutritious nutrition. So that increasing income can increase the quality and quantity of food consumed will be better, on the contrary if income decreases it will also reduce the quality and quantity of food to be purchased. If income increases, consumption patterns will be more diverse so that the consumption of food with high nutritional value can also increase (PurwantidanNurfita, 2019).

According to researchers, low family income can affect the growth and development of children. This can be caused by a family that has a low income and has many family members who will find it difficult to meet their daily needs, especially quality food. However, there are some families who have low incomes but do not interfere with the growth of their children this is because the majority of the work of the population in TalangAur village is farmers so that they can meet their daily food needs even though they have low incomes. However, it should be noted that higher income does not guarantee a variety of food to be consumed by the family.

CONCLUSION AND RECOMMENDATION
Based on the results of this study, it was found that there was a relationship between nutritional intake and economic level with the incidence of stunting in toddlers aged 24-59 months in the working area of the TalangAur Health Center. Mothers or parents must pay attention to meeting the nutritional needs of children under five. The important thing is the fulfillment of nutrition with the principle of balanced and diverse nutrition. In addition, the economic level in a family also affects the variety of types of food consumed because a family must adjust the purchase price with the income received.

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THE RELATIONSHIP OF ADOLESCENT BEHAVIOR WITH ANEMIA IN YOUNG WOMEN AT SMAN 2 MALANG

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ABSTRACT

Anemia is a condition where the concentration of hemoglobin or the number of red blood cells is below normal. The normal hemoglobin level in adolescent girls is 12 mg%. Based on data from the Ministry of Health of the Republic of Indonesia, the percentage of anemia in adolescent girls is still high at 32%, which means that 3-4 out of 10 adolescents are anemic (Kirana D.P., 2011). Meanwhile, in East Java, based on data 42% of young women in East Java are anemic. The purpose of this study was to analyze the relationship between adolescent behavior and anemia in adolescent girls. This type of research is observational analytic using a cross sectional design. The population in this research were female students of class X at SMAN 2 Malang. Sampling with purposive sampling technique with a sample of 125 respondents. The independent variable in this research is anemia, while the dependent variable is adolescent behavior. The data collection instruments were a questionnaire and a quick test Haemometer. analysis using Spearman Rho test. Almost all of the knowledge of young women (96.1%) have good knowledge, most of the attitudes of young women (53.9%) have positive attitudes, almost all of the actions of young women (79.7%) are sufficient. The results of the analysis of the relationship between knowledge and anemia obtained p value = 0.030, the results of the analysis of the relationship between attitudes and anemia showed that the p value of the relationship between attitudes and anemia in adolescent girls was obtained p value = 0.783, the results of the analysis of the relationship between action and anemia obtained p value = 0.511. The conclusion of this research is that there is a relationship between knowledge and anemia and there is no relationship between attitudes and actions with anemia. It is hoped that this research can be a school-level prevention by increasing knowledge in young women.

Keywords: Anemia, Adolescent, Knowledge, Attitude, Action.

BACKGROUND

Anemia in adolescent girls is still quite high, according to the World Health Organization (WHO), the prevalence of anemia in the world ranges from 40-80%. The problem of anemia in adolescent girls is still found in many countries in the world, especially in developing countries (Kaimudin, N.Lestari, H.Afa, 2017). As is the case in Indonesia, which is completely unresolved. The prevalence of anemia in adolescent girls is still high at 32%, which means that 3-4 out of 10 adolescents are anemic. This is influenced by less than ideal eating patterns and lack of physical activity (Kemenkes, 2021). Meanwhile, in East Java, based on data, 42% of adolescent girls in East Java are anemic (DinasKesehatanProvinsiJawaTimur., 2020).

The factors that cause anemia that can affect the incidence of anemia include: Insufficient iron intake, consumption patterns of Indonesian people which are still dominated by vegetables as a source of iron. Meanwhile, meat and other animal protein are rarely consumed. Menstruation, heavy blood loss during menstruation is thought to cause anemia (Merryana and Wirjatmadi, 2013). Breakfast habits, because breakfast contributes to daily energy and nutrient intake. The mother's education level can determine the knowledge and skills in determining the food menu for her family which will affect the

health status of all family members. Economic status can affect the family's purchasing power and ability to choose food (Lakshmanrao, 2013).

Based on the results of a preliminary study conducted at SMAN 2 Malang on 10 respondents, it was found that 2 out of 10 respondents had Hb less than 12gr/dl. Of the 10 young women, almost half have minimal knowledge about anemia. In the practice of everyday life, teenagers do not really think about the food intake to be eaten, this also shows that there is a lack of knowledge that young women have. For this reason, researchers are interested in conducting research on adolescent girls at SMAN 2 Malang.

RESEARCH METHODS

The type of this research is observational analytic which uses cross sectional design. This research was conducted at SMAN 2 Malang from January to May 2022. The population in this study were female students in class X at SMAN 2 Malang. Sampling with purposive sampling technique with a sample of 125 respondents. The independent variable in this study is anemia while the dependent variable is adolescent behavior. The data collection instruments were a questionnaire and a quick test Haemometer. Data analysis using Spearman Rho test using the IBM SPSS Statistic 26 application. EA/948/KEPK-Poltekkes_Sby/V/2022 on 26 April stated that this research was ethically worthy and received approval in carrying out the research.

RESULT AND DISCUSSION

The results of the descriptive analysis of the respondent's character data are presented as follows.

Table 1 Respondent Characteristics

Respondent Characteristics	Frequency	Persentage (%)
Age		
15 year	31	24,8
16 year	94	75,2
Total	**125**	**100,0**
Mother's education		
SMA	93	74,4
D1/S1	32	25,6
Total	**125**	**100,0**
Parent's income		
Very High	17	13,6
High	28	22,4
Moderate	80	64,0
Total	**125**	**100,0**

Table 1 shows that out of 125 young women (rematry) most of them (75.2%) are 16 years old, most of them (74.4%) have high school education, most of them (64%) are middle-income parents.

Table 2 Distribution Frequency of Knowledge, Attitude, Action andAnemia in Adolescent

No	Characteristics	Category	Frequency (f)	Percentage (%)
1	Knowledge	Good	120	96.0
		Enough	5	4.0
		Less	0	0
	Total		**125**	**100.0**
2	Attitude	Positive	69	55.2
		Negative	56	44.8
	Total		**125**	**100.0**
3	Action	Good	20	16.0
		Enough	100	80.0
		Less	5	4.0
	Total		**125**	**100.0**
4	Anemia	No Anemia	100	80.0

	Mild	14	11.2
	Moderate	8	6.4
	Severe	3	2.4
Total		**125**	**100.0**

Table 2 shows that almost all respondents (96%) have good knowledge, shows most young women (55.2%) have negative attitudes, shows almost all respondents (80%) have sufficient actions, shows almost all young women (80%) no anemia.

Table 3 Relationship between Knowledge and Anemia in Adolescent

Knowledge	No Anemia		Mild Anemia		Moderate Anemia		Severe Anemia		Total		p*)
	f	%	f	%	f	%	f	%	f	%	
Good	98	81.7	12	10.0	7	5.8	3	2.5	120	100.0	
Enough	2	40.0	2	40.0	1	20.0	0	0.0	5	100.0	0.030
Total	100	80.0	14	11.2	8	6.4	3	2.4	125	100.0	
*Spearman's Rho test									r=0,194		

Table 3 shows that severe anemia is more common in adolescent girls with good knowledge (2.5%), moderate anemia is more common in adolescent girls with sufficient knowledge (20%), mild anemia is more common in adolescent girls with sufficient knowledge (40%), not anemia was found more in adolescent girls with good knowledge (81%).

Knowledge can affect the incidence of anemia. Sources of information obtained from various sources make a person tend to have broader knowledge. Knowledge about anemia that is obtained by adolescents can be obtained from various sources such as books, mass media, counseling or health education or through Accompany peers. This research is in line with Hamdani, knowledge is one of the factors that stimulate or stimulate the realization of a health behavior. If someone knows and understands the consequences of anemia and how to prevent anemia, then he will have good health behavior and hope it can be avoided from various consequences or risks from the occurrence of anemia (Hamdani, Nurunniyah and Hardianti, 2016).

Table 4 Relationship between Attitude and Anemia in Adolescent

Attitude	No Anemia		Mild Anemia		Moderate Anemia		Severe Anemia		Total		p*)
	f	%	f	%	f	%	f	%	f	%	
Positive	56	81.2	7	10.1	3	4.3	3	4.3	69	100.0	
Negative	44	78.6	7	12.5	5	8.9	0	0.0	56	100.0	0.783
Total	100	80.0	14	11.2	8	6.4	3	2.4	125	100.0	
*Spearman's Rho test									r=0,025		

Table 4 shows that severe anemia is more common in young women with positive attitudes (4.3%), moderate anemia is more common in young women with negative attitudes (8.9%), mild anemia is more common in young women with negative attitudes. negative (12.5%), no anemia was found more in young women who had a positive attitude (81.2%).

A negative attitude is not necessarily a risk factor for anemia. Attitudes have an unstable nature and can sometimes change, this can be related to knowledge. Good knowledge will encourage someone to display an attitude that is in accordance with the knowledge that has been obtained with good knowledge, a good attitude will be realized, so if the knowledge is not good then a bad attitude will be realized. If the attitude is good but the teenager is severely anemic, it can be said that the teenager has not implemented his knowledge in his life. In this study, it was found that there was no relationship between attitude and the incidence of anemia. Attitude theory according to Azwar, Attitude is a form of evaluation or reaction to an object, taking sides or impartially which is a certain regularity in terms of feelings (affection), thoughts (cognition) and predisposition of a person's actions (conation) towards an aspect in the surrounding environment (Azwar, 2013).

Table 5 Relationship between Action and anemia in Adolescent

Action	No Anemia		Mild Anemia		Moderate Anemia		Severe Anemia		Total		p*)
	f	%	f	%	f	%	f	%	f	%	
Good	13	65.0	4	20.0	2	10.0	1	5.0	16	100.0	
Enought	85	85.0	8	8.0	6	6.0	1	1.0	102	100.0	0.511
Less	2	40.0	2	40.0	0	0.0	1	20.0	7	100.0	
Total	100	80.0	14	11.2	8	6.4	3	2.4	123	100.0	
*Spearman's Rho test										r=0,059	

Table 5 shows that severe anemia is more common in young women who take less action (5%), moderate anemia is more common in young women who take good action (10%), mild anemia is more common in young women who take less action (40%), not anemia was found more in adolescent girls who had adequate measures (85%).

Action is an attitude that has not automatically manifested in an action (overt behavior). To realize an attitude into a real action, a supporting factor or a possible condition is needed, including facilities (Notoatmodjo, 2014). This study found that there was no relationship between action and anemia in adolescent girls. Action factors related to health have a role in changing the behavior of adolescent girls in an effort to prevent anemia. In a teenager generally pay less attention to the quality of food. Most of them choose to eat food based on considerations of taste, not on the basis of nutritional considerations, especially those who like to eat snacks outside.

CONCLUSION AND RECOMMENDATION
Based on the results of the study, it was concluded that knowledge about anemia was related to the incidence of anemia in adolescent girls. The better the level of knowledge of adolescents about anemia, the lighter the incidence of anemia in adolescent girls. Attitudes about anemia are not related to the incidence of anemia in adolescent girls. Actions about anemia are not related to the incidence of anemia in adolescent girls. Expected this research can be a school-level prevention by increasing knowledge in Adolescent.

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Mother's Knowledge of Breastfeeding Guidelines During The Covid-19 Pandemic and Successful Breastfeeding

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ABSTRACT

The rate of exclusive breastfeeding has decreased in most countries in the world, including in Indonesia since the start of the covid pandemic because mothers are worried about the transmission of covid through breast milk. In Indonesia, the government has issued guidelines for breastfeeding during the COVID-19 pandemic so that the breastfeeding process continues as usual by observing health protocols. This study aims to analyze the relationship between mother's knowledge about breastfeeding during the covid 19 pandemic and the success of breastfeeding in Palangkaraya City. This research is an analytic study with a cross sectional design. The research was conducted in Palangka Raya, Central Kalimantan in March-April 2021 . The sample of this study were mothers who had babies aged > 1 month who met the inclusion and exclusion criteria. Purposive *sampling technique used in this study* with a total sample of 97 mothers. Data was collected by using questionnaires and filling sheets. Data analysis was performed univariate and bivariate using *Chi Square test* . The results showed that most of the respondents were aged 20-35 years (93.8%), secondary education (70.1%), did not work outside the home (83.5%), multipara (77.3%) and did early initiation of breastfeeding (85.6%), some mothers only give breast milk partially (64,9%) and most of the mothers' knowledge is poor (38.1%). There is a relationship between mother's knowledge about breastfeeding guidelines during COVID-19 with the success of breastfeeding in first month after delivery (p=0,00). Socialization about breastfeeding during the COVID-19 period is needed by health workers, starting during pregnancy for mothers who are exposed to Covid 19 or not to increases breastfeeding practices.
Keywords: Breastfeeding, Covid-19, Mother's Knowledge

BACKGROUND

Exclusive breastfeeding for six months has been shown to have many benefits, both for the mother and the baby. Although the benefits of breastfeeding have been published, the coverage rate for exclusive breastfeeding is still far from being expected. *World Health Organization* (WHO) states that 3 out of 5 babies do not get breast milk in the first hour of life and only 41% of babies under 6 months are fully breastfed. (WHO, 2021) .The number of Breastfeeding rate is still far below the target that must be achieved in 2030 in accordance with the Sustainable Development Goals (SDGs) target of 70% (WHO & UNICEF, 2018) .

In Indonesia, the achievement rate of exclusive breastfeeding in 2020 is 66.1% (Kemenkes RI, 2021b) . In Central Kalimantan, the breastfeeding coverage rate in 2020 is still below the national rates of 59.3%. This rate decreased compared to the previous year, which was 78.79%. In Palangka Raya City as the capital of Central Kalimantan Province, the exclusive breastfeeding coverage rate in 2020 is 45.82%. This rate is still far below the

strategic plan target of 80%. In addition, this rate has also decreased compared to 2019 or before the covid pandemic which reached 49.25% (Palangkaraya City Health Office, 2021) .

Based on the SDKI (2017) report, the coverage of exclusive breastfeeding for infants aged 0-1 months was the highest at 66.5% and decreased with increasing age until only 38.2% of infants were exclusively breastfed at the age of 4-5 months (Bkkbn , BPS, Ministry of Health, 2017) . The failure of breastfeeding based on the results of previous research can be related to the early feeding (prelacteal) (Elviani et al., 2020)

Several factors have been proven to be factors that influence the success of breastfeeding such as maternal age, mother's occupation, income, place of residence, parity, marital status, early initiation of breastfeeding (IMD), maternal knowledge, birth attendants and family support (Arisani&Sukriani, 2020; Cohen et al., 2018; Santana et al., 2018)

Study by Piankusol et al in Thailand stated that there was a decrease in breastfeeding rates during the pandemic (Piankusol et al., 2021) . Other data indicate a high rate of cessation of breastfeeding during a worldwide pandemic (Milani et al., 2022) . This is partly because mothers are worried about the transmission of Covid through breast milk and the side effects of giving vaccines to breastfeeding mothers.

In Indonesia, according to government guidelines through the Ministry of Health, it is still recommended to provide exclusive breastfeeding even though the mother is exposed to the COVID-19 virus. Indonesian Pediatrician Association (IDAI) stated that breastfeeding mothers who are exposed to COVID-19 are recommended to continue breastfed for their babies because their breast milk contains immunoglobulins. A and G, lactalbumin, lactoferrin and others that can provide passive natural immunity from the covid 19 virus. (Kemenkes RI, 2021a) . This study aims to analyze the relationship between mother's knowledge about breastfeeding during the covid 19 pandemic with the success of breastfeeding in the first month during the covid 19 pandemic in Palangkaraya City.

RESEARCH METHODS

This study is an analytic study with a *cross sectional design.* The study was conducted in Palangka Raya City, Central Kalimantan Province in March-April 2021. The population of this study were all mothers who had babies aged > 1 month in Palangka Raya City. The sample of this study were mothers who had babies aged > 1 month who met the inclusion and exclusion criteria. Sampling using purposive *sampling technique* with the number of samples needed in this study based on a sample calculation of 97 mothers. The inclusion criteria in this study were mothers who did not have a history of diseases that hindered the breastfeeding process and the babies did not have any congenital abnormalities, while the exclusion criteria were mothers who were not willing to be respondents .Data was collected using a questionnaire containing 15 question items that had been tested for validity and reliability and a sheet containing the variables needed for this research data. Data analysis was carried out univariately and bivariately using the *Chi Square test* to determine the relationship between mother's knowledge about breastfeeding during the covid 19 pandemic with the success of breastfeeding in the first month during the covid 19 pandemic in Palangka Raya City.

RESULTS AND DISCUSSION

The results of the study can be seen in the table below:

Table 1. Frequency Distribution of Respondents Characteristics (n = 97)

Characteristics of Respondents	n	%

Age		
< 20 Years	2	2.1
20 – 35 Years	91	93.8
>35 Years	4	4.1
Education		
Low	17	17.5
Intermediate	68	70.1
High	12	12.4
Work		
Working	16	16.5
Doesn't work	81	83.5
parity		
Primipara	22	22.7
Multipara	75	77.3
IMD Status		
IMD	83	85.6
No IMD	14	14.4

Based on table 1, it is known that most of the respondents are in healthy reproductive age (20-35 years) as many as 91 people (93.8%), intermediate education as many as 68 people (70.1%), not working outside the home 81 people (83.5 %), multiparous as many as 75 people (77.3%) and most of the mothers had IMD at birth, namely 83 people (85.6%).

Table 2. Distribution of Breastfeeding Frequency in the First Month

Breastfeeding	n	%
Fully Breastfeeding	34	35.1%
Partial Breastfeeding	63	64.9 %
Total	97	100%

Based on the table above, it is known that some mothers only give breast milk partially or mix breast milk with other foods or drinks such as formula milk, as many as 64,9% of

mothers. This means that as many as 64,9% of mothers have failed to give exclusive breastfeeding in first month.

Table 2. Frequency Distribution of Mother's Knowledge About Breastfeeding during Covid

Knowledge	n	Percentage
Good	30	30.9
moderate	30	30.9
Poor	37	38.1
Total	97	100%

Based on the table above, it is known that the largest percentage is mother's who have poor knowledge about breastfeeding during the pandemic

Table 4. Results of Bivariate Analysis of Factors Related to Breastfeeding in the First Month of the Covid 19 Pandemic Period in Palangka Raya City

Variable	Breastfeeding				Score
	Full Breastmilk		Partial Breastfeeding		p
	n	%	n	%	
Mother's Knowledge					
	24	24.7	6	6.2	
Good	7	7.2	23	23.7	**0.000**
moderate	3	3.1	34	35.1	
Poor					
Age					
< 20 Years	0	0.0	2	3.2	
20–35 Years	33	97.1	58	92.1	0.373
>35 Years	1	2.9	3	4.7	
Education					
Low	6	17.6	11	17.5	
Intermediate	26	76.5	42	66.7	0.353

High	2	5.9	10	15.8	
Work					
Working	4	11.8	12	19.1	0.267
Doesn't work	30	88.2	51	80.9	
parity					
Primipara	2	5.9	20	31.7	**0.004**
Multipara	32	94.1	43	68.3	
IMD Status					
IMD	29	85.3	54	85.7	0.589
No IMD	5	14.7	9	14.3	

Based on table 4, it is known that there is a relationship between knowledge about breastfeeding during a pandemic with breastfeeding success in the first month. In addition, parity also related to breastfeeding in the first month during the COVID-19 pandemic in Palangka Raya City (p <0.05)

From the results of this study, it is known that mother's knowledge about Breastfeeding Guidelines during Covid is related to successful breastfeeding in the first month after birth. This is in line with previous study which stated that the success of exclusive breastfeeding depends on the mother's knowledge about breastfeeding (Santacruz-Salas et al., 2020) . Mothers who have poor knowledge about breastfeeding tend not to start breastfeeding in the first hour after giving birth (Hamze et al., 2019) In addition, mother's knowledge about breastfeeding is also related to maternal age, education level and mother's parity. Older Mothers tend to choose to breastfeed for a long time (Jasny et al., 2019) .

This study also found that there was a relationship between parity and breastfeeding in the first month with p value = 0.004. This result is supported by Lumbantoruan's study (2018) which also obtained the same results. Most of the primiparous mothers do not give exclusive breastfeeding because breastfeeding problems often arise such as sore nipples due to the mother's lack of experience so that the mother is not ready to exclusively breastfeed. And the lack of patience of mothers in giving breast milk to babies because breast milk productivity is not smooth (Lumbantoruan, 2018) .

During the COVID-19 pandemic, mothers' knowledge of breastfeeding guidelines needs to be improved. Study by Sultana and Yasin (2021) states that only 21% of women are aware of the fact that mothers infected with COVID-19 can feed their babies by maintaining breathing and hand hygiene. Only 35% of study participants had the knowledge that if a mother is seriously ill with a COVID infection; Breast milk can be extracted while taking precautions. Similarly, 77.5% of mothers think that a mother infected with COVID-19 cannot take care of her baby by taking precautions not to breastfeed the baby. So that maternal knowledge is significantly related to awareness about breastfeeding practices (Sultana &Yasin, 2021)

Mother's knowledge needs to be supported by health workers. The results of the study stated that not all health workers care about breastfeeding guidelines during the pandemic, so

that the provision of information about breastfeeding practices during the pandemic has not been maximized (Malik et al., 2021) . In fact, breastfeeding mothers really need support by health workers, especially by providing information about breastfeeding starting from pregnancy. This support during the pandemic can be provided virtually if it is not possible to provide it in person. Research shows that virtual lactation support is quite effective compared to direct support during the pandemic, although it has many challenges such as limited internet access or cellular signal. The advantages of virtual services are the flexibility and convenience of home-based support, and security from exposure to viruses (Schindler-Ruwisch& Phillips, 2021)

CONCLUSION AND RECOMMENDATION
There is a relationship between mother's knowledge about breastfeeding guidelines during the COVID-19 pandemic with the success of breastfeeding in the first month after birth. More socialization of guidelines is needed by health workers, especially those starting during pregnancy and support during the breastfeeding process, both to mothers who are exposed to COVID or not, so the breastfeeding practices increases.

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THE RESISTANCE STATUS OF *Aedes Sp* LARVAE TO *TEMEPHOS* IN THE PERIMETER AND BUFFER AREAS OF SURABAYA TANJUNG PERAK SEAPORT

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ABSTRACT
The seport was the gateway transmission of the disease. IHR 2005 stated that the perimeter and port buffer areas have to be free from larvae to maintain these conditions KKP Class 1 Surabaya conducts continuous control by employ the larvacidae with the activated ingredient *temephos*, that has been used for more than ten years and can trigger resistance. The purpose of this study to determined the resistance status from *Aedes sp* larvae to *temephos* in the Perimeter and Buffer area of the Surabaya Tanjung Perak Seaport. Type of research used experimentation purified design with Postest Only with Control Group Design. The research sample were the third generation (F3) *Aedes Sp* instar III larvae used *temephos* with a variation concentrated 0.01 mg/L; 0,02 mg/L; 0,03 mg/L; and 0,04 mg/L with 24-hour contact time. Data analysis in determined the resistance status with reference to the standard categories of WHO. The test results which was conducted a total of five times indicated test results of the status vector based on standards WHO that the status larvae against *temephos* with variations concentrated 0.01 mg/L; 0.02 mg/L; 0.03 mg/L; and 0.04 mg/L was resistant. The concluded resistance status of *Aedes Sp* larvae to *temephos* in the Perimeter and the Buffer area have indicated resistant. Suggestion for the KKP Class 1 Surabaya to conduct further research on status resistance larvae *Aedes Sp* to *temephos*.
Keywords: *Resistance, Aedes Sp, Temephos, Larvicides, Port*

BACKGROUND
The port is a meeting place or activity in and out of ships, goods and people as well as a gateway for the spread of disease. One aspect of disease transmission at ports is through disease-transmitting insects (vectors), as well as nuisance animals, both carried from transportation and those already present at the port. Decree of the Minister of Health Number 431 concerning Control of Environmental Health Risks at Ports/Airports/Transboundary Posts in the Context of Health Quarantine, the House Index (HI) of *Aedes Sp* in the buffer area is less than 1%. Meanwhile, in the perimeter area of *Aedes Sp* mosquitoes, neither the larval stage nor the adult stage can be found in the perimeter area.

One of the controls carried out in controlling the impact of environmental health risks is control of quarantine disease vectors. IHR, 2005 stipulates yellow fever as one of the quarantine diseases transmitted by *Aedes Sp* mosquitoes infected with the virus that causes yellow fever. This disease is one of the most dangerous infectious diseases. The mortality rate of this disease ranges from 20-50%, but in severe cases it can exceed 50%.

Dengue Hemorrhagic Fever is still a health problem in Indonesia. The incidence rate (incidence rate) or dengue hemorrhagic fever (DHF) in East Java in 2021 is 17 per 100,000 population, which is in accordance with the national target incidence rate, which is 49 per 100,000 population. The DHF case fatality rate (CFR) in 2020 is 0.8%, but in 2021 it is 1.1%, this shows that the death rate due to DHF in East Java is still above the national target set, which is <1%. While the achievement of the larvae-free rate in 2020 is 89%, and in 2021 it is 90% lower than the target that has been set, which is 95%. The risk of transmission of dengue cases in East Java tends to be influenced by population density, population mobility, urbanization (East Java Provincial Health Office 2021).

Strategic steps that can be taken for prevention and control of dengue cases are community empowerment efforts and community participation in 3M Plus Mosquito Nest Eradication activities at least once a week on a regular basis. The activity of eradicating the nests of *Aedes Sp* mosquitoes at the larval stage was carried out by applying chemical-based larvicides with the active ingredient *temephos*. The use of *temephos* in Indonesia has been started since 1976. In 1980, *temephos* was established as part of the *Aedes Sp* eradication program in Indonesia. Until now (in 2021), *temephos* is still used to kill larvae of *Aedes Sp*. This means that the use of *temephos* in Indonesia has been around for 40 years (Cahyati et al. 2019). The use of larvicides for a long time can cause vector resistance to these larvicides (Natalina et al. 2019).

Resistance develops in vector species populations through generation or selection due to insecticide exposure to vector species and the application method, dose, and scope of intervention. Vector resistance to insecticides is a global phenomenon, especially the management of vector-borne disease control programs in Indonesia. Resistance is hereditary and is the single obstacle to successful chemical vector control. Determination of the status of resistance to insecticides can be useful as program information for the selection of appropriate insecticides in vector control. The slower resistance is detected, the greater the loss caused, because insecticides are no longer effective in breaking the chain of transmission, will result in inefficiency in financing efforts to control vector-borne diseases (Sunaryo et al. 2018).

The causes of resistance are the use of the same or similar insecticides in each phase of the life of the *Aedes Sp* mosquito continuously for a long period of time, the use of active ingredients or formulations that have the same activity, long residual effects and the use of the same insecticide against all stages of vector growth. If there is resistance to insecticides, it will make the insecticides can no longer be used to eradicate a vector. For example, if the mosquito larvae are already resistant to a larvicide, then the larvicide given will no longer be able to inhibit the growth of mosquitoes into adults (Cahyati et al. 2019).

The phenomenon of resistance has been reported that *Aedes Sp* larvae have been resistant to *temephos*. Study (Nur Handayani et al. 2019) in the Perimeter and Buffer areas of Tanjung Emas Port, Semarang City, which reported that *Aedes Sp* larvae from the Tanjung Emas Port perimeter area were tolerant to *temephos*, with an average mortality of 96%. Meanwhile, in the Tanjung Emas Port Buffer area, it was reported that it was resistant to *temephos* with an average mortality of 68%. Other research conducted by (Marlik et al, 2018) The results showed that *Aedes aegypti* mosquitoes in Kediri Regency were resistant to 0.8% malathion, while the use of 5% malathion was in the tolerant category within 60 minutes. *Aedes aegypti* larvae in Kediri Regency were resistant to *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l, 0.04 mg/l.

The purpose of this study was to determine the resistance status of *Aedes Sp* larvae in the perimeter and buffer areas of the Surabaya Tanjung Perak Seaport.

RESEARCH METHODS
Pure experimental research with Posttest Only with Control Group Design using WHO susceptibility test method. The concentration of *temephos* used was 0.01; 0.02; 0.03 and 0.04mg/l. In this test, there were 4 (four) concentrations and controls were carried out with 5 repetitions. The sample size according to WHO standards for resistance testing is 25 *Aedes Sp* larvae for each treatment and repetition. The total number of samples was 1250 larvae of *Aedes Sp*.

The selection of the location for taking *Aedes Sp* larvae to get the first generation was done by simple random sampling, namely 100 houses by taking a radius of 100-200 meters from the patient's house according to the farthest flight distance of *Aedes Sp* mosquitoes in the buffer area and 5 places inside the port fence in the area. perimeter.

Sampling was done by setting an egg trap (ovitrap) at the respondent's house for 7 days. Ovitrap is made dark in color and placed in a dark place according to the nature of the female mosquito at rest. Ovitrap was taken after 7 days, then rearing mosquito eggs to be bred into larvae in the laboratory. The larvae tested were late third instar larvae or early fourth instar larvae and then a susceptibility test was carried out according to WHO procedures.

Materials and tools used for resistance testing, water pH measurement; water temperature; air temperature; humidity is a pipette, plastic cup, label paper, stopwatch, aquades, insecticide *temephos* solution 156.25mg/l (then the dilution is made to 0.625mg/l and the next dilution is 0.01mg/l; 0.02mg/l; 0.03mg/l and 0.04mg/l), *Aedes Sp* larvae, pH stick, thermohygrometer.

Resistance testing was carried out using the Larval Mosquito Susceptibility test method according to WHO standards. The WHO standard category resistance criteria are:
a. Death 98%   = Susceptible/vulnerable/sensitive
b. Death between 90 - 97% = Tolerant
c. Death < 90%   = Resistance

RESULTS
1. Conditions of room temperature, room humidity, water temperature and pH of the physical environment and water media on larval resistance testing *Aedes Sp*
     Resistance testing was carried out by taking into account the control variables, namely room temperature, room humidity, temperature and pH of the water. Larvae resistance test activities *Aedes Sp* carried out on different days and each day 5 replications were carried out in the perimeter and buffer areas of the Tanjung Perak Seaport. The results of measurements of room temperature, room humidity, temperature and pH of the water during the test can be seen in table 1 and table 2 below.

Table 1. Results of Measurement of Room Temperature, Room Humidity, Water Temperature and pH

Origin of Test Biota Region	Room Temperature (°C)	Room Humidity (%)	Water Temperature (°C)	Water pH
Perimeter Area				
Replication I	32	80	28	7
Replication II	32	80	28	7
Replication III	34	75	29	7
Replication IV	32	80	29	7
Replication V	34	75	28	7
Buffer Region				
Replication I	34	75	29	7
Replication II	34	75	28	7
Replication III	33	80	28	7
IV Replication	33	80	29	7
V . replication	33	80	28	7
Average	**33.1**	**78**	**28.4**	**7**

Based on the table above, it can be seen that the air temperature in the study room ranged from 32-34°C and the average room temperature was 33.1°C. Air humidity in the study room ranges from 75-80% and the average humidity in the room is 78%. The water temperature ranges from 28-29°C and the average water temperature is 28.4°C. The average pH of the water used by the larvae is 7.

2. **Larvae mortality percentage *Aedes Sp* in the control group and the treatment group against *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l, and 0.04 mg/l exposed within 24 hours**

The number of larval deaths in the control and treatment groups is presented in tabular form. Number of deaths in control and treatment of *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l, and 0.04 mg/l in larvae *Aedes Sp* with a contact time of 24 hours with 5 (five) repetitions in the perimeter and buffer areas can be seen in table 2.1 and table 2.2.

Table 2.1 Larvae resistance test results *Aedes Sp* in the control groupwith a contact time of 24 hours

Replication	Number of Larva	Perimeter Area			Number of Larva	Buffer Region		
		f	Average	%		f	Average	%
I	25	0	0.0	0.0	25	0	0.0	0.0
II	25	0	0.0	0.0	25	0	0.0	0.0
III	25	0	0.0	0.0	25	0	0.0	0.0
IV	25	0	0.0	0.0	25	0	0.0	0.0
V	25	0	0.0	0.0	25	0	0.0	0.0

Total	125	0	0.0	0.0	125	0	0.0	0.0

Based on the table above, it is known that in the perimeter and buffer areas the number of deaths of *Aedes Sp* larvae in the control group exposed for 24 hours on average was 0 with a percentage of 0%. During the 24-hour contact time, no larvae died in replication I to V replication for the control group.

Table 2.2 Larvae resistance test results *Aedes Sp* in the treatment group against *temephos* with a contact time of 24 hours

Replication	Concentration (mg/l)	Number of Larva	Perimeter Area			Number of Larva	Buffer Region		
			f	Average	%		f	Average	%
I	0.01	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.04	25	0	0.0	0.0	25	0	0.0	0.0
II	0.01	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.04	25	0	0.0	0.0	25	0	0.0	0.0
III	0.01	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.04	25	0	0.0	0.0	25	0	0.0	0.0
IV	0.01	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.04	25	0	0.0	0.0	25	0	0.0	0.0
V	0.01	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.02	25	0	0.0	0.0	25	0	0.0	0.0
	0.04	25	0	0.0	0.0	25	0	0.0	0.0
Total		500	0	0.0	0.0	500	0	0.0	0.0

Based on the table above, it is known that in the perimeter and buffer areas the number of *Aedes Sp* larvae mortality from all *temephos* concentrations exposed for 24 hours on average is 0 with a percentage of 0%. During the 24-hour contact time, no larvae died in replication I to V replication for groups exposed to concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l.

3. **Determination of resistance status of *Aedes Sp* larvae in the perimeter and buffer area of Tanjung Perak Port Surabaya after a contact time of 24 hours**

Determination of resistance status can be done after counting the number of larvae that died to the concentration *temephos*. Determination of resistance status based on the calculation of the number of larvae that were in contact at concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l after 60 minutes of observation divided by the total larvae and made into the form of percent. Then the results are set according to the WHO

category (2016). Based on the percentage results for determining larval resistance status *Aedes Sp* can be seen in table 3 below.

Table 3. Larvae resistance status *Aedes Sp* to *temephos* in the perimeter and buffer area of the Surabaya Tanjung Perak Seaport

Region	*Temephos* Concentration (mg/l)			
	0.01	0.02	0.03	0.04
Perimeter	Resistance	Resistance	Resistance	Resistance
buffer	Resistance	Resistance	Resistance	Resistance

Based on the table above, it can be concluded that the resistance status of *Aedes Sp* larvae originating from the Perimeter and Buffer regions to *temephos* is resistant according to the WHO standard category (2016). *Aedes Sp* larvae from Perimeter and Buffer regions were all resistant to *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l.

DISCUSSION

1. Conditions of room temperature, room humidity, water temperature and pH of the physical environment and water media in testing *Aedes Sp* larvae resistance

a. Room temperature

Temperature is a control variable that can affect research results, it needs to be controlled by measuring and analyzing. Temperature measurements were carried out during the study, namely 5 replications for 2 different areas. The measurement results during the study were 32-34°C and the average room temperature of the study was 33.1°C.

Air temperature plays an important role in the evaporation of water and also the ability to hold water in the air and chemical processes in the air. The higher the air temperature, the higher the evaporation rate of water, the higher the water vapor. The lower the air temperature, the ability to hold water vapor also decreases. The temperature in the research room can affect the water temperature in the research room. The water temperature can adjust to the environment around it, if the temperature in the room is low, the water temperature is also low and vice versa. In this case, the room temperature needs to be controlled so as not to affect the temperature of the water used by *Aedes Sp* larvae during the test.

b. Room Humidity

Air humidity is a control variable that can affect research results, it needs to be controlled by measuring and analyzing. Measurement of air humidity was carried out during the study, namely 5 times replication for 2 different areas. The measurement results during the study were 75–80% and the average humidity of the research room was 78%. The humidity in the research room is in optimal condition and does not affect the results of the study. This is supported by (WHO, 2009) that 45% humidity is the lowest limit for mosquito life. At 70% humidity mosquitoes can survive approximately 100 days.

At low air humidity will cause evaporation of water in the body of *Aedes Sp* which will result in dryness of mosquito body fluids. Therefore, one of the enemies of adult

mosquitoes is evaporation. The optimal average humidity for the development of *Aedes Sp* mosquito larvae ranges from 70-90% (Pramurditya et al. 2017).

The low survival of *Aedes Sp* is caused by a slow metabolic process due to low temperature and humidity so that it can lead to the death of larvae. Based on this we know that humidity that does not meet the requirements will result in the death of the larvae, thereby reducing the chances of finding larvae. One of the factors that may affect the results of this humidity measurement is due to the time of the study which coincides with the rainy season so that the water vapor content in the air increases (Sulfiani et al. 2021).

c. **Water Temperature**

Water temperature is one of the factors that can affect the survival of *Aedes Sp*. larvae. Water temperature plays a role as a determinant of the success of larval growth. The results of the research on water temperature in the research room were replicated 5 times for 2 different areas. The measurement results during the study were 28–29°C and the average water temperature used by the larvae was 28.4°C. The water temperature used by the larvae during the resistance test was in accordance with the recommended range with the optimal water temperature for larval life. This is also supported by research (Ridha et al. 2011), stated that water temperature was related to the presence of *Aedes Sp*. larvae. In this study, the water temperature that supports the presence of *Aedes Sp* larvae is 25-30°C. This means that the temperature is ideal for larval development and growth. The growth of *Aedes Sp* larvae will be disturbed if the water temperature is less than 25°C or more than 30°C.

Water temperature is one of the factors that can affect the development and survival of *Aedes Sp* larvae, the appropriate water temperature for the development of *Aedes Sp* larvae (Wahyuni, 2013). One of the environmental parameters that is significantly related to the population density of *Aedes Sp* mosquito larvae is water temperature. Water temperature plays a role as a determinant for the success of larval growth. The cause of the uniformity of the water temperature in the container is due to the relatively low environmental temperature at the time of the study because the weather is always cloudy and tends to rain (Sulfiani et al. 2021).

d. **Acid Base (pH) of Water**

The degree of acid base (pH) of water is a factor that greatly determines the growth or survival of *Aedes Sp*. larvae. Water pH is a control variable that can affect research results, it needs to be controlled by measuring and analyzing. Measurement of water pH was carried out during the study, namely 5 replications for 2 different areas. The result of measuring the pH of the water used by the larvae during the study was 7. So it can be concluded that the pH of the water used for the larvae was still in the optimum range for the larvae to grow and did not affect the performance of the active ingredient *temephos* being studied on the mortality of *Aedes Sp*. larvae. It is supported by (Yahya et al. 2019) which states that optimal larval growth occurs in the pH range of about 7 and larvae will die at pH 3 and 12.

pH is a factor that greatly affects the life of *Aedes aegypti* larvae. The pH of the water that is too acidic or too alkaline will easily lead to the death of the larvae. One of the factors that can affect the survival of larvae is the availability of food. A pH that is too acidic is thought to inhibit the growth of plankton while it is known that plankton is one

of the largest food sources for larvae, with reduced food sources for larvae the chances of larvae to survive are very small (Sulfiani et al. 2021).

2. **Death of *Aedes Sp* larvae in the control group and treatment group to *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l, and 0.04 mg/l exposed within 24 hours**

Larvae of *Aedes Sp* from Perimeter and Buffer area of Tanjung Perak Seaport Surabaya exposed using *temephos* at concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l for 60 minutes and after 24 hours no *Aedes Sp* larvae died. The results of the calculation of the percentage mortality of *Aedes Sp* larvae against the control group and the treatment group were 0% in the Perimeter and Buffer areas of the Tanjung Perak Seaport Surabaya.

Almost all *Aedes Sp* mosquito larvae in the Perimeter and Buffer areas at varying concentrations did not die, this was exacerbated by the fact that *temephos* had been used for almost 40 years (since 1976) in Indonesian society in controlling *Aedes Sp*. In its use, *temephos* often does not reach the effective concentration recommended by the Indonesian Ministry of Health. Larval resistance can be hereditary which is transmitted through the parent. The mechanism of insect resistance to insecticides consists of 3 ways, namely increasing the detoxification (become non-toxic) of insecticides due to the work of certain enzymes (Ramayanti & Febriani 2016).

Larvicide or *temephos* is an organophosphate group insecticide that has the ability as a poison that affects the neurotransmitter system. Based on three mechanisms of resistance to an insecticide, it is possible that *temephos* has detoxified the microsomal oxidase, glutathione transferase, hydrolase and esterase enzymes as well as decreased sensitivity of the insecticidal target site on the mosquito's body, in this case *acetylcholinesterse*. The decrease in the rate of penetration of insecticides through the skin is caused by the occurrence of tolerance related to genetic and bioecological factors (Ipa et al. 2017)

Control of *Aedes Sp* by looking at environmental sanitation conditions that aim to reduce larval habitat is a key strategy for this vector control program. Moreover, the use of insecticides as larvicides by the community is the most common way to control *Aedes Sp*. One of the larvicides used in Indonesia is from the organophosphate group with the active ingredient *temephos*.

Temephos is a non-systemic organophosphorus insecticide. The use of *temephos* to kill *Aedes Sp* larvae has obtained approval from the World Health Organization (WHO) and the Ministry of Health and has recommended powders with the active ingredient *temephos* to be spread in puddles that have the potential as breeding places for mosquitoes. *Temephos* is a pesticide that contains a slightly toxic product (toxicity class III) so it can be used in general. The way temephos works on larvae is to inhibit the performance of enzymes in the formation of nerve cells from the insect larvae, with these conditions and abilities, mosquito larvae cannot develop and even die immediately after ingestion or contact with *temephos*.

The use of *temephos* began since the government launched the abatization program in 1980 to break the chain of transmission of dengue fever(Ministry of Health RI 2012).This program is carried out continuously throughout the year without any larvicide rotation with the aim of avoiding outbreaks. According to Georgio, insect resistance to an

insecticide will occur if it is used intensively for 2 to 20 years and continuously throughout the year (Georghio et al. 1988).

Resistance is the ability of a vector population to survive against a dose of insecticide that under normal circumstances can kill the vector species. To determine the status of resistance or susceptibility of insecticides to insects, it is necessary to conduct a resistance test. The resistance test will produce data on the number of larvae mortality after being exposed to insecticides for 24 hours which is then determined according to the standard resistance status.

The resistance test was carried out in the negative control group which was tested using distilled water and the treatment group using the organophosphate insecticide, namely *temephos* with variations in concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l. In the negative control group, which was tested for 24 hours using distilled water, there was no death of *Aedes Sp* larvae, so there was no need to make corrections with Abbot's formula. In the treatment group using *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l exposed for 24 hours did not experience death. The *Aedes Sp* larvae resistance test was replicated 5 times to obtain valid data for each control group and treatment group.

Aedes Sp larvae in the Perimeter and Buffer regions at various concentrations did not die. The reason is that the concentration used is too small so it is not able to work to kill *Aedes Sp* larvae. Insecticides that exist and are used by the community to date are generally *temephos*. The dose rule for *temephos* in the national larvicidation program in the community is 10 grams/100 liters or 100 mg/l, so the dose used by the community is 1%. Meanwhile, in this study, abate material was used, namely *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l and no larvae died at these concentrations. This is because the toxicity of *temephos* used on larvae is too small.

Other research conducted (Marlik et al. 2018) on Conventional Detection of *Aedes aegypti* Resistance as DHF Vector in Kediri Regency against *Malathion* and *Temephos* using *temephos* concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l. The result was that there was no death of *Aedes aegypti* larvae, so it can be said that *Aedes aegypti* larvae in Kediri Regency were resistant to *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l.

3. **Resistance status of *Aedes Sp* larvae to *temephos* in the perimeter and buffer areas of the Surabaya Tanjung Perak Seaport**
Resistance is an individual insect's ability to survive against a dose of insecticide that under normal circumstances can kill the insect species. Insecticide resistance status against insects was measured using a resistance test procedure, which is an appropriate standard method for measuring insecticide resistance, especially in the field (Marlik et al. 2018). The standard test for *Aedes Sp* larvae resistance was obtained in the test with the following percentage of mortality; larvae are categorized as vulnerable if the mortality of the test larvae is 98-100%; categorized as tolerant if the mortality of the test larvae was 90-97% and categorized as resistant if the mortality of the test larvae was 90%.

Based on the results of the study, *Aedes Sp* larvae in the Perimeter and Buffer areas of Tanjung Perak Seaport Surabaya were categorized as resistant to *temephos* with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l. l. This was proven based

on the results of resistance tests from two areas at the Tanjung Perak Seaport, Surabaya, which had a mortality percentage of test larvae below 90% during 60 minutes of observation and after 24 hours at concentrations of 0.01 mg/l, 0.02 mg/l, 0. 03 mg/l and 0.04 mg/l.

The recommended follow-up if resistance to insecticides has occurred, alternative control is to rotate using insecticides that work differently and ideally use a two-year cycle; intervene on larvae and adult mosquitoes simultaneously with insecticides that have different ways of working, for example adult mosquitoes use the organophosphate group and larvae use the Insect Growth Regulator (IGR); and using insecticides that have different working methods that are applied based on geographical areas, for example, region A uses the pyrethroid group and region B uses the organophosphate group.

Another alternative solution is to use new insecticides to eradicate these insects. This is because, if the dose is continuously increased without a new insecticide replacement plan, it will one day endanger public health and environmental health. If an effective dose in the future cannot kill *Aedes Sp* larvae effectively and it is proven that disease transmission continues to occur, then *temephos* (abate) must be immediately replaced with other active ingredients that have a different way of working with *temephos* (abate). Insecticide rotation also needs to be carried out for vector control with a maximum period of 2-3 years or 4-6 times of application according to (Ministry of Health RI 2012). So it is necessary to do further research on doses that can endanger the health of living things, especially humans, if the use of *temephos* dose is increased.

With regard to replacing the active ingredient of larvicides, it is necessary to pay attention to the physiological system of the insecticide targets previously used. It is better when resistance occurs, the change of active ingredients should use materials whose physiological targets of insecticides are different from before. The physiological system that becomes the target point of insecticides that interfere with the function of the neurotransmitter nervous system. *Temephos* larvicide derived from the organophosphate group is an insecticide that works as an *acetylcholine* (AChE) inhibitor.

According to WHO recommendations, other alternatives to replace insecticides or rotate their use other than *temephos* can switch to using Insect Growth Regulators (IGR) such as *pryproxyfen, altosid, metoprene,diflubenzuron*, etc. In contrast to the organophosphate group which targets the nervous system, IGR targets the development and growth system. IGR is a chemical that can interfere with and inhibit the growth hormone of larvae from the I to IV instars so that they do not succeed in becoming pupae or adult mosquitoes. IGR does not directly react to poison the larvae. His death was due to developmental delays since the larval stage and his inability to metamorphose.

The results of the determination of resistance that have been carried out by the authors are only based on resistance tests with 5 replications using the susceptibility test and then categorized according to WHO standards. The results of the study showing the resistance status are temporary results. This is because determining the resistance status of *Aedes Sp* larvae to *temephos* in an area requires repeated testing and further research.

CONCLUSION AND RECOMMENDATION

Conclusion

1. The research room temperature ranged from 27 - 30°C and the average room temperature was 28.1°C. The humidity in the research room ranged from 50–65% and the average humidity in the room was 59.6%. The water temperature used by the larvae ranged from 28 – 29°C and the average water temperature was 28.4°C. The pH of the water used by the larvae is 7.

2. The number of deaths of *Aedes Sp* larvae in control and treatment with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l in the Perimeter and Buffer regions with 5 (five) replications times the average is 0.

3. Percentage of mortality of *Aedes Sp* larvae in control and treatment with concentrations of 0.01 mg/l, 0.02 mg/l, 0.03 mg/l and 0.04 mg/l in the Perimeter and Buffer regions with 5 (five) replications times by 0%.

4. The resistance status of *Aedes Sp* larvae in the Perimeter and Buffer regions was temporarily resistant.

Recommendation

1. For Health Agencies
   a. Monitoring and monitoring vector resistance on a regular basis in the Perimeter and Buffer areas to determine the status of larval resistance which aims to provide input and follow-up in the mosquito vector eradication program *Aedes Sp*.
   b. Another alternative is to use insecticides from other groups that are not included in the organophosphate group, such as the pyrethroid group and to rotate the insecticide with a maximum period of 2-3 years or 4-6 times of application.
   c. Another alternative is to use *Insect Growth Regulator(IGR)* e.g. pryproxyfen, altoside, metoprene, etc.

2. For Other Researchers
   a. Further research is needed using biochemical and molecular tests to determine the mechanism of resistance that plays a role.
   b. Further research is needed on larval resistance testing *Aedes Sp* to *temephos* with concentrations above 0.04 mg/l.
   c. Further research is needed on larval resistance testing *Aedes Sp* using insecticide active ingredients other than the organophosphate group.

3. For Society

   Chemical control using insecticides, especially with the use of *temephos* must continue to pay attention to the principles of control such as the use of doses according to the recommendations of the ministry of health so as not to cause resistance. (Abate sowing can be repeated every 2-3 months. Abate use: 10 grams for 100 liters).

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UTILIZATION OF CELLULOSE POWDER FROM BANANA PEEL (*Musa Textilia*) TO REDUCE Fe (FERRUM) IN WATER

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ABSTRACT
Treatment of water containing high levels of Fe can be done by natural adsorption process using banana peel (*Musa textiles*) because it contains cellulose which can bind Fe levels. The purpose of this study was to determine the difference in levels of Fe in clean water by using variations in the concentration of cellulose powder of banana peel (*Musa textiles*). This research is a quasi-experimental type with the design used is a static group comparison design. There were 5 concentration groups of banana peel (*Musa textiles*) cellulose powder, namely7 gr/L, 10 gr/L, 13 gr/L, 16 gr/L, and control, with each group being replicated five times with a long contact in water for 2 hours. Preparation of cellulose extract of banana peel (*Musa textilia*) using maceration method. Water samples were obtained from well water from Gempol Village residents, Gempol Pasuruan District. The data analysis of this study used the Anova One away statistical test. Theresults showed that the percentage decrease in Fe levels in the 7 g/L, 10 g/L, 13 g/L, 16 gr/L banana peel (Musa textilia) cellulose powder concentration was 35.45%, 67.80%, 81.04%, and 98.70%.The results of the one-way ANOVA test analysis obtained a value of $F = 9596.86$ ($p = 0.00$) and then accepted the alternative hypothesis. So, there is a difference in the decrease in Fe content in water with various concentrations of cellulose powder of banana peel (*Musa textilia*). The most effective reduction in Fe content in water with cellulose powder of banana peel (*Musa textilia*) was at a concentration of 16 g/L of 98.70%. The presence of sediment and changes in the color of water in this study, it is suggested that a filtration process is needed as a further research process, to remove sediment and its color.
Keywords: Clean water, Fe (Ferrum), Adsorption, Banana peel (*Musa textilia*).

BACKGROUND
People still use a lot of clean water with shallow groundwater sources. It is not too deep on the ground. Thus, it facilitates the process of water infiltration (Bekti Oktiana et al., 2019). Shallow groundwater is not recommended according to the Minister of Health of the Republic of Indonesia Number 32 of 2017. Because it is easy for contamination to occur through seepage, it is necessary to treat it (Hardyanti et al., 2016).
Fe (Ferrum) levels are one of the problems found in the use of clean water. In this universe, metals are found on land that is dissolved together with water, so that they can pollute the water. This occurs due to sources of metal-related pollution such as metal smelting and mining (Maria A, 2017). High levels of Fe can be found in one of the groundwater located in Gempol, Pasuruan Regency. According to Badan Pusat Statistik (BPS), the Village Potential Data Collection (Podes) 2020 contains 7 villages that use wells, namely Gempol, Kejapanan, Bulusari, Carat, Winong, Legok, and Randupitu villages where people use wells to provide clean water. From the preliminary survey conducted in 7 villages, Fe levels were 7.82 mg/l in Gempol village, 6.87 mg/l in Legok village, 0.08 mg/l in Bulusari village, 0.36 mg/l in the village of Carat, 0.01 mg/l in Winong village, 0.33 mg/l in Kejapanan village, and 0.12 mg/l in Randupitu village. So that the preliminary survey was carried out in Gempol Village,

Gempol District with the number of samples that were chemically examined was found to have a high Fe content of 7.82 mg/l.

The presence of high levels of Fe in water can cause the walls of the bath and clothes to turn yellow due to contact with air and also have an unpleasant smell like metallic smell. (Nuryana, et al., 2019). Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 32 of 2017, the permissible level of Fe is 1.0 mg/l. If the Fe level is above the quality standard, it will cause problems in humans such as health, economic and technical problems (Bekti Oktiana et al., 2019). So, water contaminated with high Fe content needs to be treated first.

Processing is done in two ways, namely chemical and physical. Physically, employing aeration, filtration, and adsorption. While chemically it can be done by adding alum and PAC (Mirwan & Wijayanti, 2011). The method commonly used is adsorption. The use of natural materials as adsorption has a simple concept, several advantages include being environmentally friendly, safe for health, and more economical so that it can be applied easily in the community (Dwi Arista N et al., 2016). One of the natural adsorption processes can be done using banana peels.

According to Badan Pusat Statistik (2013) bananas are one of the plants favored by the world's population, especially in Indonesia, with the availability of bananas at 2,074,305 stalks/year. Therefore, bananas are easy to obtain and have high nutritional value (Ekafitri et al., 2013). Bananas have various benefits ranging from fruit that is used as food, leaves as food wrappers, while the stems can be used in the medical world (Pramesti, 2016).

In Wulandari's research (2013) it was stated that banana peels can be used as a medium for water purification. This is evidenced by the decrease in turbidity in river water, which was originally 7.51 NTU then to 3.01 NTU. In addition, based on Richfa Yani's research (2017) banana peels can be processed as raw material for making crackers because there are vitamins and minerals as raw materials.

There are many types of bananas in Indonesia, one of which is Banana Peel (Musa textilia). So far, Banana Peel has been thrown away for nothing, so it is necessary to use them for the benefit of the community. Banana peel contains cellulose, pectin, and hemicellulose which can bind heavy metals (Ongelina, 2013). Castro et al., (2011) in their research stated that banana peels contain active groups that can bind Fe, namely (-OH), (-COOH) and(-NH3).

This research was conducted to determine the difference in levels of Fe (Ferrum) in clean water by using variations in the concentration of cellulose powder of Banana Peel (*Musa textilia*)
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RESEARCH METHODS

This research was conducted at the Surabaya Industrial Research and Consulting Laboratory.

This type of research is analytical research with a Quasi-Experimental type with the design used is the static group comparison design. The experimental class received treatment while the control class did not receive treatment. The sampling technique used in this research is using Grab Samples.

Data collection technique
1. The stage of taking clean water samples in Gempol Village, Gempol District

Prepare the equipment needed for clean water sampling. Taking clean water samples of the same age as SNI 6989.58:2008 regarding groundwater sampling methods
2. Stage of extracting cellulose powder of Banana Peel (*Musa textilia*) using the Maceration method (Jannah, 2017)

Wash the skin of the Banana Peel (Musa textilia). Cut the Banana Peel (*Musa textilia*) with a size of ± 1 cm to simplify the drying process. Puree the dried Banana Peel (Musa

textilia) until smooth into a powder using a blender. Put the sample (powder) into the maceration container and allow it to stand for 4 days and stirred every day. Filtered again and the residue was washed with Aquades and filtered using filter paper. Dry in the oven at 1050C for 1 hour. Hydrolysis process using 5% hydrochloric acid (HCL) for 3 hours. Washed again with Aquades. Dried in an oven at $105^{o}C$ for an hour. Sift using a 60 mesh sieve. Weighing the mass of cellulose powder of Banana Peel (*Musa textilia*) of 7 gr/L, 10 gr/L, 13 gr/L, and 16 gr/L.

3. Stage of Fe content reduction (adsorption process)

Contacting Banana Peel cellulose powder (*Musa textilia*) with water containing Fe for 2 hours. Separating the adsorbent from well water containing Fe using filter paper.

4. Examination of Fe levels using the Spectrometry method

Take 50 ml of the sample and put it in a 250 ml element. Add 2 ml of 4 N H2SO4 and 0.1 N KMnO4 drops until the color is rose. Add 20% KCNS, and shaken until homogeneous. Read on spectrophotometer with a wavelength of 450 nm

Data analysis was carried out after the results of the homogeneity of variance test showed that the data were homogeneous and used one way for data analysis.

RESULT

1. Measuring the decrease in Fe levels in clean water treated with cellulose powder of Banana Peel (Musa Textilia) with a concentration of 0 gr/L for 2 hours. The average yield was 9.39 mg/l. With the lowest level of 9.35 mg/l and the highest 9.43 mg/l (SD = 0.03), the distribution of Fe content has no deviation or is homogeneous.

2. Measuring the Decrease in Fe Levels in Clean Water Treated with Cellulose Powder of Banana Peel (Musa Textilia) with a Concentration of 7 gr/L for 2 hours. The average yield was 6.06 mg/l. With the lowest level of 5.98 mg/l and the highest 6.15 mg/l (SD = 0.06), the distribution of Fe content in the treatment of Banana Peel cellulose powder (Musa textilia) with a concentration of 7 g/L there were no deviations or homogeneous.

3. Measuring the Decrease in Fe Levels in Clean Water Treated with Cellulose Powder of Banana Peel (Musa Textilia) with a Concentration of 10 gr/L for 2 Hours. The average yield was 3.02 mg/l. With the lowest level of 2.88 mg/l and the highest 3.11 mg/l (SD = 0.09), the distribution of Fe content has no deviation or is homogeneous.

4. Measuring the Decrease in Fe Levels in Clean Water Treated with Cellulose Powder of Banana Peel (Musa Textilia) with a Concentration of 13 gr/L for 2 hours. The average yield was 1.78 mg/l. With the lowest level of 1.65 mg/l and the highest 2.01 mg/l (SD = 0.14), the distribution of Fe content has no deviation or is homogeneous.

5. Measuring the Decrease in Fe Levels in Clean Water Treated with Banana Peel Cellulose Powder (Musa Textilia) with a Concentration of 16 gr/L for 2 hours. The average yield was 0.11 mg/l. With the lowest level of 0.09 mg/l and the highest 0.15 mg/l (SD = 0.02), the distribution of Fe content is not there is a deviation or homogeneity.

6. Differences in Fe Levels Decrease in Clean Water in Various Concentrations of Water King Banana Peel Cellulose Powder (*Musa Textilia*)

a. Variance Homogeneity Test Results.

Levene of statistic 2.552, ρ =0.071. It was found that the results of the calculation of the homogeneity of variance test showed the value of = 0.071 because the value was greater than = 0.05 so the data is said to be homogeneous and can be continued with the One Way ANOVA Statistical Test.

b. One Way Anova Statistic Test.

F calculate = 9596.86 and Probability = 0.00.

The results of the one-way ANOVA test analysis obtained a value of F = 9596.86 (ρ = 0.00) then acceptedthe hypothesis alternative. So have differences in the decrease in Fe

levels in water with various concentrations of cellulose powder of Banana Peel (*Musa textilia*).

7. The Effectiveness of ~~King~~ Banana Peel Cellulose Powder (Musa Textilia) in Reducing Fe Levels in Clean Water

Table 1 The Effectiveness of Fe Reduction in Levels

Concentration	Concentration Before Treatment	Concentration After Treatment	Difference before and after being given treatment	Effectiveness of Fe Reduction (%)
7	9.39	6.06	3.33	35.45
10	9.39	3.02	0.67	67.80
13	9.39	1.78	7.61	81.04
16	9.39	0.11	9.27	98.70

The results of the effectiveness of reducing the highest Fe level were found at a concentration of 16 g/L with a percentage reduction in Fe content of 98.70% and the lowest was found at a concentration of 7 g/L at 35.455%. At a concentration of 0gr/L to a concentration of 13gr/L the results of Fe levels are not following the standards and quality standards according to the Minister of Health Regulation No. 32 of 2017 while at a concentration of 16 g/L following the standards and quality standards according to the Minister of Health Regulation No. 32 of 2017.

DISCUSSION

1. Fe Content in Clean Water Treated with Cellulose Powder of Banana Peel *(Musa Textilia)* with a Concentration of 0 gr/L for 2 hours.

     Based on the Regulation of the Minister of Health Number 32 of 2017, Fe levels are 1.00 mg/l. So the Fe content of clean water samples located in Gempol Village, Gempol District, Pasuruan Regency is above the standard quality set. High levels of Fe in water will cause several disturbances, namely technical problems with the appearance of yellow spots in the bath and sediment in the pipes, and physical disturbances with the emergence of unpleasant taste, color, and odor (Joko, 2010). So, the processing is needed that can reduce Fe levels in clean water so as not to cause health problems in the community who live in it make use of it.

2. Levels of Fe in Clean Water Treated with Banana Peel Cellulose Powder (*Musa Textilia*) with Concentrations of 7 gr/L, 10 gr/L, 13 gr/L, and 16 gr/L for 2 hours.

     Factors that affect the ability of the adsorption process rate include the form of the adsorbent media, the mass of the adsorbent, the contacting time, the ability of the adsorbent to absorb and bind heavy metals, and the type of adsorption. (Baroroh et al., 2017). The first factor is the shape of the adsorbent medium. The adsorbent medium referred to in this study is the size of the cellulose. In this study, the size used was 60 mesh and based on Baroroh's research (2017) on the reduction of heavy metal Ni using cacao hull cellulose powder. 60 mesh. The larger the surface area of the adsorbent, the more

heavy metals will be adsorbed (Syauqiah et al., 2011). because the interaction between the adsorbent and the adsorbate only occurs on the surface of the adsorbent (Fatmawati, 2006). The second factor is the mass of the adsorbent. This research is in line with Khoiriyah's research (2018). This reduction process is due to the OH-active group found in Banana Peel cellulose that can bind Fe in clean water. However, there are deposits and color changes in this study, more cloudy color and deposits in the water so filtration is needed in further research. The third factor is contact time. This study uses a contact time of two hours which is following the study by Baroroh (2017) and Khoiriyah (2018) that the higher the collision frequency between the adsorbate and adsorbent particles, the longer the contract duration. After equilibrium is reached, the relationship between the active groups on the surface of the biosorbent and metal ions weakens, resulting in desorption. The fourth factor is the ability of the adsorbent to absorb and bind heavy metals. In this study, banana peel cellulose powder was used. Banana Peel contains cellulose content of 8.4 nmol/L. The active groups that can bind Fe are (-OH), (-COOH), and (-NH3) (Castro et al., 2011). In the cellulose of the Banana Peel powder, there is an active group OH- which causes the polar nature of the adsorbent. (Anggraeni et al., 2010). In the research, banana peel powder also contains a negative active side, namely OH- which can bind metal ions with a positive charge of Fe^{2+}, resulting in interactions that form cellulose and Fe complexes. The fifth factor is the type of adsorption. This study uses chemical adsorption. The interaction between adsorbate and adsorbent is carried out in the form of chemical bonds (Syauqiah et al., 2011). Chemical adsorption action is as follows:

$$-Y\text{-}OH + M^+ \leftrightarrow -YO\text{-}M + H^+$$

$$-Y\text{-}OH + M^{2+} \leftrightarrow -YO\text{-}M$$

$$\begin{matrix} -YO\text{-}M \\ > M + 2H^+ \\ -YO\text{-}M \end{matrix}$$
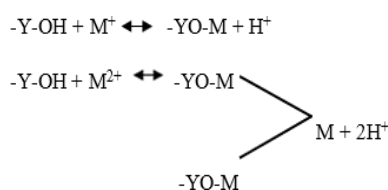
Figure 1 Chemical adsorption action

M+ and M2+ in this study are Fe ions, while -OH is the hydroxyl group, and Y is the matrix where the -OH group is attached. The metal ion Fe has an empty D orbital which will be filled by a free electron from the oxygen atom in the OH- group. Lignocellulose is the name used for materials containing lignin, cellulose, and hemicellulose. (Daulay, 2009). Cellulose (Betha Cellulose) acts as a ligand that can donate a free pair of electrons to metal ions, while the metal ion Fe acts as the central atom in the formation of complex compounds (Aprilini, 2010). The number of OH- groups makes the pH in this study alkaline, which is 9.

3. Differences in Fe Levels in Clean Water in Various Concentrations of Banana Peel Cellulose Powder (Musa Textilia)

The results showed that the level of Fe in clean water decreased with each addition of the concentration of cellulose powder of Banana Peel. At a concentration of 7 gr/L to 10 gr/L there was an increase in adsorption of 32.34% at a concentration of 10 gr/L to 13 gr/L there was an increase in adsorption of 13.24% different from the concentration of 13gr/L to 16 gr/L which only increased slightly, namely 17.65% in clean water in Gempol Village, Gempol District, Pasuruan Regency.

The use of the adsorption method is influenced by the surface area of the adsorbent. For To optimize the absorption process between the adsorbent and the solution, the adsorbent used is in powder form, where solids react quickly when made into powder. The adsorbent has a large surface area which will create a large contact area between the adsorbent and the adsorbate so that more adsorbate is absorbed (Imtisal, 2015). The decrease in Fe

content was directly proportional to the increase in the concentration of banana peel cellulose powder. The more concentration of bioadsorbent used in the adsorption process, the higher the decrease in Fe content.

4. The Effectiveness ofBanana Peel Cellulose Powder (Musa Textilia) in Reducing Fe Levels in Clean Water.

The results of reducing Fe levels in clean water using cellulose powder of Banana Peels ranging from a concentration of 7 g/L to 16 g/L were the most effective at concentrations 16 g/L with a percentage decrease in Fe content of 98.7% and the lowest is found at a concentration of 7 g/L of 35,455%. Thus, the greater the concentration of treatment, the greater the average decrease in Fe levels in clean water. Thus, the results of the effectiveness of Fe reduction were obtained from the measurement of Fe levels before being given treatment, the concentration of powder reduced after being given treatment divided before being given treatment multiplied by one hundred percent (Moekarni, 2011). So from this formula, the concentration of 16 g/L of Banana Peel cellulose powder was obtained which was the most effective in reducing Fe levels in clean water.

CONCLUSION

There is a difference in the decrease in Fe content in water with various concentrations of cellulose powder of Banana Peel (*Musa textilia*).The most effective reduction in Fe content in clean water with cellulose powder of Banana Peel (*Musa textilia*) was at a concentration of 16 g/L of 98.70%.

RECOMMENDATION

1. Finding the saturation point concentration in reducing Fe levels in clean water by increasing the concentration of banana peel cellulose powder (*Musa textilia*)
2. The presence of sediment and changes in the color of clean water in this study, it is necessary to have a filtration process as a further research process, to remove sediment and its color.
3. The high pH in this study, so it is necessary to decrease the pH to neutral.

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ANALYSIS OF REDUCTION INDEX AND COMPOST RESULT ON THE PROCESSING OF TOFU DREGS USING LARVA BLACK SOLDIER FLY *(Hermetia illucens)*

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ABSTRACT

In the last six years, the production of tofu processing has become the most superior commodity in Kediri City. The tofu waste processing method that can be applied is bioconversion using Black Soldier Fly (BSF). The limitation of the problem in this study is the reduction index of tofu dregs and the measurement of C/N parameters compared to SNI 19-7030-2004. The purpose of this study was to determine the reduction index and compost yield for tofu waste processing using BSF larvae (*Hermetia illucens*). Subjects of variation of tofu dregs were 50, 55, and 60 gr/day with 50 larvae.

The results of this study obtained a reduction index value of tofu waste using the Waste Reduction Index formula in reactor 1 of 25%, reactor 2 of 50.6%, reactor 3 of 50.4%, and reactor 4 of 47.2%. The reduction in reactor 1 was caused by the drying of the tofu dregs. The reduction in reactors 2 and 3 was caused by larval activity with the appropriate amount of feed. In reactor 4 caused by slower larval activity due to excessive amount of feed. In this study, it can be concluded that the highest tofu waste reduction index was found in the variation of feed 50 g/day with larvae and compost produced by the final media of BSF fly larvae, parameters C/N, not according to SNI 19-7030-2004. Suggestions for this research need to do further research on the testing for bacteria in larval feces and controlling humidity in the feed of BSF fly larvae.

Keywords: Tofu dregs, BSF larvae, compos

BACKGROUND

The progress of culture causes the level of human consumption to increase and then causes the production of waste to increase. Apart from cultural progress, a significant increase in population is also the cause of increased waste production. Based on the Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management, it is stated that population growth and changes in people's consumption patterns cause the type, volume, and characteristics of waste to increase. The rest of the tofu processing production has the potential to be the biggest contributor to the accumulation of organic waste in the city of Kediri. Based on data from the Kediri City Statistics Agency, the production of tofu processing has become the most superior commodity for IKM (Small and Medium Industries) in the City of Kediri in the last six years with a high amount of production. The generation of tofu dregs that can be produced by one IKM can reach approximately 230 kg per day, while the number of Tofu Processing IKM in Kediri City is approximately 19 that are still active in production.

So far, the method of processing tofu dregs that is most often used is by reprocessing them for finished products or selling them to farmers to be used as animal feed. Bioconversion is a

continuous process that utilizes insect larvae to convert nutrients from organic matter and store them as biomass (Salman *et al*., 2019). The advantages of this method are the organisms used as conversion agents act as catalysts, have high production rates, good reaction conditions to avoid substances that are unstable at pH values in the process (Mujahid *et al*., 2017).

One of the insect larvae or organisms that has the potential and can be used as a catalyst in the bioconversion method is the Black Soldier Fly. Black Soldier Fly (BSF) or in Latin Hermetia illucens is a species of tropical fly from the order Diptera and the family of Stratiomyidae with the genus Hermetia as an excellent decomposer of organic waste. The remaining final media of BSF fly larvae may contain good compost or nutrients for plants with the help of microorganisms or fungi after the larvae stop eating and enter the pre-pupa stage. It is known that compost will be formed from an organic material that degrades over a certain period depending on the influence of other factors such as temperature, humidity, microorganism /bacteria, fungi/mold, and others. (Arikel, 2017). Research journal literature from (Neneng & Indrayani, 2021) explained that a BSF fly larva can spend 0.5 – 0.6 g (grams) per day with a variety of organic waste mixtures such as rice, vegetables, and fish which have high protein. The purpose of this study was to determine the analysis of the reduction index and compost yield on tofu waste processing using BSF fly larvae (*Hermetia illucens*).

RESEARCH METHODS
This type of research is Quasy Experiment with the research design used being Pretest-Posttest Control Group Design. The population in this study were all tofu dregs originating from three IKMs in Jagalan Village, Kediri City District, Kediri City. The sampling technique used in this study is the Composite Place Sample.
Research Steps
1. Taking tofu dregs
2. Preliminary inspection of the dregs knows the parameters of the C/N ratio.
3. Giving larvae to the reactor with variations of tofu dregs feed along with replication used for 20 days.
4. The results of the final larval media compost with C/N parameters and the final weight calculation using the WRI formula on day 20.
5. The results of the final larval media compost with parameters C/N on day 40 were compared with SNI 19-7030-2004.
Hypothesis/H1: there is a difference in the reduction and yield of compost from variations of tofu dregs using Black Soldier Fly (*Hermetia illucens*) larvae. Analysis of the data obtained using analytical analysis with Kruskal Wallis statistical test and the conclusion of the hypothesis for H1 is accepted if the p-value is smaller than (0.05).

RESULT
Tofu Dregs Reduction Index
Measurement of tofu waste reduction index without BSF fly larvae and with BSF fly larvae for 20 days was adjusted from the life cycle of BSF fly larvae. The results of the calculation of the tofu dregs reduction index using the formula Waste Reduction Index (WRI) are presented in the following table :

Table IV.1 Results of Measurement of Tofu Dregs Reduction Index

Reactor	Initial Weight	Final	Total	Duration	WRI

	(gr)	Weight (gr)	Reduction (gr)	(hari)	(% / day)
R1	6000	4504	1496		1,25
R2	6000	2963	3037	20 hari	2,53
R3	6600	3269	3331		2,52
R4	7200	3798	3402		2,36

Information :
R1 = 50 gr/day tofu dregs without BSF fly larvae
R2 = 50 gr/day tofu dregs with 50 BSF fly larvae
R3 = 55 g/day tofu dregs with 50 BSF fly larvae
R4 = tofu dregs 60 g/day with 50 BSF fly larvae

Analyzing Differences in Tofu Dregs Reduction Index

Table IV.2Kruskal Wallis Analysis Differences in Reduction of Tofu Dregs Without BSF Larvae And With BSF Larvae

Reduction F Correct	
Chi-Square	21.704
df	3
Sig.	.000

Based on the analysis table shows that the results of the Chi-Square calculation are 21.704, the standard deviation value is 3, and the significant value is 0.000. The analysis carried out obtained a probability value of p-value smaller than (0.05), so it was concluded that H1 was accepted.

Significant differences between reactors can not be known from the results of the Kruskal Wallis statistical test analysis, so the analysis was carried out again using the Independent Sample T-Test statistical test. The following is a table of further analysis test results to determine the differences between reactors :

Table IV.3 Independent Analysis of Sample T-Test Reactor 1, 2, 3, and 4

Breeding Place	**Sig.**	**Different Description**
Reactor 1 with Reactor 2	.000	Significant
Reactor 1 with Reactor 3	.000	Significant
Reactor 1 with Reactor 4	.000	Significant
Reactor 2 with Reactor 3	.000	Significant
Reactor 2 with Reactor 4	.000	Significant

	Reactor 3 with Reactor 4	.000	Significant

Based on table IV.3 shows that the significant value between each reactor is 0.000. The analysis carried out obtained a probability value of p-value smaller than (0.05), so it was concluded in the study that H1 was accepted, which means that there is a difference in reduction between each reactor.

Compost of BSF Flies Larvae Final Media Results With Parameters C/N

Compost characteristics from tofu waste produced through the decomposition process using the bioconversion method of BSF fly larvae organisms will be compared with the compost requirements of SNI 19-7030-2004 covering parameters C/N, temperature, humidity, and acidity (pH). The following is a table of the results of the analysis of compost measurements:

Table IV.4 Measurement Results of Tofu Dregs Compost Compared with SNI 19-7030-2004

No	Parameters	Compost Day 0	Compost Day 20	Compost Day 40	Quality Standards
1.	C/N ratio	38,1	32,9	23,1	10 - 20
2.	Temperature	21ºC	28ºC	30ºC	Max 30ºC
3.	Humidity	68%	49%	48%	50% - 60%
4.	Acidity (pH)	5,9	6,8	7,1	6,8 - 7,5

DISCUSSION

BSF Flies Larva as Bioconversion Organism in Reducing Tofu Dregs

The advantage of the bioconversion method is that the organisms used as conversion agents act as catalysts with high production rates and good reaction conditions to avoid substances that are unstable at pH values in the process (Mujahid *et al*., 2017). One type of insect that has the potential in this bioconversion method is the Black Soldier Fly (BSF), which in Latin is Hermetia illucens, a tropical fly species from the order Diptera and the family from Stratiomyidae with the genus Hermetia. The life cycle of the BSF fly is divided into 4 phases, namely the egg phase, larval phase, pupa phase, and the fly phase which lasts approximately 44 days depending on the food or the environment in which it lives (Nur *et al*., 2018). The size of the adult BSF fly is relatively larger than other flies and does not have a significant mouth structure and does not have the potential to cause environmental-based diseases because in the fly phase it is only used for breeding while in the larval phase it is only used for feeding.

This study used the larval phase of BSF flies which lasted for approximately 20 days. The selection of this phase was based on the nature of the larvae that only eat activity and the larvae of this BSF fly have a fairly voracious eating habit so that they can decompose organic matter very optimally. The final media produced by larvae or larvae feces has the possibility of good nutrient content for plants with the help of decomposing bacteria after the larvae stop eating.

Reduction of Tofu Dregs Without BSF Flies Larvae

The results obtained from research on Reactor 1 containing 50 gr/day tofu dregs feed without

larvae showed a reduction in the final weight of tofu dregs caused by drying of tofu dregs. This makes the average value considered an F Correction. Obtaining a high standard deviation value from the data normality test shows that Reactor 1 has an abnormal data distribution.

Drying of tofu dregs is not done intentionally but occurs at room temperature. This indicates that the drying of tofu dregs is caused by the reduction of the water content contained in it accidentally because it does not use heat energy but only at room temperature. The water content contained in tofu dregs can reach 87% (Purnamasari & Muhlison, 2021).

The tofu dregs in Reactor 1 dry only at the edges, for the middle it remains wet and moist. The edge of the dried tofu dregs is visible on the 20th day when the final weight of the reactor will be weighed. The texture of the dregs which was originally soft, slightly runny, and whitish became stiff, rough, yellowish in color, and overgrown with fungus on the dry dregs and even the pungent smell disappeared. The center of the tofu dregs did not experience drying or changes in texture, color, and odor. The final weight of tofu dregs in Reactor 1 was reduced by approximately 25% of the total initial weight of tofu dregs due to drying.

Reduction of Tofu Dregs with BSF Fly Larvae Using Feed Variations of 50 gr/day and 55 gr/day

The results obtained from research on reactors 2 and 3 containing 50 gr/day and 55 gr/day tofu dreg feed with 50 larvae showed a reduction in the final weight of tofu dregs. Obtaining a high standard deviation value from the data normality test shows that Reactors 2 and 3 have abnormal data distributions. The results of F Correction are obtained from the reduction value which is reduced by F Correction due to the influence of Reactor 1 which occurs when the tofu dregs are dried. These results mean that during the process of BSF fly larvae in decomposing organic matter, they also experience a reduction in the water content of the tofu dregs which affects the reduction value.

The reduction values found in reactors 2 and 3 came from the weighing process carried out on day 20 after the larvae entered the pre-pupa stage and stopped eating. This is also adapted to the life cycle of BSF flies in the larval stage where the larvae will only eat or decompose organic matter. Tofu dregs are ideal feed for BSF fly larvae because they are not too wet and not too dry and the particles are small so they are easily digested by the larvae. After entering the pupa stage, the feeding process will stop and only larval manure remains which can be used as compost.

The reduction that occurs in tofu dregs to become compost is caused by feeding activities carried out by BSF fly larvae (Makkar *et al.*, 2014). During the reduction process, there was a significant change in the color, texture, and smell of the tofu dregs that the larvae began to eat. From the observations of the researchers, it was known that the color of the tofu dregs changed from whitish to light brown within approximately one hour after the tofu dregs were added. For changes in texture which were originally smooth and moist became like breadcrumbs but still moist within approximately one hour after the sample was added. The smell, which was originally tofu dregs smelled quite pungent, it became less pungent after about an hour from the inclusion of the sample. Furthermore, within the period of entering the 10th day, the media of tofu dregs in the reactor as larvae feed began to dry and turn brown but still had a slight smell. After the 20th day, the media started to change in texture to a slightly rough texture, changed color to dark brown, and no longer had a strong odor. Other changes occurred during the weighing process and obtained the final total weight of tofu

dregs in Reactors 2 and 3 which reduced by approximately 50% of the total initial weight of tofu dregs.

Reduction of Tofu Dregs with BSF Flies Larvae Using Feed Variations 60 gr/day
The results obtained from research on Reactor 4 containing 60 gr/day tofu dregs fed with 50 larvae showed a reduction in the final weight of tofu dregs. Obtaining a high standard deviation value from the data normality test shows that Reactor 4 has an abnormal data distribution. The results of F Correction are obtained from the reduction value which is reduced by F Correction due to the influence of Reactor 1 which occurs when the tofu dregs are dried. These results mean that during the process of BSF fly larvae in decomposing organic matter, they also experience reduced water content from tofu dregs and affect the reduction value.

The results in the table are from the weighing process carried out on day 20 after the larvae entered the pre-pupa stage and stopped eating. This is also adjusted to the life cycle of the BSF fly in the larval stage where the larvae will only carry out the process of eating or decomposition (Suciati &Faruq, 2017). In places where food has high light intensity and contains high humidity until the feed media becomes runny, it will cause larvae to move or look for new food sources that are not too wet because BSF fly larvae are quite sensitive to moisture and light (Alvarez, 2012). After entering the pupa stage, the feeding process will stop and only larval manure remains which can be used as compost.

The reduction that occurs in tofu dregs to become compost is caused by feeding activities carried out by BSF fly larvae (Makkar *et al.*, 2014). During the reduction process, there was a significant change in the color, texture, and smell of the tofu dregs that the larvae began to eat. From the results of the researchers' observations, it was known that the color of the tofu pulp in all of Reactor 4 had changed from whitish to light brown approximately one hour after the sample was inserted. For changes in texture which were originally smooth and moist became like breadcrumbs but still moist within approximately one hour after the sample was added. The smell of tofu dregs that was originally smelled quite pungent, but it still smelled about an hour after the tofu dregs were added. In all of Reactor 4, the condition of the tofu dregs media was quite moist and wet because the number of larvae was not proportional to the amount of feed given/excessive so the feeding process became slow and less effective. Larvae also tend to climb to the reactor walls even to the point that some are out of the reactor within a few days. Entering the 14th day, the tofu dregs media in the reactor began to dry and turn brown but still had a slight odor, the process tends to be slower because some larvae came out/up to the reactor wall. After day 20, the media started to have a rough texture, changed color to dark brown, and no longer had a strong odor. Another change occurred in the final total weight of tofu dregs in Reactor 4 which reduced by approximately 40% of the total initial weight of tofu dregs as a result of the suboptimal feeding process by BSF fly larvae.

Tofu Dregs Reduction Index Without Larvae And With BSF Flies Larva Using WRI Formula
Based on the results of table IV.1 show that there is a decrease in the weight of tofu waste in reactors 1, 2, 3, and 4. The data is processed using the Waste Reduction Index formula. The recording process is calculated to obtain the following results :
1. In Reactor 1, the tofu dregs reduction index is 1.25%/day, which means that during the 20-day process of adding tofu dregs, there is a weight reduction of 25% at the time of weighing.
2. Reactor 2 produces a tofu waste reduction index of 2.53% / day, which means that during

the 20-day process of entering tofu dregs there is a weight reduction of 50.6% at the time of weighing.

3. Reactor 3 produces a tofu waste reduction index of 2.52% / day, which means that during the 20-day process of entering tofu dregs there is a weight reduction of 50.4% at the time of weighing.

4. Reactor 4 produces a tofu waste reduction index of 2.36% / day, which means that during the 20-day process of entering tofu waste there is a weight reduction of 47.2% at the time of weighing.

The use of the WRI formula is intended to determine the percentage reduction resulting from each reactor. Reactor 1 as the control treatment got the smallest percentage because the reactor was not given larvae so the weight reduction process was not so significant and tended to dry out. Reactor 2 which was treated with 50 BSF fly larvae by feeding tofu dregs as much as 50 g/day got the highest percentage because the larvae and the amount of feed were suitable so that the media in the reactor was not too humid and the larvae did not come out/up on the reactor wall. Reactor 3 has relatively the same conditions as Reactor 2 although in feeding tofu dregs the amount is different, namely as much as 55 g/day with 50 BSF fly larvae. Reactor 4 treated with 50 BSF fly larvae by feeding tofu dregs as much as 60 g/day got a smaller percentage than Reactor 2 and 3 because the larvae often came out/up to the reactor wall as a result of the condition of the media inside the reactor being quite humid.

In Reactor 2 and 3, the tofu dregs media that feed the larvae began to dry slowly from day 10 after the first feeding, but for Reactor 4 the tofu dregs media began to dry slowly on day 14. The amount of feed influenced the performance of fly larvae. BSF is in the process of eating its food because if it is excessive it can cause the condition of the media to become moist and the larvae to come out of the reactor. The BSF fly larvae will leave their food media which has moist conditions, has high light intensity, and is no longer nutritious after being eaten by the larvae themselves because in the larval phase which for approximately 20 days will only carry out the eating process and stop eating at pupa phase (Suciati & Faruq, 2017). Humidity is an influential factor in the process of reducing tofu dregs because the results shown from Reactor 4 are less than 50%.

Tofu Dregs Reduction Index Without BSF Larvae and With BSF Larvae Using Kruskal Wallis Statistical Test Analysis

Based on table IV.2 the statistical analysis of the Kruskal Wallis test can be seen as follows the chi-square value is 21.704, the standard deviation value is 3, and the significant value is 0.000. The significant value of 0.000 is smaller than (0.05). The analysis carried out obtained a probability value of p-value smaller than (0.05) so that it can be concluded that in this study H1 is accepted, and there are differences in the reduction and compost yield from variations in tofu dregs using Black Soldier Fly (Hermetia illucens) fly larvae.

Further analysis of the Kruskal Wallis test was to determine the significant difference between reactors so that further tests were carried out in the form of Independent Sample T-Test statistical tests. The results obtained based on table IV.3 show that all significant values between reactors are 0.000. The analysis carried out obtained a probability value of p-value smaller than (0.05) so it can be concluded that in this study H1 was accepted, which means there is a significant difference in the reduction value between reactors.

Compost of BSF Flies Larvae Final Media Results With Parameters C/N

Good compost is compost that can improve the structure of the soil to be looser, increase water absorption, improve soil pores, add plant nutrients, help decompose mineral material in

the soil, and provide food for microorganisms that benefit plants (Monita *et al*., 2017). Based on the results of table IV.4 show the characteristics of the compost from tofu dregs produced through the decomposition process using the bioconversion method of BSF fly larvae. The measured compost quality was compared with the characteristics of SNI 19-7030-2004 compost which included parameters of C/N ratio, temperature, humidity, and degree of acidity (pH).

The C/N parameter is considered as the nutrient content in the compost that will be very beneficial for plants. The quality standard of C/N in compost ranges from 10-20 according to SNI 19-7030-2004 (Badan Standardisasi Nasional, 2004). In this study, laboratory testing of C/N parameters obtained the results in table IV.4 showing a change from compost on day 0 of 38.1 which decreased on day 20 to 32.9 due to the activity of larvae, then compost decreased again on day 20. day 40 was 23.1 due to the activity of the bacteria after the larvae stopped eating.

The ideal temperature for compost is the groundwater temperature which does not exceed 30ºC (Badan Standardisasi Nasional, 2004). In this study, it was carried out in a room with a room temperature of approximately 28ºC so that during the composting process the temperature was relatively normal. The results obtained in table IV.4 show that the increase in compost temperature from day 0 to day 20 is quite high because the larvae activity continues to eat tofu waste, while the increase in compost temperature from day 20 to day 40 is not too high because the larvae stop eating and continue to eat. by the activity of microorganisms that do not produce too high a temperature.

Humidity is also one of the factors of the feasibility of compost with an ideal value between 50% - 60%. There was a relatively high decrease in humidity from day 0 to day 20 compost due to larval activity and drying of the moisture content in the tofu dregs, while on day 20 to day 40 compost there was a low decrease.

The degree of acidity (pH) of compost is used in the agronomic value so it must have a normal value, which is between 6.8 – 7.5 (Badan Standardisasi Nasional, 2004). Compost on day 0 is relatively slightly more acidic because the tofu waste still contains vinegar from the residue of tofu processing, but there is a decrease in compost on day 20 because the activity of larvae that eat tofu waste can also improve the pH value to become more normal. The 40th-day compost already has a normal pH value due to the continued activity of microorganisms in the composting process.

The results obtained showed that there was a composting process carried out by the larvae and after the larvae stopped eating there was also a composting process by microorganisms either from bacteria or fungi in the reactor. The composting process will also not be separated from the activity of bacterial or fungal microorganisms in decomposing organic matter under aerobic conditions. This is evidenced by changes in the parameters of the C/N ratio, temperature, and degree of acidity (pH) due to bacterial activity in the compost after the absence of larvae from day 20 to day 40. These results also indicate that only temperature and acidity parameters (pH) comply with the compost requirements of SNI 19-7030-2004. During the composting process on day 0 to day 20, there was a reduction in weight made by BSF fly larvae, while compost on day 20 to day 40 was decomposed by bacterial or fungal microorganisms so that there could be a decrease in weight/quantity back in the compost that occurred. during the process.

CONCLUSION

1. Tofu dregs reduction index obtained a value on the variation of feed 50 g/day without larvae by 25%, on the variation of feed 50 g/day with larvae by 50.6%, on the variation of feed 55 g/day with larvae by 50.4%, and the variation of feed 60 g/day with larvae of 47.2% for 20 days adjusted from the life cycle of BSF flies in the larval stage.
2. The compost produced by the final media for BSF fly larvae with C/N parameters is not by the compost requirements of SNI 19-7030-2004.
3. There is a difference in the reduction and yield of compost from the variation of tofu dregs using Black Soldier Fly (Hermetia illucens) fly larvae.

RECOMMENDATION

1. Further research is needed on the quantity of compost from day 20 to day 40.
2. It is necessary to test the bacteria in the larvae's feces which helps the composting process after the larvae stop eating.
3. It is necessary to optimize the reduction of tofu waste by controlling the humidity in the feed of BSF fly larvae.

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THE EFFECT OF AGE, YEARS OF SERVICE, AND THE APPLICATION OF HEARING PROTECTION DEVICES ON THE HEARING THINGS OF WORKERS IN NOISY WORK ENVIRONMENT
(Case Study In The Engine Room Of Tanker Ship PT. Tanto Intim Line 2022)

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ABSTRACT
The noise intensity in the tanker engine room which is the source of noise reaches more than 115 dB, where the noise there has exceeded the threshold and is at great risk of causing health problems such as a decrease in the hearing threshold of workers inside because the machines must remain on for 24 hours. The purpose of this study was to analyze the effect of age, years of service, and use of hearing protection devices on the hearing threshold of ship workers in the engine room environment of the tanker PT. Tanto Intimate Line. This study uses analytic observational research by conducting a cross-sectional approach to find the relationship between descriptive variables with observational methods and qualitative data types. The results showed that the noise intensity in the ship's engine room was 115.3-118 dB(A), 60% of workers who used ear protection according to SOPs, 63.3% of workers aged 40 years, 70% of workers with 15 years of service, the normal hearing threshold of workers is 66.7% of workers, and age, years of service, and the use of hearing protection deviceaffect the hearing threshold of workers. Suggestions for the company are providing training or socialization for workers, as well as seeking ear protection facilities that are comfortable to wear, as well as conducting supervision. Suggestions for other researchers are to investigate further the comfort or condition of hearing protection devices and examine the length of noise exposure experienced by workers.

Keywords: noise intensity, age, hearing protection device, hearing threshold

BACKGROUND

According to the Regulation of the Ministry of Manpower of the Republic of Indonesia No. 5 of 2018 concerning Health and Occupational Safety in the Work Environment, *noise* is every unwanted sound that comes from production equipment and/or working tools which, at a certain level, could cause hearing loss. In 2015, WHO (World Health Organization) stated that 466 million adults and children experienced hearing loss because of several factors, including excessive noise exposure in the workplace or neighborhood. Unfortunately, there is still no extensive data on work accidents or illnesses caused by noise in the workplace in Indonesia.

Hearing loss is the most common impact experienced by humans exposed to noise. Frequently, people affected by noise are unaware of its effects because it does not occur immediately. Generally, the impact happens when humans are getting old. However, many people experience the effect directly in some cases. As one gets older, humans experience a decrease in the function of the organ system, one of which is hearing. A research by Rahmawati about *Faktor-Faktor yang Berhubungan dengan Gangguan Pendengaran pada Pekerja di Departemen Metal Forming dan Heat Treatment PT. Dirgantara Indonesia (PERSERO) Tahun 2015* (Factors Associated with Hearing Loss in Workers in the Metal Forming and Heat Treatment Department of PT. Dirgantara Indonesia (PERSERO) in 2015) uncovered that the elderly encounter hearing loss more than the younger ones(Rahmati, 2015).

Other than the age factor, the duration of exposure and working period significantly affect human health. In the journal *Hubungan Usia Dan Masa Kerja Dengan Nilai Ambang Dengar Pekerja Yang Terpapar Bising Di PT. X Sidoarjo* (The Correlation between Age and Work Period with Hearing Threshold Value of Workers Exposed to Noise at PT. X Sidoarjo) explains the possibility of workers experiencing hearing loss with a working period of >5 years with noise exposure >85 dB(A) is 1%. The risk of hearing loss could be prevented by using HPD (Hearing Protection Device) according to workers' needs and following the SOP, such as earplugs and earmuffs. Using HPD is one way of controlling noise to reduce the risk of the decreased hearing threshold of workers.

According to researchers' observation, PT. Tanto Intim Line tanker sails for a year. It means the engine must remain running for 24 hours. The machines will produce a noise source while running. At the same time, some workers stay in the engine room, which makes them exposed to noise during working hours or approximately 8 hours. Noise in the engine room of PT. Tanto Intim Line tanker ship reaches more than 115 dB(A). According to the Regulation of the Ministry of Manpower of the Republic of Indonesia No. 5 of 2018, the noise has exceeded the threshold and is at significant risk of causing health issues(Menteri Tenaga Kerja dan Transmigrasi, 2010).

Through the results of the preliminary survey, it was also found that workers in the engine room of PT. Tanto Intim Line tanker still underestimates the noise problem. For example, when the laborers worked close to noise sources, about six workers did not wear HPD utterly. Some wore it inappropriately for about an hour even though an equipped HPD was available in the tanker. When the preliminary survey was conducted, PT. Tanto Intim Line has facilitated and implemented other noise controls such as adding silencers, maintaining and repairing machines that become the source of noise, applying work shifts, and providing HPD for workers exposed to noise. The objective of this study is to analyze the impact of age, years of service, and HPD on the hearing threshold of workers in the engine room of PT. Tanto Intimate Line tanker.

RESEARCH METHODS

This research uses analytic observational methods with a *cross-sectional* approach. The sampling technique used in this study is *simple random sampling* with a total sample of 30 workers and a sample population of 32 workers. The data collection is done by observation and interviews. The highlighted variables are the hearing threshold, age, years of service, the use of HPD on workers, and noise intensity. In analyzing the data, the researchers use *Exact FisherTest*.

RESULTS
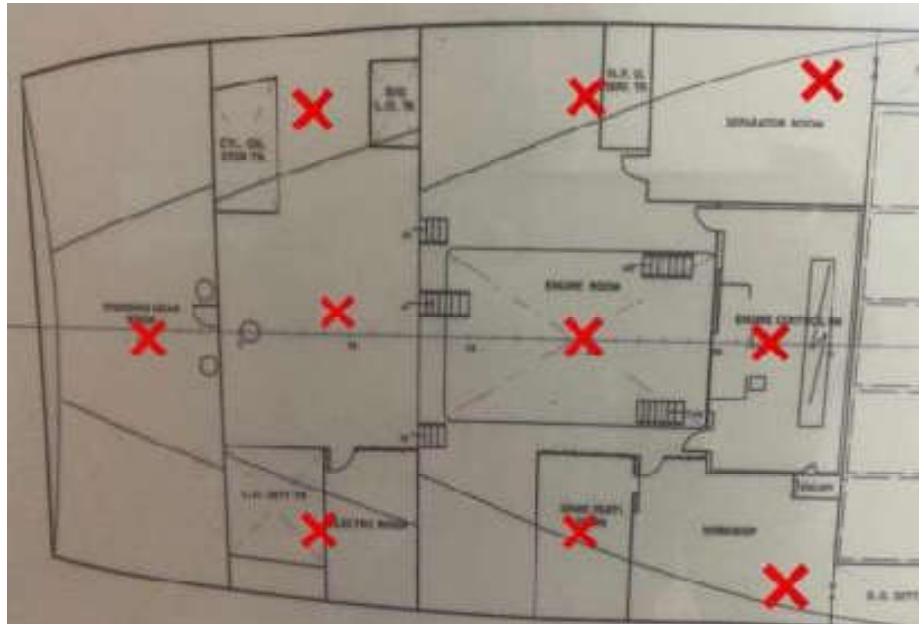
Figure 1.Overview of Workforce Locations

1. **Overview of Workforce Locations**

   Noise measurements carried out in the engine room showed a noise intensity of 115.3 dB(A) -118 dB(A), which means that the noise intensity has exceeded the Recommended Exposure Limits (REL). Workers without ear protection equipment can only be exposed to the noise for 0.94 minutes. If workers who do not use HPD are exposed to noise for more than 0.94 minutes, the risk of workers experiencing a reduced hearing threshold increases(Kemenaker, 2018)

2. **The Characteristics of Workers toward Hearing Threshold**
   a. **The Effect of Age on Hearing Threshold**
   Table 1 The Effect of Age On Hearing Threshold

Age	Hearing Threshold				Amount		p	α
	Normal		Abnormal					
	N	%	N	%	N	%		
≤ 40 Years Old	18	94.7	1	5.3	19	100		
> 40 Years Old	2	18.2	9	81.8	11	100	0.000	0.05
Total	20	66.7	10	33.3	30	100		

From the report of the table above, it can be concluded that the abnormal hearing threshold is mostly experienced by workers aged > 40 years with the percentage 81.8% or nine workers. According to the statistical test, the value of p < α. It means that age affects the workers' hearing threshold.

b. **The Effect of Years of Serviceon Hearing Threshold**
Table 2 TheEffect of Years of Service On Hearing Threshold

Years of Service	Hearing Threshold				Amount		p	α
	Normal		Abnormal					
	N	%	N	%	N	%		
≤ 15 Years	20	95.2	1	4.8	21	100		
> 15 Years	0	0.0	9	100	9	100	0.000	0.05
Total	20	66.7	10	33.3	30	100		

Table 2 illustrates that 9 out of 10 workers experienced a decreasein hearing threshold after the statistical test. Only one or 4.8% of workers had an abnormal hearing threshold. According to the statistical test, it was found that the value of p < α. It means that the period of service influences the hearing threshold of workers.

3. **The Effect of HPD on Hearing Threshold**
Table 3 The Effect of HPD on Hearing Threshold

HPD	Hearing Threshold				Amount		p	α
	Normal		Tidak Normal					
	N	%	N	%	N	%		
Using	15	83.3	3	16.7	18	100		
Using without following the SOP/Not using at all	5	41.7	7	58.3	12	100	0.045	0.05
Total	20	66.7	10	33.3	30	100		

The table above illustrates that 58.3% of seven workers who wore HPD without following the SOP or did not wear HPD utterly experienced a decreased hearing threshold. Furthermore, as many as 16.7% or three workers who wore HPD also experienced decreased hearing thresholds. Based on the statistical test, the value of p < α is obtained, which means that the year of service affects the hearing threshold of workers.

DISCUSSION

The Effect of Age on Hearing Threshold
This research indicates that workers aged > 40 years experienced the most hearing loss. After applying *the Fisher test*on the correlation of age and hearing threshold, the value of p is 0.000 or p ≤ α. It means that age affects the workers' hearing threshold in the tanker's engine room. This result follows the research conducted by Putri and Martiana, which revealed that age is a vital factor in decreasing hearing function. However, it is possible that workers aged < 40 years may experience hearing loss due to prolonged exposure to noise with great intensity(Putri & Martiana, 2017).

Human aging causes changes in physiological conditions, one of which is the alteration in hearing. The gradual decline in hearing function due to the aging process is

known as *presbycusis*. The cause of presbycusis is unknown until today, but it is generally known that the cause is multifactorial. Presumably, the onset of presbycusis is related to genetic factors, diet, metabolism, atherosclerosis, diabetes mellitus, infection, noise, lifestyle, and drugs(Sugiyo & Caesaria, 2015). Human aging could lead to pathological changes in their organs and hearing system. Humans over the age of 40 will experience a significant decrease in hearing function. Thus, age is one factor that influences hearing loss, and humans are also vulnerable to experiencing it(Rizqi & Widowanto, 2015).

The Effect of Years of Service on Hearing Threshold

This study found that most workers with more than 15 years of service experience have hearing loss. After the *Fisher test* was carried out on the effect of the working period on the hearing threshold, it was found that the value of p was 0.000 or $p \leq \alpha$. It means that there was an impact on the working period with the hearing threshold of workers in the tanker's engine room. The result of this research is in line with the study of Syah and Keman(Syah & Keman, 2017). which found that workers with a working period of 10-15 years are at high risk of experiencing hearing loss. The impact of the working period on the reduction of hearing threshold is related to the noise exposure to workers while working in a place that produces noise that exceeds the threshold. The longer workers are exposed to noise, the greater the risk of decreased hearing function. More damage is found as the noise intensity and the duration of exposure increase, such as loss of stereocilia or tiny hairs that convert the vibrations caused by sound into voltage and are sent via nerves to the brain(Setyawan FEB, 2021).

Hearing loss due to continuous noise exposure or *intermittent* increases most rapidly in the first 10-15 years of exposure. Hearing loss due to noise exposure could cause acoustic trauma. Acoustic trauma is divided into two types: Noise-Induced Temporary Threshold Shift (NITTS) or a loss of hearing sensitivity. However, this hearing sensitivity could be regained if workers are given sufficient break time. Noise-Induced Temporary Threshold Shift (NITTS) occurs when workers do not use HPD and experience noise exposure for the first 16 to 48 hours(Ding, et al, 2019). At the noise of > 85 dB(A), a rest period of 3-7 days is required. If the rest time is insufficient and workers are exposed to noise for a more extended period, the deafness will get worse every day. Moreover, it will result in permanent deafness. The other acoustic trauma is Noise Induced Permanent Threshold Shift (NIPTS) or a loss of hearing sensitivity that cannot be regained. It is caused by acoustic trauma that persists for years without a continuous recovery. Noise exposure that lasts for the first 10 to 15 years results in Noise-Induced Permanent Threshold Shift (NIPTS)(Eryani, et al, 2017).

The Effect of HPD on Hearing Threshold

This research reveals that workers who experience decreased hearing threshold use HPD without following the SOP, such as using HPD only on one ear or not using it utterly. The results of interviews with workers indicate that workers do not use HPD while working because they feel uncomfortable using it. In addition, HPD is considered could interrupt communication between workers so that they choose not to use it or use the device only in one ear. Another reason is that they think the room is not noisy because they are used to being exposed to the noise without using HPD. It is possible because noise exposure could cause an adaptive reaction of the immune and inflammatory reaction created by the cochlea

that occurs within 1-2 days. The peak is in 3-7 days; then, it will disappear slowly(Setyawan, 2021).

According to the Regulation of the Ministry of Manpower and Transmigration No. PER.08/MEN/VII/2010, Hearing Protection Device (HPD) is a protective tool that safeguards hearing devices against noise or pressure. Earplugs could reduce the received noise intensity by 15-30 dB, while earmuffs could reduce 30-40 dB noise intensity. Hence, hearing protection equipment plays a significant role in preventing hearing loss and reducing the risk of NIHL (Menteri Tenaga Kerja dan Transmigrasi, 2018).

Providing counseling, motivation, and education to all workers, especially those exposed to high noise, to raise awareness about the importance of preventing noise-induced hearing loss is an obligation for the company with the help of other workers. The education on the use of HPD for all workers could be in the form of seminars or special training held by the company or related institutions(Rizqi, et al, 2017).

CONCLUSION AND RECOMMENDATION

According to statistical tests conducted in this research, age, years of service, and use of Hearing Protection Devices (HPD) affect the workers' hearing threshold in the engine room of PT. Tanto Intimate Line's tanker. It is recommended that the company conduct training or socialization to workers regarding noise and its effects, strive for comfortable ear protection facilities (HPD), and carry out other supervision for the use of HPD.

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RELATIONSHIP BEHAVIORAL FACTORS WITH PREVENTION OF PULMONARY TB DISEASE
(Case Study in the Working Area of Sedati Public Health Center, Sidoarjo Regency in 2022)

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ABSTRACT

Pulmonary TB is an infectious disease caused by *Mycobacterium tuberculosis* that attacks the lungs. In 2021, the Sedati Health Center became the health center with the highest cases in Sidoarjo Regency with 115 patients. The lack of efforts to prevent the transmission of pulmonary TB disease is the cause of the high incidence of pulmonary TB in the working area of the Sedati Health Center.This study aims to determinethe relationship between behavioral factors and efforts to prevent the transmission of pulmonary TB disease. This type of research was analytical research with a Cross-Sectional. The research sample taken was BTA^+ patients using simple random sampling. Data analysis uses*exact Fisher* to determine the relationship between variables and the dependent variable. The result of 45 respondents shows that 68.9% had good knowledge, and 31.1% less. The attitude of the respondents with the results of positive attitude was 73.3% and a negative 26.7%. adequate facilities and infrastructure to prevent transmission are 68,9% and the inadequate ones are 31.1%.Family support was supportedby 77.8% and was not supportedby 22.2%. Efforts to prevent transmission of pulmonary TB were good at 66,7%, and 33,3% less. This research concludes that there is a relationship between relationship knowledge, attitudes, facilities and infrastructure, and family support with efforts to prevent transmission of pulmonary TB disease. It is recommended to facilitate air exchange in a home environment by adding ventilation to keep the house from being humid.

Keywords:attitude,knowledge, prevention of pulmonary TB disease transmission

BACKGROUND

Tuberculosis, abbreviated as TB, is an infectious disease caused by *Mycobacterium tuberculosis*, which can attack the lungs and other organs(Permenkes, 2017). Indonesia in 2020 ranks second with the highest cases of pulmonary TB patients in the world. Data on pulmonary TB cases in Indonesia for 3 consecutive years show 566,623 people in 2018, 843,000 people in 2019, and 845,000 people in 2020 (Global Tuberculosis Report, 2020). East Java is included in the three provinces with the highest number of pulmonary TB cases in Indonesia with 54,863 cases in 2018, 57,731 cases in 2019, and 64,764 cases in 2020(Dinas Kesehatan Provinsi Jawa Timur, 2020).Sedati Health Center for 3 consecutive years from 2019 to 2022 occupies the health center with the highest pulmonary TB cases in Sidoarjo Regency. In 2019 it is known that the number of pulmonary TB patients is 133(Dinkes Sidoarjo, 2019), 2020 with 105 patients(Dinas Kesehatan Kabupaten Sidoarjo, 2020), and in 2021 it will increase to 115 patients.

In breaking the chain of disease transmission, it is necessary to prevent the transmission of pulmonary TB disease by patients and family members. These behaviors include drying the mattress, practicing a healthy lifestyle, applying cough etiquette, not using the same eating utensils as the patient, and always wearing a mask. According to *Lawrence Green* in Notoadmojo (2014)3 factors cause a person to behave, namely predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include attitudes and knowledge. The level of community knowledge is very influential in preventing the transmission of pulmonary TB disease. The reinforcing factor from the cause of the behavior is family support, the role of the family is very important in breaking the chain of transmission of pulmonary TB disease. Lack of family support is the main factor causing the high incidence of pulmonary TB in Indonesia (Nugroho, 2016). Based on a preliminary study conducted at the Sedati Health Center, efforts to prevent disease transmission were lacking, where there were still patients who used the same eating utensils as other family members and rarely dried their mattresses and pillows. Family support is also not optimal in preventing the transmission of pulmonary TB disease. In addition, residential sanitation and low behavior to prevent disease transmission make the incidence of pulmonary TB high in Sedati District...

RESEARCH METHODS

This type of research was analytical research with a Cross-Sectional. The research sample taken was BTA$^+$ patients using simple random sampling. Data analysis uses*exact Fisher* to determine the relationship between variables and the dependent variable.

RESULTS

Knowledge

Table 1. Frequency Distribution of Respondents' Knowledge Level in the Working Area of the Sedati Health Center in2022

Knowledge Level	Sample	%
Good	31	68,9%
Less	14	31,1%
TOTAL	**45**	**100%**

Based on Table 1. it is known that in 45 respondents studied, There are 31 respondents (68.9%) with good knowledge, and 14 respondents (31,1%) with less knowledge.

Attitude

Table 2. Frequency Distribution of Respondents'Attitude Level in the Working Area of the Sedati Health Center in 2022

Attitude Level	Sample	%
Positive	33	73,3%
Negative	12	26,74%
TOTAL	**45**	**100%**

Based on Table 2. it is known that in 45 respondents studied, there are 33 respondents (73.3%) with a positive attitude, and 12 respondents (26.74%) with a negative attitude.

Facilities and Infrastructure

Table 3. Frequency Distribution of Facilities and Infrastructure Level of Respondents in the Working Area of Sedati Health Center in 2022

Facilities and Infrastructure Level	Sample	%
Adequate	31	68,9%
Inadequate	14	31,1%
TOTAL	**45**	**100%**

Based on Table 3. it is known that in 45 respondents studied, there are 31 respondents (68.9%) with adequate facilities and infrastructure, and 14 respondents (31.1%) with inadequate facilities and infrastructure.

Family Support

Table 4. Frequency Distribution of Respondents' Family Support Level in the Work Area of Sedati Health Center in 2022

Family	Sampel	Persentase
Support	35	77,8%
did not support	10	22,2%
TOTAL	**45**	**100%**

Based on Table 4. above it can be seen that in 45 respondents studied, the level of family support there are 35 respondents (77.8%) supported, and 10 respondents (22.2%) did not support.

Prevention of Transmission of Pulmonary TB

Table5.FrequencyDistribution Prevention of Transmission of Pulmonary TB inRespondents in the Working Area of the Sedati Public Health Center in 2022

Prevention of Transmission of Pulmonary TB Level	Sample	%
Good	30	66,7%
Less	15	33,3%
TOTAL	45	100%

Based on Table 5. it is known that 45 respondents studied, to prevent TB disease transmission,there are 30 respondents (66.7%) in the good category, and 15 respondents (33.3%) in the less category.

Relationship between Knowledge and Prevention of Pulmonary TB Disease Transmission
Table 6.Results of Bivariate Analysis between Knowledge and Prevention of Pulmonary TBin the Working Area of the Sedati Public Health Center in 2022

No	Knowledge Level	Prevention of Transmission of Pulmonary TB				F	%	P *Value*
		Less		Good				
		N	%	N	%			
1	Less	10	22,2%	4	8,9%	14	31,1%	
2	Good	5	11,1%	26	57,8%	31	68,9%	0,001
	F	15	33,3%	30	66,7%	45	100%	

Based on Table 6. it is known that the level of respondents with a lack of knowledge and less effort on pulmonary TB disease transmission prevention is 22,2% (10 respondents) and the level of respondents with a lack of knowledge and good effort is 4 respondents (8.9%). In addition, the level of good knowledge with efforts to prevent transmission of pulmonary TB disease is less than 5 respondents (11.1%), and the level of good knowledge with efforts to prevent transmission of pulmonary TB disease is good there are 26 respondents (66.7%). Based on the statistical test, a p-value of 0.001 was obtained, so there was a relationship between the level of knowledge and efforts to prevent the transmission

Relationship of Attitude with Efforts to Prevent Pulmonary TB Disease Transmission
Table 7. Results of Bivariate Analysis between Knowledge and Prevention of Pulmonary TB in the Working Area of the Sedati Public Health Center in 2022

No	Attitude Level	Prevention of Transmission of Pulmonary TB				F	%	P *Value*
		Less		Good				
		N	%	N	%			
1	Negative	8	17,8%	4	8,9%	12	26,7%	
2	Positive	7	15,6%	26	57,8%	33	73,3%	

		F	15	33,3%	30	66,7%	45	100%	0,01

Based on Table 7. it is known that the level of negative attitude toward efforts to prevent transmission of pulmonary TB disease is less than 8 respondents (17.8%), and the level of negative attitude toward efforts to prevent transmission good pulmonary TB disease as many as 4 respondents (8.9%). In addition, the level of a positive attitude toward efforts to prevent transmission of pulmonary TB disease is less than 7 respondents (15.6%), and the level of a positive attitude toward efforts to prevent transmission of pulmonary TB disease is good as many as 26 respondents (66.7%). Based on the statistical test obtained p-value of 0.01 then there is a relationship between the level of attitude with efforts to prevent transmission of pulmonary TB disease.

Relationship of Facilities and Infrastructure with Efforts to Prevent Pulmonary TB Disease Transmission

Table 8. Results of Bivariate Analysis between Facilities and Infrastructure on Efforts to Prevent Pulmonary in the Working Area of the Sedati Public Health Center in 2022

No	Facilities and Infrastructure Level	Prevention of Transmission of Pulmonary TB				F	%	P *Value*
		Less		Good				
		N	%	N	%			
1	Inadequate	8	17,8%	6	13,3%	14	31,1%	
2	Adequate	7	15,6%	24	53,3%	31	68,9%	0,03
	F	15	33,3%	30	66,7%	45	100%	

Based on Table 8. it is known that inadequate facilities and infrastructure with efforts to prevent transmission of pulmonary TB disease are lacking as many as 8 respondents (17.8%), inadequate facilities and infrastructure with efforts to prevent transmission of pulmonary TB disease are good as many as 7 respondents (15,6%). In addition, adequate facilities and infrastructure with efforts to prevent the transmission of pulmonary TB disease are lacking for as many as 6 respondents (13.3%), and adequate facilities and infrastructure with efforts to prevent transmission of pulmonary TB disease are good for as many as 24 respondents (53.3%%). Based on statistical tests obtained a p-value of 0.03. then there is a relationship between facilities and infrastructure with efforts to prevent the transmission of pulmonary TB disease

Relationship of Family Support with Efforts to Prevent Pulmonary TB Disease Transmission

Table 9. Results of Bivariate Analysis between Family Support and Efforts to Prevent Pulmonary TB Transmission in the Working Area of the Sedati Public Health Center in 2022

No	Family Support Level	Prevention of Transmission of Pulmonary TB				F	%	P *Value*
		Less		Good				
		N	%	N	%			
1	Did notSupport	7	15,6%	3	6,7%	10	22,2%	

2	Support	8	17,8%	27	60%	35	77,8%	0,009
	F	15	33,3%	30	66,7%	45	100%	

Based on Table 9. it is known that family support does not support efforts to prevent transmission of pulmonary TB disease, as many as 7 respondents (17.8%), family support does not support the transmission of pulmonary TB disease prevention as many as 3 respondents (6.7%). In addition, family support that does not support the transmission of pulmonary TB disease preventionis less than as many as 8 respondents (33.3%), and family support that supports efforts to prevent transmission of pulmonary TB disease is good as many as 27 respondents (60%). Based on statistical tests obtained a p-value of 0.009 then there is a relationship between family support with efforts to prevent transmission of pulmonary TB disease.

DISCUSSION

Knowledge
The results of the study in the Working Area of the Sedati Health Center, Sidoarjo Regency in 2022 show that the majority of respondents had good knowledge. Knowledge is the result of knowing and occurs after a person performs sensing through the five human senses of an object. Knowledge or cognition is a very important domain in shaping one's actions. Knowledge in this study is the ability or understanding of pulmonary TB patients including definitions, signs and symptoms, disease transmission, and prevention of pulmonary TB disease transmission. Factors that affect the level of knowledge of respondents, namely the level of education. Education aims to combat ignorance, which can affect a person's ability to prevent disease, and increase the ability to maintain and improve health(Notoatmodjo, 2014). Based on research on 45 patients with pulmonary TB in the working area of the Sedati Public Health Center, the majority were high school students with a total of 24 respondents (53.3%). The higher a person's education, the easier it is to accept new things and adapt to new ones. Respondents easily received information related to pulmonary TB disease and efforts to prevent transmission of pulmonary TB disease.

Attitude
The results of the study in the working area of the Sedati Public Health Center, Sidoarjo Regency in 2022 show that the majority of respondents had a positive attitude. Attitude is a closed reaction of a person to an object or stimulus. Attitude is an action that has not yet been formed but a special tendency that leads to behavioral action. Attitude is how the opinion or assessment of people or respondents on matters related to health, health and illness, and factors related to health risks (Notoatmodjo, 2014). Attitudes in this study were respondents' opinions on the definition, signs and symptoms, disease transmission, and prevention of pulmonary TB disease transmission. One of the factors that influence a person's attitude is the knowledge he has. The higher the knowledge possessed will contribute to the formation of a good attitude. Respondents and their families should form a positive attitude in dealing with pulmonary TB disease and its mode of transmission.

Facilities and Infrastructure
The results of the study in the working area of the Sedati Public Health Center, Sidoarjo Regency in 2022, it was found that the majority of respondents had adequate facilities and

infrastructure. According to Lawrence Green, which influences a person to do something in addition to predisposing factors, there are also enabling factors. This factor includes the availability of health facilities or facilities for the community. To behave healthily, people need supporting facilities and infrastructure. These health care facilities essentially support or enable the realization of health behaviors. Economic ability is also a supporting factor in healthy behavior(Notoatmodjo, 2014).Accessibility to health facilities in this study is the ease with which patients can go to health care facilities and take treatment. Respondents already have a decent vehicle to go and do not mind the distance traveled to go to the puskesmas. The availability of access to treatment will affect the patient's recovery and reduce the risk of disease transmission to other family members. In line with the results of research conducted in Klaten Regency, the results showed that the level of difficulty in accessing health facilities had a greater risk of pulmonary TB transmission when compared to respondents who had easy access to health facilities (Suhendrik *et al,* 2019).

In this study, the availability of facilities in improving the quality of the home environment is still lacking. A person's economic ability is also an enabling factor in healthy behavior. The statement with the lowest score is about the cost of making good ventilation of the house and glass tile. The function of ventilation in the house in addition to maintaining airflow also frees the room air from bacteria, especially pathogenic bacteria. Therefore, it is important for air and light to enter the house through windows and glass tiles(Tria Meriyanti dan Sudiadnyana, 2018).

Family Support

The results of the study in the working area of the Sedati Public Health Center, Sidoarjo Regency in 2022, it was found that the level of support for the majority family was supportive. According to Lawrence Green, one of the reinforcing factors that influence a person's behavior is family support. Healthy behavior does not only require good knowledge, a positive attitude, and support for facilities but also requires exemplary behavior (reference) from the community and support from the family(Notoatmodjo, 2014). Family support is a process of relationship between the family and its social environment that can be accessed by the family that can be supportive and assists family members (Friedman dan Jones, 2012).On the family support questionnaire, the statement with the highest score was about the family reminding them to always wear masks. Pulmonary TB is transmitted through droplets when coughing and sneezing, therefore it is important to wear a mask for sufferers to prevent transmission of *Mycobacterium tuberculosis bacteria*. The family knows that when the patient does not use a mask, it can release 210 particles in which there are*Mycobacterium tuberculosisbacteria* which are ready to be free from contamination in the air at any time and infect other family members(Tsadik *et al*., 2020).

Family support includes support from the husband or wife, children, and siblings. Pulmonary TB patients who get good family support will feel the benefits of improving their physical and preventing the transmission of pulmonary TB disease (Puspita, 2016). Support from a good family can help in the healing process of patients with pulmonary TB and have an active role in preventing the transmission of pulmonary TB disease to other family members.

Prevention of Pulmonary TB Disease Transmission

The results of the study in the working area of the Sedati Public Health Center, Sidoarjo Regency in 2022, the majority of respondents in the good category. *Skinner* states that health maintenance behavioris a person's behavior or efforts to maintain or maintain health so as not to get sick, and efforts to heal when sick. One aspect of health maintenance is disease prevention behavior(Notoatmodjo, 2014). In this study, efforts to prevent transmission of pulmonary TB disease include cough etiquette and how to dispose of phlegm, consumption of

nutritious food, the use of separate eating utensils, separate rooms for patients and other family members, and modification of the home environment.

The habit of having their eating utensils will reduce the risk of transmission to families living with pulmonary TB patients. always cleaning the house and opening windows aims to let in sunlight to reduce the spread of bacteria and kill bacteria. If the conditions are humid due to a lack of sunlight and less than optimal air change in the home environment, there is a risk of the transmission of pulmonary TB(Nugroho *et al.,* 2020)**.** According to Mujahidin, washing eating, and drinking utensils that have pulmonary TB patients with laundry soap alone is not enough to kill the *Mycobacterium tuberculosis*. Another effort that can be done is to boil cutlery(Mujahidin *et al.,* 2019).

In carrying out efforts to prevent disease transmission, it is influenced by good knowledge, information, attitudes, facilities and infrastructure, and good family support. These respondents understand what is meant by pulmonary TB disease and know how to prevent its transmission.

Relationship between Knowledge and Prevention of Pulmonary TB Disease Transmission

The results of the analysis using Fisher's Exact test stated that if the p-value were 0.05 then H0 was rejected and H1 was accepted, so there was a relationship between the two variables. Based on the test, the p-value was 0.000 <0.05, which means that there is a relationship between the level of knowledge and efforts to prevent the transmission of pulmonary TB disease. The existence of human knowledge can answer the problems and solve the problems faced. Someone with good and high knowledge will be able to think critically and understand everything (Notoatmodjo, 2014). Before someone behaves, they must know the benefits for themselves or their families. Knowledge is needed as an encouragement or stimulus to grow behavior every day, so that knowledge can influence behavior(A. Wawan dan Dewi M., 2012).

In the working area of the Sedati Health Center, it is known that the majority of knowledge is good and the efforts to prevent the transmission of pulmonary TB disease are good. This shows that respondents who have good knowledge will carry out good and maximum efforts to prevent disease transmission according to the information they get regarding pulmonary TB disease and the p-value of 0.05 then H0 is rejected and H1 is accepted, so there is a relationship between the two variables. Based on the test, the p-value of 0.02 <0.05, means that there is a relationship between attitude and efforts to prevent the transmission of pulmonary TB disease. According to Lawrence Green, the formation of a good and positive attitude cannot be separated from the existence of influencing factors such as personalexperience, culture, other people who are considered important, mass media, and emotional factors of the individual(Notoatmodjo, 2014).In the working area of the Sedati Health Center, it is known that the majority of respondents have a positive attitude and good disease prevention efforts. This shows that the more positive the attitude of the patient in responding to pulmonary TB disease and its prevention, the better the efforts made in preventing the transmission of pulmonary TB disease.

Relationship of Facilities and Infrastructure with Efforts to Prevent Pulmonary TB Disease Transmission

The results of the analysis using Fisher's Exact test stated that if the p-value were 0.05 then H0 was rejected and H1 was accepted, so there was a relationship between the two variables. Based on the test, the p-value was 0.01 <0.05, which means that there is a relationship

between facilities and infrastructure and efforts to prevent the transmission of pulmonary TB disease.

The facilities and infrastructure referred to in this study are the availability of adequate health service facilities, accessibility from home to health facilities, and material support for home modifications to make efforts to prevent the transmission of pulmonary TB disease. The better the facilities and infrastructure that are owned and adequate, the better the efforts to prevent the transmission of pulmonary TB disease.

Relationship between Family Support and Prevention of Pulmonary TB Disease
The results of the analysis using Fisher's Exact test stated that if the p-value were 0.05 then H0 was rejected and H1 was accepted, so there was a relationship between the two variables. Based on the test, the p-value was 0.003 <0.05, which means that there is a relationship between family support and efforts to prevent the transmission of pulmonary TB disease.

Family support includes emotional, appraisal, instrumental, and informational support. Family support in efforts to prevent the transmission of pulmonary TB disease in daily life such as providing information on the schedule for taking medication, taking patients to health facilities, and practicing a clean and healthy lifestyle to reduce the spread of Mycobacterium tuberculosis bacteria (Puspita, 2016). In the working area of the Sedati Health Center, the majority of respondents with supportive family support and good prevention of pulmonary TB disease transmission. If patients with pulmonary TB benefit from family support, then the patient will get a positive stimulus to take actions that can prevent the transmission of pulmonary TB and actions that can accelerate the healing process of the disease.
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CONCLUSION AND RECOMMENDATION

This study in the working area of the Sedati Public Health Center, Sidoarjo Regency in 2022which get results that the level of knowledge of the majority is good, the level of attitude of the majority is positive, and the majority of facilities and infrastructure are adequate,the level of family supportis the majority of families are supportive, the majority of efforts to prevent the transmission of pulmonary TB disease are good. In addition, there is a relationship between knowledge, attitudes, infrastructure, and family support with efforts to prevent the transmission of pulmonary TB disease.

Sedati Public Health Center should provide good counseling using print media such as posters, leaflets, and others to increase knowledge and information for sufferers and their families. It is expected that health workers will provide education to the public about the importance of paying attention to the physical condition of the home environment and knowing the procedures for transmission of pulmonary TB disease so that they know what actions can be taken to prevent transmission of pulmonary TB disease.

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EXPLORATION OF COMMUNITY KNOWLEDGE AND ATTITUDE ON MASK WASTE MANAGEMENTIN THE KAMPUNG BARU SUB-DISTRICT

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ABSTRACT

Mask waste can cause environmental pollution and sources of disease spread if not properly managed. The purpose of the study was to determine the influence of knowledge and attitudes of the community on the waste management of disposable masks in Kampung Baru Sub-District. The type of research used is analytical research with a cross-sectional design. The study population was 3,692 households with a sample size of 361 respondents. Sampling using a purposive sampling technique. Data analysis using Chi-square test. The characteristics of respondents are known to be the gender of the majority of women (58.4%), age 46-64 years (48.5%), the last dominant education is high school (41.3%), and work as IRT (42.4%). There is a significant relationship between knowledge (p-value 0.000) and attitude (p-value 0.000) with disposable mask waste management. It is expected that the role of the government in providing education to the community by conducting counseling on how to manage waste masks is good and correct to prevent environmental pollution and disease transmission

Keywords: Knowledge, Attitude, Mask waste

BACKGROUND

The covid-19 pandemic that has occurred in the world has prompted the government to take efforts to prevent transmission by limiting the outdoor activities together. The government must immediately conquer the threat of Covid-19 to prevent wider transmission. One of the government's efforts to prevent the spread of Covid-19 is the use of masks. Masks

are one of the main needs during the Covid-19 pandemic. The use of masks is one of the efforts to prevent the spread of the COVID-19 virus. One type of mask used in the community is a disposable mask (Atmojo et al., 2020).

The use of masks is an overall infection control carried out through social distancing, hand hygiene compliance, and other measures that form integrated preparedness to prevent the transmission of Covid-19. For groups of people who are at high risk of infection, wearing a cloth mask with low filtering efficiency may be better than not wearing a mask at all because it does not protect against risk (Acute & Syndrome, 2020).

The increase in the use of single-use masks during the pandemic occurred throughout the world, through a study conducted by (Sangkham, 2020), it was found that the estimated daily use of masks in several Asian countries reached 2,228,170,832 masks. The use masks has created a new problem, namely an increase the amount of disposable mask waste. Mask waste during a pandemic can be classified as infectious waste if it comes from a person infected with COVID-19. Therefore, waste masks must be disposed of properly according to the disposal of infectious waste. Improper management of mask waste can cause pollution to the environment.

During the Covid-19 pandemic, the amount of medical waste generated in Indonesia increased by 30%-50%. According to records from the Indonesian Institute of Sciences (LIPI), it is known that from March to September 2020, the amount of medical waste stockpiled is estimated to be 1,662.75 tons. The achievement of waste generation in 2021 consisting of 201 regencies/cities throughout Indonesia amounted to 40,872,614.38 tons per year (Surat Edaran Nomor. SE.3/MENLHK/PSLB3.3/3/2021 Tentang Pengelolaan Limbah B3 Dan Sampah Dari Penanganan Corona Virus Disease-19, 2021)

Disposal of disposable mask waste generated from the community is regulated by the Ministry of Environment and Forestry and the Ministry of Health through Circular No. 2 of 2020. Processing of disposable mask waste includes collection, separation of mask waste from kitchen waste, spraying disinfectant on masks, and changing the shape of masks. Before disposal, wrap the mask waste in a plastic bag, and wash your hands with soap after disposing of the mask waste (WHO, 2020).

According to the UNPAD-ITB collaboration article, AMARI COVID-19 (2019 Corona Virus Disease Insights Application), medical masks or disposable masks are made of polypropylene, a type of plastic. When this plastic decomposes, it will turn into micro-plastics and shrink into nano-plastics. When there is a change into micro-plastic, then at that time plastic produces toxins and organic pollutants. Micro-plastics can cause poisoning when marine animals ingest them. In addition, mask waste can also attract animals, some animals think masks are food and eat them, then die after being swallowed by the mask (Admamari, 2021). Garbage is a source of disease transmission if not managed properly. Not only medical waste can be a source of disease transmission, but household waste that is mixed without being sorted can also potentially become a medium for disease transmission (Juwono & Diyanah, 2021).

Based on the initial survey conducted, it is known that the people who live Kampung Baru sub-district, it is known that 9 out of 10 people do not know how to manage mask waste properly, mask waste is still thrown into the trash without managed. Mask waste produced by the community is not disinfected, not damaged and not wrapped in plastic before being disposed of in the trash. 8 out of 10 people mix mask waste with household waste and transport is not done every day, but waiting for the garbage in the trashcan to be full. There are also 4 out of 10 people who throw mask waste into the sea.

Based on the background above, the authors feel the need to conduct research on the Effect of Knowledge and AttitudesCommunity towards Mask Waste Management in Kampung Baru in 2022".

RESEARCH METHODS

This research uses an analytical type with cross sectional design. The study population was 3,692 households with a sample size of 361 respondents. Samples were taken using a purposive sampling technique. Inclusion criteria are respondents who are domiciled in Kampung Baru Sub-District, willing to be interviewed, productive age range of 15-64 years, can read, and can communicate well. The independent variable in this study is the knowledge and attitude of respondents, while the dependent variable is waste management disposable masks. Data were collected by distributing questionnaires and conducting the direct observation. Data analysis using Chi-square test.

RESULT AND DISCUSSION

Characteristic of Respondents

This study was conducted to determine the effect of knowledge and attitudes on the management of disposable mask waste in the community in Kampung Baru Sub-Distric. The results of data collection and processing can be seen in the following table:

Table. 1 Characteristic of Respondents in Disposable Mask Waste Management

No	Characteristics of Respondents	Waste management						p-value	QR
		MS		TMS		Total			
		n	(%)	n	(%)	n	(%)		
Gender									
1	Male	3	2	147	98	150	100		
2	Female	4	1.9	207	98.1	211	100	0.615	0.004
	Total	**7**	**1.9**	**354**	**98.1**	**361**	**100**		
Age									
1	15 - 25	1	3.2	30	96.8	31	100		
2	26 - 45	5	3.2	151	96.8	156	100	0.193	0.095
3	46 - 64	1	0.6	173	99.4	174	100		
	Total	7	1.9	354	98.1	361	100		
Work									
1	Housewife	0	0	153	100	153	100		
2	Laborer	0	0	35	100	35	100	0.000	307
3	Private	2	1.9	102	98.1	104	100		
4	civil servant	4	17.4	19	82.6	23	100		

5	Trader	0	0	25	100	25	100		
6	Student/Student	1	4.8	20	95.2	21	100		
	Total	**7**	**1.9**	**354**	**98.1**	**361**	**100**		

Education

1	No education	0	0	21	100	21	100		
2	Primary school	0	0	61	100	61	100		
3	Junior High School	1	1.3	78	98.7	79	100	0.001	0.233
4	Senior High School	1	0.7	148	99.3	149	100		
5	Collage	5	9.8	46	90.2	51	100		
	Total	**7**	**1.9**	**354**	**98.1**	**361**	**100**		

Note: MS   : Eligible
       TMS   : Not Qualified

Based on table 1, it can be seen that the respondents in Kampung Baru Sub-District are mostly female respondents (58.4%) where 1.9% of them are female respondents who can manage waste according to the rules. Meanwhile, 41.6% of male respondents with the percentage of respondents who can manage waste by the rules are slightly higher than female respondents, which is 2%. The statistical test carried out is known by using an error rate of 5%, obtained a significance value of 0.615. This value is greater than 0.005 which indicates that there is no significant relationship between gender and waste management in the new Sub-District community. This can also be seen from the very small correlation magnitude, which is 0.004.

Although based on statistical analysis there is no evidence of a relationship between gender and the management of disposable mask waste, it is generally known that women or housewives have a greater role in controlling the cleanliness of their home environment, especially in handling waste generated from family activities. According to (Rochayati et al., 2018), involving the community in the management of mask waste, means that women's participation does not escape. Women have a big role in educating and building awareness to protect the environment.

Most of the people of Kampung Baru Sub-District who became respondents were people with ages in the range of 46-65 or 48.2%. When viewed from the MS method of waste management, 3.2% of respondents aged 26-45 and 0.6% of the age group 46-65 can manage waste well. On the other hand, 1 out of 3 respondents aged 15-25 are respondents who can manage waste well. Based on the statistical test obtained a significance value of 0.193. This value is greater than 0.005. This shows that there is no significant relationship between age and waste management in the new Sub-District community. This can also be seen from the very small correlation magnitude, which is 0.095.

This study is in line with research conducted by (Srisantyorini & Kusumaningtias, 2018), which is that there is no significant (meaningful) relationship between age and waste management behavior (p-value = 0.901). However, from the data obtained, respondents in late adulthood tend to carry out waste management behavior compared to respondents with young adults. This study is in line with the research of Best, 2015 with the results of the

statistical test p-value = 0.708 so that it can be stated that there is no significant relationship between age and waste management behavior.

The results showed that in adults, more people know how to manage waste masks that meet the requirements compared to young and elderly people. It is assessed that adults have a stronger will to protect the environment by managing single-use mask waste. The characteristics of respondents based on age in Kampung Baru Sub-District are more in the age range of 46-64 years and this age includes the elderly age group in a health perspective based on the stages of mental development along with physical conditions (Hakim, 2020).

According to (Tansatrisna, 2014), productive age starts from the age of 15-65 years, where at that age a person is still able to work to produce goods or services, to meet their own needs and the needs of the community. People with productive age can be capital in development. The majority of respondents in this study are classified as productive age.

The majority of the people in Kampung Baru Sub-District who became respondents in this study were housewifes (42.4%), then private (28.8%). Meanwhile, the percentage of people from other occupations, such as laborers, civil servants, tradesmen, and students, is less than 10% each. Community groups that can manage waste according to the requirements are civil servants (57.1%), the private sector (28.6%), and students (14.3%). Meanwhile, housewives community groups, laborers, and traders cannot manage waste properly. A statistical test using an error rate of 5%, obtained a significance value of 0.000. This value is smaller than 0.005. This shows that there is a significant relationship between work and waste management in the community in Kampung Baru Sub-District. The magnitude of the relationship between the two variables is 0.307. This value indicates that although there is a significant relationship between work and waste management, the relationship is low, which is only 0.307.

Based on the respondent's occupations, it is known that the majority of the respondents are housewives. This certainly affects waste management, especially mask waste in the surrounding environment. Housewives have more time to pay attention to the cleanliness of their environment, but housewives do not have enough information about how to properly manage disposable mask waste, so they have not managed mask waste properly. Housewives are not only considered the most knowledgeable about waste problems at home but are also considered capable of making a real contribution to the management of mask waste (Solihin et al., 2019)

The distribution of people in the Kampung Baru sub-district who became respondents based on their latest education were: Senior high school(41.3%), junior high school (21.9%), elementary school (16.9%), PT (14.1%), not in school 5.8%. When viewed from the MS method of waste management, less than 10% of PT respondents can manage waste properly. Meanwhile, respondents with elementary school graduates / not attending school, cannot carry out waste management according to the requirements. A statistical test using an error rate of 5%, obtained a significance value of 0.001. This value is smaller than 0.005. This shows that there is a significant relationship between education and waste management in the new Sub-District community. The magnitude of the relationship between the two variables is 0.233. This value indicates that although there is a significant relationship between education and waste management, the relationship is low, which is only 0.233.

The results showed that the higher a person's education, the better the management of disposable mask waste. This is known from the number of respondents who can properly and correctly manage the waste of disposable masks, which are respondents with higher education. People with higher education have a long mindset for the future, while people with low education only think short for now, so people with higher education tend to be more aware and behave well towards their surroundings environment. Notoatmodjo (2014), says

that education is one of the factors that influence a person's mind to more easily accept new knowledge (Lillah, 2017).

Education is an effort to increase knowledge and change attitudes, so that respondents who have higher education can have good behavior in the management of mask waste (Sari & Mulasari, 2017). Adequate education in this case is the category of high school education level that will be more aware of good mask waste management, such as people who are educated enough to seek to improve waste management through waste banks (Setyaningrum, 2015).

The Effect of Knowledge on Disposable Mask Waste Management

Based on Chi-square analysis, the relationship between knowledge and waste management of disposable masks obtained results in table 2.

Table. 2 The Effect of Knowledge on Disposable Mask Waste Management

No	Knowledge	Mask Waste Management						p-value	QR
		MS		TMS		Total (%)			
		n	%	n	%	n	%		
1	Well	3	100	0	0	3	100		
2	Bad	4	1.1	354	98.9	358	100	0.000	0.546
	Total	**7**	**1.9**	**354**	**98.1**	**361**	**100**		

Note: MS : Eligible

TMS : Not Qualified

Table 2 shows that the majority of people in the Kampung Baru sub-district have poor knowledge regarding waste management. Of the 361 people who became respondents, 358 (99.2%) were people who did not have good knowledge of managing waste. Only less than 1% of the community (3 people) have good waste management knowledge. In managing waste, as many as 98.1% of people do not do it according to existing standards, and only 1.9% of people can manage waste properly and following the requirements. 1.9% of the respondents consisted of 3 respondents who had good waste management knowledge plus 4 respondents who did not have good knowledge but could properly manage waste.

The results of statistical analysis using an error rate of 5%, obtained a significance value of 0.000. This value is smaller than 0.005 , meaning that there is a significant relationship between knowledge and waste management in the Kampung BaruSub-District community. The magnitude of the relationship between the two variables is 0.546. This value indicates that there is a moderate or strong relationship between knowledge and waste management in the new Sub-District community.

According to Notoatmodjo (2010), knowledge is the result of knowing, and this occurs after a person has sensed a certain object. In addition, knowledge can also be obtained through formal and informal education. Knowledge is very important for the formation of a person's actions. Knowledge is a person's ability to remember something (ideas, phenomena) that has been taught. Public knowledge about the management of mask waste is built based on the ability to think in accordance with the reality found by the surrounding community. The older they get, the more their grasping power and mindset will develop so that the knowledge they gain is getting better (Budiman & Riyanto, 2014).

Research conducted by Ruslinda states that public knowledge about the dangers of mask waste is considered to be lacking, where people still mix mask waste with other household waste (Ruslinda et al., 2020). There are obstacles in the management of household mask waste which include the community's indifference and the unavailability of adequate facilities and infrastructure(Putra et al., 2019). It is known that respondents with waste are still poor because respondents think that waste management is the responsibility of the relevant agencies (May Erviana Safitri, 2019).

The results of this study are in line with research conducted by (Tayeb, M., Daud, 2021), responden knowledge has a significant relationship with waste management in the community in Manggala District, Makassar City. Education for community groups can make behavioral changes so that efforts can be made to increase public knowledge, namely through counseling, especially regarding the handling of disposable mask waste and good and correct management methods to control environmental pollution.

The Effect of Attitude on Disposable Mask Waste Management

Chi-square analysis was conducted to determine the relationship between attitude and waste management of disposable masks known results in Table 3.

Table. 3 The Effect of Attitude on Disposable Mask Waste Management

No	Attitude	Mask Waste Management						p-value	QR
		MS		TMS		Total (%)			
		n	%	n	%	n	%		
1	Well	0	0	184	100	184	100		
2	Bad	7	4.0	170	96	177	100	0.006	0.142
	Total	**7**	**1.9**	**354**	**98.1**	**361**	**100**		

Note: MS   : Eligible
TMS   : Not Qualified

Table 3, explains that the percentage of people in Kampung Baru Sub-District who have good and bad attitudes is almost balanced, where 51% of people have good attitudes, and another 49% have bad attitudes. Uniquely, although 51% of the community in the new Sub-District have a good attitude, none of them can apply this attitude in managing waste by applicable standards. On the other hand, even though it is dominated by TMS waste management, 4% of the community can manage waste that meets the requirements for waste management.

Based on the statistical test, it is known that using an error rate of 5%, a significance value of 0.006 is obtained. This value is smaller than 0.005. This shows that there is a significant relationship between attitudes and waste management in the new Sub-District community. The magnitude of the relationship between the two variables is 0.142. This value indicates that although there is a significant relationship between attitudes and waste management, the relationship is not very strong (very low), which is only 0.142.

The results of the study illustrate that there are still respondents who have bad attitudes but can carry out waste management that meets the requirements. This shows that respondents know how to manage the waste of disposable masks that meet the requirements, but this is not reflected in attitudes. According to Notoatmodjo (2012), behavior change starts

from the knowledge stage which will affect attitudes and attitudes will be manifested in the form of action as a form of application of the knowledge they have.

The management of mask waste is influenced by information obtained through conditioning or processing received information and encouraging it by motivating in making decisions to approve, reject, or be neutral (Fentia & Ningsih, 2020). Attitudes may change based on experience and information received. Providing information to the public, in general, is an activity that aims to influence the way others think, behave, or act.

The attitude of the community in the management of mask waste depends on the factors that influence the attitude of the community. Attitude formation is influenced by several factors, namely personal experience, culture, other people who are considered important, mass media, educational institutions, and religious institutions, and emotional factors (Rahmi & Luthfia, 2018).

CONCLUSION AND RECOMMENDATION

Based on the research carried out, it can be concluded that statistical analysis of the effect of knowledge and attitude on the management of disposable mask waste is known to have a significant. It is hoped that the government's efforts to socialize the handling of disposable mask waste in Kampung Baru Sub-District, to increase public knowledge in managing disposable mask waste in a good and correct way and be able to reduce environmental pollution.

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ANALYSIS OF LINEN MANAGEMENT EFFORTS IN MENUR MENTAL HOSPITAL SURABAYA IN 2022

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ABSTRACT

Handling of linen and supporting facilities for linen management are not adequate at Menur Mental Hospital Surabaya. That condition causes clean linen to contain 500 CFU/Cm^2 of bacteria. The purpose of this study is to identify and analyse using SWOT analysis. This type of research uses a descriptive research design. Research variables include linen management, infrastructures, building space construction, personal hygiene, and personal protective equipment. Data collection techniques in this study are interview, observation, documentation and measurement techniques. Data analysis in this study is using SWOT analysis. The results show that the stages of transportation, receiving, washing, drying, ironing, packaging, storage and distribution had met the requirements. The stages of collecting, sorting, soaking has not met the requirements. Facilities for supporting linen management and personal protective equipment meet the requirements. Personal hygiene officers don't meet the requirements. The quality of clean linen produced by the laundry installation is not in accordance with the requirements of the Regulation Minister of Health Republic Indonesia Number 7 of 2019. The SWOT analysis in this study is located in quadrant II using the Conservative strategy. The conclusion of this study is that the management of linen, infrastructure, building space construction has met the requirements and the personal hygiene of the officers has not met the requirements. The linen management position at Menur Mental Hospital Surabaya is located in quadrant II.

Keywords: *Linen, Management, Quality, Supporting factors.*

BACKGROUND

The implementation of sanitation management activities in hospitals is one of the efforts to manage linen in the laundry installation(Alifah et al.*,* 2019). The results of the 2019 Health Facilities Research show that 80% of Indonesian referral hospitals have separate infectious and non-infectious linen rooms, 80% have dirty linen rooms, 57% have ironing rooms, 68% have laundry facilities, 62% have draining rooms, 78% have linen carriage room. Non-referral hospitals 76% have separate infectious and non-infectious linen rooms, 75% have dirty linen rooms, 55% have ironing rooms, 45% have laundry facilities, 76% have linen cart rooms.

Linen management must be of good quality and in accordance with linen service standards according to the Regulation of the Minister of Health of the Republic of Indonesia in 2019. Linen management that is not in accordance with standard operating procedures (SOP) can have a negative impact on human health and the environment. Linen management in hospitals is influenced by several factors,

namely, the characteristics of linen management officers (characteristics of age, education, years of service, and training), facilities and infrastructure to support laundry installations, construction of hospital laundry rooms, personal hygiene officers, and availability of protective equipment(Mukhtar et al., 2018).

Based on a preliminary survey conducted, Menur Mental Hospital Surabaya has a special room for linen management. In the process of collecting linen, linen is not counted and recorded at the source. At the linen transport stage, the stroller is not washed with disinfectant after being used to transport soiled linen. Linen sorting stage, when sorting takes place non-infectious linen is placed on the floor. Linen washing stage, Infectious linen washing is not carried out in a special room. In the storage stage, the linen storage room is not exposed to air conditioning. The distribution stage, clean linen distribution officers and linen collection officers were no different. The results of microbiological examinations at the Surabaya Health Laboratory on linen samples in August and November 2019 with inspection results of 80 CFU/100 Cm2 and 48,500 CFU/100 Cm2. In February and July 2020, the inspection results were 6,100 CFU/100 Cm2, and 64 CFU/100 Cm2. In October 2021, the results of the inspection were 138×103 CFU/100 Cm2. In February 2022, the results of the examination were 500 CFU/Cm2. The results of the microbiological examination of the linen did not meet the requirements according to the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019, namely the bacterial standard limit for linen does not contain 20 CFU/100 cm^2.

Hospital laundry facilities and infrastructure, there is no separate room available according to use, such as no separate infectious and non-infectious linen washing rooms available, no storage room and clean trolley decontamination, no linen distribution room and no linen repair room. The laundry installation is not yet equipped with a special warehouse to store chemicals for washing linen. Laundry wastewater has not been pre-treated before being sent to the wastewater treatment plant. Regarding the personal hygiene of linen management officers, officers have not carried out regular health checks and have not received hepatitis B immunization every 6 months.

From the problems above, the researchers are interested in conducting research with the title "Analysis of Linen Management Efforts in Menur Mental Hospital Surabaya in 2022".

RESEARCH METHODS

This type of research uses a descriptive research design. This research was conducted at the Menur Mental Hospital in Surabaya. The research variables include linen management, infrastructure, building space construction, personal hygiene, and personal protective equipment. Data collection techniques in this study are interview, observation, documentation and measurement techniques. Data analysis in this study is using SWOT analysis.

RESULT

Overview of Linen Management in Menur Mental Hospital Surabaya in 2022

The management of linen at the Menur Mental Hospital in Surabaya has met the requirements in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 including the stage of transporting linen with a percentage of 75%, the stage of receiving linen with a percentage of 75%, the stage of washing linen with a percentage of 67%, and the stage of drying linen. with a percentage of 100%, the stage of ironing and folding linen with a percentage of 100%, the stage of packaging linen with a percentage of 100%, the stage of storing linen with a percentage of 83%, the stage of distributing linen with a percentage of 67%. The stage of collecting linen with a percentage of 25%, the stage of sorting linen with a percentage of 50%, the stage of soaking and disinfecting linen with a percentage of 50% did not meet the requirements.

Linen Management Supporting Facilities

The location of linen management with a percentage of 64%, the provision of clean water with a percentage of 67%, the availability and maintenance of linen management machines and tools with a percentage of 80% the wastewater management system in the laundry installation with a percentage of 67% meets the requirements.

Laundry Building Room Construction
The construction of the laundry room includes walls, floors, ceilings, doors, ventilation and roofs with a percentage of 100% eligible.

Personal Hygiene Linen Management Officer
Personal hygiene of linen management officers with a percentage of 33% did not meet the requirements.

Availability and Use of Personal Protective Equipment for Linen Management Officers
The availability and use of personal protective equipment for linen management officers with a percentage of 88% met the requirements.

SWOT Analysis Calculation of Linen Management
The relative position of linen management at Menur Mental Hospital Surabaya is in Quadrant II (conservative) with coordinates X = - 0.2 and Y = 0.8. The position of the development strategy in diagram II is S-T.

DISCUSSION
Linen Management Overview
The management of linen at the Menur Mental Hospital in Surabaya is not in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 concerning hospital environmental health requirements which states that at the time of collection of linen, infectious and non-infectious linen are separated starting from the source and putting the linen into a plastic bag according to the type. Based on the results of research conducted by researchers at the Menur Mental Hospital in Surabaya, at the linen collection stage, linen is not recorded in the source room. This is in line with research conducted by (Agustiani dkk, 2019) at the BLUD of Sekarwangi Hospital based on the results of interviews, observations and document reviews, almost all rooms do not count and record dirty linen in the room, no bag closure/sealing, no labelling on bags. .

Management of linen that is not in accordance with standards has a negative impact on patients and linen management staff. In facilitating the linen washing process, one of the methods that must be done is to do the linen sorting process first. Based on the results of the study, it is known that the linen sorting process in the laundry installation of Menur Mental Hospital Surabaya is distinguished by infectious and non-infectious linen. At this stage, the linen sorting process is also carried out by colour, but the linen officer does not select by colour but by the degree of dirtiness. This is not in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019, which states that linen sorting is carried out based on colour as well as to maintain linen quality.

The quality of clean linen distributed by the laundry installation of Menur Mental Hospital Surabaya still contains 500 CFU/cm2 of bacteria. This is due to the inaccuracy of handling dirty linen in the laundry installation. In addition, the use of chemicals such as detergents and

disinfectants that are not in accordance with the amount of linen and the level of soiled linen can also affect the bacteriological quality of clean linen. Linen containing bacteria that exceeds quality standards can potentially increase the spread of microorganisms, causing nosocomial infections.

Linen Management Supporting Facilities
Facilities and infrastructure at the laundry installation of Menur Mental Hospital Surabaya include the location, tools and materials used for the implementation of linen management in the hospital. The availability of facilities and infrastructure for linen management is not adequate in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019. The linen management room has not been separated according to its function, such as the infectious and non-infectious linen washing rooms. The research is in line with research conducted by (Ardrianti et al., 2021) in the laundry installation of the Permata Hati Hospital, describing the hospital's laundry installation building as not meeting the standards. There is only 1 room in this installation, where all activities are carried out in the same room. Infectious linen rooms and non-infectious linen rooms that are not distinguished can lead to cross-contamination of linen. The laundry installation of the Menur Mental Hospital in Surabaya is not yet equipped with a sewing machine. Research conducted by (Retika dkk, 2021) found that the facilities that were not yet available for linen management at the Pringsewu Hospital laundry installation were sewing machines to repair damaged linen. Laundry installation that is not equipped with a sewing machine, when clean linen is found torn, it cannot be repaired because there is no sewing machine available to repair linen.

Laundry Building Room Construction
Laundry room is part of a hospital building with the category of operational support services with certain technical requirements. The laundry room in the hospital can accommodate service needs whose physical facilities meet safe standards. Based on the results of research related to the construction of the Menur Mental Hospital Surabaya laundry room including floors, walls, roofs, ventilation, ceilings, doors, it meets the requirements in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 so as to be able to support linen management to produce linen quality. good and in accordance with the requirements.

Personal Hygiene Linen Management Officer
The linen management officer at Menur Mental Hospital Surabaya does not receive hepatitis B immunization every 6 months and has not carried out regular health checks because the hospital has not facilitated these health services. Laundry workers who handle soiled linen are always in contact with materials and breathe air contaminated with pathogenic germs(Mungestie,t al.2016). Research conducted by (Agustiani et al., 2019) on the personal hygiene of linen management officers at BLUS Sekarwangi Hospital obtained a percentage of 75%, this is not in accordance with linen management guidelines because not all linen management officers have not received Hepatitis B immunization.

Availability and Use of Personal Protective Equipment for Linen Management Officers
The availability of Personal Protective Equipment for Mental Hospital in Surabaya has met the requirements, but the linen management officer does not wear glasses when the linen management takes place because according to the officer it is considered to hinder vision. Improper use of personal protective equipment or even non-compliance by officers in the use of personal protective equipment can increase the risk of disease transmission. Research

conducted by (Nurmandhani et al., 2017) revealed that regarding the compliance of linen management officers at the Semarang City Hospital to linen guidelines, most of the respondents were obedient, but there were still some respondents who were not compliant in using PPE.

Linen Management SWOT Analysis

From the calculation of external and internal factors, it can be seen that from external factors, linen management has a greater opportunity value than the threats faced, and from internal factors, linen management has greater weaknesses than strengths. From the SWOT assessment that has been carried out, it can show the following results:

1. Analysis of the value of the calculation on external factors of linen management at Menur Mental Hospital Surabaya shows a total score of 5.6 opportunities and 4.8 threats. Where the opportunities for linen management are greater than the threats faced. The difference in the total score between opportunities and threats is 0.8. It can be seen that the opportunity for linen management is 0.8 points greater than the threats faced.

2. Analysis of the value of the internal factors of linen management at Menur Mental Hospital Surabaya showed a strength score of 5.2 and a total weakness score of 5.4. the difference between strengths and weaknesses is – 0.2.

Linen management at Menur Mental Hospital Surabaya is located in quadrant II Where in this quadrant uses a strategy of optimizing strengths by taking advantage of opportunities (S-OT strategy. The S-T strategy is utilizing the strength of linen management in the laundry installation at Menur Mental Hospital Surabaya to deal with threats. The ST strategy can be done in the following ways:

1. Funds/budgets that have been provided for linen management can be utilized optimally to complement the supporting infrastructure for linen management in order to prevent nosocomial infections and environmental pollution.
2. Utilizing standard operating procedures and job descriptions for linen managers so as not to reduce hospital accreditation.
3. Utilizing human resources/organizations according to their duties and authorities for the management of linen according to the requirements to prevent environmental pollution and nosocomial infections.

Tabel 1. Matrix SWOT

Internal Factor	*Strenght*	*Weakness*
	1. Standar operating procedures for linen management 2. The existence of Human Resources 3. There is a strategic location 4. There is a Job Description.	1. Linen management is not in accordance with procedures 2. Inadequate infrastructure 3. Lack of compliance of linen management officers 4. Lack of socialization regarding linen management procedures both in the room and in the laundry installation 5. Lack of supervision of laundry officers by sanitarian officers 6. There is no health service from the hospital regarding hepatitis B immunization for linen officers

		7. There are no awards and sanctions for employee work performance
Eksternal Factor		
Oppurtinities 1. There is cooperation with 3rd parties regarding machine maintenance and environmentally friendly detergents 2. There is a budget from the hospital 3. There is a training place to improve linen management skills 4. Regulation of the Minister of Health of the Republic of Indonesia No. 7 years 2019	**Strategy S-O** **(Strenght-Oppurtinities)** 1. Utilizing a solid organizational structure and independent installations, to increase collaboration between agencies/institutions in optimizing the linen management system 2. Optimizing the existing budget for providing health service facilities so that human resources/officers can get hepatitis B immunization 3. Optimizing training so that human resources/linen management officers are more trained to improve quality linen management services	**Strategy W-O** **(Weakness-Oppurtinities)** 1. Increase cooperation with cross-sectors to form a more flexible bureaucratic system, in support of linen management 2. Give awards to employees who excel in realizing environmental health condition 3. Improving health services to realize the health of linen management officers in accordance with the Minister of Health of the Republic of Indonesia No. 7 Years 2019 4. Increase compliance and awareness of officers, socialization and supervision of linen management officers through training so that the budget funds can be utilized optimally and linen management in accordance with the requirements of the Minister of Health of the Republic of Indonesia No. 7 Years 2019
Threats 1. Pollution of the hospital environment 2. Nosocomial infections 3. Consequences of decreasing hospital accreditation 4. Termination of the work contract of the linen management officer 5. High operational and maintenance costs	**Strategy S-T** **(Strenght-Threats)** 1. Funds/budgets that have been provided for linen management can be utilized optimally to complete supporting infrastructure for linen management in order to prevent nosocomial infections and environmental pollution.	**Strategy W-T** **(Weakness-Threats)** 1. Equip inadequate infrastructure 2. Improve organizational bureaucracy to support linen management 3. Improve the compliance of linen management officers to prevent nosocomial infections

| | 2. Utilizing standard operating procedures and job descriptions for linen managers so as not to reduce hospital accreditation. | |
| | 3. Utilizing human resources/organizations according to their duties and authorities for the management of linen according to the requirements to prevent environmental pollution and nosocomial infections | |

CONCLUCION AND RECOMMENDATION

Linen management at Menur Mental Hospital Surabaya at every stage there is a stage of handling dirty linen in the room and in the laundry installation that is not in accordance with applicable operational standards. The supporting infrastructure for linen management at the Menur Mental Hospital in Surabaya is not adequate, such as the management room which is not in accordance with its function. The construction of the laundry room including floors, ceilings, roofs, building walls, doors and ventilation is well structured. Personal hygiene linen management officers have not received health service facilities. The availability of Personal Protective Equipment is adequate but some officers have not used PPE (goggles) completely. SWOT analysis on linen management at Menur Hospital Surabaya is located in quadrant II which means it can optimize strengths with existing opportunities through the ST (strength-threats) strategy. It is hoped that the hospital will facilitate the room according to its utilization and function and facilitate health services for linen management officers. The linen management officer must verify the performance of the officers regarding the handling of dirty linen at each stage.

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Landfill Waste Management Effort in Simomulyo Health Center Work Areas

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ABSTRACT

The waste generation in Surabaya is up to 650,614.62 tons/year and the waste that has been managed is around 639,275.49 tons/year. Some of the work area in Simomulyo Health Center consists of 3 villages with a population up to 79,522. Population density is one of the causes of waste generation are scattered and produced an unpleasant odor on some Landfills inSimomulyo Health Center work areas. The purpose of this study is to evaluate the efforts of waste management on waste disposal sites inSimomulyo Health Center work areas.

This research is a qualitative descriptive study with the variables consist of sorting/containing, collecting, transferring, transporting, processing, final processing to the waste generation. The data were collected with observation, interviews and measurements, then the data were analyzed using the SWOT matrix and described using UU RI number 18 of 2008 and SNI 19-2454-2002 of 2002 for the reference.

Simo Rukun landfill had the most waste generation than the other landfill in Simomulyo Health Center work areas that up to 28,714 kg. The highest inorganic wastecharacteristics at 52.1% is in the Sukomanunggal landfill while Simo Rukun Landfill had the highest organic wastecharacteristics at 54.2%. Landfill waste management in Simomulyo Health Centerwork areas was declared not fulfill the requirements of UU RI number 18 of 2008 and SNI 19-2454-2002.

The results of the SWOT analysis represent that Simo Hilir landfill enteredthe third quadrant (turn around) while Simo Rukun and Sukomanunggal landfill entered first quadrant (Aggressive). It is recommended for thewaste management in Simomulyo Health Center work areas to fulfill those 2 regulations.

Keywords:Temporary Disposal Site, Waste Management

BACKGROUND

Solid waste canpollutes or damages the environment, includes river, lakes, the sea, the land also the air quality. Therefore, it is necessary to have well waste management system. Besides that, it can also be the spot for vectors development that cause diseases such as diarrhea, dysentery, cholera and dengue. Diarrheal diseases based on Simomulyo Health Center Profile in 2021 is up to 13,858 cases, upper respiratory tract infection up to 96,440 cases also dermatitis is 11,688 cases.

Work areas in Simomulyo Health Center consists of 3 sub-districts which are Simomulyo, Simomulyo Baru, Sukomanunggal with population 79,522 recorded by Surabaya Population and Civil Registration Office as of January 26, 2020(statistika, 2020).

The condition of 3 landfills during the preliminary survey on November 27, 2021, if it rains it will flood with waste scattered on the road. Waste disposal sitesin Simomulyo Health Center work areas contains waste that accumulates and produces unpleasant odor, as proven by 25 samples taken during preliminary survey, as much as 72% or equivalent to 18 samples concluded that landfills in Simomulyo Village caused a pungent odor while passing through, transporting waste to the landfill in the morning or afternoon with dump trucks caused traffic jams at the landfill location, due to the non-strategic location which on the side of the road. There were 28% or equivalent to 7 samples who said that only landfill were not neatly organized and the waste from other urban villages was not thrown into it containers and caused it to be scattered all the time.

Waste management has not been suitable with environmental friendly concept methods and techniques so far, resulting in negative impacts on public health and the environment. So far, some people still seeingwaste as useless waste, not as a resource that can be used. The community still relies on the "end of pipe" approach, which are collecting, transporting, and disposing to the final waste processing site.(Fajariyah, 2020).

RESEARCH METHODS

This type of research is a qualitative descriptive study, to make a description (descriptive) Simomulyo Health Center work areas waste management efforts inSurabaya through the SWOT analysis method. The object of this research is the volume and the composition of waste based on SNI 19-3964-1995 and waste management includes sorting/containing, collecting, transporting, processing and final processing of waste.

The types of data areprimary and secondary data, the instruments used for data collection in this study are observation sheets, interview sheets, and measurement sheets. Data collection techniques is a strategy to obtain data to answer questions. Obtaining data information for the benefit of the authors, also the techniques that were used such as interviews, observations, measurements and documentation.

Processing and analyzing data in this study using editing, scoring and coding with a value calculation of >35 declared eligible, <34 declared ineligible. In the SWOT analysis method, the researcher uses IFAS and EFAS and then determines quadrants, furthermore the data is processed by tabulating and describing data analysis by comparing the UU RI Number 18 of 2008 on Waste Processing and SNI 19-2954-2002.

RESULTS AND DISCUSSION
1. Waste Generation

In the results of the measurement of waste generation for 7 consecutive days from the 3 landfills, concluded some significant differences, the difference is because the amount of people served by each landfill is different and it also affects the policies of each village differently. Collecting data in Simomulyo Health Center work areas landfill using SNI 19-3964-1995 regarding methods of collecting and measuring waste generation and composition of urban waste (Mustikasari, 2017).

It can be seen in the table 1 that the prediction of waste generation for the next few years is increasing, affected by several internal and external factors which can be seen below:
   a.   Total population and growth rate

b. The higher the community living standard, the higher the waste generation
c. Lifestyle and population mobility

Table 1
Average waste generation in Simomulyo Health Center work area landfills 2022

Landfill	Amount of Neighborhood Association Served by Landfill	Average amount (Kg)
Simo HilirLandfill (Simomulyo Baru)	12	14.825
Simo RukunLandfill (Simomulyo)	25	28.714
Sukomanunggal Landfill (Sukomanunggal)	16	16.057

By knowing number of population, also waste generation flow it can be predicted for the next 5 to 10 years within the following formula:

Waste generation :Waste generation flow x inhabitant

Table 2
Prediction of waste generation in the next 3 years

Landfill	Total Population in 2020 (inhabitant)	Total Population in 2021 (inhabitant)	Percentage of increasement each year	Waste generation in 2021 (Kg)	Waste generation in 2022 (Kg)	Waste Generation in 2023 (Kg)	Waste Generation in 2024 (Kg)
	1	2	3 (2-1x100%)	4	5 (3x4)	6 (3x5)	7 (3x6)
Simo Rukun Landfill	24.108	24.475	1,5%	5.950.850	6.040.112	6.130.714	6.222.675
Simo HilirLandfill	43.244	43.769	1,2%	2.028.720	2.059.151	2.090.038	2.121.388
Sukomanunggal Landfill	11.120	11.278	1,4%	3.639.070	3.693.656	3.749.061	3.805.296

2. **Garbage Composition**

Garbage composition is a description of each component contained in the waste and its distribution. The most frequent grouping of waste is based on its composition which is expressed in kilogram(Herumurti, 2017).

Garbage composition is divided into 2, such as organic and inorganic waste. The organic waste consists of vegetable waste, leaves or food waste and the composition of inorganic waste consists of cans, plastic and others(Bagastyo, 2022).

This is the following of average result of the measurement of waste generation on organic and inorganic waste with a period of 7 days in each landfill in Simomulyo Health Center work areas with a waste system that has the generation measured which will be sorted into inorganic waste (bottles, cardboard, cans, etc.) weighed, the waste that is still in the cart is organic waste (Widyawati, 2020).

Average amount of waste generation compoisition in landfills in Simomulyo Health Center work areas

■ Organic Waste   ■ Inorganic Waste
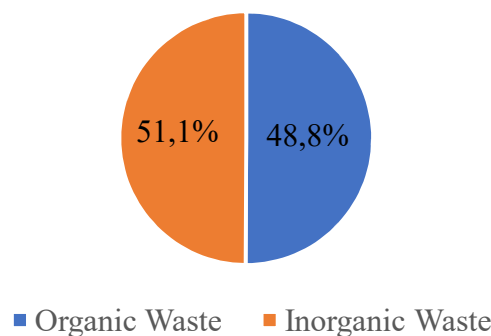
Image 1
Average Amount of Waste Generation

3. **Waste Management Effort**
   This evaluation is using observation and interviews method with the officer in charge of the landfill which was held on 26 May 2022. The observation and interview sheets used referred to the UU RI Number 18 of 2008 waste management and SNI 19-2454-2002 concerning Operational Engineering Procedures. Urban Waste Management in waste management(Tarigan, 2019).
   a. Simo Rukun Landfill
      It was found in Simo Rukun landfill that they did not implement waste management in accordance with UU RI 18 of 2008 concerning waste management and SNI 19-2454-2002 of 2002 on Engineering Operational Procedures for Urban Waste Management. Waste management at Simo Rukun landfill is included in the "Not Eligible" category with a percentage of 63% geting a score of 26 from a maximum score of 70 dueto not fulfill the landfill regulation, facilities and infrastructure to classify waste according to the characteristics is unavailabe, the placement disturbs aesthetics and traffic, and there is no transportation or collection schedulling.
   b. Simo Hilir Landfill
      It was found in Simo Hilir landfill, that they did not implement waste management in accordance with UU RI 18 of 2008on concerning waste management and SNI 19-

2454-2002 of 2002 on Engineering Operational Procedures for Urban Waste Management. Waste management on Simo Hilir landfill is included in the "Not Eligible" category with a percentage of 60% of the score of 27 from a maximum score of 70 The most points not fulfillthe requirements are waste processing points due not managing waste and directly distributing to the landfill. As for not fulfill the applicable landfill regulations, the location in residenceappear to be difficult to transport waste, facilities and infrastructure to classify waste according to the characteristics is unavailabe.

Table 3
Waste Management on Simo Rukun Landfill

No	Variable	Result	
		Yes	No
1	Waste Containing/ Sorting	4	9
2	Waste Collecting	6	8
3	Waste Transporting	8	6
4	Waste Processing	3	12
5	Final Waste Processing	5	9
	Total	26	44
	Precentage	37%	63%

Table 4
Waste Management on Simo Hilir Landfill

No	Variable	Result	
		Yes	No
1	Waste Containing/ Sorting	7	6
2	Waste Collecting	5	9
3	Waste Transporting	7	7
4	Waste Processing	3	12
5	Final Waste Processing	6	8
	Total	27	42
	Precentage	40%	60%

c. Sukomanunggal Landfill

Waste management on Sukomanunggal landfill is included in the "Not Eligible" category with a 50% percentage of the score of 35 out of a maximum score of 70 is said to be ineligible due to no facilities to classify waste according to the

characteristics of the waste, and location is not cleaned after the waste is transported to the landfill, the absence of scheduling for transporting waste to the landfill.

Table 5
Waste Management on Sukomanunggal Landfill

No	Variable	Result	
		Yes	No
1	Waste Containing/ Sorting	6	7
2	Waste Collecting	8	6
3	Waste Transporting	8	6
4	Waste Processing	4	11
5	Final Waste Processing	9	5
	Total	35	35
	Precentage	50%	50%

4. **SWOT analysis on each landfill in Simomulyo Health Center work areas**
   a. Simo Rukun Landfill
      The results of the SWOT analysisin Simo Rukun landfill, with the results of quadrant I Aggressive, which shows that improvements in various fields, improvement of weakness factors to maximize the usage of opportunities with benefits that have been described with a lot of organic waste as a compost house.
   b. Simo HilirLandfill
      In chapter 4, the results of the SWOT analysis with the results of quadrant III Turn Around are reversing negative tendencies and most commonly focused on management which has been explained by the amount of inorganic waste that can be recycled or sold.
   c. Sukomanunggal Landfill
      In chapter 4, the results of the SWOT analysis with the results of Quadrant I Aggressive, which shows that improvements in various fields, improvement of weakness factors to maximize the use of opportunities with the benefits that have been described with waste containers can be replaced with appropriate trash bins for easy sorting (Mutia arda, 2020).

CONCLUSION AND RECOMMENDATION
1. **Conclusion**
   Waste management efforts Simomulyo Health Center work area landfill which include sorting/containing, collecting, transporting, processing, final processing of waste on 3 landfills were observed not in accordance with SNI 19-2454-2002 and UU RI no 18 of 2008.SWOT analysis result at Simomulyo Health Center work area landfills showed a different relative, on Simo Hilir landfill in quadrant III, which is turn around, which means that the waste collection cart should be replaced with a closed wagon so waste and leachate does not spill out, on Simo Rukun landfill and Sukomanunggal landfill in

quadrant I, it is aggressive, which means improving the management of waste transportation to the landfill and improving landfill sanitation so that they do not become vector breeding spot.

2. **Recommendation**

For the Health Center to provide more advice through counseling or distributing leaflets to sort waste from the source of waste. The Surabaya Environmental Office can be used as a reference in efforts to managing waste in Simomulyo Health Center work area landfills.

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FACTORS AFFECTING THE EVENT OF SCABIES DISEASE IN TAHFIDZUL QUR'AN NURUL FALAH ISLAMIC BOARDING PONDOK, PONCOL DISTRICT, MAGETAN REGENCY

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ABSTRACT

Scabies is a skin disease caused by the infestation and sensitization of the mite *Sarcoptes scabies hominins variant* and its products on the body. The number of scabies diseases is increasing every year. The incidence of Scabies in Magetan was 4.10% in 2013, an increase in 2014 to 7.66%. Then, having an increase in 2015 to 8.23% (Magetan District Health Office). Based on the cases of scabies disease, the sufferer is dominated by students.

The purpose of this study is to determine the condition of sanitation, personal hygiene, students' behavior, occupancy density, and room conditions at the Nurul Falah Islamic Boarding School, Poncol, Magetan, in 2022.

The type of this research is descriptive ~~and aims to discuss the problems that exist. Descriptive research is a research method carried out with the main aim of making a description or description of an objective situation.~~

The form of implementation is by using a survey approach. The instruments used are observation sheets and questionnaires.

The results showed that sanitation conditions did not fulfill the requirements, then showed poor personal hygiene at 51.4% and good personal hygiene at 48.6%. Then, it shows that students' behavior is 29.3% good and 70% bad. The density and condition of the rooms in this Islamic boarding school also do not fulfill the requirements.

Based on the study's results, it is recommended that students improve personal hygiene and good behavior. For example, not borrowing clothes from each other, washing bed linen regularly, washing hands with soap after activities, and the rooms inhabited by

students must be adjusted to the student's capacity in the dormitory. This study concluded that the sanitation conditions, behavior and personal hygiene of students, and the occupancy density of Islamic boarding schools still did not meet the requirements. Improvements are needed for variables that still do not meet the requirements so that they are better for improving health quality and minimizing disease incidence.

BACKGROUND

Healthy concepts formulate that the situation is perfect physically, mentally, and socially in extensive coverage, not only free from disease or weakness/disability. In this definition, healthy is not only free from illness or disability. (World Health Organization).

Sanitation (a healthy environment) is crucial to keep the environmental health. It is because of an effort to prevent interference problem health due to factors environment that can be potentially harmful to health. Thus, environmental sanitation is an effort to repair and prevent health problems that are caused by environmental factors external to humans that conduct by individuals, communities, or countries (Chandra, Budiman, 2007:1-2).

According to Hidayat & Ramlah (2019), the relationship between room conditions and personal hygiene to the incidence of skin diseases in the female dormitory of the Sultan Hasanuddin Islamic Boarding School, Gowa explained that the variable occupancy density was seven rooms (70%) that did not complete the health requirements. The variable number of microbes is ten rooms (100%) that fulfill the requirements in the female dormitory. Then, the ventilation variable is ten rooms (100%) that do not complete the ventilation variable requirements. The variable of bathing habits can be concluded that there is no relationship between bathing habits and the incidence of skin diseases in the female dormitory of Pondok Pesantren Sultan Hasanuddin, Gowa. The variable changing clothes habits can be concluded that there is a relationship between the habit of changing clothes with the incidence of skin diseases in the female dormitory of the Sultan Hasanuddin Islamic Boarding School, Gowa.

Based on research (Kuspriyanto, 2013) at Islamic Boarding Schools in Pasuruan, East Java, it was explained a high incidence of Scabies disease was due to the lack of facilities for providing good clean water and bad behavior of students in PHBS. The most

urgent condition to give attention to is increasing students' knowledge of maintaining clean and healthy livingbehavior.

RESEARCH METHOD

To discuss the problems that exist in this research, the type of this research is descriptive. ~~Descriptive research is a research method that is carried out with the main aim of making a description or descriptive of an objective situation.~~ The form of implementation is by using a survey approach. It aims to know directly about the state of sanitation facilities and the density of bedroom occupancy as well as disease complaints at the Tahfidzul Qur'an Islamic Boarding School Nurul Falah, Poncol, Magetan.

RESEARCH RESULT

a. Scabies Incident

Table IV.1 Distribution of the frequency of scabies in the Nurul Falah Islamic Boarding School

Scabies	Amount (variable)	Precentage%
Scabies	28	20%
Tidak scabies	112	80%
Total	140	100.0

Source: Poskestren data on the incidence of scabies in the male dormitory of the Nurul Falah Islamic boarding school in January-March 2022

Based on table VI.1 shows that 28 (20%) students suffer from scabies and 112 (80%) students do not suffer from scabies.

b. Sanitary Conditions

Table IV.2 Distribution of sanitation conditions in Nurul Falah Islamic Boarding School in 2022

No.	Sanitation	Amount	Precentage%
1.	Qualify	9	43%
2.	Not qualify	12	57%

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Total	21	100%

Based on table IV.2 shows the sanitary conditions at the Nurul Falah Islamic Boarding School which fulfill the requirements with 9 a percentage of 43% and those that do not meet the requirements with 12 a percentage of 57%.

c. **Personal Hygiene**

Table IV.3 Personal distribution hygiene at the Nurul Falah Islamic Boarding School in 2022

Category	Amount	Precentage%
Good	68	48,6%
Poor	72	51,4%
Total	140	100%

Based on table VI.3 shows the personal hygiene of students at the Nurul Falah Islamic Boarding School with 68 good results with a percentage of 48.6% and 72 bad with a percentage of 51.4%

d. **Student behavior**

Table IV.4 Behavior distribution students at the Nurul Islamic Boarding School Falah 2022

Category	Amount	Precentage%
Good	54	38,6%
Poor	86	61,4%
Total	140	100%

Based on table VI.4 shows the behavior of students in Nurul Falah Islamic Boarding School (Boy) resulting in 54 well-behaved with a percentage of 38.6% and misbehaving 86 with a percentage of 61.4%.

e. **Occupancy Density**

Table IV.5 Distribution of occupancy density in Nurul Falah Islamic Boarding School 2022

Occupancy density	Amount	Precentage%
$<8m^2$ inhabited/2 person	7	100%
$8m^2$ inhabited/2 person	0	0%
Total	140	100%

Source: assessment results occupancy density in Nurul Falah Islamic Boarding School in June 2022

Based on table VI.5 shows the condition of the density of dormitory occupancy in Nurul. Islamic Boarding School Falah (Son) does not fulfill the condition.

f. **Room condition**

Table IV.6 Distribution of results room condition assessment dormitory and mosque in Nurul Falah Islamic Boarding School in 2022

Room condition	Amount	Precentage%
Fulfilled	6	46%
Not fulfilled	7	54%
Total	13	100%

Source: assessment result room condition in Nurul Falah Islamic Boarding School in June 2022

Based on table IV.6 shows the condition of the room at Nurul Islamic Boarding School Falah that meets requirement 6 with a percentage of 46% and who do not meet requirement 7 with a percentage of 54%.

DISCUSSION

a. **Scabies Incident**

Based on the table, several sick people was 28 with a percentage of 20%, and among those who were not sick with a portion of 112 with a portion of 80%. According to the boarding school administrator's confession, Scabies at the Nurul Falah Islamic Boarding School (boy) occurred quickly and continuously. The cause of Scabies is because students do not apply personal hygiene. For example, borrowing towels and clothes from other students, students' fingernails are rarely cleaned, using unclean garments. Then later, the density of bed occupancy does not meet the requirements. Seventeen students occupy the capacity of the 3x4 room. The handling of Scabies at the Nurul Falah Islamic Boarding School (Putra) is also very lacking. Most students are reluctant to seek treatment because they think Scabies is only a trivial disease. So that there is no clear picture of the problem of Scabies, and no comprehensive prevention has been carried out. Scabies is an infectious disease caused by *Sarcoptes scabies varian hominis*. Scabies is an endemic disease in many communities. This disease can affect all races and groups around the world. This disease is often found in children and young adults but can affect all ages. Incidence for men and women is the same. Scabies has four primary or cardinal signs: nocturnal pruritus, attacking a group of people, tunnels, and parasites (Zaida Victoria Narcissa Betancourth Aragón, 2010).

According to Nuraini & Wijayanti (2016), the results of the study on the relationship between gender and level of knowledge with the incidence of Scabies in the Nurul Islam Islamic boarding school in Jember, it can be concluded that the target of PHBS disease prevention in Nurul Islam Islamic boarding school should be prioritized. It refers to the boys and methods to increase students' knowledge of PHBS. To overcome this incident, Islamic boarding schools should pay attention to the personal hygiene of students and the density of bed occupancy that meets the requirements to minimize or eliminate the incidence of Scabies in Islamic boarding schools.

b. Sanitary Conditions

Based on the results of the distribution table, this study shows the sanitation conditions in the Nurul Falah Islamic Boarding School that meet the requirements 9 with a percentage of 43% and those who do not meet the requirements 12 with a percentage of 57%. Sanitation is a public health effort

that focuses on monitoring the physical structure where people use it as a shelter, which affects the degree of human health. These sanitation facilities include ventilation, temperature, humidity, occupancy density, natural lighting, building construction, waste disposal facilities, human waste disposal facilities, and clean water (Azwar, 1990). This study is in line with (Mayrona et al., 2018), showing that 39 students suffer from scabies at the Matholiul Huda Al Kautsar Islamic boarding school (84.8%).

There is an influence between environmental sanitation practices, including bathroom hygiene practices, bedroom cleanliness, environmental hygiene, ablution practices, and prayer room hygiene practices, with the incidence of scabies at the Matholiul Huda Al Kautsar Islamic boarding school, Pati district. Efforts in the sanitation conditions of this Islamic boarding school should improve the quality of sanitation in bathroom hygiene, waste management, and healthy latrines to show that the category meets the requirements and avoids the occurrence of diseases that are influenced by the sanitation of the Islamic boarding school.

c. **Personal Hygiene**

The table of research results at the Nurul Falah Islamic Boarding School shows that the condition of good behavior or personal hygiene of students (male) is 68 with a percentage of 48.6% and the bad one is 72 with a percentage of 51.4%. The bad behavior of students is of various kinds, such as students' hair and fingernails being not short or clean, students not washing their hands before entering class, and students' clothes being worn alternately with other students. Maintenance of personal hygiene greatly determines health status, where individuals consciously and on personal initiative maintain health and prevent disease. This personal hygiene effort includes the cleanliness of hair, eyes, ears, teeth, mouth, skin, nails, and cleanliness in dressing.

Personal hygiene is essential to maintain. If this is not considered, various impacts will appear, especially skin diseases such as scabies. Poor personal hygiene will increase the incidence of scabies. Scabies is a contagious infectious disease caused by infection and sensitization by the mite *Sarcoptes scabei var hominis* (Sarcoptes sp.) and its products. Transmission of scabies

can occur through direct contact with scabies sufferers or contact with objects contaminated by scabies. It can cause scabies endemic (Gusni et al., 2021). Compared with research (Gusni et al., 2021), the condition of environmental factors affects the incidence of skin diseases in female students. This is because the environmental conditions in Anshor Al-Sunah Islamic Boarding School, Kampar are not optimal. The shape of economic factors does not affect the incidence of skin diseases in female students. This is because the student's pocket money adequacy is sufficient to meet the needs of buying toiletries. The condition of personal hygiene factors affects the incidence of skin diseases in female students, and this is due to the lack of personal hygiene behavior of female students in Anshor Al-Sunah Islamic Boarding School, Kampar Regency. Compared with research (Gusni et al., 2021), the condition of environmental factors affects the incidence of skin diseases in female students, and this is because the environmental conditions in Anshor Al-Sunah Islamic Boarding School, Kampar Regency is not optimal.

Economic factors do not affect the incidence of skin diseases in female students. It is because the student's pocket money adequacy is sufficient to meet the needs of buying toiletries. The condition of personal hygiene factors affects the incidence of skin diseases in female students. This is due to female students' lack of personal hygiene behavior in Anshor Al-Sunah Islamic Boarding School, Kampar Regency. Efforts to personal hygiene or personal hygiene need awareness from each student, including hand hygiene, hair, feet, and skin. Poor personal hygiene can affect students, especially in this scabies incident. It is better if the boarding school administrator can help confirm poor personal hygiene from students who should not borrow clothes from each other in Islamic boarding schools. There are no borrowing towels from each other because one of the students has washed or dirty towels. And use the mattress only for yourself.

d. Student's Behavior

In this study, 54 students behaved well, and 86 students misbehaved. In theory, poor hygiene behavior is a significant factor in scabies disease. At the time of the interview, it showed that students' behavior was still lacking in clean and healthy living behavior. Such as not changing clothes twice a day,

wearing clothes or praying tools with other friends, making one laundry with another friend's laundry, not using detergent when washing clothes, putting dirty clothes in one place with another friend, and not changing clothes at the same time and sweating, taking turns using soap with other friends. Those are some examples of unsanitary or healthy behavior. In addition, students' behavior in the form of cleanliness of bed linen and mattresses shows that most students do not wash the sheets and dry the mattress regularly.

Health behavior is a person's response to stimuli related to illness and disease, the health care system, food and drink, and the environment (Notoatmodjo, 2007). balanced menu, adequate rest, stress control, effort and how to respond to illness and disease, perception of illness, knowledge of causes of disease symptoms, and others. (Becker in Notoatmodjo, 2007). This research is in line with (Makful & Pirawati, 2019), which show two descriptions of the behavior of the students of the Assyafi'iyah Islamic Islamic Boarding School regarding the implementation of PHBS, while the behavior or actions of the students regarding the performance of PHBS are not suitable as many as 81 people (54.0%), while the excellent behavior of the students was 69 people (46.0).

Thus, it can be said that students' behavior towards PHBS is not good. It is recommended that students not exchange personal items such as clothes and towels. Students should take a bath at least twice a day, and it is recommended that students wash their hands after activities and should use soap, dry the mattress regularly, and always maintain personal hygiene and the boarding school environment. They are increasing counseling efforts in Islamic boarding schools regarding procedures for carrying out and maintaining good behavior.

e. **Occupancy Density**

Based on the measurements of this study shows that the density of occupancy does not meet. There are no adequate occupancy densities. Based on the observations, there are only seven rooms in the Tahfidzul Qur'an Nurul Falah Islamic Boarding School, Poncol, Magetan. Their residents are a combination of first junior high school and third high school with 140 students. In each room with an area of 3x4, there are four rooms containing 25 students.

A room measuring 6x4 has two rooms filled with 30 students, while a room with a size of 8x4 has 1 room filled with 35 students.

Occupancy density is the ratio between the floor area of the house and the number of family members in a household. Occupancy density is one of the crucial indicators for the quality of life because it affects the safety and health of housing for house members. Assessment of occupancy density using the provisions of Kepmenkes No. 829 of 1999, the standard of occupancy density that meets health requirements is a room area of 8 m² for two persons.

This study is in line with research (Husna et al., 2021) which shows the factors that play a role in the high prevalence of scabies in developing countries related to poverty, one of which is residential density. An environment includes dormitories, groups of school children, family members in densely populated houses, and even between residents in a village. Occupancy density is included in one of the requirements for housing health, where high occupancy density, especially in bedrooms, will facilitate the transmission of scabies disease by direct contact from one person to another. In conditions of residential density that do not meet these requirements, scabies bacteria overgrow in the room because a narrow space supports it, and the occupants are clustered. And make the transmission of scabies easier. The public health center should provide counseling and knowledge about the standard of residential density, which should be at least one person occupying 8 m, to the boarding school administrator. Therefore, the housing thickness is significant, so there is no incidence of scabies disease.

f. Room condition

From the results of this study, the condition of the room assessed is a dormitory and a mosque. The first variable, namely the dormitory, shows 80%, which is considered eligible, and the second variable, the mosque, also offers 80%, which is regarded as suitable. However, in the components assessed from each variable, there are still components that do not have a maximum score, such as in the dormitory where the occupants exceed the capacity or indicate the density of the room occupancy. And the mosque variable is taken, for example, on dirty and smelly prayer tools, and the ablution place shows the

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floor is still slippery and messy and there is a puddle. Healthy conditions are not only needed for the body, but a dwelling also needs to be healthy. Various requirements are included in the criteria for a healthy house, according to the Ministry of Health, that need to be considered when building a house. A healthy home can also affect the health conditions of its occupants. In addition to being healthy, the house must also include aspects of safety, health, comfort, and convenience for its residents. As stated in the Law of the Republic of Indonesia Number 28 of 2002 concerning Buildings, regarding the benchmark for the reliability of a building. Public places are places that influence environmental health problems. The basis for the implementation of the mosque's environmental sanitation is Kep. Minister of Health 288/Menkes/SK/III/2003 concerning Guidelines for Public Facilities and Buildings Sanitation. Compared with research (Riptifah, 2018) based on the Regulation of the Minister of Health Number 1077 of 2011 concerning Guidelines for Air Sanitation in the Home Room that humidity that is too high or low can cause the growth of microorganisms to thrive.

Several factors can cause lousy humidity, namely poor house construction such as leaky roofs, floors, and walls that are not waterproof and a lack of natural and artificial lighting. The moisture that meets the requirements is 40-60%11. Mites can survive 2-3 days at room temperature when the relative humidity is more than 30%; the higher the relative humidity, the higher the survival rate. In Islamic boarding schools is the incidence of scabies, a skin disease mainly affecting students. Cases occur in densely populated areas, and the number of cases is large in boarding schools. Density can be seen from the thickness of the bedroom occupancy, which is a minimum bedroom area of 4 m^2, and it is not recommended for more than two people in one bedroom, except for children under the age of 5 years. In efforts to improve the condition of the room in this cottage, the cottage should pay attention to the aspect of the building where the walls look dirty and have streaks, the floor is slippery, and the density of the sleeping rooms inhabited by students so that it shows that the condition of the room is comfortable and healthy.

CONCLUSION

1. The incidence of scabies disease in the male dormitory of the Nurul Falah Islamic Boarding School Poncol shows that 20% of the total students are still affected by scabies disease.

2. Sanitation conditions in the Nurul Falah Islamic Boarding School still do not meet the requirements.

3. Personal hygiene of students at the Nurul Falah Islamic Boarding School shows poor personal hygiene of students.

4. The behavior of students at the Nurul Falah Islamic Boarding School shows terrible behavior from students

5. Occupancy Density at Pondok Pesantren Nurul Falah lives in a room with an area of $<8m^2$ for two people.

6. The condition of the room at the Nurul Falah Islamic boarding school shows that it does not meet the requirements of the subjects assessed, including dormitories and mosques.

7. Personal hygiene, student behavior, and residential density affect the incidence of scabies disease at the Nurul Falah Islamic Boarding School, Poncol, Magetan.

SUGGESTION

1. Socializing about clean and healthy living behavior needs to be done to avoid scabies disease.

2. It is necessary to improve sanitation in the Nurul Falah Islamic Boarding School so that sanitation in the cottage shows that it meets the requirements.

3. Bad student personal hygiene needs counseling about clean and healthy living behavior.

4. There needs to be an increase in students' behavior in terms of knowledge, attitudes, and actions at the Nurul Falah Islamic Boarding School.

5. There needs to be an increase in the occupancy density for students at the Nurul Falah Islamic Boarding School, which according to health requirements, is a room area of 8 m² for two people. It is necessary to increase the requirements for healthy houses or the sanitation requirements of the Nurul Falah Islamic Boarding School for dormitories and mosques.

6. Every month, it is hoped that there will be counseling for students about personal hygiene, student behavior, and residential density for cottage owners to provide space for

students according to health requirements. Other researchers, can conduct research by employing direct interviews without any learning activities at the Islamic boarding school.

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ANALYSIS OF NITROGEN PHOSPHAT POTASSIUM IN LIQUID ORGANIC FERTILIZER BASIC WASTE LIQUID TOFU

WITH VARIATION OF TOMATO MOLE

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ABSTRACT

Utilization of tofu liquid waste can be used as a new alternative to fertilizer because the tofu liquid waste it has the availability of nutrients needed by plants with the addition of Tomato Mole. The purpose of this study was to determine the quality of liquid organic fertilizer using tofu liquid waste as raw material with the addition of a variety of MOL Tomato (Solanum Lycopersicum) bioactivator.

This type of research is experimental research with a posttest only design. This study used tomato MOL variations (15 ml, 20 ml, 25 ml) with 3 repetitions in each treatment within 14 days of fermentation. Data collection techniques used pre-experimental and documentation methods. result analysis technique with table adds parameters to analysis.

Nitrogen, Phosphate, and Potassium content in liquid organic fertilizer using 1 liter of tofu liquid waste as raw material with the addition of various moles of tomatoes fermented for 14 days, namely 15 ml (1.5%), 20 ml (2%) and 25 ml (2 ,5%). In the variation of 15 ml (1.5%) the resulting Nitrogen, Phospat, and Potassium Nitrogen, Phospat, and Potassium content of (2.10%), variation of 20 ml (2%) resulted in the content of Nitrogen, Phospat, and Potassium of (2.33%), and in the variation of 25 ml (2.5%) resulted in the content of Nitrogen, Phospat, and Potassium of (3.45%) of the three variations already meeting the quality standards, ~~namely~~ PERMENTAN RI NO. 261/KPTS/ SR.310/ M/ 4/2019 ie 2- 6 %.

In this study, it is necessary to conduct further research by reviewing the length of fermentation time to obtain optimal results of Nitrogen, Phospat, and Potassium content, laboratory examination of the MOL content of tomatoes before the research process is carried out to determine the levels of N, P, K in tomato MOL.

BACKGROUND

Waste is the result of a process or activity either from industry or domestic or household. Waste can cause pollution to the environment and can cause disease germs so that human health is disturbed. Waste can contaminate soil, and water and cause a bad smell and aesthetically can reduce the beauty of the environment.

The tofu industry is one of the food processing industries with the basic ingredients of soybeans which produce a protein source. According to data from the Central Statistics Agency for Magetan Regency in 2020, as many as 115 tofu factories are currently operating. The existence of the tofu industry causes the waste from processing soybeans. The waste generated by the tofu industry is in the form of solid waste and liquid waste.

Tofu liquid waste contains high enough organic compounds that will pollute the environment and endanger human health if discharged into rivers without undergoing a waste treatment process (Antika et al., 2020).

According to Kustiani & Saptorini research, (2019) liquid organic fertilizer whose basic ingredients come from animals or plants that have undergone fermentation and the product form is in the form of liquid. The chemical content in it is a maximum of 5%.

Liquid organic fertilizer is a solution from the decomposition of organic materials derived from plant residues, animal waste, and humans containing one or more carriers of elements needed by plants. The method that can be used in the process of making organic fertilizer for tofu liquid waste is the anaerobic fermentation method as a method that is easy to do, inexpensive, does not require large land, and can increase the nutrient content of tofu liquid waste.

This research was conducted in Suratmajan Village, Maospati District, Magetan Regency, the survey results were at the Tofu Industry Factory produced approximately 8 quintals of soybeans per day. A lot of tofu liquid waste that is wasted can hurt the health of the local community.

In the process of making liquid organic fertilizer, namely by using local microorganisms (MOL). MOL is a local microorganism found in various types of decaying organic matter and can usually be used to accelerate the degradation process of organic waste in the manufacture of organic fertilizer.

According to Juanda et al, (2011) suggested that local microorganisms are a collection of microorganisms that can be bred, which serves as a starter in the manufacture of organic fertilizers where the raw materials also come from the

agricultural environment such as straw, animal waste, fruit and vegetable waste, one of which can be using tomatoes as raw material for local microorganisms (MOL).

The increasing production of tomatoes has not been matched by adequate post-harvest handling and optimal storage methods, because tomatoes are easy to rot if not used immediately. The community's post-harvest tomato management is not optimal, causing rotting tomatoes to be found in various traditional markets which eventually become part of the market waste.

Tomato MOL *(Solanum lycopersicum)* is a local microorganism found in decaying organic matter and can usually be used to accelerate the degradation process of organic waste in the manufacture of fertilizers. (Shim et al., 2018) .

Based on the problems in the field, it is necessary to treat tofuand tomato *(Solanum lycopersicum) liquid waste* as liquid organic fertilizer.

Liquid organic fertilizer from tofu and tomato waste *(Solanum lycopersicum)* can later be used as an alternative to inorganic fertilizers because it contains organic compounds that can increase nutrient availability, stimulate plant root growth and leaf growth (Puspadewi et al., 2016)

RESEARCH METHODS

Type of Research

The type of research used is pre-experimental research with a research design using a *posttest only design* there is no control and only one group is measured and observed after being given *posttest treatment.*

Population and Sample

this study is tofu liquid waste water and uses 3 variations of tomato mole volume (15 ml, 20 ml, 25 ml). Each of the variations will be tested for 3 replications so that a total of 9 samples will be obtained. This research was conducted in Suratmajan Village, Maospati District, Magetan Regency, Ruang Workshop Sanitation Study Program Diploma III Campus Magetan Poltekkes Ministry of Health Surabaya, as well as the examination of Nitrogen, Phospat, and Potassium content in Liquid Organic Fertilizer in Laboratory and Soil Fertility Faculty of Agriculture, Sebelas Maret University (UNS) Surakarta.

Research variable

The independent variable in this study was the volume concentration of the Tomato MOL (15 ml, 20 ml, 25 ml). While the dependent variable in this study is the physical quality of organic fertilizer, levels of. The Confounding Variables include the presence of odor, color, texture, and pH.

Research site

The location of this research is in the Darso tofu factory, Suratmajan Village, Maospati District, Magetan Regency,East Java, Indonesia, Workshop room for Sanitation Study Program Diploma III Campus Magetan Health Polytechnic Ministry of Health Surabaya, Indonesia and Laboratory and *Soil Fertility Faculty of Agriculture Sebelas Maret University (UNS) Surakarta*, Indonesia.

Data collection technique

1) Observation, by making direct observations of conditions in the field regarding information obtained directly from data sources in writing and can be trusted in truth, 2) Interviewing , through direct questioning and answering to the owner of the tofu industry who is responsible for processing the tofu production process 3) Laboratory Examination Checking samples of liquid organic fertilizer after the fermentation process to check the levels of Nitrogen, Phospat, and Potassium 4) Documentation: support research data obtained from the photo, review from notes, files and another document that is following this research. Taking pictures are obtained During observation.

Data analysis method

the data is analyzed from the quality of organic fertilizers seen physically and chemically, namely based on color, odor, pH N, P, K in tabular form based on PERMENTAN RI NO. 261 of 2019 concerning Minimum Technical Requirements for Organic Fertilizer, Biological Fertilizer, and Soil Improvement.

RESEARCH RESULTS

No	Code	Results		
		N(%)	P(%)	K (%)
1.	15.1	0,10%	0,16%	1,86%
2.	15.2	0,09%	0,15%	1,86%
3.	15.3	0,10%	0,16%	1,87%
4.	20.1	0,09%	0,21%	2,03%
5.	20.2	0,11%	0,22%	2,02%
6.	20.3	0,12%	0,22%	2,03%
7.	25.1	0,12%	1,24%	2,06%
8.	25.2	0,12%	1,29%	2,06%
9.	25.3	0,12%	1,28%	2,06%

Source: Laboratory and Soil Fertility Faculty of Agriculture Sebelas Maret University (UNS) surakarta 2022

Table 1.Table of Recapitulation of Examination Results Nitrogen, Phosphate, and PotassiumLIQUID ORGANIC FERTILIZER

No.	Code	Results			N+P+K (%)
		N(%)	P(%)	K (%)	
1	15	0,09%	0,15%	1,86%	0,39%
2	20	0,10%	0,21%	2,02%	0,47%
3	25	0,12%	1,27%	2,06%	0,58%
Information		MS			
Quality Standards		2-6%			
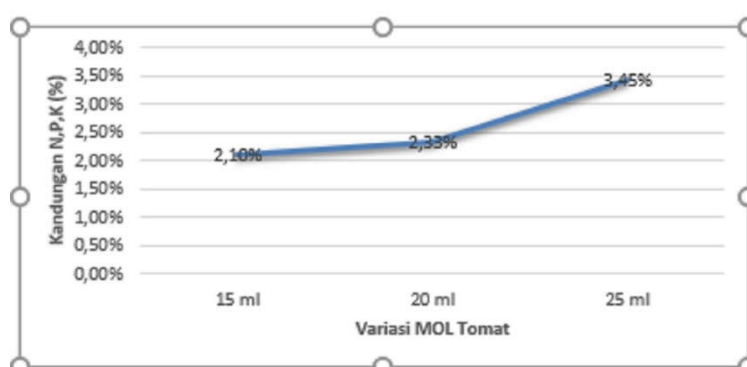
Figure 1. Graph of Recapitulation of Examination Result for macro Element Nitrogen, Phospat, and Potassium LIQUID ORGANIC FERTILIZER

Based on the results of the above recapitulation on the examination of liquid organic fertilizer with variations in the volume of tomato MOL (15 ml, 20 ml, 25 ml) that the content of Nitrogen (N), Phosphorus (P) and Potassium (K) has met the quality standards based on PERMENTAN RI NO. 261/KPTS/ SR.310/ M/ 4/2019 .

DISCUSSION

1. **Nitrogen (N)**

Liquid organic fertilizer is fermented anaerobically for 14 days with 1 liter of tofu wastewater added with 15 ml (1.5%) MOL variation of tomatoes has an average nitrogen content of 0.09%, and the tomato MOL variation of 20 (2 %) ml has an average nitrogen content of 0.10%, in the variation of MOL tomato 25 (2.5) ml has an average nitrogen content of 0.12%. There was an increase in the nitrogen content of liquid organic fertilizers in this study, but the nitrogen content of liquid organic

fertilizers in this study did not meet the requirements or was not following PERMENTAN RI NO. 261/KPTS/ SR.310/ M/ 4/2019 ie 2-6 %. The low nitrogen content may be caused by reduced nitrogen during fermentation and preparation for testing the nutrient content in the laboratory (Handayani, 2017).

The nitrogen element in liquid organic fertilizer is needed for the growth and development of vegetative parts of plants such as leaves, stems, and roots, plays an important role in the formation of green leaves for the implementation of the photosynthesis process, the formation of proteins, fats and various organic compounds, improving the quality of leaf-producing plants, breeding microorganisms in the soil (Rasyid, 2017).

2. **Phosphorus (P_2O_5)**

Liquid organic fertilizer is fermented anaerobically for 14 days with 1 liter of tofu wastewater added with a variation of MOL tomato 15 (1.5%) ml has an average phosphorus content of 0.15%, and the MOL variation of tomato 20 (2 %) ml has an average phosphorus content of 0.21%, in the MOL variation of tomatoes 25(2.5) ml has an average phosphorus content of 1.27%.

the phosphorus content of liquid organic fertilizer in this study, but the phosphorus content is not following the Minister of Agriculture of the Republic of Indonesia NO. 261/KPTS/ SR.310/ M/ 4/2019 ie 2-6 %. The low phosphorus content in liquid organic fertilizer in this study was probably due to the relationship between P content and other elements in the fermentation process.

The length of fermentation determines the level of P concentration, but the longer the fermentation time does not mean that the P concentration is also increasing. This is following the opinion of Hidayati, et al (2011), which states that the phosphorus content is related to the N content in the substrate.

3. **Potassium (K_2O)**

The liquid organic fertilizer in this study which had been fermented for 14 days anaerobically with 1 liter of tofu wastewater added with 15 (1.5%) ml MOL variation of tomatoes had an average potassium content of 1.86%, and the MOL variation of tomatoes 20(2%) ml have an average potassium content of 2.02%, in the MOL variation of tomatoes 25(2.5%) ml have an average potassium content of 2.06%.

According to (Putra & Ratnawati, 2019a) the number of bacteria or binoculars found in tomato waste is *Actinomycetes bacteria* that live above Ph 6 (neutral) in anaerobic conditions which have a role in the decomposition of organic matter and increase nutrient reserves in the soil and form humus that can work. effectively in the process of fermenting organic matter.

the potassium content of liquid organic fertilizer in this study, but the potassium content did not meet the requirements or not following the RI Minister of Agriculture NO. 261/KPTS/ SR.310/ M/ 4/2019 ie 2-6 %. The possibility of this happening is due to the slow activity of microorganisms so the potassium content of liquid organic fertilizer in this study tends to be low. The element of potassium functions in helping the formation of proteins and carbohydrates, accelerating plant growth, increasing plant resistance to drought and disease, and improving the quality of seeds or fruit.

4. **The Relation of Laboratory Results Nitrogen, Phospat, and Potassiumwith the Minister of Agriculture of the Republic of Indonesia No. 261 the Year 2019**
   Nitrogen, Phosphate, and Potassium content in liquid organic fertilizer using 1 liter of tofu liquid waste as raw material with the addition of 15 ml (1.5%), 20 ml (2%), and 25 ml (2.5%). In the variation of 15 ml (1.5%) the resulting N,P,K content of (2.10%), the variation of 20 ml (2%) resulted in the content of N,P,K of (2.33%), and in the variation of 25 ml (3.45%) resulted in N,P,K content of (0.577%) and it can be seen from the graph that there was an increase in N,P,K macronutrients from this study but all three of the tomato mole variations had met the standard quality, namely the Minister of Agriculture of the Republic of Indonesia NO. 261/KPTS/ SR.310/ M/ 4/2019 ie 2-6 %.

5. **Results of Measurements or Physical Observations**
   Based on the table of observations and measurements of pH in the first week and second weeks, the pH was 8. In a stable neutral condition, because the organic matter had been decomposed and there was a decrease in the activity of microorganisms. According to the Regulation of the Minister of Agriculture of the Republic of Indonesia No. 261/KPTS/SR.310/M/4/2019, the minimum technical requirement for the pH value of liquid organic fertilizer is 4-9. Based on the table of observations and measurements in the first week and second week, it is known that the odor in liquid organic fertilizer from tofu liquid waste and tomato mole bioactivator. The smell at the beginning of the fermentation process shows a very strong odor, but at the end of the fermentation, the pungent odor is slightly reduced.

   CONCLUSION

   1) Based on the results of the analysis of the N, P, K content of 1 liter of tofu liquid waste with variations in tomato moles (15 ml, 20 ml, 25 ml) Ministry of Agriculture of the Republic of Indonesia NO. 261/KPTS/ SR.310/ M/ 4/2019. 2) The results of physical observations and measurements for 14 days of fermentation, pH of 8 which indicates a neutral and stable condition According to the Minister of Agriculture of the Republic of Indonesia NO. 261/KPTS/ SR.310/ M/4/2019, the minimum technical requirement for the pH value of liquid organic fertilizer is 4-9. The smell of liquid organic fertilizer from tofu liquid waste and tomato mole bioactivator at the beginning of the fermentation process showed a very strong odor, but at the end of the fermentation the pungent odor was slightly reduced and smelled like tape and brownish with a liquid texture.

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THE RELATIONSHIP CONDITION OF THE LATRINE TO THE INCIDENCE OF DIARRHEA IN BASTIONG KARANCE VILLAGE IN 2022

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ABSTRACT

Diarrhea is a bowel movement with an abnormal frequency (increased) and a mushy or liquid consistency of stools. One of the factors causing diarrhea is a latrine that does not comply with health requirements. This study aims to determine the relationship between the condition of the latrine, the type of latrine, the cleanliness of the latrine, and the quality of the latrine with the incidence of diarrhea in Bastiong Karance Village. Type of quantitative research with analytical observational research with a Case-Control approach.The population in this study was the entire community as a case group (diarrhea sufferers) and a control group (not diarrhea sufferers) in Bastiong Karance Village and the total sample was 88 respondents determined by purposive sampling technique. The analysis was carried out using the Chi-Square test with a data analysis application. The results of this study showed that there was no relationship between the condition of the latrine ($p = 0.671$), the type of latrine ($p = 0.494$), the cleanliness of the latrine ($p = 0.241$), and the quality of the latrine ($p = 0.483$) with the incidence of diarrhea. It is recommended for sanitarian officers at the Kalamata Health Center to continue to provide counseling on the importance of using latrines that are by health requirements so that in some coastal areas whose latrines do not meet the requirements, namely cemplung latrines, they can be replaced with latrines health requirements. The community always maintains the cleanliness of the latrine and always pays attention to the fecal disposal site so that it remains comfortable, and safe and maintains sanitation. And people in parts of the region still use cemplung latrines so that they can replace them with gooseneck latrines. Other researchers are expected to conduct further research on the relationship, attitudes, knowledge, and actions toward the incidence of diarrhea.

KEYWORDS: Diarrhea, Latrine Condition, Latrine Type, Latrine Hygiene, and Latrine Quality.

BACKGROUND

Diarrheal disease is the second leading cause of death in children under five years of age and is responsible for the deaths of 370,000 children in 2019 (WHO, 2019). Diarrhea is a bowel movement with an abnormal frequency (increased) and a mushy or liquid consistency of

feces (Katiandagho, 2019). Diarrhea ranked third with 7.4% of deaths. In total, environmental-based diseases accounted for 33% or one-third of the total deaths of all age groups (Rahman, 2015). Based on data and information from the Indonesian Health Profile in 2019, it shows that the number of diarrheal pain in Indonesia is still quite high. The rate of diarrhea pain for all ages is 270/1000 population while in toddlers it is 843/1000 population (Ministry of Health RI, 2020). Diarrheal Disease is an endemic disease in Indonesia and a potential disease of KLB (Extraordinary Events) which is often accompanied by death. Basic Health Research shows that Diarrheal Disease is the number one cause of death in infants (31.4%) and toddlers (25.2%), while in the all-age group it is the fourth cause of death (13.2%) (Ditjen P2PL, 2012).

Data from the North Maluku Provincial Health Office in 2014 that cases of diarrhea handled were reported by as many as 21,528 (86.5%) sufferers or 12,076 (2.7%) of the total estimated number of sufferers. Basic Health Research of North Maluku Province in 2018 recorded a 5.39% prevalence of diarrhea based on the diagnosis of health workers and symptoms.Thus there is an increase in the number of people with diarrhea. Data from the Ternate City Health Office in 2018 there were 3,439 (1.54%) cases of diarrhea in all age groups and 2,023 (9.7%) cases of diarrhea in toddlers. Data from the Kalumata Health Center in 2021 shows the incidence of diarrhea in Bastiong Karance Village with a total of 77 cases.

Based on data from STBM (total sanitation of community communities) in North Maluku in 2020 there was access to Permanent Healthy Latrines (JSP) in as many as 149,020 households, access to Semi-Permanent Healthy Latrines (JSSP) in as many as 23,747 heads of families and access to BABS (Open Defecation) as many as 57,705 heads of families. STBM (Total Sanitation with Community Communities) data in 2020 in Ternate City there is access to permanent healthy latrines (JSP) as many as 35,678 heads of families, access to semi-permanent healthy latrines (JSSP) as many as 6,103 heads of families and access to BABS (Open Defecation) as many as 125 heads of families.STBM data in 2020 in Bastiong Karance there is access to permanent healthy latrines (JSP) for as many as 609 heads of families, access to semi-permanent healthy latrines (JSSP) for as many as 26 heads of families, and access to BABS (Open Defecation) as many as 5 heads of families (Ministry of Health RI, 2020).

Based on the results of several studies that are in line such as selviana's research (2015). This shows the value of p-value = 0.000 and OR = 2.723 so that there is a relationship between the condition of the family latrine and the incidence of diarrhea in isolated coastal areas.Results of Putra's research (2017). Shows the value of p-value = 0.025 and OR = 3.229 95% CI (confident interval) = 1236-8438 so that there is a relationship between the condition of the latrine with the incidence of diarrhea in toddlers in the Coastal area of the Tasikmadu Health Center, Karanganyar Regency. And based on the results of Wijaya's research (2012). Shows a p< value of 0.001, OR=9.33, so there is a relationship between the type of latrine and the incidence of diarrhea. Likewise with the results of Pitriyani's research (2019).Shows the p-value = 0.001 and OR = 5.035, so there is a relationship between the quality of the latrine and the incidence of diarrhea in the work area of the Olak Kemang Health Center. As well as the results of Hutapea's research (2017). Shows a value of p = 0.002 where p ≤ 0.05 with OR =

3.66, so there is a relationship between the cleanliness of the latrine and the incidence of diarrhea in Harapan Lau Meciho Village, Tanah Pinem District, Dairi Regency.

The impact of diarrhea is very influential on toddlers and all ages, namely, dehydration, growth, and development disorders, and even death.Death in toddlers can be caused by improper handling both at home and in health facilities. So, efforts to reduce deaths due to diarrhea need fast and appropriate management (Ministry of Health of the Republic of Indonesia, 2011).

One of the health efforts carried out in the community is the provision of basic sanitation, one of the several basic sanitation facilities in the community is a latrine.Latrines are useful for places to dispose of human waste so that the bacteria in the feces do not meet the environment, then the environment will look beautifully clean so that it has good aesthetic value (Simanjuntak, 2020).

RESEARCH METHODS

This research is quantitative research with analytical observational research with a Case-Control approach. This research was conducted in Bastiong Karance Village. The time study was conducted from April-May 2022. The population in this study was all diarrhoeal disease sufferers recorded at the Kalumata Health Center, which was 77 cases in 2021. The total sample in this study was 88 respondents consisting of 44 cases and 44 controls. The secondary data in this study are data from the Kalumata Health Center related to data on people with diarrheal diseases and the primary data obtained are data directly taken at the time of the study, namely the condition of the latrine, the quality of the latrine, the type of latrine, and the cleanliness of the latrine. The analysis used was univariate and bivariate using SPSS with the Chi-Square test using an alpha value of 0.05.

RESULT AND DISCUSSION

The results of the analysis of the relationship between the condition of the latrine and the incidence of diarrhea are as follows:

Table 1. The Relationship between Latrine Conditions and the Incidence of Diarrhea In Bastion Karance Village in 2022

Latrine Conditions	Diarrhea Status				Total		Statistic Test
	Case		Control				
	n	%	n	%	N	%	
Not Eligible	9	42,9	12	57,1	21	100	0,671
Quality	35	52,2	32	47,8	67	100	
Total	**44**	**95,1**	**44**	**104,9**	**88**	**100**	

Based on the results of the study, it can be seen that some houses with latrine conditions that meet the requirements of 88 samples were obtained in the case group (diarrhea sufferers) of 35 houses (52.2%) and the control group (not suffering from diarrhea) of 32 (47.8%). Houses with latrine conditions that were not eligible in the case group (diarrhea sufferers) were 9 houses (42.9%) and the control group (which did not suffer from diarrhea) was 12 houses (57.1%).The results of the chi-square test obtained a value of p-0.617 > α 0.05, so it was concluded that there was no significant relationship between the condition of the latrine and the incidence of diarrhea. This is because most of the respondents in the case group (diarrhea sufferers) or the control group (do not suffer from diarrhea) already have a latrine with the correct fecal disposal building and by health requirements so that the condition of the latrine does not affect the occurrence of diarrhea.

According to (Widoyono, 2011). Several factors increase the risk of diarrhea such as environmental factors which include waste treatment, sewage channels, and water sources. Improper processing of garbage and sewage channels can cause diarrhea in toddlers, this is due to the vector of flies that perch on the trash or waste and then perch on. In addition, diarrhea can occur if a person uses water that has been well polluted fromthe source, during the trip to the house, or polluted when kept at home. In addition, the habit of washing hands when cooking food or after defecation will make it possible to be contaminated directly.

The results of this study are in line with previous research conducted by Langit (2016) with the results of the chi-square test obtained a value of p-1,000 > α 0.05, it was concluded that there was no significant relationship between the condition of the latrine and the incidence of diarrhea in toddlers in the Rembang Health Center Work Area.

According to Oktariza (2018). The condition of the latrine that does not meet the requirements will pollute the environment from human feces and become a medium of transmission of pathogenic microorganisms that cause diarrhea. These pathogenic microorganisms will move to the cult through various transmission routes such as water, soil, hands, and insects which then contaminate food and drinks or can directly enter through the mouth without food/drink intermediaries.

Table 2. The Relationship Between Latrine Types and the Incidence of Diarrhea in BastiongKarance Village

Type of Latrine	Diarrhea Status				Total		Statistic Test
	Case		Control				
	n	%	n	%	N	%	
Not Eligible	2	2,27	0	0	2	100	
Quality	42	48,8	44	51,2	86	100	0,494
Total	**44**	**51,07**	**44**	**51,2**	**88**	**100**	

Based on the results of the study, it can be seen that some houses with eligible types of latrines from 88 samples were obtained in the case group (diarrhea sufferers) of 42 houses (48.8%) and the control group (not suffering from diarrhea) of 44 (51.2%). Respondents with latrine-type homes were not eligible in the case group (diarrhea sufferers) of 2 houses (100%) and no houses in the control group (not suffering from diarrhea).The results of the chi-square test obtained a value of p-0.494 > α 0.05, so it was concluded that there was no significant relationship between the type of latrine and the incidence of diarrhea. This is because most respondents in the case group (diarrhea sufferers) and the control group (not suffering from diarrhea) have used goose neck-type latrines. Then the type of latrine that does not meet the requirements does not have much effect on the incidence of diarrhea.

The results of this study are in line with Pratama (2013). The results of the chi-square test obtained a value of p-0.207 > α 0.05 this shows that there is no relationship between the type of latrine and the incidence of diarrhea in toddlers in Gunungpati Village, Semarang City.This study is also in line with Istiqomah's (2010) research with the results of the chi-square test obtained a value of p-0.298 > α 0.05, this shows that there is no relationship between the type of latrine and the incidence of diarrhea in toddlers in The Batang Market Village, Brebes District, Brebes Regency.

According to Notoatmodjo (2010), the requirements for sewage that meets health regulations are not to pollute the surrounding soil surface, not to pollute the surrounding surface water, not to pollute the water in the surrounding soil, and the manure should not be exposed so that it can be used as a place for egg-laying flies or breeding other disease vectors.

Table 3. The Relationship Between Latrine Hygiene and Diarrhea incidence in Bastiong Karance Village

Toilet Cleanliness	Diarrhea Status				Total		Statistic Test
	Case		Control				
	n	%	n	%	N	%	
Not Eligible	3	3,40	0	0	3	100	0,241
Quality	41	48,2	44	51,8	85	100	
Total	**44**	**51,6**	**44**	**51,8**	**88**	**100**	

Based on the results of the study, it can be seen that some houses with latrine hygiene meet the requirements of 88 samples in the case group (diarrhea sufferers) of 41 houses (48.2%) and the control group (not suffering from diarrhea) of 44 (51.8%). Respondents with latrine conditions that were not eligible in the case group (diarrhea sufferers) were 3 houses (100%) and there were no houses in the control group (did not suffer from diarrhea).The results of the chi-square test obtained a value of p-0.241 > α 0.05, so it was concluded that there was no significant relationship between the cleanliness of the latrine and the incidence of diarrhea. This is because most respondents already have a latrine with a clean condition, there are no

dirt or garbage insidefecal drains and only 3 respondents had latrines where there was garbage and around the building looked dirty, but most of the respondents had latrines that were clean and covered by vectors, so the cleanliness of the latrines did not affect the incidence of diarrhea in BastiongKarance Village.

The results of this study are in line with Nugraheni's (2012) research with the results of the chi-square test p-0.117 < 0.05, it can be seen that there is no significant relationship between latrine hygiene and the incidence of diarrhea in North Semarang District, Semarang City.Lack of hygiene in latrines can be feared to cause the transfer of disease causes to humans carried by vector animals such as flies. Flies are vectors of diarrheal diseases. These flies live a lot and multiply in damp and dirty places.

Diarrheal diseases are caused by germs found in human feces. Germs that get into water or food, hands, cutlery, or cooking utensils, can be ingested causing disease. The most important way to prevent the spread of germs is to throw human waste into the latrine. The latrine must be cleaned frequently, the hole must always be closed (Notoatmodjo S., 2011).

Table 4. Relationship of Latrine Quality with Diarrhea Incidence in Bastiong Karance Village

Latrine Quality	Diarrhea Status				Total		Statistic Test
	Case		Control				
	n	%	n	%	N	%	
Not Eligible	15	57,7	11	42,3	26	100	0,483
Quality	29	46,8	33	53,2	62	100	
Total	**44**	**104,5**	**44**	**95,5**	**88**	**100**	

Based on the results of the study, it can be seen that some houses with qualified latrine quality from 88 samples in the case group (diarrhea sufferers) were 29 houses (46.8%), and the control group (which did not suffer from diarrhea) was 33 (53.2%). Respondents with unqualified latrine quality in the case group (diarrhea sufferers) were 15 houses (57.7%) and the control group (did not suffer from diarrhea) was 11 houses (42.3%).The results of the chi-square test obtained a value of p-0.483 > α 0.05, so it was concluded that there was no significant relationship between the quality of the latrine and the incidence of diarrhea. This is because some respondents already have latrines that are by health requirements.The latrines owned do not pollute drinking water sources, are odorless, and cannot be touched by vectors, the floor is waterproof, easy to clean, and safe to use, but there are some respondents whose latrine buildings do not have a roof so that they can be reached by animals or insects that can spread bacteria that cause diarrhea. In addition, some respondents who are in the latrine building do not have cleaning tools.

The results of this study are in line with Manik's research (2012) with the results of the chi-square test obtained a p-value of 0.702 > α 0.05, it can be seen that there is no relationship between the quality of latrines and the incidence of diarrhea in the community. The results of this research are also in line with Rau's research (2021). The results of the chi-square test obtained a value of p-0.133, so it was found that there was no relationship between the quality of the latrine and the incidence of diarrhea in toddlers in the work area of the Tipo Health Center.

According to Oktariza (2018). The community can also carry out latrine maintenance by always diligently cleaning the latrine floor 2-3 times a week so that the latrine is clean, there is no visible dirt, not allowing puddles on the latrine floor, there are no breeding vectors in the latrine building, there is no scattered garbage, there is enough water available,soap and cleaning tools are available, and immediately repair the latrine if there are damaged parts. In addition, looking at the condition of the respondent's area of residence which is in a rural area with a fairly large area of land, respondents can make a septic tank at a distance of >10 meters from the water source.

CONCLUSION AND RECOMMENDATION

Based on the results above, it can be concluded: There is no relationship between the condition of the latrine and the incidence of diarrhea in BastiongKarance Village (p-value = 0.617), There is no relationship between the type of latrine and the incidence of diarrhea in BastiongKarance Village (p-value = 0.494), There is no relationship between the cleanliness of the latrine and the incidence of diarrhea in BastiongKarance Village (p-value = 0.241), There is no relationship between the quality of the latrine and the incidence of diarrhea in BastiongKarance Village   (p-value = 0.483).

Advice for Community health centers of Kalumata to sanitarian staff officers to continue to provide counseling on the importance of using latrines that are by health requirements so that in some areas whose latrines are not yet eligible, they can be replaced with latrines that meet health requirements.For the community, always maintain the cleanliness of the latrine and always pay attention to the fecal disposal site so that it remains comfortable, and safe and maintains sanitation. And people in parts of the coastal area still use cemplung latrines so that they can replace them with gooseneck latrines. Other researchers are expected to conduct further research on the relationship of attitudes, knowledge, actions, and personal hygiene to the incidence of diarrhea.

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The Effect of Work Shifts on Work Stress on Employees of Textile Industry Weaving

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ABSTRACT
A noisy work environment that exceeds the Threshold Limit (NAV) has a risk of work stress. Employees of the weaving division at PT "S" Sukoharjo Regency, Central Java, work according to shift work. Every day employees work in different shifts with 1 day off per week. This study aims to determine whether work shifts affect work stress on employees in the weaving section by comparing the work stress scores of employees from the three groups based on work shifts: morning, afternoon, and evening. This type of research is observational with a cross-sectional approach. The sample in this study was 125 employees consisting of rice, day and night shifts. Work stress data was assessed using a job stress questionnaire covering psychological, physical, and behavioral indicators of employees. The three groups of work stress data were analyzed using the one-way Anova test. The average work stresses score of morning shift employees: is 120,72; standby shift: is 119.50; night shift 119.67. The results of the Anova test obtained a probability value (p = 0.191), which means that there is no significant difference in the average work stress score of employees based on work shifts. There is no difference in the work stress of the weaving section employees based on work shifts because these employees show that they can adapt to the workplace. The average working period of employees is 8.5 years, which means that the weaving section employees have been working in the noisy section for a long time with a shift work system. So that employees always use hearing protection equipment during work to reduce exposure to high-intensity sounds
Keywords: work stress, weaving, work shift

BACKGROUND
The work environment can be interpreted as everything that is around the worker that can affect him in carrying out the tasks given. (Tarwaka. 2017). In general, the work environment is divided into two parts, namely the physical and non-physical work environment. The physical work environment is all physical conditions found around the workplace that can affect workers directly or indirectly. Physical environmental conditions are things that can affect the health of workers for example lighting, noise, vibration, and hot air in Pratiwi, Wahyuningtyas (2016)
Characteristics in the working environment in the textile weaving department have hazards in the form of high-intensity sound and dust from cotton thread fibers, both of which come from the weaving process. The sound intensity in the weaving section is generally high, exceeding

a predetermined threshold value. Various research results on the intensity of sound in the weaving room produced from the weaving process generally exceed 100 dBA. Noise (air vibrations) in the workplace environment comes from the weaving machine propagatingthrough the air medium and is then captured by the sense of hearing. Sound energy can stimulate the five senses or vibrate the eardrum and other ear organs. Continuous noise exposure is responded to as physiological stress or physical stress. While noise as a disturbing sound (annoyance) will be responded to as psychological stress (Hartono, 2010). Through the sensory nervous system, sound energy is transmitted to the pituitary which is located at the base of the brain as an alarm. Nerves send signals to the adrenal glands to release adrenaline and cortisol, which are often used as indicators of stress. Cortisol increases blood sugar, mainly used by the brain (thinking / regulating), increasing the supply of material for body cells, the immune system, reproduction, growth, and stimulating several other body glands for metabolic processes. While adrenaline increases heart rate and increases blood pressure and increases energy supply (Guyton, 2014). Continuous exposure to high-intensity noise can cause prolonged stress or chronic stress. Several research results related to noise in the workplace with stress on employees as conducted by Budiyanto (2010 Exposure to sound with an intensity exceeding NAV for a long time has the potential to cause work stress for employees. Job stress is a form of employee response, both physically and mentally to changes in the environment that are felt to be disturbing or result in him being threatened (Anoraga, 2009). According to Griffin (2010), work stress is a tension that is often experienced by employees which can affect work situations and concentration in completing work. Noise exposure in the weaving work environment is exposure to high-intensity noise and it is unavoidable for the employees of the weaving department. Noise in the workplace is a source of stress from the physical environment that can cause physiological changes in employees. Noise can affect hearing (auditory effects) and not hearing (non-auditory effects). Hearing effects (auditory effects) include communication disorders, hearing loss threshold,permanent and non-permanent hearing loss. Employees who work near weaving machines are at risk of hearing loss (Malu, 2011). Communication disorders cause disruption of work, errors, especially for new employees, and hazards to the safety and health of workers, thereby reducing work performance or quality and reducing work productivity. Non-auditory effects can be in the form of stress, annoyance, immune system disorders, sleep disturbances, decreased performance, and cardiovascular diseases including abnormalities in the electrocardiogram, disorders of the heart, and fast pulse (Sheela, 2000). Noise can cause physiological disturbances such as increased blood pressure and heart rate (Dyah, 2008). an increase in basal metabolism, and constriction of small blood vessels, especially in the legs, can cause pallor, and sensory disturbances (Gayathri et al, 2012).

Meanwhile, according to Budiyanto (2010), noise can cause stress to employees. Stress in the long term with a high enough intensity can cause individuals to suffer from fatigue, both physically and mentally.
Noise as a source of physical stressors besides being able to cause physiological changes, and psychological changes, can also cause behavioral changes. Behavior change can be constructive or destructive. Constructive behavior helps a person in solving problems or conflicts. Constructive change will be a challenge for someone who is more accomplished, and more enthusiastic to do something. While destructive is a change in a direction that harms oneself and others.
Shift work is a system established by the company to increase productivity maximally for 24 hours. The Occupational Safety and Health Branch (2008) explains that optimizing arrangements for shift work can help reduce the health effects that may be experienced by employees. Shift work involves various patterns and work schedules where the arrangement

must take into account several factors such as the duration of the shift or the length of working hours per shift, the number of team or group workers, and the hours of work rest per shift. Shift work that cannot be managed properly can affect the quality of sleep of employees and may cause health problems or affect the social life of employees (Hasibuan, 2012). The system of working with alternating work shifts (morning shift, afternoon shift, and night shift) will provide a different time atmosphere for each night. Variations in changing times require employees to adapt to working hours. Changing the working time that is different every day with the same hazard at work, can it cause different stress for each employee.

RESEARCH METHODS
This type of research is a research with an analytical observational method with a cross-sectional approach. The subjects of this study were employees of the weaving division in the textile industry of PT "S" Sukoharjo Regency, Central Java, to be assessed for work stress based on the morning shift, afternoon shift, and night shift. The research sample was part of all employees in the weaving section which was taken using proportional simple random sampling. Job stress includes physiological, psychological, and behavioral changes using a job stress questionnaire. Work stress scores from the morning shift, afternoon shift, and night shift groups were analyzed using the ANOVA test with the help of SPSS. To prove the hypothesis that there is an effect of work shifts on work stress, we will analyze the difference in average work stress scores based on work shifts.

RESULTS AND DISCUSSION
1. Results
a. Employee Characteristics
Table 1: Employee Characteristics of PT "S" Weaving Section
Sukoharjo Central Java Indonesia

No	Variable	Category	frequency	%
1	Education	Elementary	11	8,8
		Medium	114	91,2
		Height	0	0
2	Gander	Male	25	20
		Female	100	80
3	Marital Status	Married	120	96
		Unmarried	1	0,8
		Widow	4	3,2
		Widower	0	0
4	Working period	➢ 10 years	111	88,8
		6-10 years	6	4,8
		< 6 years	8	6,4

Based on table 1, shows that most of the employees (91.2%) have secondary education, while those with basic education are 8.8%. Most of the employees in the weaving division are female by 80% while the other 20% are male. The marital status of most employees (88.8%) is married. Some employees (88.8%) have a tenure of > 10 years and 6.4% have a tenure of fewer than 6 years.

b. Work stress score
Table 2. Distribution of Work Stress Scores for employees of PT "S"
Sukoharjo, Central Java, Indonesia based on work shifts

No	Work shifts	Mean	SD	Min	Max
1	Morning	120,72	6,764	105	151
2	Afternoon	119,50	10,299	129	158
3	Evening	119,68	7,646	106	152

Based on table 2, shows that the average work stress score for the weaving section employees has an average work stress score of 120.

c. Statistical analysis results

The results of statistical tests to determine differences in employee work stress based on work shifts using the one-way Anova test obtained a probability value (p) = 0.464, which means that there is no difference in the work stress scores of employees in the weaving section P "S" between those who work the morning shift, afternoon shift, and night shift

2. Discussion

The physical environment in the workplace that has high-intensity noise has a risk of causing stress to employees. The results of this study show that the work stress of employees who work at PT "S" Sukoharjo Regency, Central Java, Indonesia, is proven not to show any difference in work stress scores based on work shifts because most of the employees' working period (88.8%) is more than 10 years. The working period shows the length of time employees get exposed to noise from the weaving machine. Employees who have been exposed to them for a long time have been able to adapt to noise in the workplace even though they all have experience working with the same division of work shifts. The form of employee adaptation in dealing with a noisy physical environment at work is in the form of using hearing protection equipment when employees work. In addition to the working period, which is mostly exposed to noise in the workplace for more than 10 years, the cause of the absence of differences in employee work stress based on work shifts is that employees have mostly the same characteristics, namely the gender of the employees is mostly (80%) female employees. Most (96%) employees are married. In terms of education, most (91.2%) employees have the same level of education, namely secondary education

CONCLUSION AND RECOMMENDATION

Employees who work at PT "S" do not have differences in work stress even though they work on different work shifts. The research recommended that employees always use personal protective equipment properly and correctly at work.

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2 [nd] *International Conference of Environmental Health*(ICoEH)

The Changing of Age Trend DHF Incidence in the Tanjungpinang City: a 6-year Secondary Data Analysis

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ABSTRACT

Children are the most common age group suffering from Dengue Hemorrhagic Fever (DHF). However, in the last few decades, observations of changes in the age distribution of DHF cases have been observed in most countries both in Southeast Asia and Latin America. Tanjungpinang City is an endemic area of DHF and there is no specific research that describes the pattern of DHF incidence based on age and gender. This type of research was a descriptive observational study with a retrospective time approach. Research variables include characteristics of people, characteristics of places, and characteristics of the time of occurrence of DHF. The data source was secondary data from the Tanjungpinang City Health Office with the period for recording DHF cases from January 2013 to December 2019. Data analysis used descriptive analysis methods, namely narratively analyzing data, and visualizing data using tables and graphs. In the 2014-2019 age trend in Tanjungpinang City and also in East Tanjungpinang District, the highest cases were dominated by the age range of 5-9 years and then 10-14 years. However, in the last 2 or 3 years, there is a tendency to increase cases in the age group of 15 years and over, although in the age group under 15 the cases are still high. Trends in the incidence of DHF that occurred in the Pinang Kencana Village, East Tanjungpinang District, showed a tendency for most cases to be female. The results of this study can be input for controlling the DHF program, especially to increase awareness of increasing cases through routine eradication of mosquito nests.

Keywords: Dengue, Age, Incidence, Tanjungpinang

BACKGROUND

Dengue Hemorrhagic Fever (DHF) is a viral infection transmitted by mosquitoes that are common in warm tropical climates. Infection is caused by one of four closely related dengue viruses called serotypes and these can cause a wide spectrum of symptoms, including some that are so mild or so subtle that they may require medical intervention and hospitalization. In severe cases, death can occur. There is no treatment for the infection itself but the symptoms the patient experiences are manageable(WHO, 2022a).

Before 1970, only 9 countries experienced severe dengue epidemics. The disease is now endemic in more than 100 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, Southeast Asia, and the Western Pacific. The Americas, Southeast Asia, and Western Pacific regions were the worst affected, with Asia representing 70% of the global burden of the disease(WHO, 2022b).

Dengue epidemics tend to have a seasonal pattern, with transmission often peaking during and after the rainy season. There are several factors contributing to this increase and they include high mosquito population levels, susceptibility to circulating serotypes, favorable air temperature, rainfall, and humidity, all of which affect the reproduction and diet of the mosquito population, as well as the incubation period of the dengue virus. Lack of proactive control interventions and staff are some of the other challenges(WHO, 2022a).

DHF was first discovered in Indonesia in the city of Surabaya in 1968, this disease spread widely throughout Indonesia(Kementerian Kesehatan RI, 2018). The DHF Incidence Rate (IR) in 2016 in Indonesia was 78.9 per 100,000 population, which relatively decreased in 2017 and 2018 (26.1 and 24.8) and increased again in 2019 to 51.5. The incidence rate of dengue fever in 2020 is 40 per 100,000 population. Riau Archipelago is the province with the fifth highest DHF incidence in Indonesia (78.2)(KEMENKES RI, 2020)

Fluctuations in dengue cases in Tanjungpinang City in the last 7 years based on DHF incidence data from the City Health Office (2018) showed that in 2013 there were 168 cases, which increased dramatically to 559 cases and 1 person died in 2014. In 2015 there were 358 cases and 1 death, in contrast to 2016 cases of DHF reported 308 cases with 1 death. While in 2017 there was a decrease in cases, namely 79 people but there was still 1 death due to DHF, In 2018 there were 150 cases and in 2019 there were 346 cases, DHF tends to increase in the Tanjungpinang City area(Dinkes Kota Tanjungpinang, 2021).

Meanwhile, in Tanjungpinang Timur District, every year the district is the largest contributor to the incidence of DHF. Based on the data for the last 7 years in 2013 there were 66 cases, 317 cases in 2014, and in 2015 there were 216 cases. The 2016 report showed 120 cases in 2017 there were 37 cases, in 2018 there were 31 cases and in 2019 there were 185 cases. Deaths due to DHF always occur in East Tanjungpinang District with the last incident at the beginning of 2019(Dinkes Kota Tanjungpinang, 2021).

Demographic and social changes such as population growth, urbanization, and modern transportation play an important role in increasing the incidence and geographic spread of the dengue virus(Gubler, 2002). Furthermore, travelers from non-endemic countries to dengue endemic areas are at risk of contracting dengue fever and pose a health threat to non-endemic areas where competent mosquito vectors are currently found(Calisher, 2005)(Wilder-Smith, 2012). WHO mentions urbanization (especially unplanned) is associated with the transmission of dengue fever through various social and environmental factors: population density, human mobility, access to reliable water sources, and water storage practices. The community's risk of dengue fever also depends on the knowledge, attitudes, and practices of the population towards dengue fever, as well as the implementation of routine sustainable vector control activities in the community(WHO, 2022b).

Historically, children were the most common age group suffering from DHF. However, in the last few decades, observations of changes in the age distribution of DHF cases have been observed in most countries in both Southeast Asia and Latin America(Guha-Sapir and Schimmer, 2005)(Beatty *et al.*, 2010)(Thai *et al.*, 2011). It is currently reported that a

significant proportion of DHF cases occur among adolescent and adult patients in Southeast Asia (Ooi and Gubler, 2009)(Muhammad Azami *et al.*, 2011), as well as in Latin American countries(San Martín *et al.*, 2010). No research explains the condition of the incidence of DHF based on age and sex in the Archipelago area, specifically in Tanjungpinang City, Bintan Island. This research is needed so that the trend of dengue cases can be known and can be used for appropriate strategies and prevention programs by the government.

RESEARCH METHODS

This type of research is a descriptive observational study with a retrospective time approach. Research variables include characteristics of people, characteristics of places, and characteristics of the time of occurrence of Dengue Hemorrhagic Fever. Characteristics of people include age and gender. The characteristics of the place are divided according to the Kelurahan, and the characteristics of the time are divided according to the year of occurrence of DHF.

The data source comes from secondary data from the Tanjungpinang City Health Office with a period of recorded dengue cases from January 2013 to December 2019. Data analysis uses descriptive analysis methods, namely narratively analyzing data, and visualizing data using tables and graphs.

RESULTS AND DISCUSSION
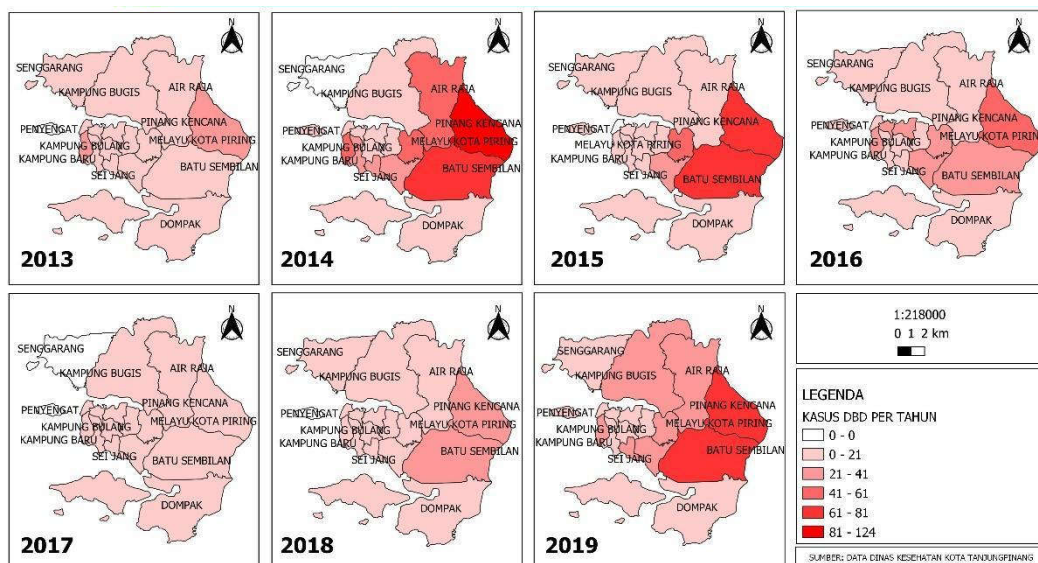
Figure 1. Map of DHF Cases Based on Kelurahan in Tanjungpinang City, 2013-2019

In figure 1,it can be seen that the trend of DHF cases per year per village for the last 7 years. The red color indicates the higher the number of dengue cases per year. The village located in the Tanjungpinang Timur sub-district is a village that is often categorized as red every year, especially the Pinang Kencana and Batu Sembilan villages.

Age Characteristics of DHF Patients per District in Tanjungpinang City 2014-2019

Figure 2 the distribution of DHF incidence seen from the age group per District in Tanjungpinang City in 2014-2019 it is known that the highest age of DHF sufferers in 2014-2017 is in East Tanjungpinang District with the age range is 5 – 9 yearswhile age range > 15 years was the highest cases in 2018-2019.

Characteristics of the age of DHF sufferers per sub-district during 2014-2019 in Tanjungpinang City generally occurred in patients under 15 years of age. This pattern was very clearly seen from 2014 to 2017 in almost all sub-districts in Tanjungpinang City. The highest cases were dominated by the age range of 5-9 years and then 10-14 years. However, it is different in the last two years where there is a tendency to increase cases in the age group of 15 years and over although in the age group under 15 the cases are still high (Figure 2).
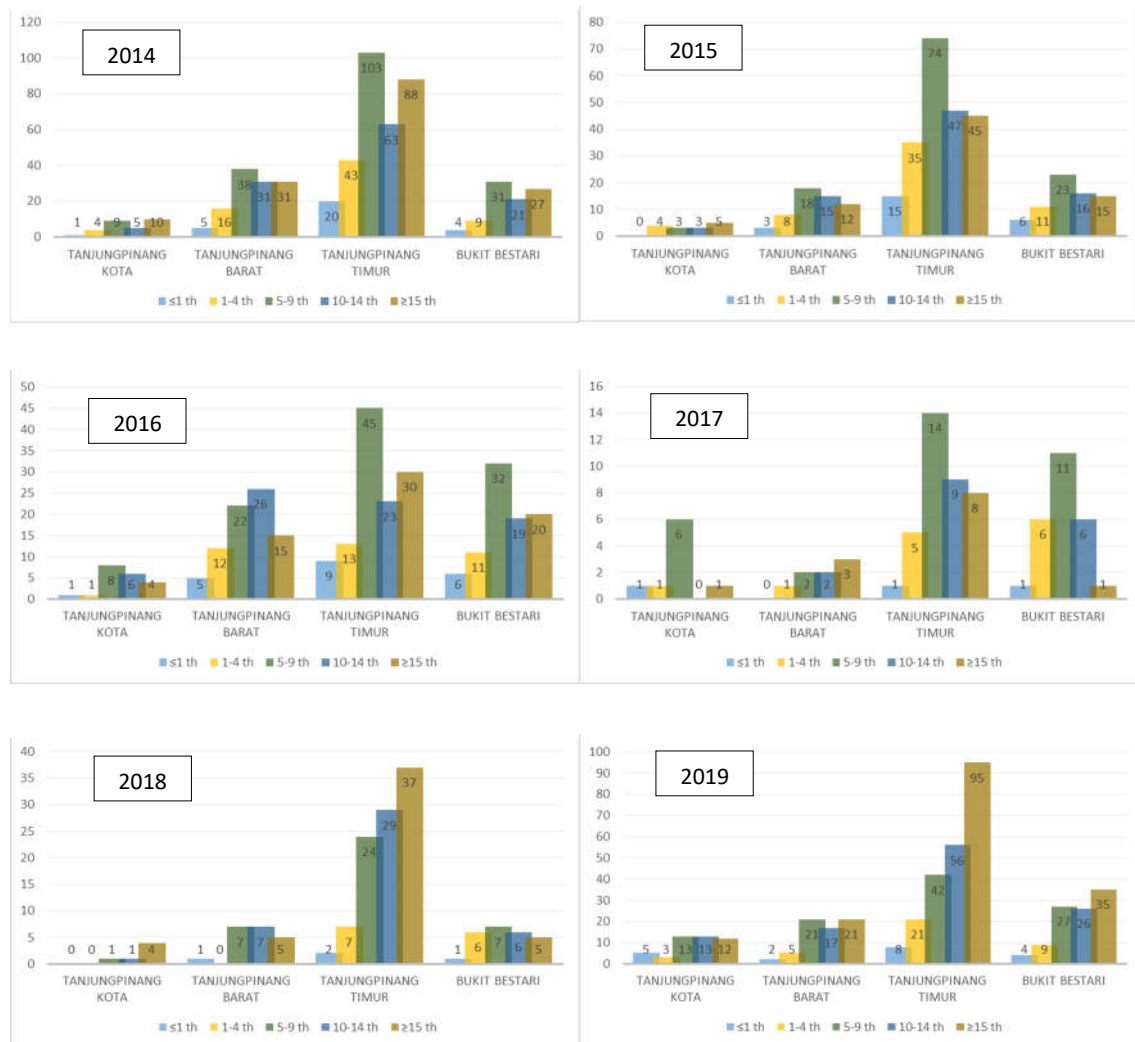
Figure 2. Distribution of DHF Cases by Age Group by District in Tanjungpinang City, 2014-2019

Figure 3. Distribution of DHF Cases by Age Group Per Village inTanjungpinang Timur District, 2013-2019

Age Characteristics of DHF Patients per Kelurahan in Tanjungpinang Timur District 2013-2019

The distribution of DHF incidence was seen from the age of patients per Kelurahan in Tanjungpinang Timur District in 2013-2019, it is known that the highest age of DHF sufferers in 2013-2016 is in Pinang Kencana village with an age range of 5-9 years in 2017 was found in Pinang Kencana village with an age range of > 15 years while in 2018 and 2019 there were Kelurahan Batu 9 with a range of age 10-14 years and age > 15 years (Figure 3).

Figure 3 shows that there is an age pattern of DHF patients per Kelurahan. The pattern is almost the same as the previous graph regarding the age characteristics of DHF patients per sub-district in East Tanjungpinang City. DHF generally occurs in patients under the age of 15 years. The highest cases were dominated by the age range of 5-9 years and then 10-14 years. This pattern occurs every year in all villages in Tanjungpinang Timur District except in 2017, 2018, and 2019 there is a trend of increasing cases at the age of 15 years and over in Pinang Kencana, Batu Sembilan, and Air Raja villages.

Gender Characteristics of DHF Patients per District in Tanjungpinang City 2014-2019

Figure 4 from year to year there are variations in DHF patients between male and female sexes, but in general, there is no significant difference in data on DHF patients by gender in each sub-district in Tanjungpinang City in 2014-2019.

Gender Characteristics of DHF Patients per Kelurahan in Tanjungpinang District Timur 2013-2019.

Figure5 seen the pattern of DHF incidence by gender in East Tanjungpinang District in the last 7 years. In contrast to the previous sub-district per year in Tanjungpinang City, specifically, the incidence of DHF in Tanjungpinang Timur District per Kelurahan shows that there is a tendency for more DHF occurrences in one gender, especially in two urban villages, namely Batu Sembilan Village and Pinang Kencana Village.

Age characteristics of DHF sufferers per sub-district during 2014-2019 in Tanjungpinang City generally occurred in patients under 15 years of age. This pattern is very clearly seen from 2014 to 2017 in almost all sub-districts in Tanjungpinang City. The highest cases were dominated by the age range of 5-9 years and then 10-14 years. However, it is different in the last two years where there is a tendency to increase cases in the age group of 15 years and over although in the age group under 15 the cases are still high. DHF has attacked all age groups in society, even more in the productive age. Dengue fever can affect children or adults, men, and women. From 1993 to 1998 the largest age group for DHF cases was the age group <15 years. In the last decade, the tendency of DHF sufferers has increased in the adult age group compared to the age group of 5-14 years(Kementerian Kesehatan RI, 2018). Looking at this data the possibility of transmission not only at home but at school or work. So, the PSN movement needs to be encouraged at school and work. It seems that there has been a change in the pattern of dengue fever, in the past DHF was a disease in children under 15 years old, now it has attacked all age groups, even more in the productive age. It is necessary to further investigate how it affects it, whether it is due to an increasingly virulent (malignant) virus, changes in dengue serotype characteristics, or due to other influences (Kementerian Kesehatan RI, 2018). According to Fajarani et al, 2020, the increase in cases of dengue infection in an area is related to changes in circulating viral serotypes. Alternating circulation of dengue virus serotypes may occur in areas with rapid urbanization(Fajarani, Martini, and Adi, 2020).
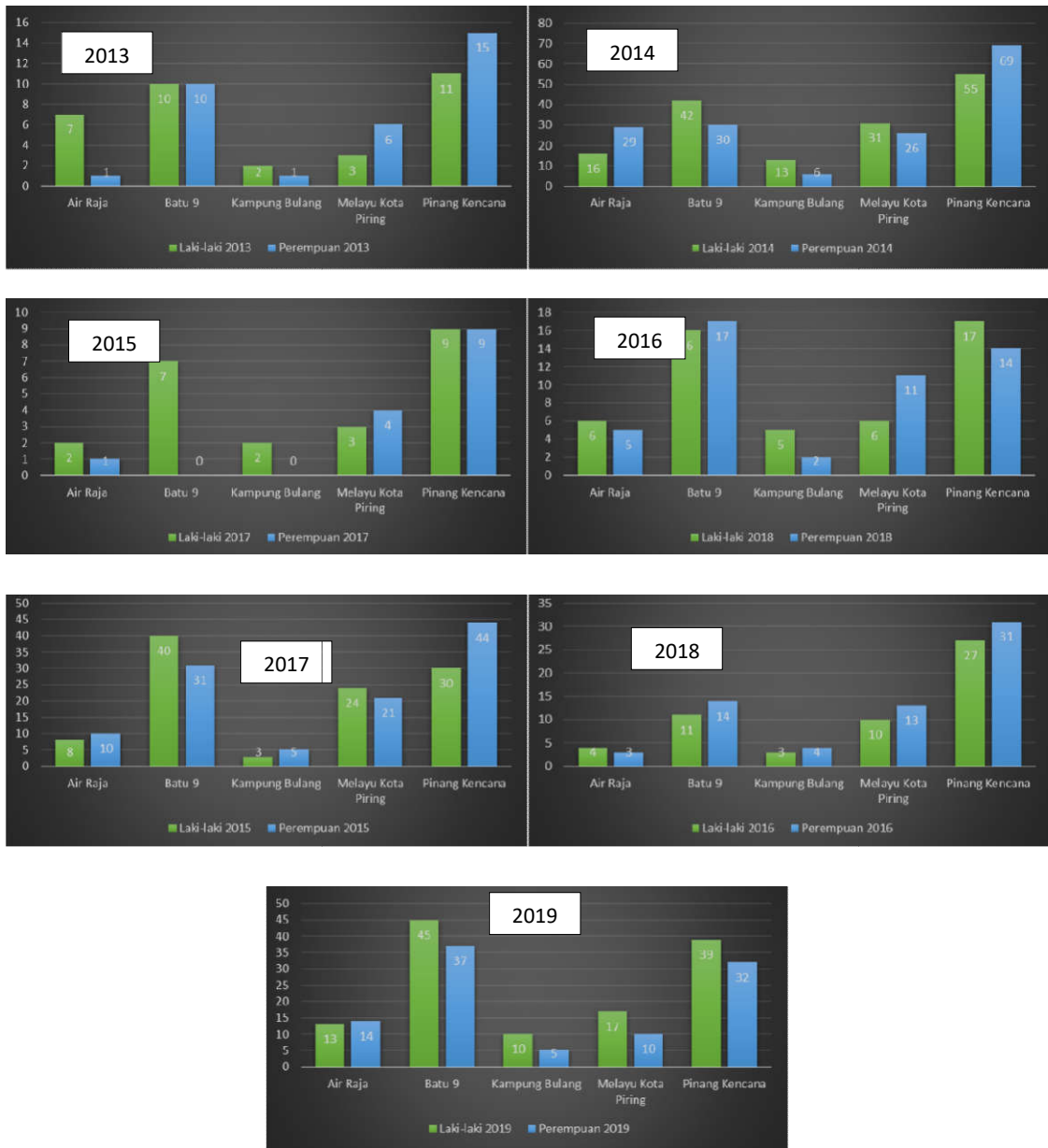
Figure 4. Distribution of DHF Patients by Gender per District in Tanjungpinang City, 2014-2019
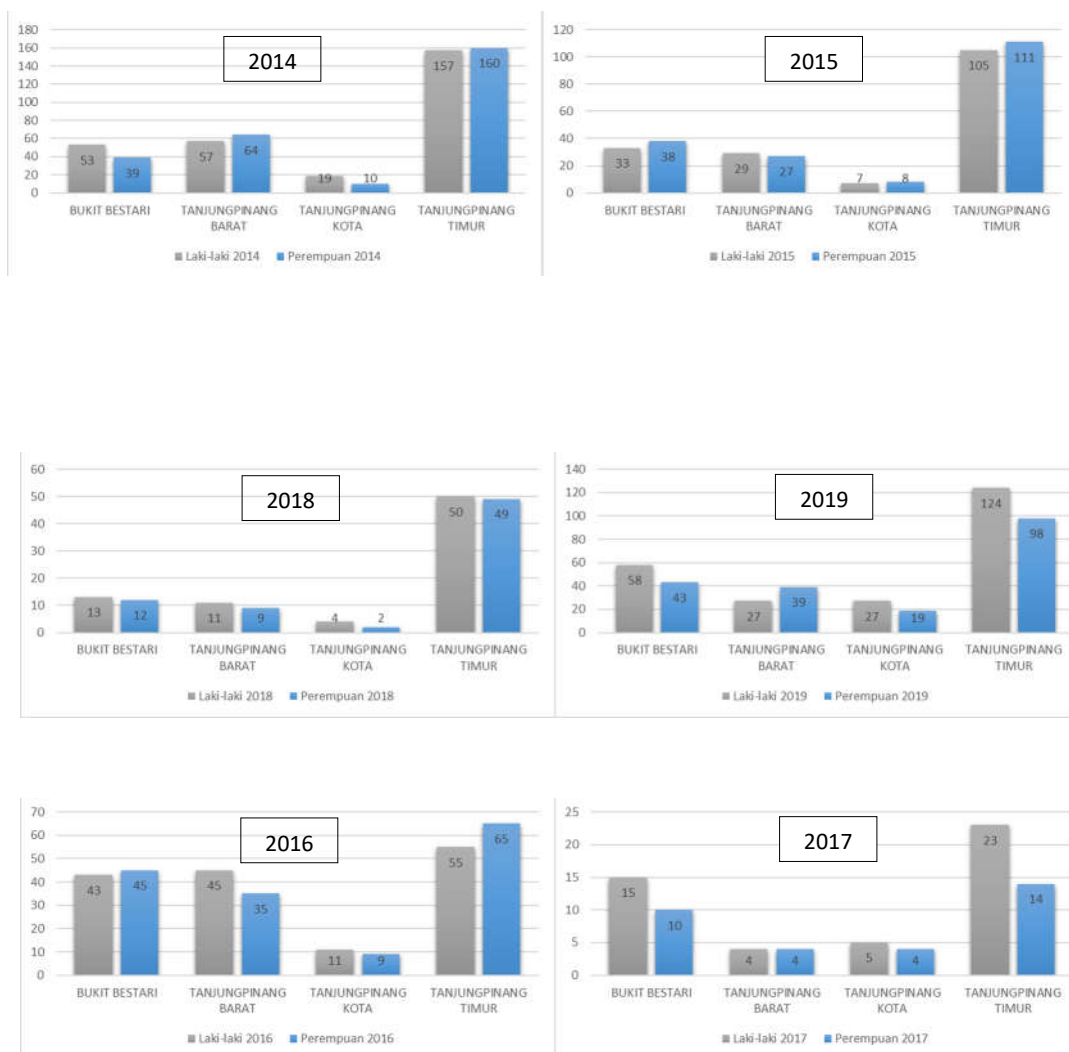
Figure 5. Distribution of DHF Cases by Gender per Kelurahan in Tanjungpinang Timur District, 2013-2019

The results of research conducted by analyzing cases of DHF in Indonesia in the last 45 years conducted by Karyanti et.al, 2014 show that the incidence of DHF has increased substantially over the last 45 years. However, the case-fatality ratio markedly decreased over the same period. There has been a shift in the age pattern of DHF patients towards an older age group (above 15 years) in other words, the incidence of DHF over the last 45 years has shifted from children to an older age group(Karyanti *et al.*, 2014). The results of this study are the same as those in Tanjungpinang City, although using a shorter data period. Changes in age patterns should have consequences for targeted surveillance and prevention.

There were variations in DHF patients between the male and female sexes, but in general, there is no significant difference in data on DHF patients by gender in each sub-district in Tanjungpinang City in 2014-2019. Specifically, the incidence of DHF in Tanjungpinang Timur District per Kelurahan shows that there is a tendency for more DHF occurrences in one gender, especially in two Kelurahan, namely Batu Sembilan Village and Pinang Kencana

Village. In general, men and women have the same opportunity to get DHF, it can be said that the incidence of DHF is not influenced by gender(Kementerian Kesehatan RI, 2018). Trends in the incidence of DHF that occurred in the Pinang Kencana Village, Tanjungpinang Timur District which showed a tendency for most cases to be female, it is necessary to conduct further research to find out this. Are there mobility and work factors where they are more likely to be infected at home or by other factors?

CONCLUSION AND RECOMMENDATION

In the 2014-2019 age trend in Tanjungpinang City and also in East Tanjungpinang District, the highest cases are dominated by the age range of 5-9 years and 10-14 years. However, in the last 2 or 3 years, there is a tendency to increase cases in the age group of 15 years and over, although in the age group under 15 the cases are still high. Trends in the incidence of DHF that occurred in the Pinang Kencana Village, East Tanjungpinang District, showed a tendency for most cases to be female. The results of this study can be input for controlling the DHF program, especially to increase awareness of increasing cases through routine eradication of mosquito nests. Changes in age patterns should have consequences for changing targeted surveillance and prevention.

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The Effectiveness of a Simple Filtration Tool Made from Bananas in Reducing PM$_{2.5}$ at Fish Smoking House in Ternate City

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ABSTRACT

Particulate Matter (PM) is a type of hazardous pollutant of various sizes, which can cause high mortality due to exposure to air pollution. Particulate Matter $<2.5\mu m$ (PM$_{2.5}$) or so-called fine Particle particles is one type of particulate that is very small in size and can cause various types ofdisease. If inhaled into the body can penetrate the lower respiratory tract and can through the bloodstream. The smoke produced by burning coconut shells in a fish-smoking environment is a problem that exists in the smokingroom of fish. This study aims to analyze The Effectiveness of a Simple Filtration Tool in Reducing PM$_{2.5\ 0}$ In Fish Smoking Houses In Ternate City. The research design used is pre-experimental with the method one group pre-post test design. The research was carried out in a fish-smoking house, Ternate City, Maluku Province North. The population in this study was all fish-smoking houses in the City of Ternate. Data thatcollected and then processed using a statistical program. The results showed that the p-value PM2.5 is 0.048 which is less than the critical research limit (<0.05), meaning that there is a difference There is a significant difference between PMmeasurements$_{2.5}$ before and after which means a simple filtration tool made frombanana midrib is effective in reducing PM$_{2.5}$. Conclusion Filtering system made from banana midrib is effective in reducing PMconcentration$_{2.5}$at the fish-smoking house.

Keywords: PM$_{2.5}$, banana midrib, smoking fish

BACKGROUND

Potential to spur economic growth and equal distribution of business fields. On the other hand, it can hurt the environment if not handled properly. Negative impacts that can endanger human health include air pollution both indoors and outdoors.

Air pollution is the entry or inclusion of substances, energy, and/or other components into ambient air by human activities, thereby exceeding the air quality standards that have been set (Permen LH, 2010). Air pollution can cause lung inflammation and if it continues it can lead to a decrease in lung function, which in turn increases lung function abnormalities. Air pollutants that cause abnormalities in the respiratory tract are if pollutants from ambient air are inhaled, including SO$_2$, O$_3$, and NO$_2$ particles including PM$_{2.5}$ and PM$_{10}$ (Mukono, 2008)

Dust harmful particles are often referred to as *suspended particulate matter* with a size of 1 micron to 500 microns. In the case of air pollution both inside and outside the building, dust is often used as an indicator of pollution used to indicate the level of danger (Pudjiastuti, 2002). Air pollution by dust particles measuring 0.1 to 100 m can cause respiratory diseases

(Suhariyono, 2006). A work environment filled with dust can interfere with the vital capacity of the lungs. The harmful effects of dust depend on the presence of particle characteristics, namely, size distribution, form factor, and elemental composition (Mukono, 2010). According to Agusnar (2008), the size of dust or particles that enter the lungs will determine the location of attachment or deposition.

According to *Environmental Protection Agency* (2014) *particulate matter* (PM) is particles that float in the air for a long time or particles found in the air. air, including dust, dirt, soot, and smoke. Particles that are less than 10 micrometers (PM10) can cause health problems because they can be inhaled and accumulate in the respiratory system. Particles that are less than 2.5 micrometers ($_{PM2.5}$) are referred to as *fine particles* and are believed to pose the greatest health risk because of their small size (about 1/30 the width of an average human hair) so that they can enter the lungs. *The Environmental Protection Agency* (EPA) groups dust particles based on their size into 2 categories, namely dust particles = 10 micrometers and dust particles = 2.5 micrometers (EPA, 2014). If inhaled into the body it can penetrate the lower respiratory tract and can pass through the bloodstream (Irniza *et. al.*, Cheng *et. al.*, 2012). In the body, particulates can settle into the respiratory tract through several physical mechanisms such as sedimentation, impaction, diffusion, interception, and electronic precipitation (Hastiti, 2013). Particulates with a size of $PM_{2.5}$ can be inhaled and deposited in the respiratory organs. On long-term exposure, $PM_{2.5}$ can cause acute respiratory infections.

The Government of Indonesia based on Government Regulation Number 41 of 1999 concerning the threshold value issued a threshold value of $PM_{2.5}$ in ambient air which was 65 g/m^3(average per 24 hours). Based on research in China, exposure to $PM_{2.5}$ and PM_{10} in a short time has an impact on increasing the risk of the cardiovascular system and some physiological disorders in the respiratory system, such as decreased lung function, as well as disrupting the respiratory cavity of someone who has a history of asthma (Pui *et. al.*, 2014). According to WHO (2010), $PM_{2.5}$ can also cause respiratory tract infections (ARI), lung cancer, cardiovascular disease, premature death, and chronic obstructive pulmonary disease.

Based on research conducted by Marpaung (2012) related to the effect of $PM_{2.5}$ intake$_{2.5}$ and the incidence of pulmonary function disorders of traders at the Depok city integrated terminal, it shows that there is a significant relationship between the value of OR = 6.5 (*p-value* = 0.004). A similar study was also conducted by Komariah (2016) which showed that there was a significant relationship between impaired lung function and $PM_{2.5}$ with the proportion of the sample of 50% experiencing restrictive and 10.9% experiencing obstructive.

Smoking fish is one of the livelihoods of the Indonesian population in coastal areas other than fishermen. Fish smoking is one of the traditional fish preservation processing processes and the antimicrobial compounds contained in the smoke from burning fuel such as aldehydes, alcohols, and ketones can inhibit the growth of spoilage bacteria and the occurrence of protein coagulation in fish so that fish can survive from spoilage bacteria (Harahap, 2010). 2011). Coconut shell fuel is included in the category of hardwood species consisting of lignin, cellulose, hemicellulose, and ash with a moisture content of 6%-9% (Harahap, 2011). The smoke produced by burning coconut shells in the fish-smoking environment is a problem that exists in the fish-smoking room. The smoke from burning coconut shells can produce pollutants consisting of CO_2, HC, NO_2, and particulates (Hidayat et al., 2012). According to the EPA (2014), biomass burning can produce smoke, while the fine particles in the smoke are $PM_{2.5}$ and PM_{10}.

Ternate City is a coastal area where most of the people are fishermen. The catch of fish is processed as smoked fish, and the smoking area in Ternate City is not equipped with a chimney, so it has the potential for indoor and outdoor pollution. Therefore, this research was conducted to minimize the occurrence of air pollution.

RESEARCH METHODS

Research design *pre-experimental* with the *one group pre-post test design* which aims to analyze the causal relationship by involving one group of subjects (Nursalam, 2015), so this study analyzes the effectiveness of a simple filtering system using banana stem material. For PM $_{2.5}$. The sample size is 10 fish smoking houses which were taken using *a simple random sampling technique*. This analysis uses *Paired T-Test.*

RESULTS AND DISCUSSION

Table 1. Paired Sample T-Test Effectiveness of Simple Filtration Equipment Made from Bananas in Reducing PM$_{2.5}$ in

Variable	Mean	Significance/ p-Value
Pre-test PM$_{2.5}$	3175,70	0,048
Post-test PM$_{2.5}$	605,97	

Source:Primary Data, 2021

Based on table 1 shows that the calculation uses the *Paired Samples T Test,* the p-value is 0.048 which is less than the critical research limit (< 0.05), so it can be concluded that the hypothesis is to accept H1. This means that there is a significant difference between PM$_{2.5}$ before and after which means that a simple filtration device made from banana midrib is effective in reducing PM$_{2.5}$ in fish smoking houses in Ternate City.

This study uses a filtration device as an appropriate technology tool (TTG) which is tested on air pollution in the form of PM$_{2.5}$ and PM$_{10}$ in fish smoking areas. Air filtration is air filtration used in air health studies to minimize air pollution caused by industrial and transportation activities. So in seeing this, the researchers conducted research related to air pollution caused by the burning of smoked fish using local ingredients, namely banana midrib. The purpose of this study was to see the effectiveness of the banana midrib filtering system on PM$^{2.5}$ Analysis of the results of PM$_{2.5}$ using *Paired Samples T Test,* then the p-value of 0.048 which is less than the critical research limit (<0.05), so it can be concluded that the hypothesis is accepted H1. This means that there is a significant difference between PM$_{2.5}$ before and after which means that a simple filtration device made from banana midrib is effective in reducing PM$_{2.5}$ in fish smoking houses in Ternate City.

This is due to the content of banana stems which generally have high biomass. The results of the study by Fahrurozi et al (2010), stated that in plants that have high biomass, the oxygen supply is high so it decreases.

The results of this study are supported by Meitri (2014) that banana midribs and leaf stalks are used to filter dirty air full of carbon monoxide. From the results of this study, the dried and processed fronds were made into a carbonation filter, when mounted on a motor, it could filter carbon monoxide up to 76%, and when a mask was made, the filtration effect was 94% (Meitri Widya 2014). The research of St. Mu`tamirah and Baharuddin Sunu (2019) also stated that the results of the CO measurement at point 1 carried out at the *traffic light fly-over* before filtering was 60 ppm and decreased by 40 ppm after passing through the banana midrib and *zeolite* so that it became 20 ppm. . This shows that the banana midrib alone can

filter gas parameters, especially *particulate matter* produced by combustion. This is also in line with research by Arba et al (2021) which stated that the concentration of $PM_{2.5}$ after being filtered using a filter made from banana midrib decreased compared to before being filtered, meaning that the banana midrib filter was effective in filtering$_{2.5}$, there was a decrease in $PM_{2.5}$ on the motor. Kawasaki and Yamaha use banana midrib filters, and there are differences in $PM_{2.5}$ on Kawasaki and Yamaha motorcycles. The banana midrib is the same as coconut fiber which has the potential as a biomass filter, an absorbent, and bioaccumulation of heavy metals. This is because it has a high percentage of cell wall material as a source of metal binding and also biomass. And also has a high content of cellulose in the form of fibrous compounds and has high tensile stress so it is possible to use it as a biomass filter capable of absorbing $PM_{2.5}$ and PM_{10}. In addition, banana fronds are available in abundance, are cheap, and have less economic value.

The results of previous studies stated that banana fronds or stems can be used as filter media because they have cellulose content and high hygroscopic ability. The high cellulose content in banana stems allows it to be used as an absorbent medium (Prabawati & Wijaya, 2008). Hygroscopic properties are useful for absorbing harmful inorganic chemicals (Edahwati, 2012). The vascular bundle system in banana stems consists of *xylem* and *phloem* arranged scattered (Intiro, 2013).

Banana fronds have the potential to reduce particulate matter, whereas the use of banana stems as filter media can reduce $PM_{2.5}$ in the smoking process of fish. This is due to the influence of biological processes from banana stems and the high percentage of organic matter and biomass in banana stems. The use of banana stem filter media directly (continuously) for a long time can provide an alternative to air sanitation technology using filter media from natural materials or organic materials that are easy and inexpensive. It is hoped that the use of banana stems will be able to neutralize particulate matter in the results of smoking fish. The results of this study are an appropriate technological tool from banana stems that can help the community in minimizing health problems due to smoke exposure. According to RE Hester *et al*, (2016) that smoke exposure is one of the causes of health problems such as ARI in children, chronic obstructive pulmonary disease, asthma, and lung cancer. The source of smoke comes from human activities which can be in the form of biomass burning (household wood burning, forest fires, and others) and also includes cigarette smoke.

CONCLUSION AND RECOMMENDATION

Based on the results obtained from this study, it can be concluded that there is a significant effect between air filtration made from banana midrib in reducing the concentration of $PM_{2.5}$ with a significance value (p-value) = 0.05 ($p < 0.05$).

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The Role of Students and Teachers in the Era of the Covid-19 Pandemic in Prevention of Dengue Hemorrhagic Fever (DHF) in Jambi City, Indonesia

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ABSTRACT
Students who act as surveillance can carry out activities to identify the presence of mosquito nests, with an understanding of this surveillance, students will become preventive actors and understand the movement 3M (Menguras, Menutup, Mengubur) and able to apply it in the home environment in particular and the school environment in general. Mosquito control is carried out by several methods, one of which is Pemberantasan Sarang Nyamuk (PSN). Research design using observational analytic with cross sectional study approach. The population in this study is Junior High Schools participating in the healthy school competition in Jambi City in 2020, for the sample used is the total population, namely 5 Junior High Schools. The implementation of a survey of breeding sites is carried out by observing, both the type and condition of the presence or absence of larvae in the water reservoir. Based on research that has been carried out, mosquito breeding sites in Junior High Schools in Jambi City have a varied number of containers. The number of water reservoirs inspected in 5 junior high schools was 138 containers. The breeding places for mosquitoes according to the type of container that are positive for larvae are bathtubs, buckets, trash cans and used cans. The most common breeding place for mosquitoes is the bathtub. All cleaning staff in each school recycle used goods, and in carrying out the eradication of mosquito nests through activities to drain water reservoirs at least once a week will suppress or reduce the presence of mosquito larvae.
Keywords: Dengue*, Aedes Aegypti,* Junior High School, PSN 3M Plus

BACKGROUND
Dengue hemorrhagic fever is a disease that can cause disturbances and outbreaks of this disease are caused by the dengue virus (A, 2014). The World Health Organization (WHO) states that dengue fever has become a threat in several countries and causes 390 million infections per year in the world (Pramadani, Hadi and Satrija, 2020). In 2015 the Incidence Rate (IR) of Dengue Hemorrhagic Fever (DHF) in Indonesia was 50.75 per 100,000 population with a Case Fatality Rate (CFR) of 0.83% in 2015 which then increased in 2016 to 78.85 per 100,000 population with a CFR of 0.78%. In 2017 the IR of DHF in Indonesia was 22.55 per 100,000 population with a CFR of 0.75%. Almost all regions of Indonesia have dengue cases (Tika and Widya, 2019). In 2020 in Indonesia, IR is less than 49/100,000 population from 377 districts/cities with 73.35% cases. Dengue virus is found in tropical and sub-tropical climates around the world, mostly in urban and semi-urban areas (Sarfraz *et al.*,

2014). Until now, DHF in Indonesia is still a major public health problem. The number of DHF sufferers and the area of distribution is increasing along with the increasing mobility and population density. The World Health Organization (WHO) notes that Indonesia is the country with the highest dengue cases in Southeast Asia (Sutarto, 2017). Mosquito *Aedes aegypti* (Linnaeus) mainly breed in man made habitats, this seems simple Preferred type of water is clear water, so reduce as many containers filled with water as possible or will reduce adult mosquitoes *Ae. aegypti* Examples of water containers include used cans, bottles, used tires, drums, basins in roof drains made of zinc, bird drinking containers, and so on. In addition, Ae. aegypti also breed and lay their eggs in stagnant water such as gutters, bathtubs in toilets and sewers. (Herdianti, Gemala and Erfina, 2019). Prevention of dengue disease is very dependent on controlling its vector, namely mosquitoes *Ae. aegypti*. Mosquito control can be carried out using several appropriate methods both environmentally, biologically and chemically, one of which is (PSN 3M Plus – DHF) involve pemberantasan sarang nyamuk (PSN), solid waste management, modification of mosquito breeding sites by-products of human activities, and improvement of house design To optimize the community empowerment efforts in PSN DHF, in 2004 WHO introduced a new approach called Communications for Behavioral Impact /COMBI, but some countries in the world such as Asean (Malaysia, Laos, Vietnam), Latin America (Nicaragua, Brazil, Cuba) have implemented this approach with good results (Alvita, Huda and Budi, 2018). Predicting dengue outbreaks can also use data related to entomology, and is driven by artificial intelligence (Raja *et al.*, 2019). Jumantik School Children are school children from various levels of basic education who will be fostered and trained as juru pemantau jentik (Jumantik) at school. Formation and implementation Jumantik-PSN School Children are intended to participate in supporting government programs in an effort to pemberantasan sarang nyamuk (PSN) transmission of dengue hemorrhagic fever as well as one of the efforts to develop PHBS from an early age (Jafar *et al.*, 2019). Healthy schools are a requirement in supporting effective learning, with healthy schools the learning process can be carried out effectively. If the school does not implement a healthy school, this is a denial of *convention on the rights of the child* 1989 which states that the human right of every child to obtain a good degree of health and adequate food, especially nutritious food because obtaining nutritious food should be a top priority, Healthy schools include several dimensions of assessment, namely physical health, social and psychological health. This means that the concept of a healthy school refers to the definition of health from the World Health Organization (WHO) which describes health broadly as a state (status) of complete physical, mental (spiritual) and social health, and not just a state free from disease, disability and weakness. School residents are expected to have three healthy dimensions, namely: medical, social and psychological dimensions that can be classified as normal health status. Ideally, the three dimensions of health must be present together to support the teaching and learning process in schools at various levels (Hijjang, 2010). To realize and support the Healthy School program, the City Government held a Jambi City Healthy School competition. According to the Decree of the Minister of Health Number 1429 of 2006, the requirement to become a healthy school is that the school must meet all the requirements contained in the regulation, one of which is that the school environment must be free of mosquito larvae by doing Pemberantasan Sarang Nyamuk (PSN) with movement 3M (Menguras, Menutup, dan Mengubur) or recycle used goods that can hold water regularly once a week.

RESEARCH METHODS
Research design using analytical observational approach *cross sectional study* This study aims to determine the difference after conducting a healthy school assessment on prevention

DHF, with *cross sectional* then the risk factors for this and the outcome (results) are known at the same time. The population in the study was Junior High Schools participating in the healthy school competition in Jambi City in 2020 while the sample was a total population of 5 Junior High Schools. The survey of breeding sites was carried out by observing, both the type and condition of the presence or absence of larvae in the water reservoir.

RESULTS AND DISCUSSION

The results of a survey conducted in 5 schools during the COVID-19 pandemic, the following results were obtained:

Table 1. Distribution of Students, Teachers and Number of Toilets

School	Student	Teacher	Toilet
Junior High School A	408	26	14
Junior High School B	1.074	63	22
Junior High School C	663	50	13
Junior High School D	780	55	13
Junior High School E	1.152	33	22
Total	4.077	227	84

During the pandemic where learning is carried out learning from home through online/distance learning so that students do not come to school and toilets are not used, from the data above, the more students, the more toilets in school, with the ratio between students and toilets being 1:48 students.

Tabel 2. The Presence of Mosquito Larvae

School	Container Type	Container Total	Number of Larva Positive Containers
Junior High School A	Bathtub	10	4
	Bucket	5	1
	Trash Can	18	1
	Cansused	2	1
Junior High School B	Bathtub	4	1
	Bucket	18	7
	Hydroponic Pipe	1	1
	Cansused	9	2

	Tiresused	9	7
Junior High School C	Bathtub	13	4
	Planpot	1	1
Junior High School D	Bathtub	5	2
	Bucket	8	2
Junior High School E	Bathtub	15	2
	Bucket	7	2
	Trash Can	7	5
	Tiresused	6	2

Based on research that has been carried out, mosquito breeding sites in Junior High Schools in Jambi City have a varied number of containers. The number of water reservoirs inspected was 138 containers. The school still predominantly uses buckets as a water reservoir in the bathroom. The breeding places for mosquitoes according to the type of container that were positive for larvae were checked in the form of bathtubs, buckets, trash cans, used cans, plant pipes/pots and used tires. The most common breeding place for mosquito larvae is the bathtub, in line with Triana's research (2021) that the number of positive larvae is in the bathtub (Triana *et al.*, 2021). Junior High School B of Jambi City is the school with the highest number of containers is 41 containers and is also the school with the most mosquito larvae is 18 positive containers.

Tabel 3. Frequency Distribution of Knowledge Level of Cleaning Officers in School

Preventive Practice	Frequency (N)	Percentage (%)
High Knowledge	4	80
Low Knowledge	1	20

Each school has 1 janitor, the knowledge of the janitor in the school plays a role in the implementation of the cleanlines of the school environment and efforts to prevent dengue during the pandemic COVID-19. Places for breeding larvae that are often found in schools during the pandemic are bathtubs, buckets, flower pots, trash cans and unused used items, if they are not managed properly or lack of 3M Plus DHF activities. Mosquito life cycle based on the development of Ae. Aegypti starting from eggs, pupae and adult larvae, the influence of larval growth is the temperature that is suitable for larval breeding, the optimal temperature is 28°C (Boleu, Janis and Mangimbulude, 2019)·(Tusting, 2014)·(Zapletal *et al.*, 2018), during the pandemic, students mostly carried out learning from home and so many school toilets were not used and then became a medium for breeding larvae and officers considered toilets not to be used so that the cleanliness of the water was neglected, toilets that are not clean have a higher risk of larvae development (Sulastri, Cahyati and Sudana, 2021). In the results of research that has been carried out at SMP City Jambi, it is known that 3M

activities carried out include draining, draining is an effort to eradicate Dengue Hemorrhagic Fever (DHF), the most important of which is an effort to eradicate mosquito larvae transmitted in their breeding places by doing 3M, one of which is drain the water reservoir at least once a week by brushing the walls of the water reservoir properly and correctly. Based on research conducted in the five schools in carrying out draining water reservoirs, it has not run optimally.

Table 4. Teacher role of UKS (Unit Kesehatan Sekolah) In the Prevention of DHF in Jambi City

Teacher role of UKS (Unit Kesehatan Sekolah)	School Total	Percentage (%)
Carry out draining the tub in the toilet 1 time at least a week	5	100
Close the water reservoir tightly	5	100
Recycling used goods	5	100

The results of the observation were obtained that the teacher UKS (Unit Kesehatan Sekolah) role in preventing the development of larvae. The role of the principal can be influential in overseeing the prevention of DHF in schools, by conducting and assigning cleaning staff. During the Covid 19 pandemic, students of juru pemantau jentik (jumantik) which have been established today are only focused on carrying out lessons and are not allowed to conduct activities in schools. Until the larval inspection activity by the students is not carried out, for that hygiene and 3M be the duty of the school janitor.

Table 5. Distribution of the Frequency of DHF Transmission Prevention Practices by Officers

Preventive Practice	Frequency (N)	Percentage (%)
High Knowledge	5	100
Low Knowledge	0	0

Percentage of schools that carry out drainage in each water reservoir, namely SMP Negeri A Jambi City (79%), SMP Negeri B Jambi City (46%), SMP Negeri C Jambi City (86%), SMP Negeri D Jambi City (71%), SMP Negeri E Jambi City (54%). Draining without brushing and using soap does not remove the eggs that stick to the walls of the water reservoir. The implementation of draining and brushing water reservoirs at SMP Negeri A Jambi City, SMP Negeri D and SMP Negeri E is less effective, this is evidenced by the presence of sediment at the bottom of the surface of the water tank. Water reservoirs that are not regularly brushed when draining will become a breeding ground for mosquitoes. Development from egg stage to adult mosquito occurs in 3-4 days.

Eradication of mosquito nests through activities to drain water reservoirs by brushing at least once a week will suppress or reduce the presence of Ae. aegypti. In connection with Sari's research (2012) which explains the habit of draining water reservoirs more than once a week,

it can provide an opportunity for Ae. Aegypti develops into adult mosquitoes considering that the growth of eggs into adult mosquitoes ranges from 7-14 days (Sari, 2012). According to Riandi's research (2017), it was found that the results of containers that were drained in the last 1 week were fewer larvae compared to containers that were not drained (Riandi, Hadi and Soviana, 2017). Closing activities, from the research carried out, it was found that several schools did not carry out closing activities for water reservoirs, namely SMP Negeri A Jambi City, SMP Negeri B, SMP Negeri E. This is in line with Maurien's research (2015) with the results of this study stating that there are There is a significant relationship between closing water reservoirs and the incidence of Dengue Hemorrhagic Fever in the working area of Gogagoman Health Center Kotamobagu City with an OR value of 4.3 (95% CI = 1.571-12,187), it can be said that respondents who do not close water reservoirs have a risk of 4, 3 times more likely to suffer from dengue hemorrhagic fever than respondents who closed water reservoirs (Carundeng *et al.*, 2015).

Many schools use water reservoirs in the form of buckets in their bathrooms and all buckets used in the bathroom are not covered. According to a previous study by Sari (2012) which said the possibility of the water reservoir not being closed was caused by the absence of a lid on the water reservoir used. Closing the water reservoir is considered impractical because it will make it difficult to use the water in the water reservoir. Getting used to being orderly in using water reservoirs by opening and closing them again after use is considered difficult. Buckets that are often not closed tightly provide openings for mosquitoes to enter and cause the room to be darker and more humid. This condition is preferred by female mosquitoes to lay down on their knees than in the open (Azizah, Hermawati and Susanna, 2018).

Based on research conducted in the five schools, several schools have carried out activities in the form of reusing goods that can accommodate water that are well managed, namely SMP Negeri B Jambi City (100%) and SMP Negeri D Jambi City (100%). The school also has a waste bank for collecting used goods in the form of used cans, used bottles, and used tires which can then be used. This is in line with Ardha's research (2019) that 3.3% of schools practice reusing used goods by sorting used drink bottles and glasses and collecting other used goods to be reused (Majida and Pawenang, 2019). Schools recycle used goods into useful items, such as used bottles made into a table, used tires as plant pots, this is also in line with Ardha's research (2019) which states 6.7% of schools practice recycling used goods by utilizing bottles and glasses of used snacks into plant pots (Majida and Pawenang, 2019).

The results of the study, the school is more likely to pay attention to the cleanliness of the front yard of the school, the backyard of the school often goes unnoticed. This can be seen from the discovery of unused used items such as used jars, paint containers, broken glass, used buckets, used tires, bottles and glasses of used snacks found in the backyard of the school with an open area. From the research conducted, at SMP Negeri A Jambi City, SMP Negeri B Jambi City, SMP Negeri C, and SMP Negeri E Jambi City were still found used goods containing water. Without realizing it, these used goods can potentially become a breeding ground for Ae. aegypti if filled with water during the rainy season.

From the research conducted, it was found that from the five schools, it was known that the role of UKS teachers in implementing the 3M program was by working on their own and assigning school cleaners to always do 3M. During the Covid 19 pandemic, jumantik students were only focused on studying and were not allowed to carry out 3M activities at school, so the larva inspection activity by jumantik was not carried out. The role of the janitor is to improve the cleanliness of the school environment and run 3M. this is in accordance with previous research that awareness of prevention and control as well as modes of transmission is very necessary (Goweda and Faisal, 2020).

CONCLUSION AND RECOMMENDATION

The role of the janitor is to improve the cleanliness of the school environment and run 3M. Activities aimed at eradicating mosquito nests are driven through activities such as UKS. The schools studied were still dominantly using buckets as water reservoirs in the bathroom. The five junior high schools still have not carried out the activities of draining water reservoirs properly. Some schools do not carry out activities to close water reservoirs is junior high school A Jambi City, junior high school B, junior high school E. There are several schools that carry out activities to reuse goods that can accommodate water which are managed properly, some schools have waste banks to collect items in the form of used cans, used bottles, and used tires which are then partially sale or used.

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MANAGERIAL EVALUATION OF THE MARKET'S TEMPORARY WASTE MANAGEMENT SYSTEM AND MEASUREMENT OF FLY DENSITY LEVEL
(Case Study At Pucang Anom Market In 2022)

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ABSTRACT

Pucang Anom Market in Surabaya City, has several waste generations that exceed the volume capacity of its temporary waste shelter. The purpose of this study is to managerially evaluate the market waste management system and measure the level of fly density in Pucang Anom Market, Surabaya City. This research is a descriptive observational study with a cross-sectional approach. Data were collected by interview, observation, and direct measurement at market polling stations. The object of this research is a temporary waste management system and the research subjects are the market manager, waste management, and fly density. The data obtained were analyzed by SWOT analysis. The results of the managerial evaluation of the waste management system showed average waste management of 60.36% with sufficient category. The results of the SWOT analysis with EFAS and IFAS matrices show that the position of waste management while Pucang Anom Market is in quadrant I which means it supports an aggressive strategy. Finally, the results of the measurement of fly density are in the high/density category, so it is necessary to secure the breeding grounds of flies and plan for control efforts. It is suggested that there is a need for an expansion of the temporary waste shelter of the market area, handling the problem of high fly density, maintaining good communication between the two parties, namely the private sector and third parties, updating SOPs, issuing competency standards for officers and making market waste management guidelines.

Keywords: Swot analysis, market waste management, the density of flies

BACKGROUND

Waste is a waste object from human activities on earth and is very dangerous for ecosystems because it can pollute the ecosystem. Not only animals and plants will feel the bad effects but humans can also be affected by it. Waste can be a major problem and is increasing every day for waste management that only relies on Landfills (TPA) without a prioritization process. This situation makes landfill land full quickly and less effective in the long term because the availability of landfill land is increasingly limited (Ermawati and Sukmono, 2013).

One of the cities in Indonesia, which is located in the province of East Java and dubbed the city of Trade and Services is the city of Surabaya. Where the city makes a great contribution to the economy and has a very strategic position in East Java. There are 67 markets and a market area of 257,725 ha in the city of Surabaya in 2020 which has been managed by the local government through the Pasar Surya Regional Company (Surabaya City Government, 2021). In addition, problems related to waste are also very seriously experienced by the city of Surabaya. This is because the city is included in the category of five major cities that have the largest waste generation (Andina, 2019).

Negative impacts due to poor waste management are characterized by the emergence of disease vectors such as house *flies (Musca domestica)* or rats that can increase the occurrence

of infectious diseases. Diseases caused by the presence of vectors are such as *salmonellosis*, *cholera*, *bacillary dysentery* and *amoeba*, *abdominal typhus*, *trypanosomiasis* disease, and *Spirochaeta* disease (Budiman Chandra, 2007). Flies can act as mechanical vectors that cause disease in humans as well as animals. Infection occurs through the consumption of food or drinks that are infested with flies. The event of transmission of diseases spread by flies comes from food originating from food management sites, the processing of which does not meet health requirements (Amalia Aisyah, Rusmiati, 2017).

Descriptive research using a cross-sectional approach by collecting direct observational data on the solid waste management system of the Wonokromo Market in 2019 showed the results that there was a problem in the management system due to the lack of officers or Human Resources (HR), there was no clear process flow related to transportation and composting activities, there was no regular schedule for cleaning the temporary waste shelter location, and there is no SOP for the processing process because there is no briefing to carry out the waste sorting process at the Wonokromo Market. This shows that the lack of management in the market waste management system in its internal and external factors can have a negative impact on the entire management system.

Based on the problems described above, there is a need for evaluation activities on the application of temporary waste management systems and the level of fly density as the main indicators, the researcher is interested in conducting a study on "Evaluation of management application in waste management and flies density levels in Pucang Market, Surabaya City" using the SWOT analysis method approach. The SWOT analysis method is used to obtain the right strategy formulation, besides that the method can describe in detail through external and internal factors of a management system both in terms of strengths, opportunities, weaknesses, and threats that will be faced. The purpose of this study is to evaluate the managerial management system of the temporary waste management market and measure the level of fly density in Pucang Anom Market, Surabaya City.

RESEARCH METHODS

The type of research that will be carried out is descriptive observational research. The research design is an evaluation study using a *Cross-sectional* approach equipped with the results of measurement data directly in the field as well as data obtained from the results of the implementation of activities and the application of management functions.

This elite competition is located in one of the Regional Companybranches of Pasar Surya, namely Pucang Anom Market, Surabaya City from January 2022 – June 2022. The subjects in this study included respondents, namely the Head of Pucang Anom Market and the Staff of the Sub.Section of The Cleanliness of The Maintenance Building from Pasar Surya Regional Company, then market waste management, and fly density. The variables of this study included the sorting and shrinking stage, the collection stage, the transportation stage, the processing stage, the evaluation of waste management, and the density of flies. The data obtained were collected through interviews, observations and measurements which were then analyzed managerially using management functions (POAC) as well as through a SWOT analysis approach.

RESULTS AND DISCUSSION

The variables and factors studied in this study can be explained as follows:

A. **Application of Management at the Stage of Sorting and Housing, Collection, Transportation, and Processing of Waste**

The results of the questionnaire interviews that have been carried out based on the stages of sorting and representing until the next stage of processing will be made with a table of details as follows:

Table 1. The results of the interview for a temporary waste management questionnaire at Pasar Pucang Anom, Surabaya City in 2022

No.	Temporary Waste Management Phase	Percentage Results	Category
1.	Sorting and Housing	50%	Enough
2.	Collection	71,43%	Good
3.	Transportation	73,33%	Good
4.	Processing	46,68%	Enough
Total		241,44%	-
Average		60,36%	Enough

Based on the table above, the average results of the entire waste management stage while Pucang Anom Market from the sorting and rental stage, the collection stage, the transportation stage, and the processing stage in terms of management received a score of 60.36%, which means it is included in the "Enough" category.

B. **Evaluation of Temporary Waste Management in Pucang Anom Market managerially**

From the results of the interview, conclusions were obtained related to the SWOT analysis, a SWOT analysis diagram was made to compare between internal factors (strengths and weaknesses) and external factors (opportunities and threats) faced by temporary waste management at Pucang Anom Market, Surabaya City. The diagram can be seen as follows:
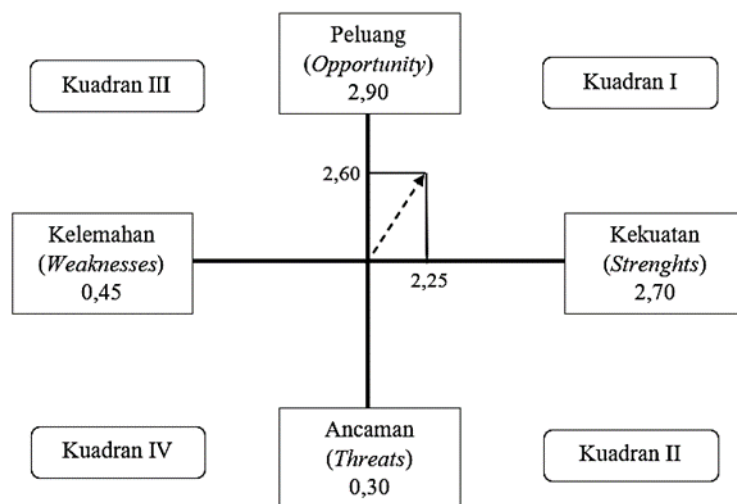
Figure 1. Temporary Waste Management SWOT Analysis Diagram 1at Pucang Anom Market, Surabaya City in 2022
Source*: Data Analysis Results in 2022*

From the results of the picture through the SWOT analysis diagram, it can be seen that the position of waste management in Pucang Anom Market, Surabaya City is in quadrant I which means supporting aggressive strategies.

It is known in the SWOT analysis diagram, namely the location of the waste management position while Pucang Anom Market is in quadrant I, the last stage in the SWOT analysis is the preparation of a SWOT analysis matrix to compile strategic factors for temporary waste management in Pucang Anom Market, Surabaya City. This matrix can describe the opportunities and threats from the external environment faced by the Pucang Anom Market. The SWOT analysis matrix produces 4 (four) sets of possible strategic alternatives. The matrix diagram of the SWOT analysis can be seen as follows:

Table 2. SWOT Analysis Matrix of Temporary Waste Management
in Pucang Anom Market

IFAS	Strength(S)	Weaknesses (W)
	- Temporary waste shelterlocations are easily accessible - Clearly structured waste management officers - Cooperation with third parties regarding the provision of officers and the completeness of waste management equipment - The existence of a cost budget related to the need for equipment equipment - The existence of complete waste management equipment in helping the waste management process - There is a reference to government regulations as a basis for carrying out waste management activities	- Not doing the sorting stage - There has been no update of sops on waste management in Pucang Anom Market - The absence of competency standards for officers who carry out waste processing at the temporary waste shelter

EFAS

Opportunities (O)	SO Strategy	WO Strategy
- There is a development in science and technology - The existence of the Gerakan Indonesia Peduli Sampah program toward a 3R cultured society in 2020 - There is a 3R temporary waste shelterprogram from	1. Maintaining the quality of the temporary waste shelterlocation that has been expanded and its ease of access by adding insight to waste management officers from third parties related to environmentally sound waste management with the 3R principle 2. Maintain good communication	1. Immediately update the SOP related to waste management at the sorting and rental stage in line with the current advances in science and technology 2. There needs to be a policy related to the level of competence

the Surabaya City Government - There was an award for waste reduction and regional incentive fund(DID) by the Ministry of Environment and Forestry in 2020 to the Surabaya City Government - There is an insistence by the Ecoton Institute on the Surabaya City Government regarding the issuance of a ban on the use of single-use plastics - There is an update of Local regulation No. 5 of 2014 to Local regulation No. 1 of 2019 - There is third-party cooperation with the private sector as the implementer of waste management	with third parties as *outsourcing* service providers to always provide services and provide quality equipment 3. Always adjust to the latest regulations as a reference in carrying out activities so that the activities carried out progress	possessed by someone who will carry out waste processing work so that the waste that arises can be overcome optimally
Threats (T) - There is an increase in waste generation from outside the market area - There is an assumption that the public considers that the disposal of waste at the temporary waste shelterof Pucang Anom Market is made for the public - Slow government attention to aid in procuring new tools that have been damaged	**ST Strategy** 1. Expanding temporary waste shelter land to expand waste storage capacity 2. Provide signals to the government by making written reports regarding the need for tools to support the waste management process	**WT Strategy** 1. The renewal of the SOP for waste management following the latest reference related to waste disposal in line with the addition of waste generation, so that problems related to waste can be immediately overcome 2. Issuing competency standards for officers so that they can hire waste processing officers who have insights to be able to innovate in overcoming excessive amounts of waste

		capacity so that the absence of new tools does not become a big problem for waste management in Pucang Anom Market

From the results of table 2. It can be seen that the results of the analysis of external and internal factors linked in the SWOT analysis matrix can determine an alternative strategy, by combining strengths (S) with opportunities (O) can create SO strategies, weaknesses (W) with opportunities (O) can create WO strategies, strengths (S) and threats (T) can create ST strategies, and weaknesses (W) and threats (T) can create WT strategies.

C. Measurement Results of Fly Density as Bio Indicators

Researchers took measurements for one time, namely on Thursday, April 21, 2022, at 06.09 WIB, and the following results were obtained:

Table 3. Fly Density Measurement

Location	Date of Activity	Measurement 30 seconds to										Average number ovulates
		1	2	3	4	5	6	7	8	9	10	
Temporary waste shelterof Pucang Anom Market	April 21, 2022	16	7	13	7	8	2	2	3	23	8	13.6 ~ 14

From the table measuring the density of flies, the average number of flies at the temporary waste shelterof Pucang Anom Market was 13.6 when rounded to 14. These results according to Regulation of the Minister of Health No. 50 of 2017 are included in the "Tinggi /solid" category, which means that the fly population is dense and needs to be secured against the places where flies breed and if possible planned control efforts (Regulation of the Minister of Health No. 50, 2017)

The results of the first observation, interview and measurement activities are the sorting and renting stage getting a calculation result of 43.57% and categorized as "Sufficient" based on the lack of planning value including the absence of waste sorting activities carried out in the market, then there is no written schedule, there are no provisions or standards for officers, and there are no details of activities at the sorting and rental stage. Based on the lack of organizing value, there is no division of duties and no special competency assessment for officers, but although there is no division of duties, a third party, namely CV. Riski is responsible for the availability of an adequate number of officers. This is following the statement of Arifin and Hadi W in Abd. Rohman (2017) related to the steps in organizing, namely grouping the activities to be carried out and dividing the tasks into the elements that compose them, according to their specifications

and expertise (Rohman, 2017). Based on the lack of implementation value, includes not updating the SOP and the implementation of activities is not clearly known.

The second is that the collection stage gets a calculation result of 71.43% and is categorized as "Good" based on the lack of planning value including no written schedule and no details of activities. Based on the lack of implementation value, includes not updating the SOP and the implementation of activities is not known.

The third is that the transportation stage gets a calculation result of 73.33% and is categorized as "Good" based on the lack of planning value including no written schedule and no details of activities. Based on the lack of implementation value, includes not updating the SOP and the implementation of activities is not known.

The fourth is that the processing stage gets a 46.68% yield and is categorized as "Sufficient" based on the lack of planning value including the absence of an activity plan-making process, no written schedule, no latest budget details, and no activity details. Because non-optimal waste management has resulted in the ineffectiveness of the waste management process which will have a bad impact on the quality of environmental health. To the results of research conducted by Mutia Arda, et al (2020) because the lack of optimal waste management results in the ineffectiveness of the waste management process which will have a bad impact on the quality of environmental health. So from this reference, there should be a clear breakdown of activities so that the goal of improving the quality of a healthy market can be realized immediately (Arda, Andriany and Manurung, 2020). Based on the lack of organizing value includes the absence of assessment and the absence of an increase in competence for officers. Based on the lack of implementation value, it includes not updating the SOP and the implementation of activities is not known. The total results from the implementation of management from the sorting and processing stage to the processing stage got a score of 60.36%, which means it is included in the "Enough" category.

From the results of making a SWOT analysis diagram, it is known that the X-axis is at a value of 2.25 while the Y-axis is at a value of 2.60, it is known that the location of the waste management position in the Pucang Anom Market, Surabaya City is in quadrant I which means supporting aggressive strategies. According to Freddy Rangkuti (2015) quadrant, I am a very favorable situation for a company. The company has opportunities and strengths so that it can take advantage of existing opportunities. An important strategy to be implemented in this condition is to support an aggressive (Freddy Rangkuti, 2015).

Then after the picture is carried outthrough the analysis diagram, it is determined by determining the strategy by making a SWOT analysis matrix consisting of strategic factors that can be applied by the market manager following the external and internal environment of the Pucang Anom Market, Surabaya City.

The results of the measurement of fly density carried out at one time located at the temporary waste shelterof Pucang Anom Market Kota Surabaya showed an average result of the number of flies of 13.6 when rounded to 14, when compared to the standard from Regulation of the Minister of Health No. 50 of2017 the value exceeded the Quality Standard Value of >2 (more than). This value is included in the "High/solid" category so it is necessary to secure the places where flies breed and if possible, control efforts are planned.

CONCLUSION AND RECOMMENDATION

The results of the average assessment of management implementation include the sorting and processing stages, the collection stage, the transportation stage, and the processing stage are included in the sufficient category, with a note that there is a need for a new budget for the

procurement of human resources (HR) and the procurement of activities for the sorting of Hazard waste (Hazardous and Toxic Materials), then it is necessary to make clear details of activities and update the SOP (*Standard Operational Procedure*)) waste management, there is a need for a new budget for land expansion from the temporary waste shelterof Market, then it is necessary to conduct an assessment and increase special competence of officers who carry out waste processing at Pucang Anom Market, Surabaya City.

The results of the research on measuring the density of flies at the temporary waste shelterof Pucang Anom Market obtained the results of a rounding number of 14 which is included in the high/solid category, so it is necessary to secure the breeding grounds for flies and planning is needed for efforts to control them.

It is recommended for Pucang Anom Market to expand the temporary waste shelterland by utilizing vacant land around the temporary waste shelter, then immediately deal with the problem of fly density by making security efforts for the place where flies breed, and it is necessary to maintain good communication with private sectoral parties and third parties. for Pasar Surya Regional Company, namely immediately updating the existing SOPs complete with details of activities and cost budgets, needing to issue competency standards for officers, making guidelines related to waste management, and is expected to prioritize the development of waste management in the aspects of sorting and renting and processing at thetemporary waste shelter of Pucang Anom Market.

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The Effect of Work Stress, Gender, Age and Working Period Of Nurse on the Performance of Night Shift Nurse

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ABSTRACT

As many as 50% of 6 night shift nurses in inpatient installations experience stress at work. The causes of work stress experienced by night shift nurses in inpatient installations are the many demands of work and role conflicts. One of the bad effects of work stress is that performance will decrease. This study aims to analyze work stress, gender, age and years of service on the performance of night shift nurses in inpatient installations. The type of research used is analytic research with *cross sectional method.* The population in this study were 36 people, the sample in this study was 33 people. The variables studied were work stress, gender, age, years of service and work performance of nurses. The primary data collection technique was obtained through interviews with questionnaires and analyzed using Mean$_{hypothetical}$ and SD$_{hypothetical}$ in determining the level of work stress and nurse performance. The results of the study are that there is an influence between work stress and characteristics of age and tenure on performance with a value of 0.000, respectively; 0.018: 0.023. However, there is no influence between gender characteristics on performance with a p value of 0.625. The conclusion of this study is that there is an influence between work stress on performance and characteristics including gender, age and tenure.

Keywords: work stress, work performance, tenure, productivity, nurses

BACKGROUND

Stress in psychology is a feeling of being depressed and the occurrence of mental tension experienced by a person. Stress can be experienced by anyone and anywhere. Stress can be a problem if the amount of stress experienced is too much which will endanger physical and mental conditions [1] [2]. Like nurses, nurses have the main task of paying attention to patient needs and caring for patients with full responsibility. Every day in carrying out their work nurses in inpatient installations will not only deal directly with patients but also with patients' families, colleagues and superiors who are in the hospital so that in carrying out their work nurses will be vulnerable to stress at work [3]. The nursing profession in the inpatient room has a very high risk of stress because nurses have very high duties and responsibilities for human safety. The tasks carried out by inpatient ward nurses are carrying out nursing care standards which consist of carrying out nursing assessments, analysis to formulate nursing diagnoses, standard nursing evaluations for individuals, documentation of health care services, etc [4]. Work stress on

nurses occurs in Singapore which is caused by an inadequate number of staff, high demands or workloads and conflicts in the workplace [5].

Work stress on nurses also occurs in Indonesia. Work stress on nurses also occurs in Indonesia, where according to a 2007 PPNI survey, around 50.9% of nurses who work in four provinces have experienced work stress, often experience dizziness, and cannot rest properly due to the workload is too high and time-consuming and the salary is low without being balanced with adequate incentives. As many as 44% of nurses in the inpatient room at Husada Hospital, 51.5% nurses at the International Hospital MH. Thamrin Jakarta, 54% of nurses at PELNI Hospital "Petamburan" Jakarta and 51.2% of nurses in the *Intensive Care Unit* (ICU) and Emergency Installation (IGD) Mitra Keluarga Hospital Bekasi experience work stress with different causes [6]. Work stress experienced by nurses must get attention because if nurses experience stress at work it will have an impact on the quality of nursing services will decrease so that in the end it will cause complaints from patients [3]. Nurse performance is a measure of success in achieving nursing service goals. The performance of nurses can be seen through the provision of nursing care that has been obtained through learning received during the completion of the nursing education program [7].

Work stress experienced by nurses due to their work environment can affect their performance and job satisfaction. If the performance of a nurse is not in accordance with what was previously expected, the presence and absence of nurses will be high so that it will cause problems related to employees and will have an impact on decreasing the performance of a company or agency [8]. The results of previous studies stated that work stress can affect the performance of inpatient installation nurses at Panti Waluya Sawahan Hospital, Malang. The lower the level of work stress of nurses, the performance of nurses in carrying out nursing care will be better [8]. Based on the results of the preliminary survey, it was found that from 6 night shift nurses in inpatient installations, 50% experienced work stress in the heavy category. So this study aims to analyze the effect of work stress and characteristics of nurses on the performance of night shift nurses in inpatient installations.

RESEARCH METHODS

The type of research used is observational analytic research with *cross sectional method.* The object of this research is a night shift nurse who works in an inpatient installation. The variables studied included nurses' work stress levels, gender, age, years of service and nurse performance levels. The types of data obtained included primary and secondary data. The tools used in data collection in this study were demographic questionnaires, job stress questionnaires. nurses, nurse performance questionnaire. The data collection technique used in this study was interviews by asking several questions contained in the questionnaire and documentation sheets. Data processing in this study uses *editing, scoring* and *coding* Mean$_{hypothetical}$ SD$_{hypothetical}$ in determining the level of work stress and nurse performance.

RESULTS AND DISCUSSION

Table 1
Characteristics of nurses on the performance level of inpatient night shift nurses

No	Characteristics of Nurses	Performance Level (%)		
		Good	Moderate	Less
1	Mild Stress	30,3	-	-
2	Moderate Stress	-	45,5	-
3	Severe Stress	-	-	24,2
4	Male (Gender)	31	50	19
5	Female (Gender)	47,1	29,4	23,5
6	≤ 40 Years (Age)	42	32	26
7	≥ 40 Years (Age)	-	50	50
8	< 10 Years (Working Period)	37,5	37,5	25
9	10 – 20 Years (Working Period)	42	33	25
10	>20 Years (Working Period)	100	-	-

1. The Effect of Work Stress on the Performance of Night Shift Nurse

Stress is a stimulus or action from the human body that comes from outside or from within the body that can have a detrimental impact on health and can cause performance to decline [9]. Job stress is a stressful condition that can affect changes

in emotions, a person's pattern of thinking and a person's condition [10]. Job stress will have an impact on individuals, organizations and society. For individuals, it will have a negative impact on the physical and mental health of workers, decreased performance, lack of career development and job loss. For organizations the impact of work stress such as absenteeism, losses related to worker health to *turnover*. For the social environment, work stress causes high pressure for those who are serious, so it needs quick and appropriate handling [11].

The cause of stress in the work environment is found in individuals who are in fields that require full responsibility in this case the nurse must be responsible for patient safety so that it will make nurses vulnerable to burnout. This can cause work performance and service to patients to deteriorate [12]. One of them is the *work shift* system. The rotating work system or commonly known as *shift work.* Nurses who work on the night shift will be more at risk of being exposed to moderate stress when compared to nurses who work the morning shift. Nurses who work on the morning shift will experience higher mild stress because nurses on the morning shift have sufficient rest time and sufficient lighting at work so that the workload is not too heavy. Nurses who work on night shifts will experience higher stress this is because nurses who work on night shifts have a lot of work activities to overtime resulting in less time to rest [13][14].

There are three categories of potential sources of stress, including environmental factors, individual factors and organizational factors. In addition, the workload is too heavy, the working time is urgent, the quality of work supervision is low, the work climate is unhealthy, the work authority is inadequate and there are differences between employees and leaders in their work [10].

Based on the table, it can be seen that 48.5% of night shift nurses got a medium level of performance and 24.2% of night shift nurses got a good level of performance.

Based on Table 1, it can be seen that there is an influence between work stress on work performance. This can be seen through the p value given of 0.00 < 0.05, it can be said that work stress has an influence on the work performance of the inpatient night shift nurse. Work stress experienced by nurses can arise if their basic needs are not met, the basic needs in question are biological needs such as wages or salaries, the need for love, the need for security, the need for a sense of belonging and belonging, the need for a sense of respect and the need for a sense of belonging. for self-actualization [15].

Stress is an unavoidable part of human life, because stress will make individuals develop and change. Stress is a relationship between the individual and the environment that is assessed by each individual who experiences it as a dangerous thing if it cannot be overcome. Stress can occur in each individual with different causes. Stress can come from within oneself, family, organization or community or the surrounding environment and work environment. Individuals who are in a job that is full of responsibility for the safety of others will be very susceptible to stress and boredom. Like nurses who are required to work skillfully and make decisions quickly. If the demands or problems experienced cannot be managed properly, the

nurse will experience severe stress, loss of motivation, severe saturation and the level of absenteeism will be more frequent. So that this will cause a decrease in work performance to the point of deteriorating health services to patients [12].

Stress is a condition of a person, where his physical or psychological condition regarding disturbances that come from inside or outside himself so that it can cause unusual or deviant behavior, both physically, socially and psychologically. So it can be said that deviant employee behavior is one of work stress. Job stress can arise through various things that basically make employees feel less comfortable. Factors that can cause stress are work factors, non-work factors and personal factors. Work stress experienced by employees / workers must be addressed properly because employees who experience stress at work will feel frustrated, often emotional and feel uncomfortable at work so that what happens is that the organization will fail, because it can interfere with one another in carrying out their duties. his job [16].

Job stress can affect employee performance, employee performance is important in developing the company. Employee performance will greatly impact the company's profits, so that employees with good performance will be maintained. Good employee performance will make a good contribution. In an increase in the company's financial statements, if there is an increase or continuous profit, the employee's performance is considered to make a positive contribution [16]. Performance is a maximum achievement produced by an employee in doing his job. Employee performance can be seen through the many contributions of an employee to the company. Performance can be influenced by the quality and ability of employees, supporting advice, super facilities including matters relating to government policies or regulations. Performance indicators are quality, quantity, timeliness in completing work, effectiveness and independence [17].

Based on the results of the study, it was found that work stress can affect the performance of nurses. This explains that if work stress increases or is severe it will reduce the potential for employee performance and vice versa if work stress decreases it will increase the potential for employee performance. As with previous studies, the results showed that there was a relationship between the level of work stress and the performance of nurses in the inpatient room at Panti Waluya Hospital, Malang [8]. The results showed that work stress can affect the work performance of nurses [18]

Some of the effects of stress include fatigue at work, mental and physical disruption of a person, trauma, fatigue of caring, besides stress can also cause several things including anxiety, boredom at work, unstable emotions, lack of concentration, lack of ability to take a job. decision making, blood pressure rises causing low performance [19]. In dealing with stress at work, it can simply be done by relaxing muscles that start to feel tense, other body parts that feel stiff and resting so that the body will come back fresh [18].

2. **The Effect of Characteristics (Gender, Age and Working Period) on the Performance of Night Shift Nurse**
   a. **The Effect of Nurse Gender on the Performance of Night Shift Nurse**

Based on table 1, it can be seen that as many as 31% of male nurses have good performance, 50% have moderate performance and 19% have poor performance. Meanwhile, female nurses are 47.1%, female nurses have good performance levels, 29.4% have moderate performance levels and 23.5% nurses have poor performance levels.

Based on table 1, it can be seen that there is no influence between gender on work performance. This can be seen through the given p value of 0.625 > 0.05, it can be said that gender has no effect on the work performance of the inpatient night shift nurse.

Gender is a biological sex categorization so that self-identity can be known as male and female [20]. Gender or gender in roles in various systems or jobs are usually the same, this can make the roles between male employees and female employees according to their conditions have many similarities. So not infrequently the work of men - men are also done by female employees and vice versa. However, there are several things that can be used to see the performance of an employee through the same or different genders. The role of gender or gender has a role on employee performance, there is no difference, which can be interpreted that in the process of completing and doing a job both men and women have similarities both in terms of quality and quantity [21].

Based on the results of the study, it was found that gender could not. affect nurse performance. This is in accordance with previous research, namely the absence of a relationship between gender and the performance of nurses at the Prof. Mental Hospital. Dr. V. L Ratumbuysang North Sulawesi with a given p value of 0.917 > 0.05 because a person's performance is not included in the characteristics of an individual but performance is a form of talent or ability possessed by a person [21].

b. **The Effect of Nurse Age on the Performance of Night Shift Nurse**

Based on table 1, it can be seen that as many as 42% of nurses aged 40 years have good performance, 32% have moderate performance and 26% have poor performance. Meanwhile, nurses aged 40 years have a moderate level of performance as much as 50% and as many as 50% of nurses have a low level of performance.

Based on table 1, it can be seen that there is an influence between age on work performance. This can be seen through the p value given of 0.018 < 0.05, it can be said that age has an influence on the work performance of night shift nurses in inpatient installations. One of the factors that have an influence on performance is the age factor, those who are still in their productive period usually have a higher level of performance or productivity compared to workers who are old, making their physical condition weak and limited.

The relationship between age and performance becomes one of the important problems in the future because there are three main reasons that form the basis of this statement, namely the first is the belief that performance decreases with increasing age. Second, the number of workers or employees who are old. Third,

the existence of a regulation from a country for certain purposes and purposes such as setting limits for retirement age. The older a person is, the more reluctant they are to stop working. This is because when a person gets older it will be difficult to find a new job [21].

Some of the results of research on age, based on the results of research conducted by Emmanuel Vensi Hasmoko (2008) with the title analysis of factors that affect the clinical performance of nurses in the inpatient ward of Panti Wilasa Citarum Hospital, Semarang. Getting the results that the results of one's abilities and skills can be related to age, because the longer a person's age, the understanding and knowledge of the problems faced will mature in handling them. In addition, age also affects productivity in performance because one can get the level of maturity that comes from the job. In addition, the age factor also affects the performance of nurses which can be seen from a number of positive qualities that older workers bring to their work. However, older workers are also often seen as lacking flexibility and often rejecting technology.

A total of 13 nurses (47.1%) aged 40 years obtained work results or performance in good categories. This is because at this age a person will experience a stable period, the physical condition at this age is also in very good condition. As according to Elizabeth B. Hurlock's theory, he divides the age range of early adulthood into three stages, namely, early adulthood which starts at the age of 18 years to approximately 40 years where physical and psychological changes have reached maturity, then middle adulthood begins at the age of 40 years to 60 years. years in which there is a decline in physical and psychological abilities that will be clearly visible to everyone.

The term age can be defined as the length of life or existence of a person measured in units of time from a chronological point of view of a normal individual showing the same anatomical and physiological development. Workers with a young age will tend to experience higher disability compared to older workers or older workers who are more stable because they are more balanced with life so they are not easy to experience mental stress and inability to work [22]. Age can affect productivity in performance because one can get the level of maturity that comes from the job. In addition, the age factor also affects the performance of nurses which can be seen from a number of positive qualities that older workers bring to their work. However, older workers are also often seen as lacking flexibility and often rejecting technology. Research from Rusdianti in 2011 found that nurses who were < 32 years old had less performance (53.4%)

than nurses who were 32 years old (33.7%) [22].

c. **The Effect of Nurse Age on the Performance of Night Shift Nurse**
Based on table 1, it can be seen that as many as 37.5% of nurses with a tenure of < 10 years have a moderate level of performance and as many as 25% have a low level of performance. Meanwhile, for nurses who have a working period of 10 - 20 years, as many as 42% of nurses have good performance, 33% are moderate and as many as 25% of nurses have a low performance level. In

nurses with a working period of > 20 years as much as 100% have a good level of performance.

Based on table 1, it can be seen that there is an influence between years of service on work performance. This can be seen through the given p value of 0.018

< 0.05, it can be said that the working period has an influence on the work performance of night shift nurses in inpatient installations.

Working period is a factor that can affect a person's productivity or performance at work. The longer a person's working period, the more the abilities and skills of the workforce will increase. A person's experience in doing his job regularly or continuously will increase his ability in technical mastery. The period of service is the level of mastery of the workforce in carrying out both technical equipment and work. As for what can determine whether a person is experienced or not in carrying out his work, namely the length of time working or working age [23].

Working period is the time of workers or employees who have worked in an institution, agency and organization. The tenure of a person in an organization is important to know because the tenure is one indicator of the tendency of employees to carry out their work activities. For example, in work productivity, the longer a person works, the higher his productivity will be, this is because the person is experienced and has good skills in completing his duties [24].

The tenure of the employee or employee can be said to have an effect on the quality of work of the employee because. Years of work can affect performance because someone who works longer is proportional to experience and better skills in completing his work. Service life can be measured in units of time, such as years or months. So that with the length of the service period owned by the employee or employee, it is hoped that the employee will increasingly master his work better and be able to solve various kinds of problems related to his work [25].

CONCLUSION AND RECOMMENDATION

1. **Conclusion**

   Most of the night shift nurses in inpatient installations are female in the age group of 25 – 30 years with a tenure of < 10 years, getting stress levels in the moderate stress category and performance levels in the medium performance category. There is an influence between work stress, age and tenure on the work performance of night shift nurses. There is an influence between the characteristics of nurses including age and years of service on the work performance of night shift nurses and there is no influence between gender characteristics.

2. **Recommendation**

   Can be used for reference in further research and consideration for research on work stress with different variables such as hospital physical conditions, individual factors and environmental factors. Related agencies, especially hospitals, can pay attention

to and deal with the stress experienced by nurses, especially those who work on night shifts in order to minimize the error rate that will occur caused by stress at work.

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Analysis of the Relationship between Workload and work pressure foremployees at the X hospital during the Covid 19 Pandemic FannidyaHamdani Zeho1, Luluk Susiloningtyas2, Bambang Wiseno3

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ABSTRACT

COVID-19 has had a major impact on the management of health services, especially in hospitals. As the front line in overcoming the COVID-19 pandemic, hospitals are required to continue to serve and treat patients, especially those infected with COVID-19. Factors such as the increasing number of COVID-19 patients, increasing working hours, fatigue, a sense of danger and uncertainty, and lack of knowledge about the COVID-19 process increase the workload of hospital employees, causing work pressure to increase. This studyis to identify the purpose to determine the relationship between workload and work stress levels in health workers. The research design used observational analytic with cross- sectional study approach and sampling with accidental sampling technique with the number of respondents as many as 126 respondents. Space Administration Task LoadIndex (NASA-TLX) measuring instrument to measure the workload of Hospital "X" employees. The data were analysed using statistical software with the type of Chi-Square statistical test with a significance level of = 0.05. The results of the study found that there was a relationship between workload and work stress levels for health workers with a *p-value* = 0.000, so it was concluded that employee workloads can affect employee work pressure during the COVID-19 pandemic caused by organizational demands in relation to the high role of increased tasks during the COVID-19 pandemic.

Keywords: Workload, Work Pressure, Stressor, Employees, Hospital, Covid-19

BACKGROUND

In December 2019, COVID-19 first appeared in Wuhan, China. Starting on January 30, 2020, COVID-19 began to spread to other countries including Indonesia. This led the WHO to declare the COVID-19 outbreak a Public Health Emergency of International Concern (PHEIC). The COVID-19 pandemic has had a huge impact on all areas of the world. The impact of the COVID-19 pandemic also affects the world of health, especially hospitals, which are the foremost health service units in fighting this pandemic. (Shohrabi, 2020).

As the front line in overcoming the COVID-19 pandemic, hospitals are intensely directly involved in serving and treating patients. Factors such as the increasing number of COVID-19 patients, increased working hours, fatigue, sense of danger and uncertainty,

and lack of knowledge about the COVID-19 process increase the workload of hospital employees (Zhu et al. 2020, Young et al 2020)

Workload is expressed as the level and level of difficulty of employees in carrying out their duties in a certain period. The level of time constraints and the complexity of the work form a fairly high workload. A high workload can cause accuracy and work safety to decrease resulting in low and inefficient quality and performance (Achmad&Farihah, 2018). Performance efficiency itself is related to the workload of workers which consists of physical workload and mental workload. Physical workload is caused by work that is dominated by physical activity. Meanwhile, mental workload is the difference between the work demands of a task and the mental abilities possessed by workers (Tynes et. al 2017) This research is focused on measuring the mental workload of the "X" Hospital employees. The study aims to identify and analyse the workload experienced by hospital employees during the COVID-19 pandemic. By doing this analysis, it can be determined how much the level of employee workload varies so as to facilitate the steps to solve the problem. The output of this research is to be a material for solving problems regarding the workload of employees which aims to improve both individual and organizational performance. The method used in this study is descriptive analysis using the NASA-TLX questionnaire with 6 indicators Mental demand (MD), Physical demand (PD), Temporal demand (TD), OwnPerformance (OP), Effort (EF), Frustration level (FR) where this method can analyse the workload of an employee.

Kediri Regency is one of the regencies in the East Java Province where data obtained as of July 2021 there were 21,247 confirmed cases of Covid-19 consisting of 19,941 declared cured and 1,294 declared dead. The data obtained from the "X" Hospital there are as many as 714 employees who devote themselves to the hospital. At RS "X" a team was formed consisting of 56 medical personnel, 333 paramedics, 98 non-nurse paramedics, 227 other employees who collaborated and served to handle and treat patients with ODP, OTG and positive Covid-19 status in Kediri Regency. .

Since the formation of this Covid-19 team, employees, especially health workers who are members of the team, have additional work, resulting in them having to stay in the hospital area and are not allowed to go home to gather with their families. In addition, although preventing the transmission of the Covid-19 virus to the Covid-19 team and health workers in general is adequate, they still often feel worried about contracting the virus because they feel that they are very at risk of contracting it compared to people who do not carry out work activities.. This causes them to feel burdened with the responsibilities of the work carried out during the current pandemic. From the results of a brief interview with one of the health workers at the "X" hospital who said that due to the burden felt by the employees there, they felt stressed with the work being carried out because the number of positive increases in Covid-19 in Kediri Regency increased rapidly since December 2020 until now.

The workload felt by hospital employees "X" can cause work stress that has an impact on physical disorders such as feeling tired or tired, dizziness, attitude disorders such as anxiety, impatient and irritable, panic and psychological disorders such as difficulty sleeping and difficulty relaxing. Based on the data, descriptions and phenomena above, the researchers are interested in conducting research on the impact of workload on work pressure levels for hospital employees "X" during the covid-19 pandemic.

RESEARCH METHODS

This study was conducted using an analytical observational method with a cross-sectional design (cross-sectional). The cross-sectional research design is a research design carried out by collecting data simultaneously at one time. This research was conducted from March to May 2022. The approach of this research is descriptive research, using a sample of 126 respondents with accidental sampling technique. Measurement of respondents' work stress levels was measured using the Indonesian version of the Depression, Anxiety, and Stress Scale-42 (DASS-42) questionnaire with a validity and reliability value of r = 0.952 and p = 0.001 with a very strong interpretation of the reliability value as many as 14 questions about work stress on an ordinal scale and each answer is given a value of 1 = "low", 2 = "medium", 3 = "high enough", 4 = "high", 5 = "very high" which is measured when the respondent finishes working each shift then given the Indonesian version of the Space Administration Task Load Index (NASA-TLX) questionnaire with a valid reliability value of $r = 0.789$ and $p\ value = 0.000$ with a fairly strong interpretation of the reliability value, this shows that the DASS-42 questionnaire is very strong for measuring the stress level of health workers compared to questionnaires NASA-TLX is powerful enough to measure the workload of healthcare workers. After that, the respondents filled out the questionnaire by assessing between 0 to 100 points out of 6 indicators related to the work being carried out, namely 1. Mental demand (MD), 2. Physical demand (PD), 3. Temporal demand (TD), 4. Performance (OP), 5. Effort (EF), 6. Frustration level (FR) by assessing the higher the value circled by the respondent, the higher the perceived workload (Prastika et al., 2020). After obtaining the results from the pairwise comparison table, then proceed with processing the workload data and obtaining the Weighted Workload (WWL) value by calculating the workload score with the formula Product = (rating x weight) after the results are obtained then proceed with calculating the workload score based on the order of indicators above with the formula value $WWL = \dfrac{MD+PD+TD+0P+EF+FR}{15}$

After the data is collected, the data analysis process is carried out using statistical software with two types of analysis, namely univariate and bivariate. Univariate analysis on each variable to see the picture of the frequency distribution starting from demographic data, the independent variable is workload and the dependent variable is the work stress of employees at hospital "X". Bivariate analysis was conducted to test the hypothesis whether there is a relationship between the independent variable, namely workload and the dependent variable, namely work stress using a non-parametric chi-square test with an ordinal scale with a significance level of = 0.005 if $p <$ then there is a relationship between workload and level of work stress of employees at hospital "X".

RESULTS AND DISCUSSIONRESULTS

1. **Univariate Analysis**

Tabel 1. Characteristics of Respondents

Characteristics of Respondents	n	%	Total
Gender :			
1. Male	51	40	126
2. Female	75	60	(100%)
Age			

1. < 20 years old	19	15	126
2. 20-35 years old	59	46	(100%)
3. > 35 years old	49	39	
Workload			
1. Low	6	5	126
2. Medium	9	7	(100%)
3. High Enough	18	14	
4. High	51	41	
5. Very High	42	33	
Work pressure			
1. Low	11	9	
2. Medium	14	11	
3. High Enough	16	13	126
4. High	47	37	(100%)
5. Very High	38	30	

Based on table 1 above, it can be seen that most of the employees of the "X" hospital are female; as many as 75 respondents (60%) and the majority are aged 20-35 years as many as 59 respondents (46%). The workload of "X" hospital employees during the Covid 19 pandemic was mostly in the high category of 51 respondents (41%) while the work pressure level of employees during the Covid 19 pandemic was also mostly in the high stress category of 47 respondents (37%) however, there were also 38 employees (30%) who experienced high levels of work pressure during the COVID-19 pandemic at the "X" hospital.

2. Bivariate Analysis
Table 2 Analysis of the Relationship between Workload and Work Pressure

onEmployees

Work Pressure levels

No	Workload	Low		Medium		High Enough		High		Very High		Total	p-value
		N	%	N	%	N	%	n	%	n	%		
1	Low	1	0.5	1	0.5	3	2	5	4	3	2	13 (9%)	
2	Medium	2	1	2	1	4	3	6	5	5	4	15 (14%)	
3	High Enough	3	2	2	1	2	1	8	6.6	6	5	21 (15.5%)	0,000
4	High	3	2	4	3	7	5.5	17	16.5	10	8.5	41 (35.5)	
5	Very High	2	1	5	4	5	4	11	9.5	9	7.5	32 (26%)	
	Total	11	6.5	14	9.5	21	15.5	47	41.5	33	27	120(100%)	

Based on the results of the bivariate analysis using the chi-square test in table 2, it was found that p value = 0.000 obtained from the Pearson chi-square value with a significant level of = 0.05 so that p < means that there is a relationship between workload and stress levels in health workers. This is evidenced from table 2 above which explains that respondents with low workloads experience low work pressure as many as 1 (0.5%) respondents and high workloads experience high work pressure as many as 17 (16.5%) respondents. However, other results in this study are cells that describe that low

workloads experience high work pressure as many as 5 (4%) respondents and high workloads but experience low work pressure as many as 3 (2%) respondents.

DISCUSSION

1. **Employee's Workload**
   From research conducted on employees of the "X" Hospital in Kediri Regency, East Java, data obtained that the majority of employees who feel the workload is in the high category are 51 people (41%), employees who feel the workload is very high are 42 people (33%), quite high as many as 18 people (14%), employees with a low workload of 11 people (9%) and employees who feel a moderate workload as many as 14 people (11%). This is in line with research conducted by Solon et al., (2021) and Caietal., (2020), which explained that the workload on employees, especially excessive health workers, could arise due to an imbalance between working time and the amount of work required. Its must be resolved. As during the COVID-19 pandemic, there is a lot of work to be done that requires health workers to finish in hospitals, so that health workers feel anxious and worried about the increasingly widespread of the Covid-19 virus. Another opinion that supports this statement was by Cai et al., (2020), which stated that the COVID-19 pandemic caused an increase in the workload, both physical workload and mental workload for hospital employees.

Table 3 Comparison of NASA TLX. Score Elements

Aspect	Total	%
Mental demand (MD)	20586	17
Physical demand (PD)	16950	14
Temporal demand (TD)	12138	10
Performance (OP)	8799	8
Effort (EF)	30279	25
Frustation level (FR).	30783	26

Based on the final NASA-TLX (National Aeronautics and Space Administration Task Load Index) *score* at Hospital "X" it is known that the mental workload indicator, the total load value for frustration level is 30783, effort 30279, mental demand 20586, physical demand 16950, temporal demand 12138 and own performance 8799. The frustration level indicator has the highest mental load value, followed by effort and the lowest is own performance. This is in line with research by Brooks' et.al (2020) which states that during the Covid-19 pandemic, strong mental and physical strength are needed because to handle Covid-19 patients, nurses are very vulnerable to being exposed to this virus and health workers often get COVID-19 situations and patients, causing feelings of insecurity, and work stress in dealing with patients. Working in the midst of intense media and public attention, and the risk of contracting the COVID-19 virus triggers negative psychological effects including emotional disturbances, depression, stress, low mood, irritability, panic attacks, phobias, insomnia, anger, and emotional exhaustion.

The third workload indicator is the mental temporal demand workload indicator, in this case to do the work there is always a target time to complete the

work, if it is not completed then the hospital employee "X" must work outside working hours because there is work to be completed on the same day. As like research by Elbay et.al (2020) which explains that 42% of employees, especially health workers, experience workload and stress caused by high working hours patterns. According to the results of Prasteya's research (2021), it also explains that the physical demand and mental demand of hospital employees in carrying out their duties must be able to complete the work correctly and quickly. Moreover, employees, especially health workers, often have to race against the emergency faced by patients. During this covid-19 pandemic, nurses are required to be physically strong because they have to wear hasmate clothes for 4 consecutive hours. Not infrequently in doing these jobs employees feel a mental burden and anxiety so that they experience a decrease in concentration and way of thinking while doing their jobs which has an impact on decreasing employee performance.

2. **Employee's Work Pressure**
From the results of research conducted on hospital employees "X" data that the majority of employees who experience work stress are in the high work pressure category as many as 47 people (37%), employees who experience very high work pressure as many as 38 people (30%). 16 people (13%), moderate work pressure level 14 (11%) and 11 employees (9%). This is in line with the research conducted by Verma and Mishra in (2020), which stated that the characteristics of respondents such as gender factors, age factors, environmental factors, workload factors, psychological factors, the influence of excessive leadership style and working time/working hours inappropriate, but the most dominant ones come from psychological factors such as anxiety and workload during the COVID-19 pandemic. As a result of this pandemic, health workers can easily feel work stress due to the increasing number of new positive cases of covid-19, increasing cases of People Under Monitoring and People Without Symptoms as well as the fear of being infected and transmitting it to their families which is a separate stress for health workers which triggers an increase in work stress in health workers. This statement is supported by research conducted by Cai et al., (2020), which states that another cause of stress for health workers is the awareness of health workers about the mortality rate due to COVID-19 infection from various ages.

Based on the results of interviews with health workers, they revealed that they felt stressed when they imagined that their family or close people were exposed to COVID-19 after hearing the death toll from COVID-19. Another thing that also causes stress to health workers is when they see their co-workers are stressed. Based on the research data, it was found that the respondents had different levels of work stress severity. However, from the questionnaire data obtained, many health workers experience stress in the moderate to severe category. This happened because health workers felt excessive anxiety as a result of the very rapid increase in confirmed cases of COVID-19 in the area. This causes respondents to be burdened with having to work in hospitals and feel worried and afraid of the transmission of the Covid-19 virus. This is supported by research conducted by Titasari&Fani, (2021) which explains that in addition to the workload that losses experienced by health workers are psychological disorders or mental disorders due to excessive anxiety that can cause physical illness in health workers.

According to the researcher's assumptions, the stress felt by the respondents occurred because the respondents felt excessive anxiety and the amount of work that had to be completed at the hospital, so that the burden felt at work as a result of the rapid and widespread increase in confirmed cases of COVID-19, even more so. when the respondent has a family member. This is in line with research, Lai, et al in 2020 which stated that health workers who deal directly with patients will be at higher risk of experiencing stress problems from mild to severe due to various pressures faced by employees during the COVID-19 pandemic. In line with these studies, the fear of being infected, contracting and transmitting the virus face to face with patients causes a significant psychological burden on health workers (Kang, et. al, 2020). The level of stress is caused by demands or pressure from the work itself. Health workers have moderate to high levels of stress due to the many conditions that must be faced and the demands of the role of health workers themselves in serving patients directly (Zhu et. al, 2020).

3. **Relationship between Workload and Work Pressure of Employees at "X" Hospital**

From the results of research conducted on hospital employees "X" through the chi- square test, the results of the p value = 0.000 which indicate that p <α where the value of = 0.05 means that there is a relationship between workload and the level of work pressure on health workers in hospital "X" during the Covid-19 pandemic. Based on the results of these statistical tests, it can be concluded that health workers who feel excessive workload can affect the emergence of work stress in both the low work stress category and the very high work stress category. According to Handayani et al., (2020), which states that health workers are at high risk of experiencing mental problems such as stress due to various pressures such as doing a lot of work within the allotted time, having to keep working in the hospital even in the current pandemic conditions and cannot doing work from home like other workers and fear, especially during the covid-19 pandemic, such as the risk of being infected and infecting family and loved ones so that many health workers are isolating themselves from family and closest people even though they don't have Covid-19. This is a difficult decision but must be taken to prevent family and loved ones from unwanted things. This causes a psychological workload or mental workload which is one of the factors that causes work pressure.

The workload experienced by hospital employees "X" affects work stress, there is a relationship between workload and work stress levels for employees due to the work environment and the work that must be done not as usual due to the Covid-19 pandemic conditions which must require employees to maintain distance so that communication between co-workers is slightly hampered and work that is usually done together must be done alone to maintain distance. Therefore, workload is one of the factors that greatly affects work stress on health workers. Conditions that occur due to excessive work to be completed, unsupportive work environment, mental and mental burdens and excessive fear and anxiety are factors that can cause stress at work. Meanwhile, the burden of this work can provide a sense of discomfort in carrying out duties and responsibilities at work so that a response can arise from within to fight the discomfort but is perceived as stressful. Suparlan and Winarta (2020) In addition, hospital employees are at risk of experiencing stress and work pressure due to the demands that must be faced during the COVID-19 pandemic. The demands

during work both in the individual role who are responsible for the type of work he takes as well as pressure from the organization makes hospital employees experience pressure at work which results in psychological and physical work stress (Suryono et.al 2020)

The severity of the respondent's workload depends on the perceptions and concerns and anxiety they feel in carrying out their duties in the hospital. The workload is light if the respondent has a good coping mechanism to deal with concerns that occur as a result of the COVID-19 pandemic. On the other hand, a heavy workload is felt if the respondent is not able to process good coping mechanisms so that the feeling of pressure to carry out work during the Covid-19 pandemic persists. As a result of the severity of the workload experienced, it will affect the level of work stress experienced by health workers. This is also supported by research conducted by Vanchapo, (2020) that the workload felt by health workers can be in the form of a qualitative workload, which occurs due to work demands that are higher than the individual's own ability limit and under certain conditions this workload causes duties and responsibilities. responsibility becomes less and if it continues it can cause mental fatigue and form emotional and psychomotor reactions psychologically. This happens because the work stress is felt not only from the workload but there are other factors, for example, multiple roles, the presence of psychosocial stressors and the burden of thoughts or even problems in other places that cause health workers to feel stressed when carrying out their duties, especially during the Covid-19 pandemic.

CONCLUSION AND RECOMMENDATION

There is a relationship between workload and work pressure at the hospital "X", this means that when the workload is light, the work pressure level is low and when the workload is high, the work pressure level is also high. The COVID-19 pandemic period is a difficult time for employees, especially health workers who work at the "X" hospital. Employees who work in hospitals are at risk of experiencing higher work pressure compared to employees who do not work in hospitals. In addition, the high workload and work pressure occur due to the demands that must be faced during the COVID-19 pandemic. The demands during work both in the role of the individual who is responsible for the type of work he takes as well as pressure from the organization makes hospital employees experience pressure at work which results in psychological and physical work stress. Suggestions for hospital employees to be better able to manage stress and manage time in order to complete all tasks and roles that are carried out, Employees have an effective coping mechanism with the assistance of policies provided by the leadership for assistance and review regularly about the workload and work stress of employees to support and improve employee performance. For further researchers are expected to be able to develop this research by paying attention to the right research methods and using more population and samples and can make this research as a reference for conducting further research in accordance with the results of this study.

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ANALYSIS OF ERGONOMIC FACTORS ON BARBERS RELATED TO THE USE OF BARBERSHOP CHAIRS IN TANJUNGPINANG CITY

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ABSTRACT

Working in standing positions for a long period of time causes muscle tension and Musculoskeletal Disorders (MSDs) complaints. It is often experienced by barbers, where work interactions between work facilities and users must ideally consider work ergonomics, such as work posture, body dimensions, and work tools. This study aimed to analyze ergonomic factors on the use of barbershop chairs for barbers in Tanjungpinang City, Riau Islands Province. This research was a descriptive analytic study, with a cross sectional study approach through observations, questionnaires, interviews, and measurements in the field. The samples of this study amounted to 50 chairs and 50 barbers. The results revealed that there was no relationship between work posture and the use of chair (p-value = 0.173-1.000). In addition, there was no relationship between the dimensions of the barbers' body and the use of chair (p-value = 0.098-1.000). However, there was a relationship between the dimensions of chair and the use of chair, for the type of chairs and conformity (p-value = 0.048), backrest length and MSDs (p-value = 0.004), seat height and convenience (p-value = 0.049), footrest length and MSDs (p-value = 0.017), and footrests width and MSDs (p-value = 0.010); There was a relationship between covariate variable (hours of work) and the use of chair (MSDs) (p-value = 0.004). Hours of work had an important role in MSDs complaints, so the barbers should be able to do muscle stretching activities to avoid static work postures and to re-design the chair design to be more ergonomic.

Keywords: Occupational Health and Safety, Ergonomic, Barbershop Chair, Barber

BACKGROUND

In the current era of globalization, one of crucial factors to consider is Occupational Safety and Health (OSH), as a prerequisite set out in the World Trade Organization (WTO) and General Agreement on Tariffs on Trade (GATT) in the economic relations and trades among countries (Trish Kelly, 2013). One of SDGs goals is a healthy and prosperous life, which by 2030 is targeted to reduce one third of premature deaths caused by non-communicable diseases, through prevention and treatment (Fadhlurrohman, Mochammad Purnomo, Eko, and Malawani Ajree, 2020), so that the implementation of OSH is one way of efforts to create a workplace that is safe, healthy, and free from environmental pollution and occupational diseases.

Formal sectors are much better than the informal sectors. The informal sectors have the potential to be prone to occupational accidents and diseases (Chamnong and Sasithorn, 2021). One of the most informal sectors is barbershop, such as in Tanjungpinang City for example, as the capital of Riau Islands Province with a population of 233,367 in 2021, where the total workforce is around 93.69% employment and the remaining is 6.31% unemployment; around

78.42% is in the service sector, where one of which is a barbershop (BPS, 2022). Based on data from the barbershops' community in Tanjungpinang City, there are ± 1000 barbers with the dominance of work activities having a high intensity of standing position and various other work posture problems, so that it can cause work-related diseases, such as muscle complaints, aches, tingling, and other work-related disease complaints.

The American Pediatric Association (APA) reports the largest musculoskeletal complaints that occur in industrial workers in America are discomfort and pain in the legs by 83% due to standing too long, including cashier workers, shopkeepers, security guards, barbers, and other occupations that are more likely to do long-standing activities (Coenen, 2017). Ergonomics at work for barbers has been known to have quite high problems, especially with regard to discomfort at work, such as the anthropometric condition of the customer's chair design adjusted to the work posture of the barber and other factors such as workstations and work productivity (Sadeghi, et al, 2018). One of the factors that affect ergonomics activities at the work environment is equipments or tools. Working in the barbershop, the barber chair is one of the important facilities in operational activities (Khandan., et al, 2017). Barber chairs are used by customers to sit or lie down when getting their hair cut. Barber chairs that do not match the dimensions of the barber's body size when working will result in complaints of the barber's skeletal muscles and cause ergonomic problems while working (Aweto HA, Tella BA, Johnson OY, 2015). Therefore, considering the potential and number of informal barbershop sectors in Tanjungpinang City and MSDs complaints experienced by barbers, this study is needed to analyze work posture and the factors associated with MSDs complaints on barbers.

Therefore, considering the potential and many business sectors of barbershops or barbershops in Tanjungpinang City, as well as there are MSDs complaints experienced by barbers or barbers from interviews with several workers, and descriptions of procedural conditions and work environments that have ergonomic aspects. which is still not good, especially in the design of the barbershop chair, the dominance of work by workers with long standing work postures, as well as customer discomfort in using the barbershop chair provided, it is needed in conducting research to analyze ergonomic factor of the use of barber chairs on barbers in Tanjungpinang City, Riau Islands Province. This research is a continuation of previous research on work ergonomics for barbershop workers, and it is hoped that this research can provide an important role and urgency in developing information and usefulness in solving work ergonomics problems when viewed from the aspect of comfort, especially on work posture variables, anthropometric dimensions body, and the design of the barber chair for barbers, so that they can provide important input and recommendations on work activities in using a safe and ergonomic work support tool or facility, especially in the use of barber chairs for barbers and customers in the Tanjungpinang City area.

RESEARCH METHODS

This research was an analytical descriptive study, with a cross-sectional approach through questionnaires, interviews, and measurements. The independent variabels in this study were work posture and procedure, dimension of body, dimension of chair, and covariate factors (age, education, years of experience, hours of work, body mass index, smoking habit, and exercise habit). In addition, the dependent variable in this study the use of chair (convenience, conformity, complaint, re-design). Analysis of work posture and procedure used REBA; complaint of MSDs was measured by using NBM, while dimension of body and chair used anthropometric measurement.

A total of 50 barbershops was collected in Tanjungpinang City using a simple random sampling method. There were ± 500 male barbers (57 confirmed barbershops) around Tanjungpinang City. Based on the determination of sample formulation, the number of samples measured was 50 barbershops. The minimum sample size needed was determined by the slovin formula below:

$$n = \frac{N}{(1 + Ne^2)}$$

Information:

n = Number of samples
N = Total Population
e = Error Margin (5%)

This research conducted a study of the hypothesis between the dependent and independent variables, where the hypotheses in this study were:

Ho_1 : There's no relationship between work posture and use of chair
Ha_1 : There's a relationship between work posture and use of chair
Ho_2 : There's no relationship between dimension of body and use of chair
Ha_2 : There's a relationship between dimension of body and use of chair
Ho_3 : There's no relationship between dimension of chair and use of chair
Ha_3 : There's a relationship between dimension of chair and use of chair
Ho_4: There's no relationship between covariate factors and use of chair
Ha_4 : There's a relationship between covariate factors and use of chair

Data were collected by researchers using questionnaires, interviews, measurements, and scoring. Data processing was carried out in 5 stages: cleaning, editing, coding, entry, and tabulating. Data analysis used in this study was univariate analysis and bivariate analysis. Univariate analysis was carried out on each variable to describe an overview of the studied variables and the frequency distribution. Bivariate analysis was conducted to find out the relationship between two variables. In this study, the chi square test was used; the significant test used a significant 95% confidence level. Chi Square statistical test was presented as follows:

$$X^2 = \sum \frac{(O-E)^2}{E} \qquad df = (c-1)(l-1)$$

Information:
X^2 = Chi Square Value
$\sum$ = Summation
O = Observed Frequency
E = Expected Frequency
df = Degree of Freedom
c = Number of Columns
l = Number of Lines

Interpretation:
1) If p-value > 0.05, then Ho is accepted and Ha is rejected, which means there is no relationship between the independent and dependent variable.
2) If p-value ≤ 0.05, then Ho is rejected and Ha is accepted which means there is a relationship between the independent and dependent variable.

3) If the chi square test conditions aren't met, then the p-value is based on the presented SPSS data, for example, if the expected value is < 5, then the Fisher's Exact Test is used.

RESULTS AND DISCUSSION

The sector of barbershop service is one of the occupations that has a risk of MSDs complaints or disorders of the muscular system, where this disorder will cause a decrease in work activities that have an impact on the output of work, if not handled properly and appropriately (Mekonnen, T.H., Kekeba, G.G., Azanaw, J. et al, 2020), so a study and analysis is needed to find out determinant factors and causes of MSDs complaints in barbershop workers, especially in the Tanjungpinang area, so that they can provide input and recommendations for barbershop owners and workers in seeking promotive and preventive actions against potential risks of MSDs complaints. Here is the information data of health related to MSDs complaints in Tanjungpinang area.

Table 1 The information data of health related to MSDs complaints in Tanjungpinang

No.	Indicator	Research (2020)*	DKPPKB Tanjungpinang (2019)**	RSAL Dr. Midiyato S (2019)**	RSUD Raja Ahmad Tabib (2019)**
1	MSDs complaint	Complaints of aches, tingling, muscle/joint pain	Arthropathy cases	Cases of *low back pain*	Cases of *low back pain*
2	Total	117 respondents	976 patients	1842 patients	176 patients
3	Description	Indication of MSDs	The top 10 patients visiting public health centre in Tanjungpinang City	The first biggest disease of hospitalized patients	The third largest disease inpatient morbidity

NOTE: *Yusuf (2020) **BPS of Tanjungpinang (2020)

Univariate analysis on barbershop workers included the frequency distribution of individual characteristics, work posture and procedure, worker's body dimensions on barbershop chairs, and use of barber chairs (convenience, conformity, complaint, re-design). The distribution of respondents based on individual factors was divided into 7 classifications, namely age, education, years of service, hours of work, body mass index, smoking habits, and exercise habits. Table 2 below described that the dominance of barbershop workers was ≥ 35 years old (52%), educated (90%), with a working period of ≤ 2 years (90%), daily working hours > 8 hours (64%), with the highest BMI index in overweight (44%), smoking habits (78%), and exercise habits (74%).

Table 2 The frequency distribution of individual factors

No.	Variable	n	%
1	**Age**		
	a) < 35 yo	24	48
	b) ≥ 35 yo	36	52
	Total	**50**	**100**

No	Variable		n	%
2	**Education**			
	a. Less educated (≤ 9 years)		5	10
	b. Educated (> 9 years)		45	90
	Total		**50**	**100**
3	**Years of Experience**			
	a. ≤ 3 years		45	90
	b. > 3 years		5	10
	Total		**50**	**100**
4	**Hours of Work**			
	c. ≤ 8 hrs		18	36
	d. > 8 hrs		32	64
	Total		**50**	**100**
5	**Body Mass Index**			
	a. Underweight, < 18,5		9	18
	b. Normal, 18,5 – 24,9		19	38
	c. Obesity, ≥ 25		22	44
	Total		**50**	**100**
6	**Smoking Habit**			
	a. Non-smoker		11	22
	b. Smoker		39	78
	Total		**50**	**100**
7	**Exercise Habit**			
	a. Non-Exerciser		13	26
	b. Exerciser		37	74
	Total		**117**	**100**

Work posture in this study was the attitude or posture of barbers when interacting with work facilities, where in this case was how the work postures of barbers were adjusted to the use of barbershop chairs for customers. The following Table 3 described that the work postures of barbers were mostly at-risk status (94%). In addition, the way of working (procedure) was determined based on the intensity of body posture at work, which in this study was the way barbers working in their interactions with the use of chairs, with the intensity of work being dominated by standing work attitudes on all barbers (100%).

Table 3 The frequency distribution of work and body posture

No	Variable	n	%
1			
	Work Posture	3	
	a. Non-Risky	4	
	b. Risky	7	6
	Total	5	94
		0	100

		5	
Procedure (Body Posture)			
a. Standing posture		0	100
b. Stooped posture		0	0
Total		5	100
		0	

The variable of body dimension in this study was adjusted to the use of barber chairs. In the dimensions of the worker's body, there were 8 anthropometric body parts measured according to the use of the barbershop chair, with the dominant category according to the height, weight, leg length, arm length, neck length, shoulder width, elbow length, and leg length. Table 4 below described the frequency distribution of body's dimension on barbers. All barber body dimensions were appropriate, with the results of anthropometric calculations for each body part measured, namely height of full body (52%), weight (58%), foot length (72%), arm length (88%), neck length (64%), shoulder width (82%), elbow length (82%), and limb/leg length (80%).

Table 4 The frequency distribution of body's dimension of barbers

No.	Variable	Barbers	
		n	**%**
1	**Height of Full Body**		
	a) Appropriate	26	52
	b) Inappropriate	24	48
	Total	**50**	**100**
2	**Weight**		
	a) Appropriate	29	58
	b) In Appropriate	21	42
	Total	**50**	**100**
3	**Foot Length**		
	a) Appropriate	36	72
	b) Inappropriate	14	28
	Total	**50**	**100**
4	**Arm Length**		
	a) Appropriate	44	88
	b) Inappropriate	6	12
	Total	**50**	**100**
5	**Neck Length**		
	a) Appropriate	34	64
	b) Inappropriate	16	32
	Total	**50**	**100**
6	**Shoulder Width**		
	a) Appropriate	41	82
	b) Inappropriate	9	18
	Total	**50**	**100**

No.		n	%
7	**Elbow Length**		
	a) Appropriate	41	82
	b) Inappropriate	9	18
	Total	**117**	**100**
8	**Limb/Leg Length**		
	a) Appropriate	40	80
	b) Inappropriate	10	20
	Total	**50**	**100**

The dimensions of the chair in this study were an important variable to determine the characteristics and actual size of the chair, so that it could be an important input in the re-design of a more ergonomic chair. The dimensions of the barber chair included the frequency distribution of the type of chair, the length of use of the chair, and the dimensions of the chair size. Most of the barbershop chairs used in barbershops were complete (86%) and used for > 3 years (68%), for the dimensions of the chair size, where some were in accordance with the measured parts, but there were parts that need improvement such as headrests, backs, seats, armrests, and footrests (Table 5).

Table 5 The frequency distribution of chair's dimension

No.	Variable	Chair	
		n	**%**
1	**Type of Chair**		
	a) Complete	43	86
	b) Incomplete	7	14
	Total	**50**	**100**
2	**Length of Chair's Use**		
	a) ≤ 3 yr	16	32
	b) > 3 yr	34	68
	Total	**50**	**100**
3	**Height of Chair**		
	a) Appropriate	37	74
	b) Inappropriate	13	26
	Total	**50**	**100**
4	**Length of Chair**		
	a) Appropriate	30	60
	b) Inappropriate	20	40
	Total	**50**	**100**
5	**Width of Chair**		
	a) Appropriate	30	60
	b) Inappropriate	20	40
	Total	**50**	**100**
6	**Backrest Height**		
	a) Appropriate	25	50
	b) Inappropriate	25	50
	Total	**50**	**100**

7	**Backrest Length**		
	a) Appropriate	32	64
	b) Inappropriate	18	36
	Total	**50**	**100**
8	**Backrest Width**		
	a) Appropriate	28	56
	b) Inappropriate	22	44
	Total	**50**	**100**
9	**Seat Length**		
	a) Appropriate	39	78
	b) Inappropriate	11	22
	Total	**50**	**100**
10	**Seat Width**		
	a) Appropriate	35	70
	b) Inappropriate	15	30
	Total	**50**	**100**
11	**Seat Height**		
	a) Appropriate	31	62
	b) Inappropriate	19	38
	Total	**50**	**100**
12	**Footstep Length**		
	a) Appropriate	29	58
	b) Inappropriate	21	42
	Total	**50**	**100**
13	**Footstep Width**		
	a) Appropriate	35	70
	b) Inappropriate	15	30
	Total	**50**	**100**
14	**Footstep height**		
	a) Appropriate	25	50
	b) Inappropriate	25	50
	Total	**50**	**100**
15	**Length of Headrest**		
	a) Appropriate	31	62
	b) Inappropriate	19	38
	Total	**50**	**100**
16	**Width of Headrest**		
	a) Appropriate	36	72
	b) Inappropriate	14	28
	Total	**50**	**100**
17	**Height of headrest**		
	a) Appropriate	42	84
	b) Inappropriate	8	16
	Total	**50**	**100**

No.		N	%
18	**Length of Armrest**		
	a) Appropriate	38	76
	b) Inappropriate	12	24
	Total	**50**	**100**
19	**Width of Armrest**		
	a) Appropriate	36	72
	b) Inappropriate	14	28
	Total	**50**	**100**
20	**Height of Armrest**		
	a) Appropriate	41	82
	b) Inappropriate	9	18
	Total	**50**	**100**

The distribution of the frequency of barbershop chair use was known that most barbers or customers also felt comfortable and suitable to use the chair, but customers also experienced muscle pain complaints and thought there was a need to change a new chair.

Table 6 The frequency distribution of barbershop chair use

No.	Variabel	Use of Chair	
		N	%
1	**Convenience**		
	a) Yes	46	92
	b) No	4	8
	Total	**50**	**100**
2	**Conformity**		
	a) Yes	44	88
	b) No	6	12
	Total	**50**	**100**
3	**Complaint of MSDs**		
	a) Yes	41	82
	b) No	9	18
	Total	**50**	**100**
4	**Re-design**		
	a) Yes	39	78
	b) No	11	22
	Total	**50**	**100**

Bivariate analysis was used to determine the relationship between work posture and the use of barber chair. In addition, bivariate analysis was also carried out on body dimension variables and covariate variables (individual characteristics). The results of the study revealed that there was no relationship between work posture and the use of barber chairs, both for comfort, suitability, health complaints, or seat replacement.

Table 7 The relationship between work posture and barbershop chair use

Variable	Convenience	Total	OR	*P* value

		Yes		No				(95%)	
		n	%	n	%	n	%		
Work Posture									
Risky		45	95.7	2	4.3	47	100	11,250 (0.693-182.643)	0.173
Non-risky		2	66.7	1	33.3	3	100		
Total		**47**	**94**	**107**	**91.5**	**50**	**100**		

Variable	Conformity				Total		OR (95%)	P value
	Yes		No					
	n	%	n	%	n	%		
Work Posture								
Risky	44	93.6	3	6.4	47	100	0.936 (0.869-1.009)	1.000
Non-Risky	3	100	0	0	3	100		
Total	**47**	**94**	**6.0**	**100**	**50**	**100**		

Variable	Complaint of MSDs				Total		OR (95%)	P value
	Yes		No					
	n	%	n	%	n	%		
Work Posture								
Risky	11	23.4	36	76.6	47	100	0.611 (0.050-7.397)	1.000
Non-Risky	1	33.3	2	66.7	3	100		
Total	**12**	**24**	**38**	**76**	**50**	**100**		

Variabel	Re-design				Total		OR (95%)	P value
	Yes		No					
	n	%	n	%	n	%		
Work Posture								
Risky	14	29.8	33	70.2	47	100	1.179 (0.099-14.081)	1.000
Non-risky	1	33.3	3	66.7	3	100		
Total	**15**	**70**	**38**	**76**	**50**	**100**		

Bivariate analysis was also carried out on covariate variables and barber body's dimensions on the use of barbershop chairs, where the results of the bivariate analysis can be seen in the following tables. Based on the results of statistical analysis, it was known that there was a relationship between the covariate variables (hours of work) and health complaints of using barbershop chairs. Meanwhile, for the variable dimensions of the worker's body, it was indicated that there was no relationship to the use of barber chairs. However, there was a relationship between the dimensions of the chair and the use of the barber chair, which included:

• There was a relationship between the type of chair and the conformity of the chair
• There was a relationship between the length of the backrest and MSDs complaints
• There was a relationship between foot length and MSDs complaints
• There was a relationship between foot width and MSDs complaints

Table 8 The relationship between individual factors and barbershop chair use

No.	Variable	P value				Conclusion
		Convenience	Conformity	Complaint	Re-design	
1	Education	0.276	0.276	0.582	1.000	Not Significant
2	Years of Experience	0.276	0.276	0.082	0.629	Not Significant
3	Hours of Work	0.291	1.000	**0.004**	0.754	**Significant with MSDs complaint**

No.	Variable					Conclusion
4	BMI	0.279	0.279	0.332	0.162	Not Significant

Table 9 The relationship between body's dimension and barbershop chair use

No.	Variable	P value				Conclusion
		Convenience	Conformity	Complaint	Re-design	
1	Height	0.62	0.62	1.000	1.000	Not Significant
2	Weight	1.000	0.565	0.738	0.617	Not Significant
3	Foot H.	1.000	0.534	1.000	1.000	Not Significant
4	Arm H.	1.000	0.324	1.000	1.000	Not Significant
5	Neck H.	1.000	1.000	1.000	1.000	Not Significant
6	Shoulder W.	0.080	0.456	0.191	1.000	Not Significant
7	Elbow H.	0.456	0.456	1.000	1.000	Not Significant
8	Leg H.	0.098	0.098	0.225	0.462	Not Significant

Table 10 The relationship between chair's dimension and barbershop chair use

No.	Variable	P value				Conclusion
		Convenience	Conformity	Complaint	Re-design	
1	Type of Chair	0.37	**0.048**	1.000	0.176	**Significant with Conformity**
2	Chair H.	0.558	1.000	0.480	0.294	Not Significant
3	Chair L.	1.000	1.000	0.317	0.753	Not Significant
4	Chair W.	0.556	0.058	1.000	0.345	Not Significant
5	Backrest H.	1.000	1.000	0.321	0.537	Not Significant
6	Backrest L.	0.291	0.291	**0.004**	0.479	**Significant with MSDs complaint**
7	Backrest W.	0.576	0.576	1.000	0.576	Not Significant
8	Seat H.	0.534	0.534	1.000	0.065	Not Significant
9	Seat L.	1.000	1.000	1.000	0.502	Not Significant
10	Seat W.	**0.049**	0.549	0.171	1.000	Not Significant
11	Footstep H.	0.565	0.068	**0.017**	0.169	**Significant with MSDs complaint**
12	Footstep L.	0.543	1.000	**0.010**	1.000	**Significant with MSDs complaint**
13	Footstep W.	1.000	1.000	1.000	0.217	Not Significant

14	Headrest H.	1.000	**0.049**	0.171	0.611	Not Significant
15	Headrest L.	0.235	1.000	0.098	0.217	Not Significant
16	Headrest W.	1.000	0.414	0.082	0.683	Not Significant
17	Armrest L.	1.000	1.000	0.705	1.000	Not Significant
18	Armrest W.	0.186	0.186	0.071	0.085	Not Significant
19	Armrest H.	0.456	1.000	0.668	0.423	Not Significant

CONCLUSION AND RECOMMENDATION

The distribution of the frequency of use of barbershop chairs among workers, most of the workers felt comfortable (92%) and appropriate to use the chair (88%), but workers also experienced health complaints (82%) and requested a new chair change (78%). The distribution of the frequency of work postures in barbershop workers were mostly at-risk status (94%), with the intensity of work standing working attitude (100%). The dimensions of the worker's body were adjusted to the use of the barber chair, with the dominant categories according to body height, weight, leg length, arm length, neck length, shoulder width, elbow length, and leg length. The same applies to customers. Most of the barber chairs used in barbershops were complete (86%) and used for > 3 years (68%), for the dimensions of the chairs, some are appropriate, but there are parts that need improvement such as headrests, backs, seats, armrests and footrests. There was no relationship between work posture and the use of a chair. Meanwhile, there was no relationship between the dimensions of the worker's body and the use of the barber chair (p-value = 0.098-1,000); There was a relationship between the dimensions of the chair and the use of the chair, for the variable type of chair (p-value = 0.048), backrest length (p-value = 0.004), foot length (p-value = 0.017), and footrest width (p-value = 0.010). The owner of barbershop should pay attention to work ergonomics issues, especially related to the prevention of MSDs complaints, through efforts to create safe, ergonomic, and healthy working conditions, such as redesigning the barber chair used according to the dimensions of the worker's body. It is also necessary to carry out further similar research on a wider range of research areas and a larger population, as well as a study on the design and design of an ergonomically based barber chair.

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Description of Liver Function on the Effect of Treatment on Pulmonary Tuberculosis Patients at the Manado City Health Center

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Abstract

Tuberculosis (TB) is caused by Mycobacterium *tuberculosis*. This bacterium usually attacks the lungs, but TB bacteria can also attack other parts of the body such as the kidneys, spine, and brain. Anti Tuberculosis Drugs (OAT) is the most important component in TB treatment. TB treatment is one of the most efficient efforts to prevent the further spread of TB. Research conducted by Ashford et al (2015), the risk of hepatotoxicity in the use of first-line OAT increases at the age of 60 years. Also a study conducted byPrihatni et al (2005) as many as 62.5% of subjects who used hepatotoxic Rifampicin in the second week after treatment, this study also showed an increase in serum ALT (alanine aminotransferase) due to the combination of OAT with rifampicin. The purpose of this study was to determine the description of liver function on the effects of treatment for pulmonary TB patients at three health centers in Manado city.

Thirty pulmonary TB patients at the Ranotana Weru, Tuminting and Tikala Health Centers were interviewed and their blood samples taken for examination of AST, ALT and bilirubin levels in the laboratory. The results showed that the ALT/SGPT enzyme activity value in patients with pulmonary tuberculosis in the normal range was 10-29 U/L in 24 (80%) patients and the abnormal value was 34-82 U/L in 6 (20%) patients. The value of AST/SGOT enzyme activity in patients with pulmonary tuberculosis in the normal range was 12-30 U/L in 25 (83.4%) patients and an abnormal value of 33-100 U/L, in 5 (16.6%) patients. Bilirubin levels in all pulmonary TB patients within normal limits are 0.22 – 1.30 mg/dl. Undesirable effects that arise during the treatment of pulmonary tuberculosis are itching and redness of the skin, joint pain, tingling and burning in the legs, red urine and sweat, nausea and vomiting. Suggestion, for health workers can provide health education to patients and their families monitoring OAT about the conditions and effects related to the dose of the drug given, the patient's family as OAT monitors must be able to ensure that patients with pulmonary

tuberculosis who are in the treatment stage are obedient to taking medication and seek to recognize their condition. or signs and symptoms complained of due to the effects of the drug by the patient

BACKGROUND

Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis*. These bacteria usually attack the lungs, but TB bacteria can also attack other parts of the body such as the kidneys, spine, and brain. Not all people infected with TB bacteria become sick, so there are two conditions related to TB, namely latent TB infection (LTBI) and TB disease. (Harsh Mohan, 2010)

The number of new TB cases in Indonesia was 420.994 cases in 2017 (data per 17 May 2018). Based on gender, the number of new TB cases in 2017 in males was 1.4 times greater than in females. Even based on the Tuberculosis Prevalence Survey, the prevalence in men is 3 times higher than in women. The same is happening in other countries. This may be because men are more exposed to TB risk factors, such as smoking and lack of medication adherence. This survey found that 68.5% of all male participants smoked and only 3.7% of female participants smoked. (Indah, 2018)

Treatment for TB control is carried out by all First Level Health Facilities (FKTP) and Health Facilities. Advanced Reference (FKRTL). Anti Tuberculosis Drugs (OAT) for TB control are provided by the government and are given free of charge. Handling of cases in TB control is carried out through case management activities to break the chain of transmission and/or treatment of patients, which consists of treatment and handling of side effects in Health Service Facilities; monitoring adherence to swallowing medication; and monitoring of treatment progress and treatment outcomes; and tracking of lost to follow-up cases. (Permenkes RI No. 67 of 2016, 2016)

Adequate treatment must meet the following principles, given in the form of an appropriate combination of OAT containing at least 4 kinds of drugs to prevent resistance, given in the right dose, swallowed regularly and directly supervised by the PMO (Drug Swallowing Supervisor) until completion of treatment and treatment is given within a sufficient period of time divided into two (2) stages, namely the initial stage and the advanced stage, as adequate treatment to prevent recurrence. (Permenkes RI No. 67 of 2016, 2016)

Anti Tuberculosis (OAT) drugs consist of Rifampicin, Pyrazinamide, Isoniazid and Ethambutol. Treatment of pulmonary TB disease takes up to 6 months. The duration of the treatment has a risk of unwanted effects during treatment. *Drug-induced liver injury* (DILI) is one of the most common side effects of taking OATs, especially with the three main first-line drugs: isoniazid (INH), rifampin (RMP) and pyrazinamide (PZA).(Chang *et al.*, 2018)

Research conducted by Hosford et al (2015), the risk of hepatotoxicity in the use of first-line OATs increases at the age of 60 years (Hosford *et al.*, 2015). Also a study conducted by Prihatni et al (2005) as many as 62.5% of subjects who took hepatotoxic at 2 weeks after treatment, this study also showed an increase in serum ALT (alanine aminotransferase) due to the combination of OAT (Prihatni *et al.*, 2007) . The purpose of this study was to determine **the**description of liver function on the effect of treatment in patients with pulmonary tuberculosis in three locations of the Manado City Health Center

RESEARCH METHODS

Design was a descriptive study by looking at the effect of anti-tuberculosis drug treatment (OAT) on pulmonary tuberculosis patients. on liver function, namely the activity of *alanine transaminase* (ALT) or serum *glutamate pyruvate transaminase*(SGPT), *aspartate aminotransferase* (AST) or serum *Glutamic Oxaloacetic Transaminase* (SGOT) enzymes and total bilirubin levels. This study also explored information about side effects and patient complaints. Pulmonary TB while taking OAT. The independent variables in this study were: characteristics of pulmonary TB patients undergoing OAT treatment including: age, gender, length of treatment, education level, type of work, duration of treatment, complaints and side effects of treatment. The dependent variables in this study were the serum activity values of ALT/SGPT, AST/SGOT and total bilirubin levels.

Data Collection Techniques The, recruitment of respondents in this study was carried out in 3 health centers, namely Ranotana Weru Health Center, Tikala Baru Health Center and Tuminting Health Center located in the Manado City Region. Taking into account the inclusion criteria, namely patients with pulmonary tuberculosis who are undergoing treatment at the Puskesmas and are willing to sign the IC and PSP and the exclusion criteria are patients with a history of liver disease or disorders. Respondents who were patients with pulmonary tuberculosis were then interviewed and taken 3 ml of blood samples by Puskesmas staff. Then the blood sample was examined at the Laboratory of the Health Laboratory Support

Center of the North Sulawesi Provincial Health Office. The clinical chemistry parameters examined were AST/SGOT, ALT/SGPT and Total Bilirubin. The data obtained are presented in tabular form and discussed in descriptive form.

RESULTS AND DISCUSSION

A total of 30 respondents who were patients with pulmonary TB at 3 Puskesmas in the City of Manado were interviewed and then blood was taken by the Puskesmas staff and then examined at the BPLK of the Health Office of North Sulawesi Province and obtained data according to the table of research results below.

Characteristics of respondents with pulmonary TB based on age, education, occupation and complaints of side effects of treatment can be seen in Table 1 below:

Table 1. Characteristics of Respondents with Pulmonary Tuberculosis Based on age, education, occupation and Complaints of Side Effects of Treatment at Ranotana Weru, Tikala Baru and Tuminting Health Centers in 2019.

Characteristics of Pulmonary TB Patients	(%)
Age	
17-25	2 (6%)
25-35	6 (20%)
36-45	5 (17%)
46-55	10 (32%)
56-65	5 (17%)
> 65	2 (6%)
Total	30 (100%)
Education	
Elementary	6 (20%)
Junior high	7 (23%)
High school	17 (57%)
Diploma	0 (0%)

Bachelor	0 (0%)
Total	30 (100%)
Occupation	
Civil Servant	(3%)
Private	3 (10%)
Self	10 (23%)
IRT	6 (17%)
Worker	14 (47%)
Total	30 (100%)
Complaints/Side effects Treatment	
Itching and redness of the skin	3 (10%)
Joint pain	30 (100%)
Tingling to burning sensation in the legs	23 (76, 6%)
Urine and sweat are red	30 (100%)
Nausea and vomiting	25 (83.3%)

Primary Data Sources in 2019

Based on Table 1 above, the age of respondents with pulmonary TB is mostly at the age of 46-55 years with a total of 10 (32 %) people and the lowest at the age of 17-25 years is 2 (6%) people and over 65 years old is only 2 (6%) people. According to Chang et al., the increase in pulmonary TB patients with smoking is in line with the increasing age of smokers, so that at the age of 40-50 years the number of pulmonary TB patients with smokers increases due to smoking habits at ages ranging from 15 years so that it can be predicted at the age of 40-50 years in the future. These smokers have a high risk of developing pulmonary TB. The percentage of pulmonary TB patients then decreases at the age above 55 years. (Haoran Zhang, Henan Xin, Xiangwei Li, Hengjing Li, Mufei Li, Wei Lu, Liqiong Bai, Xinhua Wang, Jianmin Liu, Qi Jin, 2017) 25-55 years is a productive age at this age sufferers easily interact with other people with high activities so as to facilitate the transmission of pulmonary TB disease from the environment. (Nurkumalasari and Ningsih, 2017)

Based on the education level of respondents with pulmonary TB patients with an equivalent high school education level the highest number is 17 (57%) people, then followed by respondents with junior high and elementary education levels, while respondents with Diploma and Bachelor education levels are not found. The level of education greatly determines public health behavior. The higher the level of education, the better the individual's understanding of health status. Based on the survey results, generally the level of education infected with pulmonary tuberculosis in the working area of the Puskesmas is high school where this age is a very productive period of activity with a fairly high and wide level of association so that this has a high risk of contracting pulmonary TB disease

Based on the type of work the number of respondents The highest number of patients with pulmonary TB worked as a handyman with a total of 14 (47%) people, while the lowest worked as a civil servant with a total of 1 (3%) people. According to Fitriani (2013) there is a relationship between the level of family income with pulmonary TB sufferers. (Eka Fitriani, 2013) The type of work will greatly affect family income in terms of fulfilling the nutritional intake of all family members. The better the family's nutritional intake will increase the body's resistance to infection with pulmonary TB disease pathogens. Carpenter work is one of the menial jobs with a minimal level of income so that the head of the household is not able to meet the needs of good nutrition for family members and themselves.

Based on the types of complaints and side effects of drugs that arose during the respondent's treatment of pulmonary tuberculosis with the most complaints/side effects being joint pain and red urine and sweat where all respondents (100%) complained of the same thing and the lowest side effect complaints were itching and 3 (10%) people complained of redness of the skin. Drug side effects on the use of anti-pulmonary TB drugs often appear in the first week of treatment until the eighth week of treatment. According to Abbas (2017), side effects that often arise during the treatment of pulmonary TB are joint pain, nausea, vomiting, stomach pain, visual disturbances, lack of appetite, dizziness, tingling (Akmadi Abbas, 2017). The staining of urine and sweat occurs due to the red nature of rifampin and is excreted through urine and sweat so that urine and sweat will appear red.

The results of laboratory tests on blood serum of patients with pulmonary tuberculosis on liver function parameters are as shown in the table below

Table 2. ALT/SGPT enzyme activity values. AST/SGOT and Total Bilirubin in Blood Serum of Pulmonary Tuberculosis Patients undergoing treatment at Ranotana Weru, Tikala Baru and Tuminting Health Centers in 2019

Examination Parameters	n (%)
ALT/SGPT	
(10-29 U/L)	24 (80%)
Abnormal (34-82 U/L)	6 (20%)
Total	30 (100%)
AST/SGOT	
Normal (12-30 U/L)	25 (83.4%)
Abnormal (33-100 U/L)	5 (16.6%)
Total	30 (100%)
Bilirubin	
Normal	30 (100%
Abnormal (>1.5 mg/dl)	0 (0%)
Total	30 (100%)

Primary Data Sources in 2019

Based on Table 2 above, the normal value of ALT/SGPT enzyme activity ranges from a value of 10-29 U/L obtained from measuring blood samples of pulmonary TB patients who are undergoing treatment with a total of 24 (80%) people while abnormal values range from at a value of 34-83 U/L as many as 6 (20%) people.The normal value of AST/SGOT enzyme activity ranges from a value of 12-30 U/L obtained from measuring blood samples of pulmonary TB patients who are undergoing treatment with a total of 25 (83 ,4%) people, while the value of ab Normal values range from 33-100 U/L as many as 5 (16.6%) people. Rifampicin 85-90% is metabolized in the liver and its active metabolite is excreted through the urine and gastrointestinal tract, acting synergistically with INH. Patients with liver disorders will find higher serum rifampin levels. Rifampin will induce the cytochrome P450 enzyme system which will continue for up to 7–14 days after the drug is discontinued. The hepatotoxic effect is influenced by the dose used, and the drug metabolism process is

influenced by factors of age, sex, the environment in the stomach and liver disease. (Katzung, Masters and Trevor, 2009) (Prihatni *et al.*, 2007)

One of the main liver functions is Excretion of bilirubin, this liver function can be disrupted if there is damage to liver function. This impaired excretion of bilirubin causes an increase or decrease in serum bilirubin levels. Bilirubin will increase if there has been moderate liver damage. In this study, the increase in the AST/ALT enzyme occurred in the first and second months, this increase was not seen again at the 3rd to 6th month of treatment, so it could not increase the total bilirubin value. At the beginning of treatment, the increased liver function values were AST and ALT values, while bilirubin had not increased significantly. (Made Agastya Darma Putra Wesnawa, 2016)

Variations in the activity values of AST/SGOT, ALT/SGPT and total bilirubin in the blood serum of Pulmonary Tuberculosis Patients undergoing treatment based on gender can be seen in table 3 below.

Table 3. Value of ALT/SGPT Enzyme Activity. AST/SGOT and Total Bilirubin by Gender of Pulmonary Tuberculosis Patients who are undergoing treatment at Ranotana Weru, Tikala Baru and Tuminting Health Centers in 2019

Examination Parameters	Normal	Abnormal
	n (%)	n (%)
AST/SGOT		
Male	16 (53.4 %)	3 (10.0%)
Female	9 (30.0%)	2 (6.6%)
Total	25 (83.4%)	5 (16.6%)
Male	16 (53.4 %)	3 (10%)
Female	8 (26.6%)	3 (10%)
Total	24 (80%)	6 (20%)
Total Bilirubin		
Male	19 (63%)	0 (0%)
Female	11 (36 ,7%)	0 (0%)
Total	30 (100%)	0 (0%)

Primary Data Sources in 2019

Based on Table 3 above, it shows that 3 (10%) men have the highest AST/SGOT enzyme activity values. This abnormal number is higher than women, while the normal value of AST/SGOT enzyme activity with the highest number of patients is also male, namely 16 (53.4%) and then 9 (30%) female. The abnormal value of the AST/SGOT enzyme is empirically not influenced by gender, so in this study the frequency of occurrence is low and cannot be used as a risk factor for liver damage. (Prihatini *et al.*, 2007)

Table 3 above also shows that 3 (10%) male and female sexes have abnormal ALT/SGPT enzyme activity values, while normal ALT/SGPT enzyme activity values with the highest number of patients are male. namely 16 (53.4%) people and 8 (26.6%) women. The same thing also happened to the abnormal value of ALT/SGPT where this value was not influenced by gender. (Prihatni *et al.*, 2007) The bilirubin value did not show abnormal changes based on the sex of the patient with pulmonary TB

Enzyme activity AST/SGOT and AST/SGOT based on The duration of treatment in patients with pulmonary TB who are undergoing treatment can be seen in Table 4 below.

Table 4. Values of ALT/SGPT and AST/SGOT enzyme activities based on duration of treatment for pulmonary tuberculosis patients who are undergoing treatment at Ranotana Weru, Tikala Baru and Tuminting Health Centers in 2019

Parameters of	Normal	Abnormal
	n (%)	n (%)
AST/SGOT		
1 month	5 (16.7)	4 (13.4)
2 months	6 (20.0)	2 (6.60)
3 months	2 (6.60)	0 (0)
4 months	7 (23.3)	0 (0)
5 months	3 (10.0)	0 (0)
6 months	1 (3.30)	0 (0)
Total	24 (80.0)	6 (20)
ALT/SGPT		
1 month	6 (20)	4 (13.3)

2 months	6 (20)	1 (3.30)
3 months	2 (6.60)	0 (0)
4 months	7 (23.3)	0 (0)
5 months	3 (10.0)	0 (0)
6 month	1 (3,30)	0 (0)
Total	25(83,4)	5 (16,6)

Source of Primary Data in 2019

Based on Table 4 above shows AST/SGOT enzyme activity based on duration of treatment in patients with pulmonary tuberculosis who are undergoing treatment . The highest number of patients with pulmonary tuberculosis with abnormal AST/SGOT values with a duration of treatment of 1 month was 4 (13.4%) people and then followed by 2 months of treatment, namely 2 (6.60%) people while the length of treatment was 3 to 6 months. did not show abnormal AST/SGOT activity values. On the other hand, 7 (23.3%) people had normal AST/SGOT values during treatment for 4 months and the lowest was 6 months of treatment, which was 1 (3.30%) people. An increase in AST/SGOT values at the start of treatment is very likely a consequence. In patients with pulmonary TB, abnormal ALT/SGPT values with 1 month of treatment were 4 (13.3%) people and then followed by 2 months of treatment, namely 1 (3.3%) people, while 3 to 6 months of treatment did not show any indications. abnormal ALT/SGPT activity values. On the other hand, the normal ALT/SGPT values at 4 months of treatment were 7 (23.3%) people and the lowest was 6 months of treatment, which was 1 (3.30%) people.

Hepatotoxic at 2 weeks after treatment. Based on the WHO classification, hepatotoxicity is mild to moderate, therefore treatment is continued. With the consideration that like other cells in the body, when hepatocytes experience trauma, both physical and chemical, they will immediately try to regenerate. Trauma at the cellular level will result in irreversible changes within the first 20–60 minutes. Irreversible changes that will end in cell death include cell membrane damage, lysosomal swelling and mitochondrial vacuolization with decreased ATP-forming capacity. ATP depletion and decreased ATP synthesis are usually caused by hypoxia and chemical (toxic) trauma. If there has been a disruption of mitochondrial function and cell membranes, the hepatocyte cells will secrete transaminase enzymes. Elevated transaminase enzymes are early markers of hepatotoxicity. (Prihatni *et al.*, 2007)

CONCLUSION AND RECOMMENDATION

The value of ALT/SGPT enzyme activity in patients with pulmonary tuberculosis was 10–29 U/L in 24 (80%) respondents and 34–82 U/L. L as many as 6 (20%) respondents. The value of AST/SGOT enzyme activity in patients with pulmonary tuberculosis was 12–30 U/L in 25 (83.4%) respondents and a value of 33–100 U/L in 5 (16.6%) respondents. Bilirubin levels in patients with pulmonary TB 0.22 – 1.30 mg/dl. Undesirable effects that occur while the patient is undergoing treatment for pulmonary TB disease are itching and redness of the skin, joint pain, tingling and burning sensation in the feet, red urine and sweat, nausea and vomiting. Suggestion, for health workers can provide health education to patients and their families monitoring OAT about the conditions and effects related to the dose of the drug given, the patient's family as OAT monitors must be able to ensure that patients with pulmonary tuberculosis who are in the treatment stage are obedient to taking medication and seek to recognize their condition. or signs and symptoms complained of due to the effects of the drug by the patient.

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THE USE OF SPUTUM SAMPLES IN DETECTION OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2

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ABSTRACT

The COVID-19 pandemic helps people with Tuberculosis (Tb) to be minimized as a source of pulmonary TB transmission, but does not rule out the possibility of them contracting COVID-19. Examination of Mycobacterium tuberculosis (M.Tb) through sputum through the Ziehl Neelsen (ZN) examination which is mandatory for patients during the treatment period of 2 months, 5 months and the end of treatment, can be used as time for detecting the presence of severe acute respiratory syndrome coronavirus 2 (SARS-Cov2) .

The purpose of this study was to detect the presence of SARS-CoV2 in pulmonary tuberculosis patients in Manado City through the Antigen-Rapid Detection Test (Ag-RDT) using a sputum sample. 100 respondents were taken from the population of TB sufferers in 9 health centers with the highest TB burden in Manado City.

The results obtained that 3% of the respondents were reactive to the SARS-Cov2 antigen. The conclusion is that the SARS-Cov2 Rapid Antigen examination method using sputum samples when the patient performs the ZN examination obligation can be an alternative for early detection of COVID-19. It is recommended to follow up with a real time reverse transcription quantification polymerase chain reaction (RT-PCR) examination for TB patients after the results are reactive to the SARS-Cov2 antigen.

Keywords: Sputum of TB Patients, Rapid Antigen SARS-Cov2

BACKGROUND (Uppercase Bold, 12 pts)

Tuberculosis (TB) is an infectious infectious disease caused by Mycobacterium tuberculosis. The majority of TB infections occur through the air, namely the inhalation of droplets containing germs from an infected person. People infected with Mycobacterium tuberculosis have a 10% risk of developing pulmonary TB. People with compromised immune systems, such as people living with HIV, people with TB, malnutrition, diabetes or people who use tobacco, are at higher risk of getting sick (Visca et al., 2021)

WHO estimates that there are 10.4 million new TB cases worldwide, of which 5.9 million (56%) are men, 3.5 million (34%) are women and 1.0 million (10%) are children. According to the 2021 Global Tuberculosis Report (WHO, 2022), Indonesia occupies the second position with the highest TB burden in the world after India. It is estimated that 1.3 million deaths from pulmonary TB

According to data from the Regional Health Office of North Sulawesi Province (Kemenkes RI, 2021), the CNR (Case Notification Rate) per 100,000 population of pulmonary TB in 2016 was 217 cases, increased in 2017 by 250 cases and in 2018 increased by 273 cases. Pulmonary TB is one of the fourth highest diseases in North Sulawesi Province. There are 15 regencies/cities in North Sulawesi Province, in 2018 Manado City ranked first with 2,052 cases of pulmonary TB, then Bitung City ranked second with 563 cases, and Tomohon City ranked third with 353 cases. Of the 16 health centers in Manado City, there are 9 health centers with a high TB burden.

The World Health Organization (WHO) reported that as of July 18, 2021, globally, there were 190,597,409 confirmed cases of Covid-19, including 4,093,145 deaths (Faurin, 2021), and cases in 2022 would increase again when tests decreased (Azanella, 2022). Coronavirus Disease 2019 (Covid-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2). Tuberculosis (TB) patients infected with SARS-CoV-2 can give a poor clinical picture, especially if there are interruptions during TB treatment. Symptoms can be felt more severe if there has been damage to lung structure and function caused by previous TB (Malik et al., 2020).

Tuberculosis (TB) is still a burden of health problems in Indonesia today. At the same time, Indonesia is also facing an outbreak of the corona virus (Covid-19) and TB patients must be more vigilant. These two diseases are respiratory pandemics that are transmitted through droplets, affecting a wide age range such as the elderly and people with special health conditions such as those with chronic lung disorders, even in children. Some of the symptoms of TB such as cough, fever, and feeling weak are also experienced by COVID-19 patients, thus making us aware of how vulnerable they are if TB patients do not seek treatment, because their immune system and lung conditions are also more susceptible to infection.

RESEARCH METHODS

The method used in this study is a true experiment, on the basis of sputum examination which is carried out again at 2 months 5 months and the end of treatment.

The population of 9 Public Health Centers in Manado City which has a high TB burden, attracted 100 respondents from the sputum examination schedule from January to April 2022. Sputum collection was carried out by visiting the respondent's home. Sputum samples were carried out as well as screening for COVID-19 using a rapid test antigen examination.

The data obtained are presented in tabular form and analyzed descriptively.

RESULTS AND DISCUSSION

The results obtained according to the age characteristics of the respondents can be seen in table 1.

Table 1   Distribution of Respondents by Age

Age	Frequency	Percentage
>65	6	6%
56-65	27	27%
46-55	22	22%
36-45	12	12%
<35	33	33%
Total	100	100%

The results obtained according to the educational characteristics of the respondents can be seen in table 2.

Table 2 Distribution of Respondents Based on Last Education

Last Education	Frequency	Percentage
SD	11	11%
Junior High School	58	58%
Senior High School	24	24%
College	7	7%
Total	100	100%

The results obtained according to the occupation characteristics of the respondents can be seen in table 3.

Table 3   Distribution of Respondents by Occupation

Work	Frequency	Percentage
Civil Servant	3	3%
Self-employed	37	37%
Student	1	1%
Housewife	21	21%
Laborer	38	38%

	Total	100	100%

The results obtained according to the results of rapid antigen examination from sputum samples can be seen in table 4.

Table 4   Distribution of Respondents Based on Rapid Antigen Examination Results

Rapid Antigen	Frequency	Percentage
Reactive	3	3%
Non Reactive	97	97%
Total	100	100%

CONCLUSION AND RECOMMENDATION

Rapid antigen examination can be done using a sputum sample. It is recommended for TB officers at the Puskesmas when carrying out routine examinations of AFB sputum so that they can screen for COVID-19 on TB patients with the sputum sample.

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ANALYSIS OF MICROBIAL AND NUTRITIONAL CONTENT OF GOHU FISH USING CUILE JUICE (Citrus microcarpa) AND LIME (Citrus aurantifolia) WITH VARIOUS CONCENTRATIONS AND DURATION OF ACIDING

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ABSTRACT

North Sulawesi is one of the provinces that has a long coastline. Tuna is a potential product in North Sulawesi. Tuna as a commodity with high nutritional value but perishable because it contains high protein content with free amino acid content which is used for the metabolism of microorganisms, production of ammonia, biogenicamines, organic acids, ketones and sulfur components. Fish gohu is a type of traditional food produced from fresh (raw) skipjack/tuna without going through a cooking process. Processing with acidification, usually adding the juice of Citrus Microcarpa Bunge (Citrus aurantifolia) or lime (Citrus aurantifolia).Types of research was an experimental research with a pre-experimental design, namely post-test only design (One Shot Case Study). Samples were fresh raw tuna filleted as much as 100 grams for each treatment group. The treatments consisted of 8 groups, namely group 1 fish gohu with 25 ml of citrus cui for 15 minutes, group 2 fish gohu with 50 ml of citrus cui for 15 minutes, group 3 fish gohu with 25 ml of citrus cui for 30 minutes, group 4 fish gohu with 50 ml of citrus cui for 30 minutes, group of 5 fish gohu with 25 ml of lime for 15 minutes, group of 6 fish gohu with 50 ml of lime for 15 minutes, group of 7 fish gohu with 25 ml of lime for 30 minutes, group 8 gohu fish with lime 50 ml for 30 minutesAnalysis of the data used wa the ANOVA test The results of this research was The number of microbial gohu fish was below the threshold (<500,000 colonies/gram of food (5,105 colonies/gram), the protein contentof gohu tunawas below 21%. And the fat was 0.1 grams. Gohu tuna can be consumed as traditional food because it has a safety limit for its microbial content and stable

nutritional value compared to the nutritional value of raw fresh tuna. The higher the concentration of acidification used both cui oranges and limes will cause a decrease in the number of microbes.

BACKGROUND

North Sulawesi is one of the provinces that has a long coastline. Most people in North Sulawesi have a livelihood as fishermen. Tuna / skipjack is one of the marine biological resources in North Sulawesi, which is mostly obtained by fishermen. The people of North Sulawesi, especially the people of Manado city, often consume the tuna/skip fish, because this fish tastes good, is nutritious and is often found in traditional markets and modern markets such as supermarkets. Tuna is a potential product in North Sulawesi that has high economic value, where one type of small tuna, namely skipjack tuna (skypjack tuna/Katsuwonus pelamis, is widely used by the community and entrepreneurs as raw material for various types of processing industries such as skipjack fufu, wood fish, canned fish, shredded skipjack tuna, and many other processed products that use fish as raw material (Lumi, 2013).

Tuna is known as a commodity that has high nutritional value but is perishable because it contains high levels of protein with free amino acids that are used for microorganism metabolism, production of ammonia, biogenic amines, organic acids, ketones and sulfur components (Radjawani et al. 2016).) and is classified as an important pelagic fishery resource and is one of the non-oil and gas export commodities (Kekenusa et al., 2012). Fresh fish has a high water content (80%), the pH of the fish body is close to neutral, and fish meat is very easily digested by autolysis enzymes so that it becomes a good medium for the growth of spoilage bacteria.

Fish is a food that undergoes a rapid decay process compared to other foodstuffs. Bacteria and chemical changes in dead fish can cause spoilage. Fish if left at room temperature, it will immediately begin the process of decay. The high content of water, protein and fat in the fish body is a suitable medium for the growth of spoilage bacteria or other microorganisms. Environmental conditions also affect the growth of spoilage microbes. These environmental conditions include temperature, pH, oxygen, storage time and the condition of the cleanliness of infrastructure (Ndahwali D, 2016).

Fish damage occurs immediately after the fish comes out of the water, but the microbial activity that will damage the fish meat occurs only after the fish passes through the rigor mortis phase. Damage to fish can be caused by internal (intestinal) and external (environmental) factors, as well as the way of handling on board the ship, at the landing site or in the processing process. Food-destroying microbes can grow in the temperature range of 4-66 C, aw (Water activity) around 0.91 or more, pH 4.6-7 and the presence of oxygen. In these conditions food-destroying microbes in the form of bacteria, yeast, or molds can damage carbohydrates, fats and proteins. The most important microbes in causing damage to protein foods are bacteria. Various kinds of bacteria that destroy fish and food include Staphylococcus aureus, Bacillus subtilis, Bacillus cereus, Pseudomonas, Staphylococcus, Micrococcus, and Enterococcus (Ferdiaz, 1995). Gram-negative bacteria (eg Vibrionaceae, Pseudomonas spp., and Shewanella spp.) are the main contaminants that cause spoilage in fish. Gram-positive and gram-positive proteolytic and lipolytic microbes can reproduce to produce foul-smelling compounds. Proteolytic microbes are bacteria that produce extracellular proteinase enzymes, which are protein-breaking enzymes that are produced in

the cell and then released out of the cell. Lipolytic microbes are bacteria that produce lipase, an enzyme that catalyzes the hydrolysis of fats into fatty acids and glycerol. Many bacteria are aerobic and proteolytic, also lipolytic, such as Pseudomonas, Alcaligenes Serratia and Micrococcus (Ndahawali D, 2016).

Improper handling or processing of fish will endanger the people who consume it. Moreover, many people consume tuna fresh or raw. People in North Sulawesi usually consume fresh skipjack tuna in processed products such as Gohu fish. Gohu fish a form of traditional food from the Ternate or Maluku region but has been widely made and consumed by the people of the city of Manado. Fish gohu is made from raw tuna / skipjack that is cut into small pieces and soaked in sour sauce. The sour sauce consists of a mixture of shallots, cayenne pepper, salt, and basil leaves and lime juice instead of vinegar to remove the fishy smell.

Gohu fish is a type of traditional food produced from fresh (raw) skipjack/tuna without going through a cooking process. Fish gohu only goes through a processing process with acidification, where in the manufacture of fish gohu the people of Manado city usually add lemon cui juice (Citrus Microcarpa Bunge), which is a kind of lemon. Lemon cui is a type of local lemon that only exists in North Sulawesi. The addition of orange juice can suppress microbes that are not resistant to acid. The use of raw fish is very worrying because raw fish still has the potential to contain unwanted microbes. Many microbes attack food that is still in the form of raw materials, including fish and its processed products. Food that has been infested with these microorganisms undergoes decomposition, so that it can reduce its nutritional value and delicacy, even food that has been in a decomposed state can cause illness to the death of someone who eats it (Dwijoseputro, 2005)..

Acidification in the manufacture of fish gohu has a relatively short time, therefore it is feared that there are still many microbes contained in the processed fish products. The threshold value for microbial contamination in processed fishery products with the TPC test issued by the POM RI in 2009 is 500,000 colonies/gram of food (5,105 colonies/gram). In addition, acidification can cause a decrease in the nutritional value of the processed fish products.

The purpose of this study was to determine the total number of microbes and nutritional value in fish gohu using cui orange and lime juice with different concentrations and duration of acidification.

RISET METHODS

The type of research used is experimental with a pre-experimental design, namely post-test only design (One Shot Case Study). The treatment group consisted of eight (8) groups, namely:

Group 1: fish gohu with a concentration of 25 ml of cui orange juice with an acidification time of 15 minutes ($25JC^{15}$).

Group 2: fish gohu with a concentration of 50 ml of cui orange juice with an acidification time of 15 minutes ($50JC^{15}$).

Group 3: gohu fish with a concentration of 25 ml of cui orange juice with an acidification time of 30 minutes ($25JC^{30}$).

Group 4: fish gohu with a concentration of 50 ml of cui orange juice with an acidification time of 30 minutes (50JC^{30}).

Group 5: fish gohu with lime juice concentration of 25 ml with acidification time of 15 minutes (25JN^{15}).

Group 6: gohu fish with a concentration of 50 ml of cui orange juice with an acidification time of 15 minutes (50JN^{15}).

Group 7: fish gohu with a concentration of 25 ml of cui orange juice with an acidification time of 30 minutes (25JN^{30}).

Group 8: fish gohu with a concentration of 50 ml of cui orange juice with an acidification time of 30 minutes (50JN^{30}).

The population is tuna which is the basic ingredient for making fish gohu. The sample is a lot of fresh raw tuna filleted as much as 100 grams in each treatment group.

Materials and Tools

The Basic Ingredients for Making Fish Gohu (in 100 grams) consist of 100 grams of fresh tuna fillet, 300 ml of cui orange juice, 300 ml of lime juice, 10 pieces of cayenne pepper, 10 red onions, 50 grams of peanuts 50 grams, two basil handful, salt and seasoning to taste

The tools used consisted of tools for processing fish gohu, namely knives, cutting boards, spoons, basins, plates, orange juice and tools to analyze the number of microbes and nutritional value of fish gohu, namely Total Plate Count (TPC) and Micro Kjeldal.

RESULTS AND DISCUSSION

1. Characteristics of the research sample

The sample was fresh yellowfin tuna, which was obtained directly from the fish auction. The tuna obtained weighs in the range of 5-6 kg. From the weight of the fish, the net weight obtained is about 50%, which is about 2.8 kg. The tuna obtained is then filleted, which is removed from the skin and bones, then washed and cut into cubes.

2. Microbes in tuna fish gohu.

Microbes or microorganisms or micro-organisms are living organisms that are small in size. Every food ingredient, both raw and processed, contains microbes. The number of microbes in a food shows the quality of the food. The presence of excessive microorganisms in a food indicates that the quality of the food has decreased, including in fish. Fresh/raw fish containing microorganisms that exceed the safe limit indicates that the fish is no longer suitable for consumption because it can cause health problems

In gohu, tuna fish use fresh or raw tuna, so it is feared that there are still microbes in the processed product ingredients. Microbial calculation using Total Plate Count (TPC). The microbial content in fish gohu can be seen in table 1.

Table 1. Analysis of Microbial Content in Gohu Tuna Fish with Total Plate Count (TPC)

Treatment group	Number of Microbes (CFU/g)
Gohu tuna with squeezed Citrus Cui 25 ml with 15 minutes ($_{25}JC^{15}$)	400
Gohu tuna with squeezed Citrus Cui 50 ml with 15 minutes ($_{50}JC^{15}$)	300
Gohu tuna with squeezed Citrus Cui 25 ml with 30 minutes ($_{25}JC^{30}$)	700
Gohu tuna with squeezed Citrus Cui 50 ml with 30 minutes ($_{50}JC^{30}$)	300
Gohu tuna with lime juices 25 ml with 15 minutes ($_{25}JN^{15}$)	800
Gohu tuna with lime juices 50 ml with 15 minutes ($_{50}JN^{15}$)	100
Gohu tuna with lime juices 25 ml with 30 minutes ($_{25}JN^{30}$)	800
Gohu tuna with lime juices 50 ml with 30 minutes ($_{50}JN^{30}$)	200

Table 1 shows that gohu fish with various treatment groups had microbial counts below the threshold. The threshold value of microbial contamination in processed fishery products with the TPC test issued by the POM RI in 2009 is 500,000 colonies/gram of food (5,105 colonies/gram).

3. Nutritional value of fish gohu

Tuna is a fish that is very rich in nutrients, especially protein. Where the nutritional value of fresh tuna protein ranges from 22.6-26.2/100 grams of meat and low fat ranges from 0.2-2.7 grams/100 grams of meat. The nutritional value of fish gohu (protein) was tested using Micro Kjeldhal. The results of the analysis of the nutritional value of fish gohu can be seen in table 2.

Table 2. Analysis of the Nutritional Value of Fish Gohu

Treatment group	Protein (%)	Fat (gram)
Gohu tuna with squeezed Citrus Cui 25 ml with 15 minutes ($_{25}JC^{15}$)	18.7	0.1
Gohu tuna with squeezed Citrus Cui 50 ml	17.6	0.1

with 15 minutes ($_{50}JC^{15}$)		
Gohu tuna with squeezed Citrus Cui 25 ml with 30 minutes ($_{25}JC^{30}$)	20.1	0.1
Gohu tuna with squeezed Citrus Cui 50 ml with 30 minutes ($_{50}JC^{30}$)	17.8	0.1
Gohu tuna with lime juices 25 ml with 15 minutes ($_{25}JN^{15}$)	18.9	0.1
Gohu tuna with lime juices 50 ml with 15 minutes ($_{50}JN^{15}$)	18.4	0.1
Gohu tuna with lime juices 25 ml with 30 minutes ($_{25}JN^{30}$)	19.2	0.1
Gohu tuna with lime juices 50 ml with 15 minutes ($_{50}JN^{30}$)	17.8	0.1

Table 2 shows the nutritional value of fish gohu protein is below 21%. The protein value of fresh yellowfin tuna is 24.1%, meaning that in gohu fish there is a change in the nutritional value of the protein caused by the acidification treatment of both cui oranges and limes. This table also shows a tendency to decrease the nutritional value of protein in the application of acid from both lime and lime, the more acid given will affect the nutritional value of the protein produced. If it is seen that a higher concentration of protein content will show a significant decrease in nutritional value and the highest decrease in nutritional value is more in cui oranges. While the nutritional value of fat did not differ in each treatment group, where the nutritional value of fat was stable.

4. Differences in the number of microbes and the nutritional value of fish gohu

To see the difference in the microbial count and the nutritional value of gohu fish, an ANOVA test was carried out

Table 3.Microbial count and Nutritional value

	p-value
Microbial count	0.047
Protein content	0.048
Fat content	0.075

Anova test

There are differences in the amount of micro and protein nutritional content in gohu given different concentrations of cui orange and lime juice with different acidification times.

5. Effect of Acidification on Microbes and Nutritional Value of Fish Gohu

To see the effect of acidification, the Pearson regression test was carried out. For details, see table 4.

Table 4. Effect of Acidification on the microbial value and Nutritional Value

		Microbial value	Nutritional value
Treatement group	p	0.776	0,166
	r	0.126	0,120

Table 4 shows that there is no significant effect of acidification and duration of acidification on the number of microbes and nutritional value. That is, basically the acidification of both cui oranges and limes with different concentrations and different acidification times has been shown to provide different numbers of microbes and nutritional values, where the higher the concentration of acidification given both cui oranges and limes will affect the number of microbes and nutritional value. but the change in value did not prove statistically that there was a significant effect of various acidifications with different concentrations on the number of microbes and nutritional value.

B. DISCUSSION

Acidification of cui oranges and limes with the number of microbes in fish gohu.

Microbes will always be present in every food ingredient, both raw and processed food. The growth of microbes in foodstuffs can change the composition of foodstuffs, by hydrolyzing starch and cellulose into smaller fractions, causing rancidity and digesting proteins and producing foul odors and ammonia. Some microbes can form mucus, gas, foam, color, acid, toxin and others. Microbes like warm and humid conditions (Supardi and Sukamto, 2004).

Fish is a food that is easily contaminated by microorganisms because of its nutritional content. In addition to the nutritional value of the environment where fish are obtained and the method of processing fish can affect the number of microbes they contain. Fish from coastal waters are often contaminated by Vibrio parahaemolyticus bacteria which can be transmitted during transportation and marketing. Bacteria that often contaminate fishery products are generally Vibrio vulnificus and F. cholerae bacteria.

In this study using fresh tuna so that it allows the number of microbes contained in it, but in making fish gohu using citrus flavored water, namely cui oranges or limes. Making fish gohu, which is fish filleted and then washed in running water without blanching (referring to the way of making fish gohu in general), then cut into cubes and then mixed with sour sauce with cui and lime juice according to the acid concentration (25 ml and 50 ml).) at 15 minutes and 30 minutes. Stirred until smooth after reaching the immersion time limit (15 minutes and 30 minutes) then carried out the microbial analysis test with Total Plate Count (TPC). The results of microbial analysis showed that the number of microbes produced from gohu tuna with various types of acidification and concentration and acidification time was below the threshold (value < 500,000 colonies/gram of food ($5,10^5$ colonies/gram).

This is possible because in the manufacture of tuna gohu, although using fresh tuna, it is soaked using orange juice, namely oranges and limes. Acidification techniques in this case soaking in organic acid solutions found in cui oranges and limes in principle can reduce the

total number of microbes in food because of their acidic nature. The use of acids in food processing according to Supardi and Sukamto (2004) has an important role that is antimicrobial. This property is because the addition of acid will affect the pH thereby reducing microbes that are not resistant to low pH.

The results of this study are in line with the research of Andriani (2013), who conducted microbial testing on Lawa Bale Makassar traditional food using anchovies with vinegar soaking, where the number of microbes produced was below the threshold. In theory, improper handling of fish and an unsterile working environment can affect the number of microbes in food. This means that if the food ingredients used to make processed products are not in a clean state and the use of tools and cleanliness of food processors that are not up to standard will affect the final product. The lack of microbes in this study was influenced by the acidification technique provided as well as by the processing process. The tuna fish processing process started in this study from the preparation process to the manufacture of fish gohu carried out in a sterile state, especially on all the tools used ranging from knives, containers used to accommodate fish gohu and work tables to tools and materials used in microbial analysis. all are sterilized so as to allow the number of microbes contained in fish gohu to be minimized.

In processed foodstuffs, the number of bacteria and types of microbes that are dominant are influenced by poor processing processes, in this case, for example, adding or mixing food with other contaminated materials or the use of processing equipment that does not pay attention to hygiene aspects (Supardi and Sukamto). , 2004).

When viewed from the use of acidification, it turns out that limes suppress the number of microbes more than Cui oranges at high concentrations even though the value is not too far away. The results of research conducted by Namura, lime has a lower degree of acidity (pH) when compared to other oranges, namely kasturi oranges, kaffir limes and jungga oranges. This may also be the background so that the total microbial gohu of fish in lime is less than that of cui oranges because the degree of acidity (pH) is lower than that of cui oranges

Acidification of cui oranges and limes with the number of microbes in fish gohu

Protein is a nutrient that is easily denatured. This decrease in protein levels is caused by the occurrence of amino acid resemination, changes in the L form to D. This can cause a decrease in the nutritional value of protein due to the availability of essential amino acids (Asrullah et al, 2012). Acidification will affect the pH value of fish because acidic conditions will accelerate the breakdown of protein into short-chain peptide groups or amino acids that are easily soluble in water, causing protein levels in the ingredients to decrease. According to Campbell and Farrell (2016) protein levels can decrease at low pH due to weakening of ionic bonds between protein molecules which causes protein denaturation. While the nutritional value of fat can not be affected by acidification.

CONCLUSION AND RECOMMENDATION

A. Conclusion

1. Number of Microbes in Gohu tuna fish with various acidification treatments with different concentrations and duration of acidification are categorized as safe (value < 500,000 colonies/gram of food ($5,10^5$ colonies/gram)

2. The higher the concentration of acidification used both cui orange and lime will cause a decrease in the number of microbes.

3. The nutritional value of gohu tuna, namely protein in various acidification treatments with different concentrations and duration of acidification, was below 21%.

4. Gohu tuna can be consumed as traditional food because it has a safety limit for its microbial content and stable nutritional value compared to the nutritional value of raw fresh tuna.

B. Suggestion

1. In making fish gohu, you can use fish oranges, both cui oranges and limes because the use of different oranges still produces tuna gohu which is safe in terms of microbial content and nutritional value.

2. The process of making fish gohu must pay attention to the quality of the tuna used and the handling process starting from the preparation and cooking process must pay attention to sanitation and hygiene.

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"Effect Of Peel Extract and Crown of Pineapple *(Ananas comosus L.Merr)* on The Growth of *Trichophytonrubrum* Fungus"

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ABSTRACT

Trichophyton rubrum is a fungal species that often infects human skin. Treatment in healing these infections usually uses chemical drugs sold in the market such as ketoconazole drugs. These chemical drugs have many side effects, so there is a need for natural remedies that can replace chemical drugs. Pineapple peel and leaf crown (*Ananas comosusL. Merr*) is a type of fruit part which is a residual waste and is not used. The content in the peel and crown of pineapple leaves (*Ananas comosusL. Merr*) are flavonoids, alkaloids, saponins, and tannins which have the content to inhibit the growth of the fungus *Trichophyton rubrum*. The purpose of this study was to determine whether there was an effect of extracts of the peel and crown of pineapple leaves (*Ananas comosusL. Merr*) on the growth of the fungus *Trichophyton rubum*. This research includes experimental research using the Kirby-Bauer method or disc paper. The treatments in this study used concentrations of 25%, 50%, 75% extract of pineapple peel and leaf crown (*Ananas comosusL. Merr*), negative control (0%) and positive control (ketoconazole). Based on the Mann-Whitney test with a significant provision of 0.05, it was found that there were differences in each treatment. These results indicate that there is an effect of extracts of the peel and crown of pineapple leaves (*Ananas comosusL. Merr*) on the growth of the fungus *Trichophyton rubrum* and the best concentration of inhibition zone is 75%.

Keyword : *Trichophyton rubrum*, peel and crown extract of pineapple (*Ananas comosusL. Merr*).

INTRODUCTION

Dermatophytosis disease in Indonesia ranks second caused by fungal diseases (Pravitasari *et al.*, 2019). *Trichophyton rubrum* is one of the fungi that cause dermatophytosis of anthrophilic species, which usually inhabits the soil to decompose keratin substances. *Trichophyton rubrum* is a fungal species that can cause various skin infections, including tinea barbae, tinea capitis, tinea corporis, tinea cruris, tinea pedis and tinea unguinum (Nurhayati, Kuswiyanto and Pilo, 2017). According to research conducted by Supriyatin (2017), there are 6 steam motorbike or car wash workers in Arjawinangun village, Cirebon Regency who are positive for tinea pedis disease where steam washing workers often wear shoes for a long time so that the skin on their feet is moist. In Hardika's research (2016). There are also cases of *Trichophyton rubrum* causes tinea pedis where there are 4 farmers in Barong Hamlet Sawahan, Jombang Regency who complained of itching, felt pain and does not go away until you feel uncomfortable caused use of closed footwear. In addition, tinea corpuris is an example other diseases caused by *Trichophyton rubrum.* Based on research that conducted by Riani (2017), as many as 94 respondents in the Fisherman Village Working Area of Jambu Health Center, Rokan Hilir Regency in 2016 which suffering from tinea corpuris as a result of poor personal hygiene and several other factors. So far, the treatment carried out is with use antifungals (Arimurti and Azizah, 2021).

So far, the treatment for fungal infections is the use of antifungals. Antifungal is a drug to treat infectious diseases caused by fungi. The treatment currently available on the market is grisofulvin, but resistance exists. To overcome cases of griseofulvin resistance can use ketoconazole. However, the main danger of ketoconazole is that it can cause liver toxicity if used for more than 10 days. From the shortage of market drugs, many people think that it is safer to use herbal medicines so that many people start trying traditional medicines from herbal plants (Septiana, 2015). Pineapple peel (*Ananas comosus L. Merr*) contains active substances including flavonoids, alkaloids, tannins and saponins (Juariah, Irawan and Yuliana, 2018) Pineapple leaf crown (*Ananas comosus L. Merr)* also contains the same alkaloids, tannins, flavonoids as pineapple peel (*Ananas comosus L. Merr*) which can be used as antifungals (Aeni, Aini and Pratama, 2022). This plant is spread almost evenly throughout all regions in Indonesia (Amda, Hanafiah and Kardhinata, 2020) Pineapple peel and leaf crown waste (*Ananas comosus L. Merr*) can be a product that has economic value and can also reduce the amount of waste in the environment (Rahmawati *et al.*, 2019). Based on this description, the researcher wanted to examine the "Effect of the peel and crown leaf extract of pineapple (*Ananas comosus L. Merr*) on the growth of *Trichophyton rubrum*".

METHODS

This research is a study to measure the inhibition zone using the Kirby-Bauer method. The treatments used were negative control (0% concentration), positive control (ketoconazole), 25%, 50% and 75% extract of the peel and crown of pineapple leaves (*Ananas comosusL. Merr*). The principle of this research is to analyze the data on the effect of pineapple (*Ananas comosusL. Merr*) peel extract and leaf crown on the growth of the

fungus *Trichopyton rubrum* obtained from laboratory tests. In this study, the effect of *Trichophyton rubrum* growth was determined by the presence of a clear zone around the paper disc. After doing the research, the resulting inhibition zone was measured using a ruler in mm units and then data analysis was carried out using SPSS.

RESULTS

The following are the results of research in the microbiology laboratory in table 1 :

Table 1. the results of observations on the growth of *Trichophyton rubrum* on extract of the peel and crown of pineapple leaves (*Ananas comosusL. Merr*)

No	Treatment	Inhibition zone diameter at each Repetition (mm)					Mean	Total	SD
		I	II	III	IV	V			
1	Control Negative (0%)	0	0	0	0	0	0	0	0
2	Control Positive (+)	37	38	35	38	40	37,6	188	1,81
3	25%	7	8	7	8	10	8	40	1.22
4	50%	12	10	10	11	10	10,6	53	0,89
5	75%	14	15	20	11	12	14,4	72	3,50

Source: Research data (June, 2022)
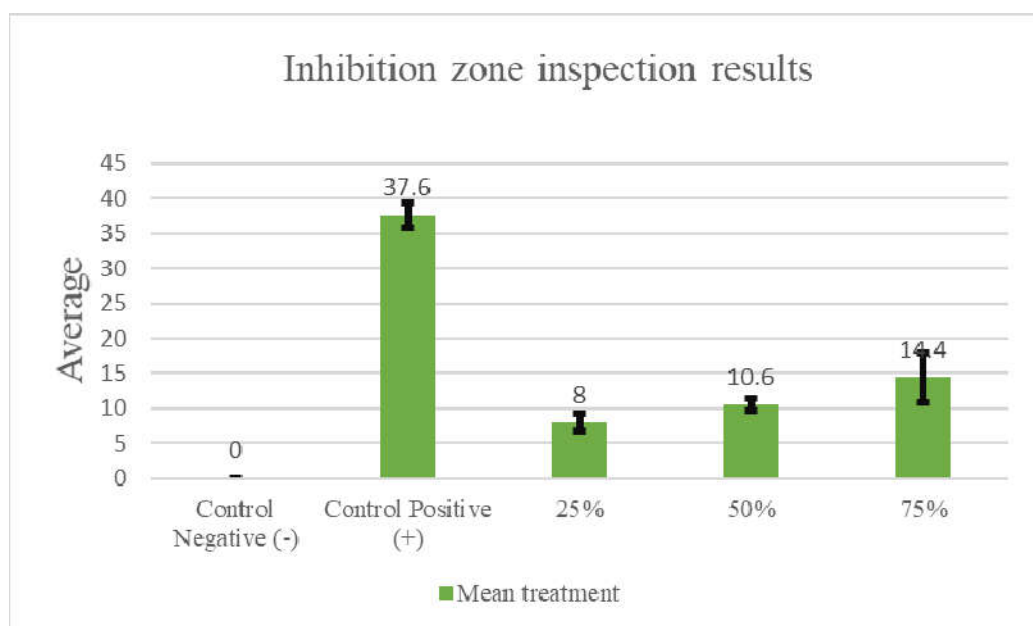
Figure 1. Mean of Inhibition zone inspection results

From the results of this study, it can be seen that the average inhibition zone of each concentration is different. At a concentration of 25%, an average of 8 mm was obtained, an average of 50% concentration was 10.6 mm, and a concentration of 75% an average of 14.4 mm was obtained (Figure 1.).

DISCUSSION

Based on the results of the study, this extract has potential as an antifungal indicated by the presence of inhibition zones formed on administration of the peel and crown leaf extract of pineapple (*Ananas comosus L. Merr)* with concentrations of 25%, 50% and 75%. In this case, the higher the concentration, the larger or wider the inhibition zone produced, the more active substances from the peel and crown leaf extract of pineapple (*Ananas comosus L. Merr*) which consist of flavonoids, alkaloids, tannins and saponins that function as antifungals. The active substances contained in pineapple peel (*Ananas comosus L. Merr*) are flavonoids, alkaloids, tannins and saponins (Juariah, Irawan and Yuliana, 2018). The crown of pineapple leaves (*Ananas comosus L. Merr*) also contains the same content as alkaloids, tannins, and flavonoids that can be used as antifungals (Aeni, Aini and Pratama, 2022).

In this study, the peel and crown of pineapple (*Ananas comosus L. Merr*) leaves were used due to the large amount of waste produced from pineapple (*Ananas comosus L. Merr*). In addition, there are also ingredients that can both have potential as antifungals. According to research by Wenas, Ramadania and Herdini (2020), the inhibitory power of the leaf and peel extract of orange pamelo (*Citrus maxima (Burm.) Merr.*) at the same concentration of 30% concentration resulted in a large inhibition zone and almost the same diameter. On the leaves of the orange pamelo (*Citrus maxima (Burm.) Merr.*) the highest inhibition was 12.43% and on the peel of the orange (*Citrus maxima (Burm.) Merr.*) of 12.15%. This indicates that the two origins of the pamelo citrus plant material have almost the same potential for fungal inhibitory activity.

Of all the active substances contained, the mechanism of action of flavonoids is to disrupt the process of diffusion of food into cells, causing fungal growth to stop or die. In addition, the content of saponins which are polar surfactants will break the fat on the cell membrane which can cause disruption of cell membrane permeability. This can cause fungal cells to swell and burst (Masloman, Pangemanan and Anindita, 2016). The tannin content has the ability to inhibit the synthesis of chitin which functions for the formation of cell walls in fungi and damages cell membranes, thereby inhibiting the growth process of fungi. The antifungal mechanism possessed by alkaloids is by inserting between the cell wall and DNA and then preventing the repetition of fungal DNA so as to disrupt fungal growth (Komala, Yulianita and Siwi, 2019). In this study, the skin and crown of pineapple (*Ananas comosus* L. Merr) leaves were used due to the large amount of waste produced from pineapple (*Ananas comosus* L. Merr). In addition, there are also ingredients that have the same potential as antifungals.

The difference in inhibition zones at concentrations of 25%, 50% and 75% could also be caused by several factors, such as during the process of immersing the discs at each concentration. The extract was not optimally absorbed on the disc due to obstacles such as

being too thick or watery as a result of the extract concentration solution that had been made. As stated by Nadziroh and Setiawan (2018), there are several factors of antimicrobial activity, including the number of microorganisms, acidity or alkalinity (pH), the intensity of the antimicrobial substance or concentration, the potential of an antimicrobial substance in the tested solution and the sensitivity of a microbe to antifungal concentration.

CONCLUSION

Based on the results of the research and statistical tests carried out, it can be concluded that the administration of pineapple peel and crown leaf extract (*Ananas comosus L. Merr*) at concentrations of 25%, 50% and 75% found an inhibition zone which means that there is an effect on the growth of the fungus *Trichophyton rubrum*. In addition, among the concentrations of the peel and crown leaf extract of pineapple (*Ananas comosus L. Merr*) 25%, 50% and 75%, the best inhibition zone was at a concentration of 75%.

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Stability of Homemade Lyophilized Serum for use as a Quality Control Material for Cholesterol and Triglyceride Parameters

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ABSTRACT

Important control materials are used to achieve the quality of laboratory examinations. Control materials can be obtained from commercial serum or can be made yourself in the form of pooled sera. The control material that is usually used in clinical laboratories is a commercial control material in the form of lyophilisate. However, the price is quite expensive, so it is less efficient to use in laboratories that have a small average number of examinations. The self-made lyophilized control material can be used as an alternative to replace the manufacturer's control which is quite expensive. This study aimed to analyze the stability of homemade serum lyophilisate as a control material for cholesterol and triglyceride parameters for 8 weeks. This research is an experimental study using a time series design research conducted at the Clinical Chemistry Laboratory, Department of Medical Laboratory Technology, Poltekkes, Ministry of Health, Surabaya, in October 2021-May 2022. Blood serum is processed using the freeze dried technique to obtain a lyophilized form. Lyophilized serum was stored at 2-8°C and dissolved using aquabides every week to check cholesterol and triglyceride levels. In the Levey-Jennings chart cholesterol and triglyceride levels did not deviate from 2SD during storage. Regression test showed that storage time had an effect of 0.4% on cholesterol levels and 55% effect on triglyceride levels. The results of the study concluded that the homemade serum lyophilisate was stable for 8 weeks of storage.

Keywords: Internal Quality Assurance (IQA); Homemade lyophilized serum; Cholesterol levels; Triglyceride levels

BACKGROUND

Clinical laboratories have an important meaning in terms of diagnostics. Data from laboratory tests are important information used to establish a disease diagnosis (Siregar et al., 2018). The implementation of a clinical laboratory is said to be good if it carries out activities to improve and strengthen the quality of laboratory examination results. Laboratory quality assurance activities include Internal Quality Assurance (PMI) and External Quality Assurance (PME), one of which is carried out by examining control serum (Permenkes, 2013).

An important control serum is used to achieve the quality of laboratory tests. Control serum can be obtained commercially or can be made yourself in the form of pooled sera. Control serum commonly used in clinical laboratories is control serum in liquid form and lyophilized or freeze-dried (Siregar et al., 2018). However, many developing countries are disadvantaged by the unavailability and high cost of commercial control materials. In

addition, this control material is derived from bovine serum which may not be the same as human serum (Jamtsho, 2013).

Homemade control material in the form of pooled sera is more cost-effective and can still maintain quality assurance in the laboratory (Kulkarni et al., 2020). Pooled sera can be used as a substitute for commercial control serum for internal and external quality assurance with proper storage and handling (Handayati et al., 2014). However, the lyophilized form control material is more stable and durable than the liquid form, and it is easier to transport. Homemade lyophilized human serum used as a Quality Control (QC) material will save costs for use in developing countries. Self-made lyophilized serum without the addition of stabilizers and additives can be stable for 7 months at a temperature of 2-8°C and stable for up to 9 months at a temperature of -20°C (Jamtsho, 2013).

The control material that is usually used in clinical laboratories is a commercial control material in the form of lyophilisate. However, this control material is sometimes made from bovine serum which may not be the same as human serum, besides that the price is also very expensive, making it less efficient to use for laboratories that have a small average number of examinations. The stability of homemade human serum lyophilisate can be determined by measuring cholesterol and triglyceride parameters, this parameter was chosen because it is a parameter that is often requested for routine examination in clinical chemistry laboratories. This study aimed to analyze the stability of homemade serum lyophilisate as a control material for cholesterol and triglyceride parameters stored at 2-8°C for 8 weeks.

RESEARCH METHODS

The method used in this research is experiment with time series design research. This research was conducted in October 2021 – May 2022 at the Clinical Chemistry Laboratory, Department of Medical Laboratory Technology, Poltekkes, Ministry of Health, Surabaya and in several reference laboratories. Serum samples were collected from 10 respondents who had cholesterol and triglyceride levels in the normal range, the serum obtained was not hemolyzed, not lipemic, not icteric and free of infectious diseases such as HIV and HBsAg. Serum that met the criteria was collected and homogenized using a vortex. The serum collection was separated in 15 vials each containing 3 mL of serum and then freeze-dried using the freeze dry technique. Sample homogeneity examination was carried out on a number of vials containing serum lyophilisate which were selected at random and examined in several reference laboratories. The homemade lyophilized serum was stored at 2-8°C and checked for cholesterol and triglyceride levels every 0 weeks; 1 week; 2 weeks; 3 weeks; 4 weeks; 5 weeks; 6 weeks; 7 weeks; and 8 weeks. Cholesterol parameters were checked using the CHOD-PAP method, read with a photometer at a wavelength of 500 nm with units of mg/dL. Triglyceride parameters were checked using the GPO-PAP method, read with a photometer at a wavelength of 500 nm with units of mg/dL.

RESULTS AND DISCUSSION

This study begins with conducting an initial examination as a preliminary test to determine the basic value which is then used as a reference value for subsequent examinations, and the results obtained can be seen in table 1 as follows:

Table 1. Initial examination of cholesterol and triglyceride levels

Parameter	Mean	SD	CV	CCV
Cholesterol	163,2	3,39	2,07	7,6

Triglyceride	60,9	3,41	5,6	7,6

Table 1 shows the results of the average calculation of cholesterol levels in homemade lyophilized serum stored at 2-8°C for 8 weeks is 163.2 mg/dL, standard deviation of cholesterol levels is 3.39 mg/dL, and CV (Coefficient Variation) cholesterol level is 2.07%. Meanwhile, the results of the average calculation of triglyceride levels in homemade lyophilized serum stored at 2-8°C for 8 weeks was 60.9 mg/dL, the standard deviation of triglyceride levels was 3.41 mg/dL, and CV (Coefficient of Variation) triglyceride levels was 5.6%. The value of CCV (Chosen Coefficient of Variation) of cholesterol and triglyceride parameters in External Quality Assurance for clinical chemistry is 7.6%, so that the triglyceride level in homemade lyophilized serum stored at 2-8°C for 8 weeks does not exceed the CCV limit.

After the preliminary test was carried out, it was continued with stability checks on homemade serum lyophilisate stored at 2-8°C for 8 weeks. The examination was carried out by dissolving one vial once a week, then continued with the examination of cholesterol and triglyceride levels, the data obtained from the cholesterol and triglyceride examination results which can be seen in table 2 as follows:

Table 2. Cholesterol level examination for 8 weeks

Time (week)	1	2	3	4	5	6	7	8
Mean	163,5	169	168,5	163,16	162,83	164,16	166,66	166,5
SD	1,64	3,40	3,39	2,22	1,72	2,63	2,87	3,08
CV%	1	2,01	2,01	1,36	1,05	1,60	1,72	1,85

Table 2 above shows the results of checking cholesterol levels in homemade serum lyophilisate stored at 2-8°C for 8 weeks, the coefficient of variation (CV) value on cholesterol levels during storage from week 1 to week 8 did not exceed maximum limit for cholesterol CCV. Meanwhile, the results of examination of triglyceride levels can be seen in table 3 as follows:

Table 3. Triglyceride level examination for 8 weeks

Time (week)	1	2	3	4	5	6	7	8
Mean	61,83	64,66	62,33	60,83	63,16	65,5	67,33	67,16
SD	2,71	1,86	3,72	3,18	2,71	4,23	1,96	2,71
CV%	4,38	2,87	5,97	5,24	4,29	6,45	2,92	4,04

Table 3 above shows the results of examination of triglyceride levels in homemade lyophilized serum stored at a temperature of 2-8°C for 8 weeks, the coefficient of variation (CV) value on examination of triglyceride levels from week 1 to week 8 does not exceed the specified limit. The maximum CCV of triglycerides. Based on table 3, the average results of cholesterol levels in homemade serum lyophilisate for 8 weeks of storage made in the form of a Levey-Jennings graph can be seen in Figure 1 as follows:
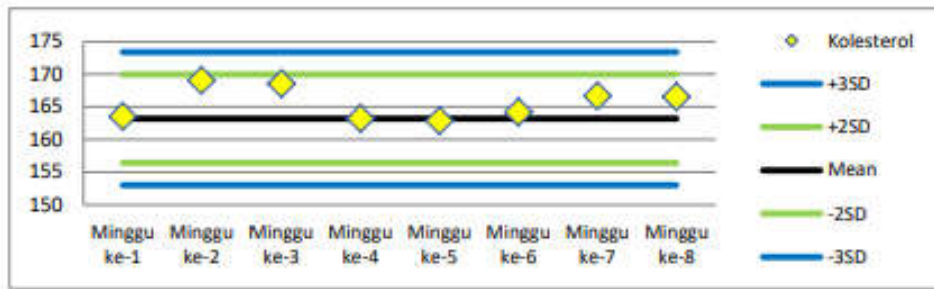
Figure 1. Levey-Jenning chart of cholesterol levels

Figure 1 shows a Levey-Jennings graph of cholesterol levels in serum lyophilized for 8 weeks of storage, the average results of examination of cholesterol levels from week 1 to week 8 of storage did not deviate from the limit of ±2SD, this indicates that cholesterol levels in serum lyophilisate Homemade is stable for 8 weeks of storage. Meanwhile, the average results of examination of triglyceride levels in lyophilisate can be seen in Figure 2 as follows:
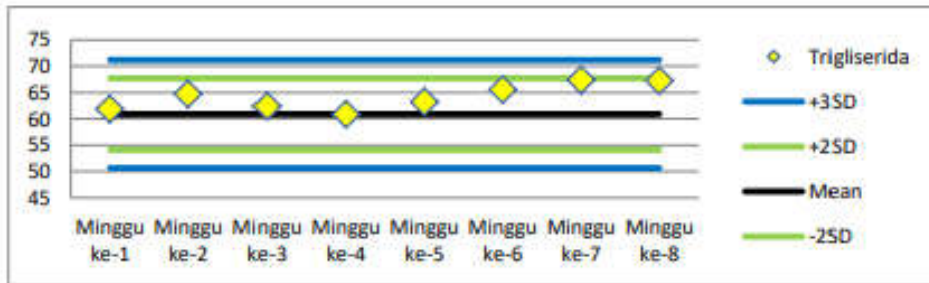
Figure 2. Levey-Jenning graph of triglyceride levels

Figure 2 shows a Levey-Jennings graph of triglyceride levels in lyophilized serum during 8 weeks of storage, the mean results of examination of triglyceride levels from week 1 to week 8 of storage did not deviate from the ±2SD limit, this indicates that triglyceride levels in serum lyophilisate Homemade is stable for 8 weeks of storage.

Regression test is used to predict the influence of the independent variable on the dependent variable. In this study, storage time acted as an independent variable, while cholesterol and triglyceride levels acted as dependent variables. The results of the examination of cholesterol levels in homemade lyophilized serum stored at a temperature of 2-8°C can be displayed in the form of a linear regression test graph which can be seen in Figure 3 as follows:
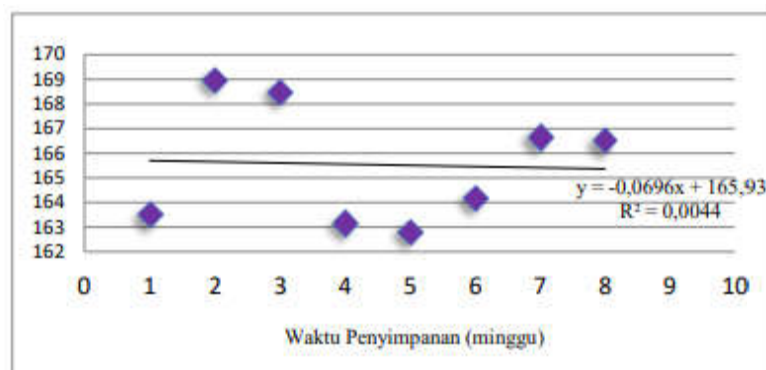
Figure 3. Linear regression graph of cholesterol levels

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Figure 3 shows the results of the linear regression equation on cholesterol levels, namely y = -0.0696x+165.93; R^2 = 0.0044. The regression coefficient value has a negative value of (-0.0696), this value indicates that there is a negative (opposite direction) effect between storage time and cholesterol levels. The value of the coefficient of determination (R^2) is 0.0044 or 0.4%, meaning that the storage time has an effect of 0.4% on the stability of cholesterol levels. Meanwhile, the results of examination of triglyceride levels in homemade lyophilized serum stored at a temperature of 2-8°C can be displayed in the form of a linear regression test graph which can be seen in Figure 4 as follows:
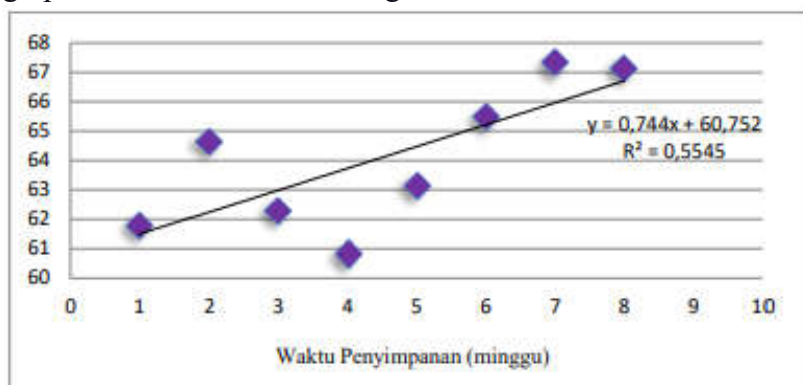
Figure 4. Linear regression graph of triglyceride levels

Figure 4 shows the results of the linear regression equation on triglyceride levels, namely y = 0.744x+60,752; R^2 = 0.5545. The regression coefficient value has a positive value of (0.744), this value indicates that there is a positive (unidirectional) effect between storage time and triglyceride levels. The value of the coefficient of determination (R^2) is 0.5545 or 55%, meaning that the storage time has an effect of 55% on the stability of the content triglycerides.

Based on the results of the stability test of homemade lyophilized serum stored at a temperature of 2-8°C for 8 weeks on cholesterol and triglyceride levels, the Coefficient of variation (CV) of cholesterol and triglyceride levels did not exceed the limits of the CCV cholesterol and triglycerides, which was 7.6 %. Thus, the results of examination of cholesterol and triglyceride levels in homemade serum lyophilisate during 8 weeks of storage had variations in results that were not much different.

The Levey Jennings chart shows that the distribution of cholesterol and triglyceride test results is in the ± 2SD area for 8 weeks of storage and does not follow the Westgard law prohibition, meaning that the results of cholesterol and triglyceride levels in homemade serum lyophilisate are well controlled (in control) for 8 weeks. storage. This indicates that the freeze-dried process was running well and the serum was stored at the appropriate temperature. The results of the examination of cholesterol and triglyceride levels in homemade lyophilized serum stored at 2-8°C for 8 weeks showed varying results. Examination of cholesterol and triglyceride levels in homemade serum lyophilisate increased and decreased levels during the 8-week storage period, this was concluded due to variations in results because the distribution of data still showed in the ±2SD area on the Levey-Jennings chart.

Based on the data obtained, data analysis was carried out using linear regression test on serum lyophilisate and the results of the cholesterol level regression equation showed that

there was a negative (opposite direction) effect between storage time and cholesterol levels. The value of the coefficient of determination (R^2) is 0.0044 or 0%, meaning that the storage time has an effect of 0.4% on the stability of cholesterol levels. Meanwhile, the results of the linear regression test of triglyceride levels in homemade serum lyophilisate showed that there was a positive (unidirectional) effect between storage time and triglyceride levels. The value of the coefficient of determination (R^2) is 0.5545 or 55%, meaning that storage time has an effect of 55% on the stability of triglyceride levels. The coefficient of determination was used to measure the effect of storage time on the stability of cholesterol and triglyceride levels. The value of the coefficient of determination is between 0 and 1, if R^2 is getting closer to 1, it means that the independent variable (storage time) has more effect on the dependent variable (cholesterol and triglyceride levels).

The results of this study are in accordance with previous studies, that there was no effect of storage time on cholesterol levels in pooled sera stored at a temperature of -7º to -4ºC, the average cholesterol levels in pooled sera were quite stable for 8 weeks of storage (Handayati et al., 2014). Other studies concluded that cholesterol and triglyceride levels in pooled sera stored at -20°C were stable up to 30 days of storage (Kachhawa et al., 2017).

The stability of cholesterol and triglyceride levels is not only influenced by storage time, but there are other factors that can affect their levels. Other influencing factors are the cleanliness of all the tools used, improper pipetting, staff skills, air bubbles in the equipment, imperfect homogeneity, inappropriate incubation time and temperature (Permenkes, 2013). In addition, contamination of blood cells in serum samples can also affect the results, because the blood cells undergoing hemolysis during storage time will affect the reading of the results resulting in increased cholesterol levels (Hartini & Suryani, 2016).

Control serum that is usually used in clinical laboratories is commercial control serum in the form of lyophilisate, commercial control serum that has never been opened and stored at 2-8°C can still be used until the expiration date specified by the manufacturer, while control serum that has been dissolved and stored at -15°C can be used for up to one month, with the condition that it must be stored in the original bottle and in a dark place (Handayati et al., 2014). Self-made lyophilized serum without the addition of stabilizers and additives can be stable for 7 months at a temperature of 2-8° C and stable for up to 9 months at -20°C for glucose, BUN, keatinine, AST, ALT, ALP, TP, bilirubin, and albumin parameters (Jamtsho, 2013).

CONCLUSION AND RECOMMENDATION
Based on the results of the research and data analysis conducted, it was found that the CV value of cholesterol and triglyceride levels did not exceed the maximum CCV limit, the Levey-Jennings chart shows that cholesterol and triglyceride levels did not deviate from the ±2SD limit and did not follow the prohibition of the Westgard-Multirule law. Thus, it can be concluded that the lyophilized serum made by itself using the freeze dry technique stored at 2-8°C can be used as an alternative to commercial control serum for cholesterol and triglyceride testing because it has good accuracy and precision for 8 weeks.

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Characteristics of Chitosan in Gonggong Snail Shells in 2022

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ABSTRACT

Chitosan biopolymer is effectively depolymerized to release N-acetyl-β-D-glucosamine to initiate fibroblast proliferation during the wound healing process. This research was the first step to explore natural wound topical ingredients of the Riau Islands which were appropriate for use in the wound healing process. The objective of this research was to extract and describe the characteristics of chitosan produced from gonggong snail shells. The extraction of chitosan in the shell of the gonggong snail begun with cleaning it from dirt, drying it and drying it under the sun. Then the shell of the gonggong snail was crushed to form flakes and then the process of demineralization, deproteinization and deacetylization was conducted. Then the chitosan obtained was characterized to determine the quality of the chitosan produced. The characterization included tests for water content, ash content, solubility in 2% acetic acid and ionization degree. This research was carried out in the Chemical Laboratory of Padang State University in May 2022. The stages of this research were preparation of gonggong snail shell samples, manufacture of chitosan and then determine the characteristics of chitosan. After doing the research, the results of the characteristics of chitosan included water content of 0.71% in 100 grams of sample, 95.90% ash content in 100 grams of sample, soluble solubility and ionization degree of 79.8821% in 100 grams of sample.

Keywords: *Shell, Gonggong snail, Characteristics, Chitosan*

BACKGROUND

The Bahamas, Fiji, Philippines, Indonesia and Papua New Guinea were the first five countries to receive approval from the United Nations as archipelagic states. Indonesia is the largest archipelagic country in the world consisting of 17,504 islands with a population of 270,203,917 in 2020. The Riau Islands is one of the youngest provinces in the Republic of Indonesia. Geographically, the Riau Islands province is bordered by neighboring countries, such as Singapore, Malaysia, and Vietnam. Riau Islands Province consists of 9,982.88 km2

of land and 415,231.79 km2 of sea (96%) is water with 2,408 islands (Pemerintah Provinsi Kepulauan Riau, 2021).

The Riau Islands has enormous potential in making marine and fisheries a driver of economic growth. Riau Islands Province has great resource potential in coastal and marine areas. The fisheries sector is the main source of livelihood for the people of the Riau Islands Province. Most of the fishery production in the province is marine capture fisheries with production in 2013 of 140,597 tons. Utilization of the sea and its various resources can not only be relied upon in encouraging the economic growth of a region. However, through the right strategy, the marine and fisheries sector can be used as a solution for a sustainable source of income for the community, to reduce poverty and income inequality between regions. The determination of the Fisheries Management Area of the Republic of Indonesia (WPP-RI) needs to be carried out to ensure optimal and sustainable utilization of fish resources. WPP-RI is a fisheries management area for fishing, fish cultivation, conservation, research, and fishery development which includes inland waters, archipelagic waters, territorial seas, additional zones, and the Indonesian Exclusive Economic Zone (ZEEI) (BPS KEPRI, 2016).

The gonggong snail is one of the soft animals (Mollusca) belonging to the gastropod class from the Strombus canarium species (Zaidi et al. 2009 in Ricky 2016). The results showed that 3 types of gastropods were found; Strombus turturella, Natica Gualtieriana, and Lambis on the coast of Bintan Regency, Riau Islands. The highest abundance value of gonggong snails was in the Lepah River) with a total of 0.5 ind/m2, in Sungai Kecil with a total of 0.04 ind/m2 and while in Sekera gonggong snails were not found. The habitat of gonggong snail was found on the sand substrate at all stations. The pattern of distribution showed that gonggong snails live in groups. Community activities on the coast of Bintan Regency that affect the abundance of gonggong snails include fishing to meet the needs of local consumption and tourists, sand mining in the sea and on the beach. Utilization of gonggong snails in culinary as a source of protein for the people of Riau Islands. This is in line with the research which showed that the protein profile of the thick-shelled and shelled gonggong meat was 100 individuals, respectively, taken from Madong Village, Bintan Island, Riau Islands Province using histone protein primers of H2A and H2B in the 75 bp target gene. Antimicrobial activity in thick shell boiled Bintan gonggong meat extract containing histone protein as a favorite food in Bintan has the ability to inhibit S. aureus and E. coli bacteria, so it is strongly suspected that boiled gonggong of Bintan can be used as a candidate for functional food of boiled gonggong typical of Bintan Islands. Riau (Rosady, Astuty and Prihadi, 2016 and Viruly et al, 2019).

Based on the research conducted by Ricky (2016) that the catch of fishermen on the gonggong snails was directly sold to "seafood" restaurants which were used as culinary tourism by local or foreign tourists who came to the Riau Islands. The gonggong snail used in culinary tourism is only its meat while the shell itself becomes waste. The gonggong snail shells containing chitin and chitosan which are widely used in everyday life, for example as adsorbents for heavy metal waste and dyes, preservatives, antifungal agents, cosmetics, pharmaceuticals, flocculants, anti-cancer, and anti-bacterial (Stephen. 1995; Lee, et all., 1999: Liu, et all., 2006 in Pratiwi, 2014).

The waste from the gonggong snail shells is used to produce chitosan (Kusumawati 2009 in Pratiwi, 2014; Suhardi, 2012). Likewise with research by Horiza et al, 2018 that found chitosan content in gonggong snail shells. The next research explained that the main biochemical activities of chitin and chitosan-based materials in the wound healing process are through activation of polymorphonuclear cells, activation of fibroblasts, production of cytokines, migration of giant cells, and stimulation of type IV collagen synthesis. Chitosan biopolymer is effectively depolymerized to release N-acetyl-β-D-glucosamine to initiate fibroblast proliferation during the wound healing process (Singh.R, Shitiz.K and Singh.A, 2017 in Kurniawaty, 2019).

Wounds are loss or damage of body tissue caused by many things such as trauma, temperature differences, exposure to chemicals, contact with electricity and bites. A healthy body has a natural ability to protect and restore itself. Increased blood flow to the damaged area, clearing of cells and foreign matter and early cellular development are part of the healing process. The healing process can occur normally or with assistance. For example, protecting the wound area from dirt by maintaining good hygiene helps to promote tissue healing (Black, 2014).

Optimal wound care leads to a good wound healing process in a short time, thereby reducing wound care costs and increasing productivity. General wound care consists of wound bed preparation and wound closure. Wound bed preparation is carried out through debridement, bacterial control, and management of wound exudate. Wound closure is carried out when the wound has been well prepared and can be done per secundam, perprimam, skin graft, flap, and using stem cells. Wound assessment, determination of action, and selection of dressings in wound care with any diagnosis is carried out based on the condition and problem of the wound. Wound conditions can be identified by the color and surface of the wound. The color of the wound can be adjusted according to the type of wound, namely acute wounds, necrotic wounds (black), slough wounds (yellow necrotic), granulation wounds, infectious wounds (yellow green), and epithelialized wounds. The wound surface can be in the form of wet wounds, dry wounds, and moist wounds. Wound problems can include bacterial infections, necrotic tissue, and exudates. Bacterial infections can be controlled with antibiotics, antibacterial materials and debridement. Necrotic tissue can be treated with debridement. Exudates can be overcome by giving abortive products (Wintoko and Yadika, 2020).

The principle of wound care is tissue management, inflammation and infection control, moist balance environment, epithelial advancement or edge (TIME) with the right modern dressing. There are several factors that influence the choice of modern dressing, including: type of wound, wound description, wound characteristics, and bacterial profile. Nursing care for patients with wounds includes: assessment (holistic and wound assessment) of wounds, formulating nursing diagnoses: damage to skin/tissue integrity, nursing planning (TIME) and implementation (wound care) and evaluation (Poerwantoro, 2013).

This research was the first step to explore natural wound topical ingredients from the Riau Islands which were appropriate for use in the wound healing process. This can support independent nursing practice carried out by researcher as an effort to bring services closer to the community.

RESEARCH METHOD

Extraction of chitosan in the shells of gonggong snails obtained from seafood waste must first be cleaned from dirt, then dried or dried under the sun. After the dried shells was obtained, the gonggong shells were crushed or mashed to form flakes, and then a demineralization, deproteination, and deacetylation process was conducted which aimed to remove minerals, proteins and acetyl groups in the gonggong shells to produce chitosan (Susilowati, 2014). The stages of this research were preparation of gonggong snail shell samples, isolation of chitin from gonggong snail shells and deacetylation (Horiza et all, 2018).

This demineralization process aimed to remove inorganic salts or mineral content contained in the shell of the gonggong snail. Removing minerals (demineralization) in the gonggong snail shell by means of gonggong snail shell + with 1.5 M HCL in a ratio of 1:5 (w/v) stirred for 4 hours at a temperature of 65°C. After neutralization and oven at 80°C for 24 hours.

Then a deproteinization process was carried out which aimed to separate or release protein bonds from chitin. Followed by deproteinization by means of demineralized snail shells + NaOH 3.5% ratio 1:10 (w/v) stirred for 4 hours at a temperature of 65 - 70°C. After neutralization and in the oven at 80°C for 24 hours.

Then the depigmentation process through the shell of the gonggong snail as a result of the deproteinization process + NaOCL 0.315% ratio 1:10 (w/v) was stirred for 1 hour at 40°C. After neutralization and in the oven at 80°C for 24 hours.

The next stage was the conversion of chitin to chitosan called the deacetylation process. The deacetylation process is the process of removing the acetyl group (-COCH3) from chitin by using an alkaline solution to turn it into an amine group (-NH2). The shells of gonggong snails resulting from the depigmentation process + 50% NaOH at a ratio of 1:20 (w/v) were stirred for 4 hours at 120°C. After neutralization and oven at 80°C for 24 hours.

The chitosan obtained was characterized to determine the quality of the chitosan produced. The characterization carried out included tests for water content, ash content, solubility in 2% acetic acid and the degree of ionization. Moisture content and ash content are parameters used as quality standards for chitosan. The water content of chitosan is influenced by the relative humidity of the air around its storage area, since chitosan is easy to absorb moisture from the surrounding air. Chitosan polymer groups (amine, N-acetyl and hydroxyl groups) will hydrogen bond with H2O from the air (Dompeipen et al, 2016 in Rochmawati, Nabila, Ainurrohmah 2018). Testing the water content using the gravimetric method with the following equation:

The ash content indicated the success rate of demineralization, so the low ash content indicated the purity of a chitosan. Determination of ash content aimed to determine the mineral contained in blood clams. In addition, the ash content can also be used to measure the solubility of chitosan in the solvent. If the ash content is high, then the minerals contained are still high and if the ash content is low, the minerals contained in the sample are small.

The solubility of chitosan was obtained by taking a sample of gonggong snail shells, weighed 1 gram and then dissolved in 100 ml of 2% acetic acid. Meanwhile, the acetylation degree in 100 grams of gonggong snail shell samples was carried out using the FTIR method

(Mardiana, 2021). The calculation of the deacetylation degree (DD) from the infrared spectra of chitosan was carried out by comparing the absorbance at the wave number for the amide NH group (A1655) with the absorbance at the wave number for the primary amine group (A3450), with an absorbance value of 1.33 in the complete deacetylation process. The equations used are:

$$\%DD = [100 - (\frac{A\,1655}{A\,3450} \times \frac{100\,A\,1655}{1,33\,A\,3450} \times \frac{100}{1,33})]$$

A : Log $(\frac{PoPo}{p\,p})$

Po : % transmittance on flat line

P : % transmittance at minimum peak

A1655 : amide group absorption band

A3450 : absorption band of hydroxyl group (OH)

RESEARCH ETHICS (Komite Etik Penelitian dan Pengembangan Kesehatan Nasional Kementerian Kesehatan RI, 2021).

As explained in detail in international ethical guidelines and various research rules in various jurisdictions, the criteria/standards of ethical adequacy. Before the research was carried out in the laboratory, the researcher proposed ethical clearance at the Polytechnic of the Ministry of Health of Malang with the number Reg.No.:300/KEPK-POLKESMA/2022. It is declared ethically appropriate according to 7 WHO standards, namely: social values, scientific values, equal distribution of burdens and benefits, risks, inducements/exploitation, confidentiality and privacy, and approval after an explanation referring to the 2016 CIOMS Guidelines.

1. Social Value and/or Clinical Value

Research is ethically acceptable if the research has an impact not only on the individuals participating, but also on the community where the research was conducted and/or to whom the research results will be applied. Research is ethically justifiable because it attempts to produce information relevant to significant health needs for low-resource communities. Parameters of social value are the existence of novelty phenomena and efforts to disseminate results. Social value is actually difficult to quantify quantitatively. However, qualitatively there are generally 4 important factors, namely: the quality of the information (knowledge) produced must be meaningful, its relevance is meaningful to the health problems of the local community, its contribution to the creation or evaluation of interventions, policies, or implementations that promote individual or community health, and information to understand interventions, contributions to health promotion, alternative ways of dealing with problems, etc.

2. Scientific Value (Scientific Design)

Research can be accepted ethically if it is based on a valid scientific method. The scientific value parameter refers to the ability of the research to produce i.e. valid and reliable information, according to the objectives stated in the protocol, the basis for further

research, and relevant data for clinical decision making, health, social policy, or resource allocation.

3. Equal distribution of burdens and significances

Research is ethically acceptable if the risks have been minimized (by preventing potential harm and minimizing possible negative impacts) and the significances of research outweigh the risks. In addition, it was ensured that benefits and burdens were distributed evenly, no group status/level was subject to greater risk/burden. Subjects were included for scientific considerations, not recruited based on socioeconomic status, on the basis of authority, or ease of manipulation or selection. Research ethics ensures that no group or individual bare more burdens than they should when participating in research.

4. Potential Risks and Significances

In considering the limits of the acceptable level of risk, and the balance of risk against benefit, it is necessary to consider referring to the previous basic moral and ethical theories and statements of the research code of ethics. Minimal risk, generally no requirement for subject-specific protective measures required for all studies involving subjects.

5. Inducements, Financial Benefits, and Replacement Costs

In research, it was necessary to avoid suspicion of the existence of "exploitation and the importance of moral aspects. Statements related to aspects of benefits and harm), vulnerability, and consent are important. Researchers need foresight and sensitivity to seek to determine how exploitation relates to other ethical concepts. Recruitment of subjects with socially and economically disadvantaged conditions is more profitable for researchers and sponsors. It is ethically acceptable and permissible to reimburse an individual for any costs associated with participating in research, including transportation costs, childcare, lost income while participating in research and reimbursement of time spent participating in research.

6. Protection of Privacy and Confidentiality

Violation of the privacy and confidentiality of research subjects, such as, is not respecting the subject of embarrassing things and invisible losses, such as social stigma, rejection by family or society, or loss of opportunities, for example in work or getting a place to live.

7. Consent After Explanation (PSP) or Informed Consent (IC)

Consent after explanation (PSP)/Informed Consent (IC) is consent given by a competent individual. The individual has received the required information, has understood it, and made a decision without being subjected to coercion, undue influence or persuasion, or intimidation.

RESULTS AND DISCUSSION

Chitin is the main component of the exoskeleton of invertebrates, crustaceans and insects where this component functions as a supporting and protective component. Chitosan is a biopolymer that is unique in that in an acidic solution, chitosan has the characteristics of a

cation and is positively charged, while in an alkaline solution, chitosan will precipitate. Chitin and chitosan are linear polymers which are polycationic. The gonggong snail is a type of sea snail (Strombus canarium L.1758), is one of the soft animals (Mollusca), many live on the coast of Bintan Island and its surroundings, such as Dompak Island, Lobam Island, Mantang Island (Pratiwi, 2014; Zaidi et al. 2009 in Ricky et al, 2016).

Kusumawati, 2009 in Pratiwi (2014) states that the benefits of chitosan include agriculture, chitosan offers a natural alternative in the use of harmful chemicals to the environment and humans. Chitosan creates defense mechanisms in plants (such as vaccines for humans), stimulates growth and stimulates certain enzymes (phytoalexin chitinase, pectinnase, glucanase and lignin synthesis): This new organic controller offers an approach as a biocontrol tool; (2) in the field of water treatment, chitosan can be used as a raw material for the manufacture of ultrafiltration membranes; (3) in the food sector, chitosan has been widely used in food compositions in Japan, Europe and the United States, as a fat trap which is a breakthrough in the field of diet; and (5) in medicine, chitosan is used for bacteriostatic, immunology, anti-tumor, cicatrizant, homeostatic and anti-coagulant, ointment for wounds, malignancy, orthopedics and surgical suture closure. Chitosan can be used to accelerate wound healing and bone damage.

According to Pratiwi (2014) that the safety of using chitosan products has received approval from BPOM No. HK.00.05.52.6581 for use in food products. In America, chitosan has been approved as a Generally Recognized As Safe (GRAS) product by the FDA. Besides being safe, the chitosan produced by PT. Araminta Sidhakarya has also received a halal certificate from LPPOM-MUI No. 00170043490307 (as preservative) and 00170043510307 (as coating).

The manufacture of chitosan by means of gonggong snail shells obtained from seafood waste must first be cleaned of dirt, then dried or dried in the sun. After the shells were dry, the gonggong snail shells were crushed or mashed to form flakes, and then a demineralization, proteination, and deacetylation process was carried out which aimed to remove minerals, proteins and acetyl groups in the gonggong shells to produce chitosan (Susilowati, 2014).

Mineral Removal (Demineralization)

This demineralization process aimed to remove inorganic salts or mineral content present in the gonggong snail shells. Mineral Removal (demineralization) in the gonggong snail shell by means of gonggong snail shell + with 1.5 M HCL in a ratio of 1:5 (w/v) stirred for 4 hours at a temperature of 65°C. After neutralization and it was put into the oven at 80°C for 24 hours.

cangkang siput Gonggong + HCl 1.5 M perbandingan 1:5 (b/v) | distirer selama 4 jam pada suhu 65°C. | Setelah dilakukan penetralan dan dioven pada suhu 80°C selama 24 jam

Figure.1 Demineralization

Protein Removal (Deproteination)

This process aimed to separate or release protein bonds from chitin. Protein removal (Deproteinization) by means of demineralized snail shells + NaOH 3.5% ratio 1:10 (w/v) stirred for 4 hours at a temperature of 65 - 70°C. After neutralization and it was put into oven at 80°C for 24 hours.

Cangkang siput Gonggong hasil demineralisasi + NaOH 3.5% perbandingan 1:10 (b/v) | distirer selama 4 jam pada suhu 65-70 °C. | Setelah dilakukan penetralan dan dioven pada suhu 80°C selama 24 jam

Figure.2 Deproteinization

Depigmentation

The gonggong snail shells resulting from the deproteinization process + NaOCL 0.315% ratio 1:10 (w/v) were stirred for 1 hour at 40°C. After neutralization and it was put into the oven at 80°C for 24 hours.

Cangkang siput Gonggong hasil proses deproteinasi + NaOCl 0.315% perbandingan 1:10 (b/v) | distirer selama 1 jam pada suhu 40°C | Setelah dilakukan penetralan dan dioven pada suhu 80°C selama 24 jam

Figure.3 Depigmentation

Acetyl group Removal (Deacetylization)

The conversion of chitin to chitosan is called the deacetylation process. The deacetylation process is the process of removing the acetyl group (-COCH3) from chitin using an alkaline solution to turn it into an amine group (-NH2). The gonggong snail shells resulting from the depigmentation process + 50% NaOH at a ratio of 1:20 (w/v) were stirred for 4 hours at 120°C. After neutralization and it was put into oven at 80°C for 24 hours.

Figure.4 Deacetylization

Characteristics of Chitosan

From the research conducted in May 2022 at the Chemical Laboratory of FMIPA UNP, which measured the water content, ash content (Gravimetric method) and ionization degree (FTIR method) in the gonggong snail shell samples, it is preseanted in the following table:

Table 1 Water content in gonggong snail shells

No	Type of sample	Weight of original sample (initial weight (g))	Weight of sample after oven (final weight (g))	Loss of sample weight (initial weight-final weight)	Moisture content
1	Gonggong snail shell	1,0011 g	0,9940 g	0,0071 g	0,71%

Testing the water content using the gravimetric method obtained the following results:

$$Moisture\ content = \frac{loss\ of\ weight\ (g)}{weihgt\ of\ sample\ (g)} \times 100\%$$

$$= \frac{0,0071\ g}{1,0011(g)} \times 100\%$$

$$= 0,71\%$$

Table 2 Ash content in gonggong snail shells

No	Type of sample	Weight of original sample (initial weight (g)	Weight of ash after furnace (g)	Ash Content
1	Gonggong snail shell	1,0105 g	0,9691 g	95,90%

Testing the ash content using the gravimetric method obtained:

$$Ash\ content = \frac{Ash\ weight\ (g)}{weihgt\ of\ sample\ (g)} \times 100\%$$

$$= \frac{1,0105\ g}{0,9691(g)} \times 100\%$$

$$= 95,90\%$$

Table 3 Sample analysis results of the gonggong snail shell

No	Parameter	Analysis result	Method
1	Moisture content	0,71% (in 100 grams of sample)	Gravimetri
2	Ash content	95,90% (in 100 grams of sample)	Gravimetric
3	Solubility	Soluble	Solubility
4	Ionization degree	79,8821% (in 100 grams of sample)	FTIR

The chitosan obtained was characterized to determine the quality of the chitosan produced. The characterization carried out included tests for water content, ash content, solubility in 2% acetic acid and the ionization degree. Moisture content and ash content are parameters used as quality standards for chitosan. The water content of chitosan is influenced by the relative humidity of the air around its storage area, since chitosan is easy to absorb moisture from the surrounding air. Based on the measurement results shown in table 3, it was found that the water content in 100 grams of gonggong snail shell samples through the gravimetric method was 0.71%. This is in accordance with the Protan Laboratory Standard 10% contained in research by Rohmawati, 2018 and Suprianto, 2012).

The ash content indicated the success rate of demineralization, so the low ash content indicated the purity of a chitosan. In addition, the ash content can also be used to measure the solubility of chitosan in the solvent. If the ash content is high, then the minerals contained are still high and if the ash content is low, the minerals contained in the sample are low. Based on the measurement results shown in table 3, it was obtained that the ash content in 100 grams of gonggong snail shell samples was 95.90. This is not in accordance with the Protan Laboratory Standard, which is 2% So it can be said that the mineral separation and washing process had not been effective (Rohmawati, 2018 and Suprianto, 2012)

Chitosan solubility is one of the main parameters of chitosan quality assessment standard. The higher the solubility of chitosan in 2% acetic acid, the quality of the chitosan produced was very good. The solubility of chitosan was observed by comparing the clarity of the chitosan solution with the clarity of the solvent. The solubility of chitosan was obtained by taking a sample of gonggong snail shells, weighed 1 gram and then dissolved in 100 ml of 2% acetic acid. The results in this research were chitosan can be dissolved in 2% acetic acid (Knoor, 2014 and Dompeipen et al, 2016 in Rohmawati, 2018 and Suprianto, 2012)

The deacetylation stage in chitosan extraction was carried out to change the acetyl group in chitin into an amine group. The deacetylation degree is a value that indicates the percentage of acetyl groups lost from chitosan and becomes a determinant of the quality of chitosan. The high deacetylation degree of chitosan causes the acetyl group contained in chitosan to be low, so the chitosan was positively charged and was able to bind strongly to polysaccharide anions, proteins and form neutral ions. The deacetylation degree of chitosan in this research was 79.8821%, this result did not meet the standard for pharmaceutical types in a research conducted by Trisnawati, Andesti, Saleh in 2013 where the degree of acetylation was > 95%.

CONCLUSIONS AND RECOMMENDATIONS

After conducted the research, the results of the characteristics of chitosan include a water content of 0.71% in 100 grams of sample, 95.90% ash content in 100 grams of sample, its solubility and degree of ionization of 79.8821% in 100 grams of sample. It is necessary to conduct further research on the measurement of the acetylation degree which is recommended > 95% in the pharmaceutical field and the transformation of chitin into chitosan to be of high quality.

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***2nd International Conference of Medical Laboratory Technology* (ICoMLT)**

"COMBINATION POTENTIAL SOAKING TEAK LEAVES *(Tectona Grandis)* WITH HCl ON STAINING GRAM IN *Escherichia coli* BACTERIA"

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ABSTRACT

Safranin or fuchin is a dye that is widely used in the fields of industry, textiles, histology, cytology and bacteriology. Safranin has a very expensive price in 2019 reaching 3,565,000 / 25 grams. Thus, it is necessary to substitute dyes from natural and much cheaper materials. Teak leaves *(Tectona grandis)*, especially the young ones, contain the pigment pheophitin, ß-carotene, chlorophyll and two other pigments that have not been identified as well as several anthocyanin derivatives, namely, pelargonidin 3-glucoside, pelargonidin 3,7-diglucoside. Anthocyanins contained in teak leaf *(Tectona grandis)* buds are reddish brown. The presence of these pigments can be used in laboratory tests for staining bacteria. The purpose of this study was to determine the soaking variation of teak leaf *(Tectona grandis)* buds for 24 hours, 48 hours, 72 hours, 96 hours in 96% alcohol with concentrated HCl, and the use of safranin as a positive control. The data of the research was in the form of scores of observations. Based on the Kursal Wallis alpha test, it was found that there was a significant

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difference in the results of staining bacteria among various soaking of teak leaf *(Tectona grandis)* buds in 96% alcohol with concentrated HCl in staining gram technique. Soaking teak leaf *(Tectona grandis)* buds in 96% alcohol with HCl for 72 hours and 96 hours gave the same staining results as safranin. The results showed that soaking teak leaf *(Tectona grandis)* buds in alcohol with concentrated HCl can be used as an alternative natural dye for the method of staining Gram on *Escherichia coli* bacteria.

INTRODUCTION

In laboratory research, especially in the field of microbiology, bacterial identification is often carried out on preparations using a microscope. Identification on the preparations aims to determine the type of bacteria that grow. Microorganisms in nature have distinctive morphology, structure and properties, including bacteria. Bacteria are colorless and contrast with water, so bacterial cells must be suspended. To see and observe living bacterial cells is very difficult, to identify it requires a method, namely by using the method of painting or staining, so that it is easy to see clearly and observe. It can also serve to see its physiological properties. This bacterial cell staining technique is one of the main ways in microbiological research (Hadi, 2016). Bacteria have a transparent color, and if they are in an aqueous medium it will be difficult to see under a microscope. One way to observe small bacteria and difficult to observe, it is necessary to try staining or inserting dyes that can change the appearance from previously transparent to colored (Lindayani et al., 2016). One of the bacterial stains that is often used is Gram staining including crystal violet, safranin of carbol fucshin. *Echericia coli* is a beneficial bacteria and can be pathogenic, can be a major cause of morbidity and mortality worldwide. Methods that can identify bacteria are Gram stain, capsule, and acid-fast stain. Gram stain is a useful and most widely used differential stain in microbiology laboratories (S.A. Rahayu et al., 2017).

One of the stains that is often used is the Gram stain, which is to distinguish the types of Gram negative bacteria from Gram positive bacteria. Gram staining is based on the principle of the difference between Gram negative and positive cell walls. In the laboratory, synthetic dyes are mostly used, one of which is safranin. Safranin is a dye that is widely used in industry, textiles, histology, cytology and bacteria. However, waste from safaranin is very toxic to the human body, which can cause irritation to the mouth, throat, breathing and stomach. The price of safranin is very high and can reach 3,565,000/25gram in 2019. Therefore, a cheaper natural substitute is needed (Edyani, 2020).

One of the plants that can be used as a substitute for coloring is teak leaves (Tectona grandis). Teak leaf (Tectona grandis) is a plant that is widely cultivated in Indonesia. Teak leaves (Tectona grandis) are included in the Verbenaceae family which can be used as natural dyes because they contain anthocyanin pigments. Ati's research (2006) stated that teak adaun extract contains anthocyanin type pelagornidin as its natural pigment. Pelagornidine is an anthocyanidin pigment group, namely anthocyanin aglycones that are formed when anthocyanins are hydrolyzed with acid. This content will function as a blood red pigment in teak leaves (Tectona Grandis) (Virgianti et al., 2017).

Anthocyanins are flavonoid pigments. Flavonoid compounds are polar and can be dissolved in polar solvents such as ethanol, ethyl and ethyl acetate. Anthocyanins can be extracted using methanol and concentrated HCl 1%. However, methanol has very high toxic properties, so it is recommended to replace it with ethanol. Therefore, researchers are interested in conducting this research by making an alternative to safranin using teak (Tectona Grandis) + concentrated HCl leaf immersion against Gram staining (Surianti et al., 2019).

RESEARCH METHODS

This type of research is an experimental laboratory research that aims to determine whether there are differences in the results of bacterial staining of various lengths of soaking teak leaf extract (Tectona grandis) in alcohol with HCl. The design of this research is the Posttest Only Control Group Design .
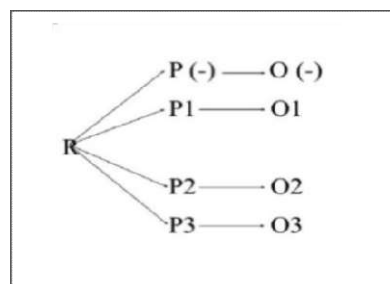
Figure 1. posttest Only Control Design (Soekidjo, 2012)

The population in this study was Escherichia coli preparations. The sample in this study were 30 preparations of Escherichia coli bacteria which were stained with teak leaf buds. So in this study the number of repetitions of each group was 6 times. Because in this study there

were 5 different treatment groups, so a total of 30 preparations were used in the experiment.

The location of the research was carried out at the Microbiology Laboratory, D3 Study Program in Medical Laboratory Engineering, Faculty of Health Sciences, University of Muhammadiyah Surabaya. The time of the research was carried out on June 1, 2022 until June 30, 2022. While the examination time was on July 1, 2022.

The variables of this study were the independent variables: the duration of immersion of teak leaf buds (Tectona grandis) in alcohol+HCl. Bound Variable: Bacterial staining results. Control Variables: Method or technique of staining and concentration of dye.

a. Method of collecting data

Examination of Eschericia colii preparations stained with teak leaf bud staining (Tectona Grandis) was carried out using the Gram staining technique. Gram staining is a staining that uses a solution of crystal violet, lugo, 96% alcohol, and safranin or carbol fuchin which is poured in the last stage over the entire surface of the preparation (Kurniawati, 2005).

b. Tools and materials

The tools used are beaker glass, funnel, filter, measuring flask, chocolate bottle, scale, watch glass, measuring pipette, and measuring cup. The materials used in the study were 100g teak leaves, 99ml 96% alcohol + 1ml concentrated HCl, crystal violet, lugol, 96% alcohol, safranin, and Ecoli bacteria.

c. Inspection Method

Methods Examination of Eschericia colii preparations stained with teak leaf bud staining (Tectona Grandis) was carried out using the Gram staining technique. Gram staining is a staining that uses a solution of crystal violet, lugo, 96% alcohol, and safranin or carbol fuchin which is poured in the last stage over the entire surface. preparation (Kurniawati, 2005).

d. Inspection procedure

Making Teak Leaf Coloring (Tectona Grandis) Preparation of tools and materials needed.Alat : Gelas ukur, pipet ukur, pushball, aluminium foil, botol coklat. Bahan : Alkohol 96%, HCl pekat.

1) Weigh the teak leaf buds using a scale of 100 g.
2) Dissolve in a beaker glass that has been added 96% alcohol which has been measured with a

measuring cup as much as 99ml.

3) Add 1 ml of concentrated HCl.

4) Soak the teak leaf buds in a glass bottle that has been dissolved according to the predetermined soaking time, namely 24 hours, 48 hours, 72 hours, 96 hours.

5) Waiting for teak leaf bud dye until the soaking time is according to the predetermined, dye.

6) The teak leaf buds are squeezed with a coffee squeezer.

7) Teak leaf bud dye is ready to use.

d. Data Analysis Techniques

The data analysis technique used in this study was the Kruskal Wallis test with an error rate of 5% to test differences in the staining results of Escherichia coli preparations on various variations in the length of time for soaking teak (Tectona Grandes) leaves in alcohol + HCl.

RESULT AND DISCUSSION

The results of gram staining using teak leaf bud soak (Tectona Grandis) + HCl which has been carried out at the Microbiology Laboratory of the D3 ATLM Study Program which was held in June 2022. The results of the staining of teak leaves are as follows:

Score 1: The cell walls of E-coli bacteria are pink, the cells are clearly visible and there are no clusters of color when viewed under a microscope.

Score 2: The cell walls of E-coli bacteria are pink, the cells are clearly visible and there are clusters of color when viewed under a microscope.

Score 3: The cell walls of E-coli bacteria are pale (+) cells are clearly visible, the color is not clustered when viewed under a microscope.

Score 4: The cell walls of E-coli bacteria are paler in color (++), the cells are clearly visible and there are clusters of color when viewed under a microscope.

This research was conducted to test whether soaking teak (Tectona Grandis) leaves with the addition of 1 ml of concentrated HCl can be a substitute for safranin or fuchin staining in Ecsherichia coli preparations with immersion time of 24 hours, 48 hours, 72 hours, 96 hours and positive control using safranin or fuchin.
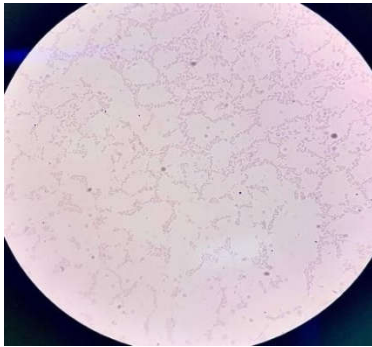
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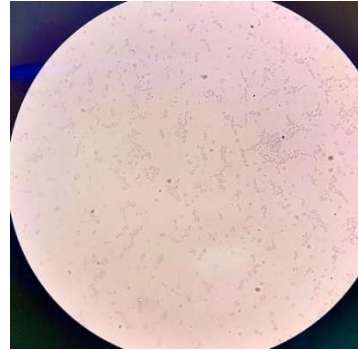
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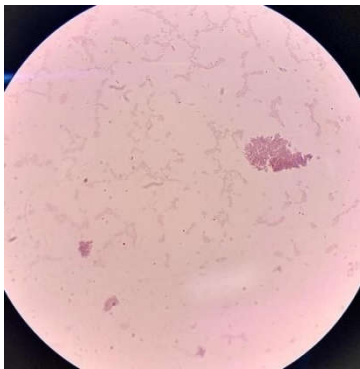
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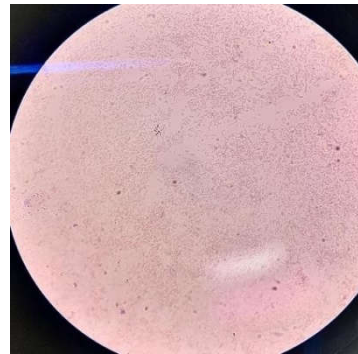
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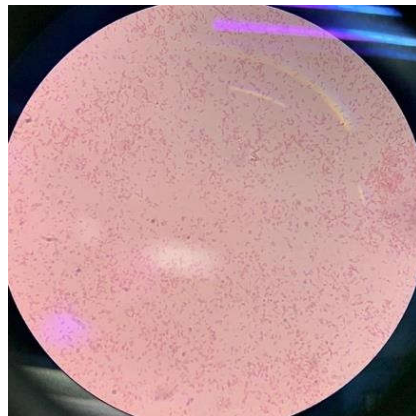
Control

The results of staining of Escherichia coli bacteria with a soaking time of 24 hours are

at a score of 3, where a score of 3 indicates that the cell walls of Escherichia coli bacteria are pale red and there are no clusters of color when viewed under a microscope. This proves that soaking teak (Tectona Grandis) leaves for 24 hours has not been able to color Escherichia coli optimally. The results of staining of Escherichia coli bacteria with a duration of immersion of 48 hours are at a score of 3, where a score of 3 indicates that the cell walls of Escherichia coli bacteria are pale red and there are no clusters of color when viewed under a microscope. This proves that soaking teak (Tectona Grandis) leaves for 48 hours has not been able to color Escherichia coli optimally.

The results of staining of Escherichia coli bacteria with a soaking time of 72 hours are scored 1 and 2, where a score of 1 indicates that the cell wall of Escherichia coli bacteria is red and there are no clusters of color when viewed under a microscope and a score of 2 indicates that the cell wall of bacteria Escherichia coli is red and has clustered colors, this proves that soaking teak (Tectona Grandis) leaves for 72 hours is good enough to color Escherichia coli.

The results of staining of Escherichia coli bacteria with a soaking time of 96 hours are at a score of 1, where a score of 1 indicates that the cell walls of Escherichia coli bacteria are red and there are no clusters of color when viewed under a microscope. This proves that soaking teak (Tectona Grandis) leaves for 96 hours is highly recommended as an alternative to safranin or fuchin for staining Escherichia coli bacteria.

The results of this study indicate that the duration of immersion of teak leaf buds (Tectona Grandis) in 96% alcohol + concentrated HCl has varied results. Where the longest immersion of 96 hours showed the best and significant results with the results of safranin or fuchin staining, this was due to the immersion of teak leaf buds (Tectona Grandis) in 96% alcohol + HCl for 96 hours was able to dissolve quite a lot of crystal violet color. Based on previous research, soaking teak (Tectona Grandis) leaves with only 96% alcohol produced a less concentrated anthocyanin color because anthocyanins can dissolve in acidic conditions and are unstable in neutral or alkaline conditions.

Safranin is an alkaline and strong chloride and dye. This safranin substance will color very well if the tissue is fixed with a flaming solution. Safranin is also used in secondary schools in practical activities, especially as a dye in the observation of the mitotic phase in onion roots. Although safranin is often used in practical activities, there are obstacles faced by schools to obtain safranin, namely the price of safranin is expensive, easily damaged, and difficult to store. In addition to the high price, safranin also has other drawbacks such as not

easy to use and very slow in the coloring process. Due to the limitations of schools in obtaining safranin and the weakness of safranin, alternative dyes from plants that have the same function as safranin are needed, namely by using young teak leaves (Tectona grandis) and guava leaves (Annacardium occidentale L.) (Wahyuni, 2010).

Safranin dye in previous studies showed that young teak leaf extract can also be used as an alternative dye in preparations. This is because there is a fairly high anthocyanin content in young teak leaves which functions as a coloring pigment. Different types of solvents and immersion time have an effect on color absorption in plant tissues. The quality of the preparations produced is quite good. As for the color contrast of 14% citric acid and 96% ethanol solvents, the results were different but both were good. Young teak leaf extract with 96% ethanol solvent type at 26 hours of immersion has the best quality because the color produced is very close to the synthetic dye, namely safranin (Elayanti, 2018).

This study is in accordance with previous studies, namely by making teak leaf buds (Tectona Grandis) it requires as much as 100 grams of teak leaf buds (Tectona Grandis) soaked in 96% alcohol + 1ml concentrated HCl. Teak leaves (Tectona grandis) with the criteria of leaves in the bud to the third node of the stem, either leaves that are still curled or that have opened and are reddish green. Then the teak leaves are cut into small pieces and weighed as much as 100 grams. Then put into a beaker, add 99 ml of 96% alcohol and add 1 ml of concentrated HCl. Soaked for 24 hours then filtered using filter paper. And stored in a cola bottle (Hastuti & Haryatmi, 2021). The color of anthocyanins depends on the structure and acidity. At very acidic pH (1-2) the dominant form of anthocyanins is the flavilium cation. In this form, the anthocyanin condition is the most stable and the most colorful. When the pH increases above 4, anthocyanins take the form of yellow chalcones, blue quinoids and colorless carbinol bases (Sulistiawati et al., 2017).

Gram staining on Escherichia coli bacteria showed that the bacteria were short bacilli and red in color after the staining process. This is due to the lipid concentration and thickness of the peptidoglycan layer on the cell wall. This means that Escherichia coli is a Gram negative bacterium. In Gram-negative cells, alcohol can increase the porosity of the cell wall by dissolving the lipid which is the outer layer. So the crystal violet dye can be more easily removed from the thick peptidoglycan layer. Therefore, alcohol washing aids in the release of unbound crystal violet. Which makes the cells lose the crystal violet dye. Because only the negative bacterial cells will lose the dye from crystal violet, so the cells that absorb are the

counter color. So, soaking teak (Tectona Grandis) leaves with the addition of concentrated HCl will affect the stability of anthocyanin pigments. Because when the dye is in an acidic condition, it will produce a lot of extract from soaked teak leaves (Tectona grandis) + concentrated HCl. One of the factors affecting the stability of anthocyanins is pH. So the soaking of teak (Tectona Grandis) + HCl leaves does not affect the lipid solubility of Escherichia coli bacteria (S. A. Rahayu et al., 2017).

When carrying out the staining process on Eschericia coli bacteria Gram staining technique using teak leaf buds (Tectona Grandis) there are several obstacles to determining the optimal solvent when used as a solvent for soaking teak leaf buds, but from various experiments and sufficient references this research can be completed with good. The development of natural dyes in bacteria is currently still low, therefore innovation is needed to make alternative dyes from natural materials such as teak leaf plants (Tectona grandis). Because teak leaves are plants that are cultivated in Indonesia (Hermayati et al., 2015). Teak leaves (Tectona Gandis) are included in the Verbenaceae family which can be used as natural dyes because they contain anthocyanin pigments (Virgianti et al., 2017)

Through the results of this study, the researchers found that teak (Tectona Grandis) leaves were able to stain Escherichia coli bacteria using the Gram staining technique. So to overcome the problem of the price of safranin or expensive synthetic dyes, the solution is to replace it with alternative dyes from plants that have high anthocyanin levels. Researchers also hope that this research can be useful for education and the community about the use of plants that are around us and increase knowledge about bacteria.

CONCLUSION

Based on this study, it was concluded: There was a significant difference in the results of bacterial staining between various variations in the duration of immersion of teak (Tectona grandis) leaf buds in 96% alcohol and concentrated HCl stained using gram staining technique. The results of bacterial staining on the gram staining technique between the treatment of soaking teak leaf buds (Tectona Grandis) in 96% alcohol with concentrated HCl for 96 hours were not different from that of safranin or fuchin.

For Further Researchers Can conduct further research using other methods, namely the extraction method, or used as a substitute for safranin or fuchsin so that it can be Gram staining. For Laboratory Practitioners Can add knowledge and insight and can be applied in areas that still often have difficulty in obtaining colors such as safranin or fuchsin. For

Educational Institutions Can add references and information regarding the use of teak leaf bud soak (Tectona Grandis) as an alternative to safranin or fuchsin dyes in Gram staining.

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IMUNOMODULATOR TEST ON YOGHURT GREEN BEAN Sprouts ON THE IMMUNE SYSTEM

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1. *Nutrition Departement of Poltekkes Kemenkes Manado*
2. *Nutrition Departement of Poltekkes Kemenkes Manado*
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ABSTRACT

The development of the lifestyle of modern society is required to be able to survive in the midst of activities, especially during a pandemic about the awareness of the importance of maintaining a healthy body, especially digestive health, namely by consuming yogurt. One of the probiotic products that contain lactic acid bacteria is yogurt. Yoghurt, one of the probiotic products produced through LAB fermentation, contains Lactobacillus bulgaricus and Streptococcus thermophilus. Yoghurt is reported to increase nutritional and antioxidant content, vitamins and minerals, and dietary fibre it is beneficial for health, and to improve antioxidant status and immunity.

Local food ingredients that can be used as basic ingredients in making yogurt include green bean sprouts or known as bean sprouts. Green bean sprouts or bean sprouts are food ingredients that can be used as functional food, where these foodstuffs are very easy to find and need to be diversified in order to have high economic value.

This type of research is pure experimental. The research variables are mung bean sprout yogurt and immunoglobulin. Data were expressed as mean ± standard mean (S.E.M) and statistical analysis was performed using one-way ANOVA followed by Duncan's test.

The results: The highest number of rat leukocyte cells occurred in the group of white rats given 6 ml/200 gBB of yogurt, which was 20,100 leukocyte cells. And the low is the normal group, namely 9460 leukocyte cells. This shows the activation of the body's immune system by the presence of immunomodulators in building the immune system as a result of the Hepatitis B vaccine. Giving bean sprouts yogurt can increase the HBsAb antibody titer and the highest dose of antibody titer is 6 ml/200 g body weight in white rats.

BACKGROUND

The world is currently in the middle of a COVID-19 pandemic. At the end of 2019, CoV infections began to enter Wuhan Hubei, China. Covid 19 has emerged as a multisystem and multi-organ disorder ranging from non-specific flu-like symptoms to pneumonia and acute respiratory distress syndrome, multiple organ failure and death. (Baud et al, 2020; Chen et al, 2020, Infusini et al, 2020).

In this pandemic situation, the role of non-pharmacological substances with herbs, probiotics and prebiotics can help in increasing the immunity of a person who is experiencing an infection either due to the corona virus or other infectious diseases. Certain fermented foods, probiotics and prebiotics can produce viable microbes with gut immunity-boosting potential. (Infusini et al, 2020).

The development of the lifestyle of modern society is required to be able to survive in the midst of activities, especially during a pandemic about the awareness of the importance of maintaining a healthy body, especially digestive health, namely by consuming yogurt. Yoghurt, one of the probiotic products produced through LAB fermentation, contains Lactobacillus bulgaricus and Streptococcus thermophilus (Guo et al., 2013)

Yogurt which is popular in Indonesia is yogurt which is made from cow's milk. Many dairy products have been developed from animal sources but only a few yogurts are made from plant-based dairy products. Yogurt products from vegetable milk actually have a lot of potential to be developed because they have high nutritional content, apart from being seen from the relatively cheaper price compared to yogurt from animal milk, they are easily affordable by all people and also have nutritional content that is competitive with animal milk yogurt products.

Consumption of yogurt today is fairly good, because people in general already know that yogurt is one of the probiotic drinks that is very good for health. The production of yogurt is now diversified, not only using dairy products but also using local plant-based food ingredients with various flavors. Local food ingredients that can be used as basic ingredients in making yogurt include green bean sprouts or known as bean sprouts. Green bean sprouts or bean sprouts are food ingredients that can be used as functional food, where these foodstuffs are very easy to find and need to be diversified in order to have high economic value.

One type of nut are rich in antioxidant is mung beans (Vigna Radiata). Besides, mung beans are also high in protein, amino acids, oligosaccharides, and polyphenols. Polyphenol compounds are known to be the main contributors as antioxidants, anti-inflammatory, and anti-tumour. However, high oligosaccharides in nuts can cause flatulence, it is important to do processing with soaking and germination. According to Winarsi et al. (2019), the phenolic content of mung bean-based yoghurt that has been soaked for 12 hrs reaches 525.958±48.9 mg GAE/L, Germination can eliminate the many flavours in the red bean sprouts yoghurt, and even increase its phenolic content. Thus, germination provides several benefits, such as reducing the anti-nutritional content, increasing digestibility (Sokrab et al., 2012), and the total phenolic content (Guo et al., 2013; Winarsi et al., 2019). This occurs because the activity of protease, lipase and carbohydrase increases during the germination process, the content of amino acids, fatty acids, and glucose is higher than ungerminated nuts. Glucose, amino acids, vitamins, and minerals are simple molecules that are easy to digest. More than that, these molecules can be essential nutrients for the growth of lactic acid bacteria (LAB).

Green beans and bean sprouts not only act as a source of nutrition because they contain relatively high amounts of protein and carbohydrates. Both of these foodstuffs also have

functional properties that can improve health status, act as immunomodulators. Bean sprouts are antioxidants because they contain a number of flavonoid compounds. The flavonoid compounds include robinin, kaempferol, quercetin, isokertin and kaempferol-7-O-ramnoside. According to Handayani, 2016 in green bean sprout compounds such as flavonoids, carotenoids, and phenolics function as antioxidants because they can donate electrons to stabilize radicals, in the presence of the -OH group attached to the carbon of the aromatic ring, the free radical products of these compounds are stabilized. resonantly and therefore unreactive when compared to most other free radicals so that it can function as an effective antioxidant.

Yoghurt green bean sprout which is made with the role of LAB was also reported by Riaz Rajoka et al. (2017) has other therapeutic properties, such as prophylactic (preventing infection) against several types of intestinal infections, The bacteria in probiotic yoghurt can increase the growth of beneficial gut microbiota and affect intestinal and tissue function through immune system regulation (Maynard et al., 2012).

RESEARCH METHODS
This type of research is experimental research. Quantitative data analysis is immunomodulator test.
Sample.
The research sample was white Sprague Dawley rats, about 3 months old and weighing ± 300 grams, totaling 30 rats. in good health and have normal activities. The treatment group consisted of 5 groups, namely the control group, the negative control group which was given aqua destila 2 ml/200 g BW, the treatment group was given yogurt bean sprouts at a dose of 2 ml/200 g BW, 4 ml/200 gBW and 6 ml/200 gBW. Each group consisted of 5 Sprague Dawley rats plus 1 spare rat in each treatment group.
Material
Materials used are Green beans sprouts, skimmed milk, starter Lactobacillus Bulgaricus/ Lactobacillus Thermophilis and Streptococcus Thermophilus, white sugar 3 kg, yogurt Plan 2 kg, aquades, Na-CMC, pH paper, label Paper, stationery, tissue, filter cloth/gauze and experimental animal (Sprague Dawley Rat)
Research steps:
1. Materials Preparations:
The preparation of research materials included cleaning and sorting green beans, then soaking them in water in a basin for 12 hours and placing them in a place protected from sunlight. After that, the green beans are drained and placed on a tray or basket that has been lined with flannel and strimin. Cover the basket with a black cloth and place it in a place protected from the sun. Green peas are watered every 2 times a day in the morning and evening, the third day the sprouts can be used and the sprouts are taken according to research needs
2. Making Green Bean Sprout Yogurt
Green beans are cleaned and sorted, then soaked with water in a basin for 12 hours and placed in a place that is protected from sunlight and then drained. Green beans are sown on a tampa or basket that has been lined with flannel and strimin cloth, then the basket is covered with a black cloth and placed in a place that is protected from sunlight. Green beans are watered every 2 times a day in the morning and evening, the third day the sprouts can be used and taken according to research needs.

Sorted sprouts, choose the white one, then blanched with hot water (temperature 80◦C) for 3 minutes. Sprouts were crushed using a blender with a ratio of sprouts: water, namely 1:7, then filtered using a sieve. The mung bean sprout milk that has been obtained is pasteurized at 90C for 15 minutes while continuously stirring, add skim milk as much as 4% of the volume of milk and 7% sugar, then remove and cool to 40C. Green bean sprout milk

that has been cooled is put into a fermentation container as much as 100 ml in each jar. Plain yogurt is added as much as a teaspoon and stirred until evenly distributed. Milk yogurt was fermented for 24 hours at room temperature.

3. Test Animal Acclimatization Stage

A total of 40 male white rats were acclimatized for 2 weeks in the laboratory animal test. Adjustments were made to room conditions, temperature, humidity, feed, drinking water consumption and individual cages. This is useful to familiarize the mice's immune function to their normal conditions.

4. Test Animal Treatment Stage

A total of 25 rats that have undergone a period of acclimatization were divided into 5 groups with 5 rats in each group. Group 1 is a normal control, Group 2 is a negative control given aqua distillate 2 ml/200 gBW, Groups 3, 4 and 5 are a treatment group with yogurt touge with a successive dose of 2 ml/200 g BW, 4 ml/200 g body weight and 6 ml/200 g body weight. Groups 2 to 5 were then treated for 1 week, then their immune system was induced by administering Hepatitis B vaccine at a dose of 18 ul per 200 gBB intramuscularly, 2 times with a distance of 7 days from the first dose of Hepatitis B vaccine. Then the treatment was continued for 14 days so that the total treatment was 30 days. Every 6 days the body weight of the mice was weighed and monitored. After 30 days the rats were terminated and their blood was taken for examination of Hepatitis B Antibodies and Hematology Count Leukocyte Cell Count. In table 2. below shows the body weight of rats for 30 days of treatment.

Table 1. Average Rat Body Weight for 30 days of treatment

No	Group	Rat Weight Average (gr)
1	Normal	204,32 ± 4,10
2	Negative kontrol	209,00 ± 6,55
3	Yoghurt 2 ml/200 grBB	214,92 ± 7,19
4	Yoghurt 4 ml/200 grBB	221,40 ± 11,61
5	Yoghurt 6 ml/200 grBB	214,00 ± 9,45

Based on the research data in table 2, it shows that the yogurt touge 4 ml/200 grBB treatment group has the highest body weight, compared to other groups.

During the treatment, the body weight of the rats changed, especially in the 3rd week of treatment. Body weight fluctuations of rats given treatment for 30 days can be seen in graph 1.

In Graph 1 below, it shows fluctuations in the body weight of rats that were treated for 30 day

Grafik Fluktuasi Berat Badan Tikus Selama 30 Hari

Legend:
- Normal 204,32 ± 4,10
- Kontrol Negatif 213,00 ± 4,33
- Yoghurt 2 ml/200 grBB 218,48 ± 4,55
- Yoghurt 4 ml/200 grBB 229,36 ± 4,78
- Yoghurt 6 ml/200 grBB 219,88 ± 4,55
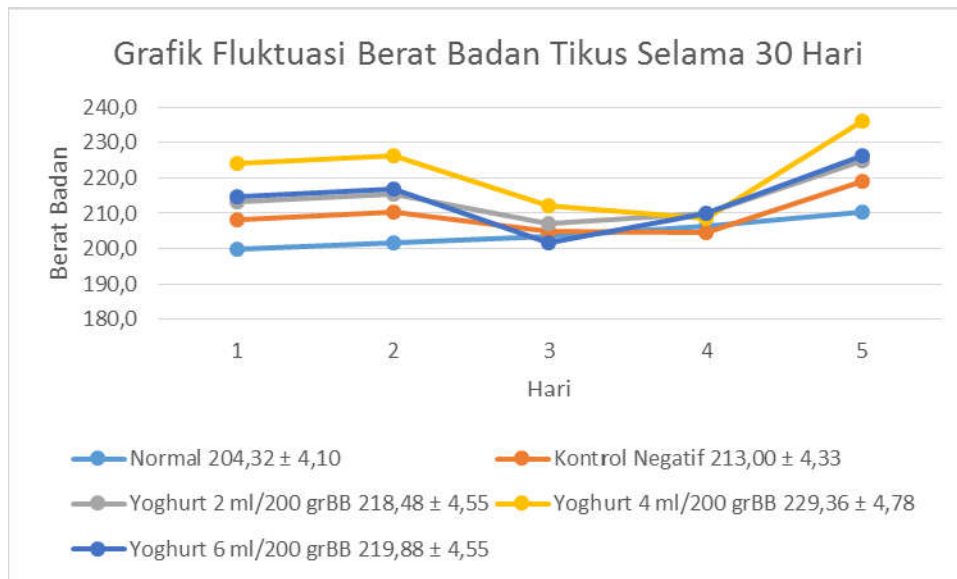
Based on the research data in graph 1, it can be seen that all treatment groups experienced weight loss in the 3rd week except for the normal group. This is because in the second and third weeks the rats were injected with Hepatitis B vaccine, which affected the rat's food intake.

4. Examination of Leukocyte Count in Rat Blood

After the rats were terminated, the rats were examined for leukocyte hematology using the Improve Neubauer counting chamber method. Table 3 shows the average number of leukocyte cells in rat that were treated for 30 days.

Table 3. The average number of leukocytes in the group of rats that underwent treatment for 30 days

No	Group	Average Leukocyte Count (1000 cells/mm3)
1	Normal	9,46 ± 1,6
2	Negative control	10,82 ± 0,72
3	Yoghurt 2 ml/200 grBB	13,24 ± 3,78
4	Yoghurt 4 ml/200 grBB	15,78 ± 5,26
5	Yoghurt 6 ml/200 grBB	20,1 ± 3,59

Table 3 shows that the highest number of rat leukocyte cells occurred in the group of rats given 6 ml/200 gBB of yogurt, which was 20,100 leukocyte cells. And the lowest was the normal group, namely 9460 leukocyte cells. This indicates the activation of the body's immune system by the presence of immunomodulators in building the immune system as a result of the administration of the Hepatitis B vaccine.

5. Hepatitis B Antibody Test (anti-HBs; HBsAb)

Hepatitis B antibody test (anti-HBs; HBsAb) is performed to assess the immune system (antibodies) produced in response to exposure to hepatitis B virus antigen. body to protect itself. Anti-HBs can be produced by the body through direct exposure to the virus, or through immunization with the Hepatitis B vaccine.

Table 4 below shows the average blood serum HBsAb levels of rat that were treated for 30 days.

Table 4. The mean serum HBsAb levels in the blood of rats treated for 30 days.

No	Group	Average Serum HBsAb Level (ng/ml)
1	Normal	3,91 ± 0,21
2	Negative control	3,96 ± 0,38
3	Yogurt 2 ml/200 grBB	3,99 ± 0,38
4	Yogurt 4 ml/200 grBB	4,33 ± 0,25
5	Yogurt 6 ml/200 grBB	4,72 ± 0,50

Based on the research data in table 4 above, it shows that all treatment groups experienced an increase in the HBsAb antibody titer against the Hepatitis B vaccine. And the increase was more than the normal group HBsAb antibody titer value. So it can be concluded that the administration of Yoghurt Touge was able to increase the value of the HBsAb antibody titer after being given the Hepatitis B vaccine. And the highest was found in the treatment group with 6 ml/200 gBB of yogurt.

The results of statistical analysis showed that the data were homogeneously distributed where the alpha significance value was greater than 0.05, so the test used was the ANOVA test. One-way ANOVA statistical analysis showed that the alpha significance value was less than 0.05, which means that there was a significant difference in the administration of yogurt to the increase in HBsAb antibody titer after being induced with Hepatitis B vaccine.

ANOVA

Treatment Group

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.401	4	.600	4.611	.008
Within Groups	2.603	20	.130		
Total	5.004	24			

From the results of the ANOVA analysis, it was found that there were differences between the treatment groups. The results of the post hoc analysis showed that there was a difference in HBsAb antibody titers in the control group and the treatment group at a dose of 6 ml/200 g BW. The treatment group with a dose of 6 ml/200 g BW had higher antibody titer values when compared to the normal and negative control groups. So it can be concluded that the administration of bean sprouts yogurt can improve the immunoglobulin system in experimental rats.

Yoghurt is a probiotic drink that is usually produced from animal milk acidified with the help of Lactobacillus. Yogurt can affect changes in the gastrointestinal and systemic immune systems associated with allergies and inflammation (Reid et al., 2013). Microbial cell preparations contain peptides with immunomodulatory activity. Peptides in yogurt have an effect on the immune system, which can induce cellular immune system activity and inhibit inflammatory activity and inhibit excessive immune responses (Grajek et al., 2015). Yogurt will induce the cellular immune system by releasing inflammatory mediators that function as inhibitors of the inflammatory process in the form of cytokines TGF-β and IL-10 secreted by T-regulatory cells (Chiba et al., 2012). This is because in yogurt there are peptides that act as immunomodulators.

Lymphocytes are white blood cells (leukocytes) that are small, round in shape with a diameter of 7-15 m. Lymphocytes are key cells in the process of specific immune responses, to recognize various antigens. Each lymphocyte cell is only able to recognize one antigen so that in the process of immune response, lymphocytes work together to eliminate various antigens that enter the body. Lymphocyte cells consist of B cells and T cells which are both

responsible for specific immune responses to recognize antigens through antigen receptors. Lymphocyte cells are also able to distinguish antigens from the body's own components or function as immune controllers.

Proliferation is a fundamental biological function of lymphocytes, namely the process of cell differentiation and division (mitosis). Lymphocytes are single cells that survive well when cultured in simple media. The proliferative response of lymphocyte culture is used to describe lymphocyte function and immune status. (Tejasari, 2010). Consumption of Lactobacillus Lactic Acid Bacteria such as those found in the probiotic drink Yoghurt Bean sprouts can improve the cellular and humoral immune system, including an increase in the population and proliferation of leukocytes, the production of cytokines Interferon (IFN-γ), Interleukin-12, IL-10, Th immune cells. and immunoglobulin (Ig) A, IgE, IgG and IgM.

BAL attached to human epithelial cells can activate macrophages. LAB immune stimulation is through cell wall components, namely peptidoglycan which induces mucosal surfaces. Glucan in the bacterial cell wall will stimulate macrophages to produce IL, increasing the activation of lymphocyte cell proliferation. Lymphocyte cells divide into T lymphocytes and B lymphocytes. T lymphocytes will release interferon, re-activating macrogphages and B lymphocytes in producing

CONCLUSIONS AND RECOMMENDATIONS

Yoghurt bean sprouts are proven to be immunomodulatory which can increase antibodies (immune system) in expreimental rats.Yoghurt Bean sprouts can improve the cellular and humoral immune system, including an increase in the population and proliferation of leukocytes, the production of cytokines Interferon (IFN-γ), Interleukin-12, IL-10, Th immune cells. and immunoglobulin (Ig) A, IgE, IgG and IgM.

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Comparisson Of The Examination Of Mycobacterium Tuberculosis (M.Tb) Using Polymerase Chain Reaction (PCR) And ZiehlNeelsen (ZN) On Tuberculosis (Tb) Patients Suspect In Public Health Facilities Of Manado

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ABSTRACT

(TB) is an infectious disease caused by Mycobacterium tuberculosis. TB infections occur through the air, namely the inhalation of droplets containing germs from an infected person. Four People exposed with Mycobacterium tuberculosis have a 10% risk of developing pulmonary TB. The aim of this research was to compare of the examination of M.Tb using polymerase chain reaction and ziehlneelsen on TB Patients suspect in Public Health Center of Manado. The research method used was analytic laboratory examination. As the result, TB examination using ZiehlNeelsen method found 13 samples with positive TB, while using the PCR examination method 93 samples (93,6%) showed positive. There was significantly differences between PCR and ZiehlNeelsen examination method. TB examination using the PCR method had high sensitivity and specificity to detect Mycobacterium tuberculosis, so that more MTB bacteria can be detected than using the ZN test. It is recommended that health workers at the Public Health center to diagnose TB should use an examination that has high sensitivity and specificity so that the results obtained are more accurate.

Key Word: Mycobacterium Tuberculosis, ZiehlNeelsen method Polymerase Chain Reaction Method

BACKGROUND

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis. These rod-shaped and aerobic germs are acid-resistant. The majority of TB infections occur through the air, namely the inhalation of droplets containing germs from an infected person. Four people infected with Mycobacterium tuberculosis have a 10% risk of developing pulmonary TB. People with compromised immune systems, such as people living with HIV, diabetes, malnutrition, diabetes or people who use tobacco, are at higher risk of getting sick.(Ramadhan et al., 2017)

Data from the World Health Organization or the World Health Organization (WHO) states that as many as 10.4 million people in the world are infected with TB. Of these, 1.7 million people died and 0.4 million of them also suffered from HIV. TB infection has resulted in more than 95% of deaths in low- and middle-income countries. TB disease is the first cause of death caused by infectious diseases and is one of the ten deadliest diseases in the world. Several countries that contributed to 64% of new TB cases were India, Indonesia,

China, Philippines, Pakistan, Nigeria, and South Africa. Indonesia is in third place out of six countries that account for 60% of TB cases worldwide, after China and India. (Khariri, 2020) The highest pulmonary tuberculosis sufferers are in the productive age, namely the age of 15-50 years, around 75%. A person affected by tuberculosis, especially an adult, is estimated to lose an average of 3-4 months of work time which can result in a loss of about 20-30% of his household income. Meanwhile, someone who dies from tuberculosis will lose his income for about 15 years. In addition to making economic losses, tuberculosis also has other bad effects, namely being ostracized from the community (WHO, 2013). One of the indicators needed in controlling pulmonary TB is the Case Notification Rate (CNR), which is a number that shows the number of new patients found and recorded among 100,000 residents in a certain area. The CNR indicator is useful in showing an increasing or decreasing trend in the discovery of new patients in the area. (Arivany, 2017)In ensuring the diagnosis of pulmonary TB, the minimal examination that needs to be done is a microscopic examination of AFB. This examination plays a role in early diagnosis or monitoring of pulmonary TB treatment. The method used in this examination is the ZiehlNeelsen method. This method is the method recommended by WHO. The sample used is sputum. Purulent sputum will be made into preparations, then after drying it is added with CarbolFuchsin and heated until it evaporates. Heating and adding CarbolFuchsin aims to open the M.TB cell wall which contains a layer of fat in high concentrations so as to facilitate the absorption of the dye. This will also make the dye insoluble by even strong bleaches such as alcoholic acids. There are shortcomings in this method, namely in the manufacture of preparations using sputum containing live M.TB. This can cause transmission of these bacteria to laboratory workers who work on it (Romi, 2020)

Detection of Mycobacterium tuberculosis in sputum can be done by means of polymerase chain reaction (PCR), microscopic examination, and bacterial culture. Five Microscopic examination of sputum is a key component in the TB control program to establish a diagnosis, evaluation and follow-up treatment from examination of 3 sputum specimens in the morning (SP). Microscopic examination of sputum is the easiest, cheapest, efficient, specific and can be carried out in all laboratory units. Five Detection of TB germs by PCR technique has a very high sensitivity. PCR is a way of amplifying DNA, in this case Mycobacterium tuberculosis DNA, in vitro. This process requires a double-stranded DNA template containing the target DNA, DNA polymerase enzyme, nucleotide triphosphate, and a pair of primers. (Ramadhan et al., 2017) The aim this research was to compare of the examination of M.Tb using polymerase chain reaction and ziehlneelsen on TB Patients suspect in Public Health Center of Manado.

METHOD OF RESEARCH

Research type is analytic laboratory examination on TB patients suspect had have been cough with mucus as long a 2 weeks, bleeding cough, fever, diaphoresis, loss body weight, anorexia, dispnoe, fatigue, with population as much as 120 patients. Samples taken by Slovin formula as amount 99 respondents was met inclusion criteria. Sample sputum taken by home respondent with home visit. Data sample collecting with method sputum was collected into the container and then carrying to Medicine Technology laboratory of Manado Health Polytechnic to be done examination using PCR and ZiehlNeelsenmethod. Asking respondent to giving informed consent and signed it. Examination step followed pra analytic, analytic, and pascaanalytic. After examination, then result of examination to be done statistic analyze using Wilcoxon and then presented by frequent distribution tables with explanation and discussion.

RESULTS AND DISCUSSION

Table 1. Distribution of Age, Sex, Education, Occupation, Detection Results of M.TB Using PCR and ZiehlNeelsen Methods On TB Patients Suspect in Manado

No	Demografi Data, Results of PCR and ZiehlNeelsen	f	%
1.	Aged:		
	a. 12-25 years	12	12,1
	b. 26-64 years	80	80,8
	c. >65 years	7	7,1
	Sex:		
2.	a. Male	49	49,5
	b. Female	50	50,5
3.	Education:	15	15,2
	a. Elementary School	19	19,2
	b. Secondary School	57	57,6
	c. High School	8	8,1
	d. University		
	Occupation:		
4.	a. House Hold	35	35,4
	b. Student	5	5,1
	c. Particular	26	26,3
	d. Labourer	13	13,1
	e. Other worker	20	20,2
	PCR Examination Results:		
5.	a. Detected	93	93,6
	b. No Detected	6	6,3
	ZiehlNeelsen Examination Results:		
6.	a. Positive	13	13,1
	b. Negative	86	86,9
	Total respondents = 99		

Test Statistics[a]

	ZiehlNeelsen- Polymere Chain Reaction
Z	-8.721[b]
Asymp. Sig. (2-tailed)	.000

a.   Wilcoxon Signed Ranks
b.   Based on negative ranks

Based on research result showing that most of respondents age productive is 26-64 years as amount 80 (80,8%), sex almost same with female and male as follow 50(50,5%), and 49(49,5%), education level is high school as much as 57(57,6%), occupation is household mother is 35(35,4%). Ziehlneelsen examination result is negative 86(86,9%), PCR examination result detected is 93(93,6%),. Based on statistical analyze with Wilcoxon test showing that p0,000. It mean there is significantly differences comparison between ZiehlNeelsen with PCR examination method. Where PCR examination better more than ZiehlNeelsen method.

DISCUSSION

The research results of sputum examination of suspected pulmonary tuberculosis by gender, based on research conducted by Sulistyawai and Ramadhan, (2021). Even based on the Tuberculosis Prevalence Survey, the prevalence in men is 3 times higher than in women. The same is happening in other countries. This may be because men are more exposed to TB risk factors, such as smoking and lack of medication adherence. This survey found that of all male participants who smoked as much as 68.5% and only 3.7% of female participants who smoked. Other hand, the results showed that the characteristics of TB patients were mostly in the groups: productive age aged 12-35 years and adult age range 49-61 years; male gender; elementary school education; laborer's work; low socioeconomic status; active smoker. It was found that 13.2% of TB patients with DM, 45% of TB patients with hypertension, 47.5% of TB patients with anemia, 55% of TB patients with malnutrition, 17.5% of patients had a family history of TB. Patients relapsed in 12.5%; patients who dropped out of OAT 17.5%; and was found not to take OAT as much as 15%.

The research results of sputum examination according to age, that is, based on research conducted by Sharma, pulmonary TB is more common in the productive age group (15-50 years), low economic status and lack of education (Sharma, 2017). Similarly, research conducted by (North et al., 2022) said that the age of pulmonary TB disease was most often found in the productive age, namely 15-50 years. nowadays with the demographic transition, causing the life expectancy of the elderly to be higher. At the age of more than 55 years a person's immunological system decreases, so that he is very susceptible to various diseases, including pulmonary TB. In addition, productive age is easier to become a source of infection because of its mobility. This is also the same as research conducted by Sulistyawati and Ramadhan (2021) who said that productive age is the age where a person is at the stage of working/producing something both for oneself and for others. 75% of patients with pulmonary TB are found in the most economically productive age (15-49 years), at that age if a person suffers from pulmonary TB, it can result in the individual being unproductive and even a burden to his family (Sulistyawati and Ramadhan 2021). Characteristics respondents tb male is age between 45 to 54 years, 55 to 64 years and education did not finish primary school, graduate high school, and work as laborer / farmer. The government is continuing to intensify health education activities for community about how to prevent of TB , to finding TB patients and perform intensive treatment until healed (Fitria, et al, 2017).

The result demonstrated there were difference with research by Kanchanasuwan, and Kositpantawong, (2021), Research result with samples from 92 patients with scanty AFB smear were processed for RT-PCR. There were 26 (28.3%) isolates having positive RT-PCR test results. Of these 26 isolates that RT-PCR positive, 25 (96.2%) were culture positive, while only 1 (3.8%) were culture negative. When compared to standard culture, sensitivity, specificity, and positive and negative predictive values of the GeneXpert system for respiratory samples were 100%, 98.7%, 87%, and 100%, respectively; these values for nonrespiratory samples were 71%, 98.6%, 71%, and 98.6%, respectively. For this purpose, easy to-use new methods that can provide reliable and fast results with high specificity and sensitivity are being sought. Early diagnosis is of great importance for the treatment of tuberculosis that the GeneXpert MTB/RIF is a rapid and reliable system that can be employed in the diagnosis of tuberculosis, and when utilized together with conventional tests, it can make significant contributions to tuberculosis diagnosis, Bilqin, et,al (2016). The result of BTA staining from Bojonggede Public Health Center was 84 samples, BTA positive was 35 samples (42%), BTA negative 49(58%). PCR test result from 20 samples was 14 positive BTA (70%), negative is 6 samples (30%) that's mean people who do not suffer from tuberculosis. The conclusion of this research is PCR test result compared with result of BTA test with ZiehlNeelsen, that is the result of positive test of the percentage is bigger than semar

staining test result, Ikhsan, et.al, (2017). PCR can be useful compared to smear microscopy and culture methods and is applicable as a rapid screening test for child TB. A larger scale study is required to determine its diagnostic efficacy in improving the detection of child TB in the presence and absence of severe malnutrition, (Kabir, et al, 2017).

CONCLUSION AND RECOMMENDATION

Tuberculosis diagnosis using PCR method was found to be more effective, sensitive, and specific than ZiehlNeelsenmethod.This research "also" found that M.TB Scanty after continuous of examination using PCR method, was detected. This Research recommendation that as well using PCR method to conducted early diagnostic on TB Patients suspect when conventional method result is scanty.

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THE 5th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA (ICOHPS)
(Choose one of the following conferences)
3rd International Conference of Electronics, Biomedical Engineering, and Health Informatics **(ICEBEHI)**
2nd International Conference of Nursing and Public Health Science **(ICoNPHS)**
2[nd]st International Conference of Midwifery **(ICoMid)**
2nd International Conference of Medical Laboratory Technology **(ICoMLT)**
2nd International Conference of Environmental Health **(ICoEH)**
1st International Conference of Nutrition **(ICoN)**
2nd International Conference of Dental and Oral Health **(ICoDOH)**

Identification Of Hematocrit Values In Teenagers Active Coffee Drinkers

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ABSTRACT
Coffee consumption can cause abnormal hematocrit values because coffee contains tannins and filates which cause it can reduce the absorption of iron in the body. This type of research is descriptive qualitative. The purpose of this study was to determine the hematocrit value in active teenagers who drink coffee. A total of 30 samples were obtained by Purposivve Random Sampling in teenagers actively drinking coffee in warkop or coffe shop. The examination of hematocrit values is carried out by the hematocrit POCT method. Based on the results of the examination of hematocrit values in coffee-drinking adolescents, all respondents were male (100%) with the consumption of the type of coffee that was most indemand by adolescents, namely black coffee as many as 7 respondents (23%) normal hematocrit valuesand 17 respondents (58%) abnormal. At the frequency of drinking coffee 2 to 3 perday 11 respondents (37%) were normal and 10 respondents (33%) were abnormal, at a frequency of 4 to 5 perday as many as 9 respondents (30%) were abnormal, indicating that the higher the frequency of drinking coffee that adolescents drink, it can affect hematocrit values, so adolescents should be able to pay attention and reduce coffee consumption beyond a reasonable limit.
Keywords: Hematocritvalue, teenagers, coffee

BACKGROUND

The number of cases of hemoglobin levels in adolescents decreases due to nutritional intake and lifestyle. Hemoglobin levels are directly proportional to the hematocrit values in the blood. The change in the increase or decrease in hemoglobin levels greatly affects the hematocrit and erythrocyte values. Hemoglobin levels are influenced by various individual food and beverage intakes, one of which is coffee. Coffee contains tannins and filates which cause it can reduce the absorption of iron in the body. With an excess amount of coffee consumption leads to a decrease in hemoglobin levels. Hematocrit values are highly dependent on the number of erythrocytes because erythrocytes constitute the largest cell mass in the blood (Nuradi and Jangga, 2020)

According to research conducted by adolescent coffee drinkers, it was found that from 30 samples taken in Kupang City, 19 people (63%) coffee drinkers had abnormal hemoglobin levels. This is also comparable to a study conducted in Tasikmalaya City stating hemoglobin levels in black coffee addicted men as many as 20 samples, 40% showed low hemoglobin levels while 5% of the study high hemoglobin levels And studies conducted on rats stated that there was a significant relationship between coffee caffeine and animal hemoglobin levels with a p value of 0.0 While in a study conducted on 5 baristas in Majalengka Regency (17.9%) baristas with high coffee consumption, suffer from anemia Other and Zurimi, 2021(Vishnu, 2018)(Tohidin, 2021)(Assegaf, Tseng and Mamlukah, 2021)

Types of coffee sold in various instant coffee shops and different brands, all coffee shops sell packaged coffee that contains sugar in it. Coffee contains tannins and fillates that cause inhibition of iron absorbed in the body. The caffeine content in some types of coffee is 95-165 mg at 237 ml. The caffeine content found in black coffee is higher than other instant types, namely 126 to 446 mg in 237 ml of a cup of black coffee served by brewing. Most people who suffer from anemia are caused by iron deficiency as much as 60-79 percent, one of the factors for the occurrence of anemia is the cause of coffee So that with an excess amount of caffeine in the body can cause hemoglobin in the blood will also tend to be unstable and will result in a lack of red blood cells in the body. The recommended coffee drink is 200 mg per day or the equivalent of one to two cups of coffee. Caffeine in large amounts more than recommended is toxic to the body. Especially teenagers who consume coffee in excess. (Elfariyanti, Silviana and Santika, 2020)According to the WHO (World Health Organization) adolescence is childhood at the age of 14 to 24 years. According to the United Nations (United Nations) adolescent age is in the period of 15 to 24 years (Lain and Zurimi, 2021). It is known that coffee can increase the energy of the extrapenditer and lipotic activity in the body so that long-term consumption can lose weight and can inhibit the growth and development of adolescents. With a lack of red blood cells in the body, resulting in a decrease in hematocrit values. If there is a decrease in hematocrit, it will cause various diseases, namely anemia, then nutritional deficiencies, namely iron, vitamin B12 and folic acid, then also disorders in the bone marrow (Tohidin, 2021)

Currently, drinking coffee has become a *life style* among Indonesian teenagers, when drinking coffee there are things that must be limited, coffee consumption has limits and doses that are in accordance with the needs of the body. If drinking coffee excessively is not in accordance with the recommended, it will have an impact on short-term and long-term effects due to excessive coffee consumption. Each individual should limit and reduce coffee consumption so as not to have an impact on health.

Based on the above background, it can be used as a basis for conducting research with the title of identifying hematocrit values in active adolescents.

RESEARCH METHODS

This type of research is a qualitative descriptive study with the aim of determining the hematocrit value in active adolescents of coffee drinkers.Population is a generalization area consisting of objects and subjects that have certain qualities and characteristics set by researchers to be studied and drawn conclusions by researchers. The population in this study was all active adolescents who drink coffee at coffee shops in DukuhSutorejo Village, Mulyorejo, Surabaya.Samples are a number of examples of populations that have the same characteristics as the population and are directly targeted by research.The sample in this study was 30 active adolescents who drank coffee at a coffee shop in DukuhSuterejo Village, Mulyorejo, Surabaya.

1. Inclusion Criteria The inclusion criteria in this study are:
   a. Teenagers who are 12 to 24 years old and unmarried
   b. Teenagers who drink coffee every day more than 2 cups every day
2. Exclusion criteria
   a. Married teenagers
   b. Teenagers who drink less than 2 cups of coffee every day

The sampling technique in this study was carried out by *Purposivve Random Sampling*, which is a way of sampling by conducting interviews on active adolescent coffee drinkers in accordance with the objectives of the study carried out in DukuhSutorejo Village, Surabaya. This research was carried out from February to June 2022. A single variable in this study was the hematocrit value in active adolescent coffee drinkers.

Data Collection Techniques

Research instruments

This study, using primary data collection techniques was carried out through interviews, while hematocrit examination was carried out using the fora6 *plus*tool with the POCT (*Point Of Care Testing)* method.

Principle

Capillary blood is absorbed into the test strip then flows into the test area and mixes with the reagent to start the measurement process.

Method

The POCT method is carried out through an examination using *a strip test*.

Tools and Materials

1. Capillary Blood

2. Hematocrit Strip

3. Alcohol cotton

4. Grief

5. Lanceolate

6. Inspection tools and hematocrit strips

Data collection procedure

1. Interview
   This study, using interviews and filling out questionnaire sheets so that they can obtain data from respondents directly. For the location chosen, namely Warkop or *coffe shop* in Surabaya.

2. Data retrieval procedure
   a. Determination of sampling is carried out by the following procedure:
      1. Determine the location of the coffee shop to be sampled.
      2. Make observations and look for active adolescents at the site that fit the criteria.

3. Conducting interviews with respondents and recording the results of interviews
4. Conduct sampling which will then be recorded the results of hematocrit values.

b. Hematocrit examination procedure
1. preparation: install a lanceolate on the pen tool. Set it to the desired depth.
2. Wipe the middle finger using an alcohol cotton swab and wait for it to dry.
3. Install the strip, take the strip from the hematocrit tube then attached to the slot where the strip is, turn the tool on.
4. Check the calibration code number, compare the calibration code number that appears on the layer with the one listed saved should be the same.
5. Take a blood sampling using a pen.
6. Put blood into the padded strip until it is fully charged
7. Wait for the check process and then the results will appear on the layer
8. Read the results of the examination

Normal values

Women: 36-44 %

Men : 41-50 %

Data Analysis Techniques

The data obtained from the study of hematocrit values (Hct) obtained, then analyzed, described and tabulated in the form of a table and presented in percentage terms (%).

RESULTS AND DISCUSSION
Table1. Distribution of Respondent Characteristics

Frequency Gender (%)		
Males 30 100		
Female 0 0		
Total	30	100
Age Frequency (%)		
17-20	10	33
21-24	20	67
Total	30	100
Frequency Education (%)		
SMA	5	17
College 25		83
Total	30	100

Table 2. Hematocrit Value Data By Coffee Type

Hematocrit	Hematocrit Value			
	Normal		Abnormal	
	Frequency	(%)	Frequency	(%)
Types of Coffee				
Black Coffee	7	23	17	58
Cappucino	1	3	1	3
White Coffe	1	3	0	0
Milk Coffee	2	7	1	3
Total	11	36	19	64

Table 3. Hematocrit Value Result Data Based on Coffee Drinking Frequency

Hematocrit	Hematocrit Value			
	Normal		Abnormal	
	Frequency	(%)	Frequency	(%)
Frequency of Drinking Coffee				
2-3	11	37	10	33
4-5	0	0	9	30
Total	11	37	19	63

Researchers examined hematocrit values on 30 respondents who met the inclusion and exculpatory criteria in coffee shops or coffe shops. Characteristics of respondents used age, gender and level of education.

Characteristics of Respondents

Based on table 1, 100% of respondents were male as many as 30 respondents. According to Demura, it shows teenage boys love coffee because it keeps them awake and they like the taste rather than teenage girls who prefer tea. This is because men have more activity until late at night, by consuming coffee can keep them awake until the morning As many as 20 respondents (67%) aged 21-24 years, this shows adolescence as a threshold of adulthood where late adolescents with the age of 20 to 24 years become easily agitated to leave their comfort in their teens, at that time adolescents will feel themselves to behave like adults. In general, coffee consumption is intended for adults with strenuous activities and also for work

that requires them to be maintained because coffee contains caffeine which can keep the body awake. But nowadays many teenagers consume coffee along with the development of the times and also the rise of coffe shops or coffee shops that target young people.(Wachjidono and Yahya, 2021)(Putro, 2018)

The education taken by respondents was dominated by universities as students as many as 25 respondents (83%). The function of a coffe shop or coffee shop is now favored by students and students to find a comfortable place just to drink coffee or do assignments (Putri and Deliana. 2019). In the area around the campus, coffee shops are in great demand by students in addition to low prices and also affordable for students, the facilities provided such as free wifi and coffee shops are open for 24 hours non-stop so that they can attract teenagers.

Types of Coffee and Frequency of Drinking Coffee

Based on table 2 , it was found that the type of coffee that was in demand by teenagers was the type of black coffee as many as 24 respondents (80%), black coffee came from arabica coffee and robusta coffee which has a distinctive taste and aroma that has a higher caffeine content than other types of coffee. Teenagers tend to like black coffee over other types of coffee in addition to the distinctive taste and aroma the price of black coffee is much cheaper than other types of coffee that Most of the respondents are college students. (Rahardjo, 2012)

Based on table 3 On the frequency of drinking coffee in adolescents the highest is 2 to 3 per day as many as 21 respondents (70%) The function of a coffee shop or coffee shop which is now favored by students and students to find a comfortable place just drink coffee or do assignments (Princess and Deliana, 2019) This shows Most of the respondents are students so they spend time in coffee shops to do assignments and order coffee for them to stay awake.

Hematocrit Value In Active Adolescent Coffee Drinkers

The results obtained showed that as many as 18 respondents (60%) of the hematocrit values obtained were abnormally declared low. Caffeine also has the ability to reduce the number of red blood cells in the body so that the body will not have the ability to store and deliver oxygen from the lungs to all body tissues (Lain and Zurimi, 2021). If the number of red blood cells is reduced in the body it can cause low hematocrit values because red blood cells are the main component of hematocrit.

Based on table 2 types of black coffee are in demand by adolescents with as many as 24 responses (81%) showing as many as 7 respondents (23%) normal hematocrit values and 17 respondents (58%) abnormal hematocrit values. The recommended consumption of caffeine is as much as 200 mg, the caffeine content found in black coffee is higher than other types of instantaneous, namely 126 to 446 mg cups of black coffee served by brewing. In caffeine found in coffee dah tea which can inhibit the absorption of iron in the body which causes a decrease in erythrocytes in the body so that the hematocrit value also decreases(Elfariyanti, Silviana and Santika, 2020)(Tohidin, 2021). This shows that the habit of consuming coffee that has high caffeine levels can affect the hematocrit value in the body.

Based on table 3 , it was found that the frequency of drinking coffee 2-3 per day as many as 11 respondents (37%) showed normal hematocrit values and 10 respondents (33%) showed abnormal hematocrit values, while the frequency of drinking coffee 4-5 per day as many as 9 respondents (30%) all showed abnormal hematocrit values. The recommended consumption of coffee is 200 mg per day or the equivalent of one to two cups of coffee because with an

excessive amount of caffeine in the body can cause hemoglobin in the blood to tend to be unstable and will cause a lack of red blood cells in the body (Tohidin, 2021)

The results of this study are in line with the results of a study conducted by those conducted at the Reno coffee house in Ambon City, Maluku Province, obtained the results of hemoglobin levels in adolescents obtained samples of 30 samples as many as 11 people (36.3%) normal and as many as 19 abnormal people (63.3%). (Lain and Zurimi, 2021)

The relationship of coffee with hemoglobin, caffeine can be able to damage and thwart the process of iron absorption quickly. Caffeine also has the ability to reduce the number of red blood cells in the body resulting in the body not having the ability to store and deliver oxygen from the lungs to all body tissues .(Lain and Zurimi, 2021)This can result in anemic disease because Most of the people who suffer from anemia are caused by iron deficiency resulting in a lack of red blood cell volume of 60-70 percent.

It is known that coffee can increase the energy of the appendix and lipotic activity in the body so that long-term consumption can lose weight and can inhibit the growth and development of adolescents . The frequency of <3 times a day drinking adolescent coffee is very influential on the hematocrit value because the higher the frequency of coffee consumption, the higher the dose of caffeine contained in the coffee so that it can interfere with the absorption of iron in the body and can reduce the number of red blood cells which is the main component in hematocrit.(Tohidin, 2021)

CONCLUSION AND RECOMMENDATION
Conclusion

After conducting a study on the examination of hematocrit values in adolescents actively drinking coffee in warkop or *coffe shop* in dukuhsutorejo village, Mulyorejo, Surabaya city, which was carried out in January-March, the conclusion was obtained:

1. All respondents (100%) are male with an age range of 21-24 years as many as 20 respondents (67%), Most respondents took higher education as many as 25 respondents (83%)
2. The type of black coffee most in demand by adolescents is the type of black coffee as many as 24 respondents (80%), at the highest frequency of drinking coffee consumed by adolescents is 2-3 times per day as many as 21 respondents (70%)
3. Most respondents (60%) of adolescent coffee drinkers had abnormal or low hematocrit values

Recomendation

Based on the research that has been done, the suggestions that can be given are:

1. The results of this study are expected to increase information on adolescents who are prone to a decrease in hematocrit values, so that adolescents can reduce excessive coffee consumption.
2. For subsequent researchers, it is necessary to add the factor of drinking coffee that adolescents consume
3. There needs to be further research and pay attention to other factors that affect hematocrit values in adolescents such as nutritional intake and length of sleep and other bad habits.
4. There needs to be further research on the relationship between the type of coffee and the hematokri value

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Proceeding

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THE EFFECT OF CONSUMING CHICKEN CLAW BROTH EXTRACT AND TUNA FISH BONE FLOUR CRACKERS ON HEIGHT GROWTH OF 12-48 MONTHS CHILD

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ABSTRACT

Short birth length in children indicates a lack of nutrients consumed by the mother during pregnancy, so that fetal growth is not optimal which causes babies born to have short birth lengths. Research Objectives: to determine the level of consumer preference and organoleptic quality of Chicken Claw extract broth and Tuna Fish Bone flour crackers in stunting toddlers aged 12-48 months. This research is a model development using an R&D approach with 3 steps: 1) Preliminary study, 2) Model development, 3) Model testing. The research subjects were divided into two groups, namely: a) Internal Panelists were moderately trained panelists as many as 30 panelists from lecturers and final year students of the Undergraduate Program in Applied Nutrition and Dietetics, Department of Nutrition, Poltekkes Manado and ; b). 30 external panelists. Analysis of the data in this study using the t-test independent sample t-test. The results of the study were based on the panelist's assessment of the whole chicken claw extract broth product as shown in table 5 the average value of 3.2 (likes) on the internal panelists. Meanwhile, with an average of 3.0. (likes). The results of the Independent T-test analysis showed that p - value $0.318 > 0.05$, meaning that there was no significant difference between the overall assessment of the product by internal and external panelists. In this study, it can be assumed that internal and external panelists gave the same response to all treatments, which preferred the overall assessment of the organoleptic quality assessment results (color, aroma, taste, and texture).

Keywords*: stunting, chicken claw, tuna fish, crackers, broth*

BACKGROUND

Toddler age is a golden period where there is a very rapid growth and development process, so toddlers need adequate nutritional intake. Malnutrition in toddlers can cause stunted growth and development (Maharani , 2018).

According to the World Health Organization, stunting can cause cognitive or intelligence, motor, and verbal development to develop sub optimally, increase the risk of obesity and other degenerative diseases, increase health costs, and increase the incidence of morbidity and mortality (Kemenkes. RI. 2018) Children who have a low level of intelligence due to stunting can ultimately hamper economic growth, increase poverty, and widen inequality in a country. (TNPK, 2017).

Stunting in toddlers needs special attention because it can hamper the physical and

mental development of children. Stunting is associated with an increased risk of morbidity and mortality as well as stunted growth of motor and mental abilities. Toddlers who experience stunting have a risk of decreased intellectual ability, productivity, and an increased risk of degenerative diseases in the future (Briliannita et al., 2022).

Stunting is not caused by only one factor, but by multi factors including non-exclusive breast milk in the first six months of the baby's life, premature birth, households with low socioeconomic status, short baby length at birth, short mothers, the level of formal education of mothers and children from families that have poor sanitation and drinking water treatment are also at high risk for stunting (Beal et al., 2018)

The problem of stunting is influenced by low access to food in terms of quantity and quality of nutrition, and often does not vary. Furthermore, it is also influenced by poor parenting, especially in behavioral aspects, especially in feeding practices for infants and toddlers. In addition, stunting is also influenced by low access to health services, including access to sanitation and clean water. Parenting patterns and nutritional status are strongly influenced by the understanding of parents (a mother), so, in regulating health and nutrition in the family, education is needed in order to change behavior that can lead to improving nutritional health or mother and child (KemenkesRI , 2018).

In addressing the high prevalence of stunting, it is necessary to prevent it with a nutritional approach in the form of intervention by giving chicken claw broth extract and tuna bone crackers for height growth of children under five.

The chicken leg consists of several parts such as bone, skin, muscle and collagen. Chicken claw have nutritional content: energy 215 kcal, fat 14 grams, protein 19.4, calcium 88 mg, omega 3 fatty acids 187 mg and omega 6 Fatty acids 2571 mg (Nutrition data.self.2021). Chicken claw are known to contain 19 amino acids (Sarbon et al., 2013).

Most of the tuna production only uses the meat, while the bones are only discarded and unused, tuna fish bones have nutritional content that is not inferior to other bones. Fish bones have the highest calcium content among fish body parts, because the main elements of fish bones are calcium, phosphorus and carbonate.

The nutrition content in 100 grams of tuna fish bones consists of 105.0 cal of energy, 24.1 g of protein, 1.2 g of ash, 0.1 g of fat, 1.2 g of ash, 9.0 mg of calcium, 220.0 of phosphorus. mg, iron 1.1 mg, sodium 78.0 mg, retinol 5.0 mg, thiamin 0.1 mg, riboflavin 0.1 mg, and niacin 12.0 mg (Tangke et al., 2020).

To the knowledge and research of researchers, there has been no research on extracts of chicken claw and biscuit flour from tuna fish bones on the growth of children's height. Through research, the results can be used as (addition) nutrients in various kinds of processed foods to meet nutrition for toddlers at the household level, so that they can be used as a form of specific intervention in reducing stunting in toddlers.

Research purposes :The first year of 2022 is: To determine the organoleptic quality of Chicken Claw Broth Extract and Tuna Fish Bone Flour Crackers in Stunting Toddlers Age 12-48.

RESEARCH METHODS

The research method used in this study is the Research and Development (R&D) method. This method was chosen because this study aims to develop chicken claw and tuna fish bones as supplementary food for toddlers in the form of Chicken Claw Broth Extract and Tuna Fish Bone Crackers. The research developed a Product Trial Procedure model with the following steps:

1. Preliminary Study
   The research team identified and defined problems through literature studies, and Focus Group Discussions (FGD) involving mothers of toddlers, Posyandu cadres, government,

and health officers as well as religious leaders in locations that will be used as research sites in 2023.

2. Product Development and Trial
   This stage is done by; a) Making product formulation b). The results of the product were tested through organoleptic tests on internal panelists (students and lecturers of the Department of Nutrition, Poltekkes Manado) and external panelists (mothers of toddlers at the research location)

3. Testing; The test is organoleptic test by internal and external panelists

INGREDIENTS

1. Chicken claw broth extract: chicken claw 1.000 gr , wheat flour 100 gr , carrots 25 gr , salt
2. Fishbone flour 250 gr, wheat flour 300 gr, cheddar cheese 75 gr , baking powde1 tablespoon , salt 1 teaspoon , garlic powder 1/2 teaspoon   , milk 2/3 cup , margarine 100 gr, 1eggs, melted butte2 tablespoons

TOOLS

The equipment used in this study were digital scales, stainless bowls, knives, cutting boards, tablespoons, dough rollers, ovens, pans, pressure cookers, baking sheets, ovens, blenders, frying pans, 80 mesh flour sieves, silpat, spatulas, oil filters , sieve, clamp, workbench and solar dryer Model YSD-UNIB12.

WORKING PROCEDURES

A. Chicken Claw Broth Extract

1. Wash the chicken claw thoroughly, cut into small pieces and blanch them (boil in boiling water) for about 3 minutes.
2. Prepare a stainless steel pot filled with 4 liters of water and bring the water to a boil, then put the chicken claw and garlic pieces into the pot and cook on low heat for 2 hours.
3. After 2 hours the chicken claw are taken and the broth is filtered to obtain a slightly yellowish white liquid broth.
4. For the instant flouring process, the finished liquid broth is added with 200 grams of flour and 50 grams of fine salt is added and stirred until smooth.
5. After that, put it in the baking dish to do the oven for about 8 hours and do the flouring.
6. The resulting broth flour is ground/mashed and filtered/sifted.
7. Ready-made instant broth weighed and packed

B. Tuna Fish Bone Flour Crackers
   a. The process of making tuna fish bone flour
      1. Prepare of the raw materials
      2. Clean, wash and cut the bones (size ± 5 X 5 cm)
      3. Boil the bones for 2 hours and clean from the rest of the meat that sticks
      4. Boil for ± 12 hours (4 hours 100^{0}C step by step)
      5. Wash, downsize and clean
      6. Reduce fat and protein with water + lime solution
      7. Wash with cold water
      8. Dry it under the sun
      9. Mill with disk mill
      10. Sieve with 100 mesh sieving machine

11. Tuna fish bone flour has made

b. Making Tuna Fish Bone Flour Cracker
   1. Dry dough: in making these biscuits, two types of dough are needed, the wet dough and the dry dough. Combine flour, fish bone meal with grated cheddar cheese, baking powder, salt, and garlic powder. Stir until evenly distributed.
   2. Wet dough: for the wet dough by mixing butter, milk and egg. Stir until everything is evenly mixed. If so, mix the wet mixture into the dry mixture and mix again until evenly distributed. Do not mix it too hard so that the dough does not over.
   3. When the dough is ready, shape it into a flat round and place it on the prepared baking sheet. Make sure the pan is greased with butter or other ingredients so it doesn't stick.
   4. When done, bake at 200 degrees Celsius for 10 minutes. You can increase the baking time by up to 5 minutes if you want the color to appear more brown

RESEARCH TIME AND PLACE

Formula making was in the Food Technology Laboratory, Department of Nutrition, Poltekkes Ministry of Health Manado and in the Mopusi Village, Lolayan District, BolaangMongondow Regency, which held in May – June 2022

RESEARCH SUBJECT

The research subjects were divided into two groups: a) Internal Panelists: moderately trained 30 panelists from lecturers and final year students of the Undergraduate Program in Applied Nutrition and Dietetics, Department of Nutrition, Poltekkes Ministry of Health Manado and; b) External panellists: 30 mothers of children under five years old at the research site in the second year.

DATA COLLECTION AND MEASUREMENT

Organoleptic test

A processed product can be tested by conducting an organoleptic test or a test using the human senses. The assessment is carried out by giving a scoring or hedonic scale as shown in table 1. The panelists who tested the sample of this study were moderately trained panelists and general consumers and could be determined based on certain groups, provided that the senses of smell, sight, and taste were healthy.

Table 1. Organoleptic Test Rating Scale

Hedonic Scale					Numerical Scale
Color	Aroma	Taste	Texture	Whole	
Very unappetizing	Very unpleasant / fragrant	Not very tasty	Very not thick / Crispy	Very dislike	0
Not appetizing	Not good/smelly	Not tasty	Not thick/Crispy	Do not like	1
Somewhat appetizing	Slightly unpleasant / fragrant	Slightly savory	Slightly less thick / Crunchy	Slightly Dislike	2

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Appetizing	Delicious / fragrant	Tasty	Thick / Crispy	Like	3
Very appetizing	Very delicious / fragrant	Very tasty	Very Thick / Crispy	Really like	4

DATA ANALYSIS

Organoleptic test results data were processed using descriptive percentage analysis and calculating the average value. To find out whether there were differences between internal and external panelists on the results of the organoleptic test using the Independent Samples Test t test, with a significant value of $p > 0.05$ indicating there was no difference in the level of enjoyment of internal and external panelists to chicken claw extract broth and tuna fish bone crackers. The $p < 0.05$ indicates that there is a difference in the level of preference of internal and external panelists to chicken claw extract broth and tuna bone crackers.

This research has obtained a Research Eligibility Statement at the Health Research Ethics Commission of the Manado Health Ministry of Health. KEPK.01/05/099/2022.

RESULTS

1. Preliminary Study and Focus Group Discuccion

In the preliminary study, the discussion method or Focus Group Discussion (FGD) was carried out with the problems explored, which was the exploration of the problem of stunting and food intake of children under five.

The idea behind the focus group discussion method or FGD is a form of group interview that utilizes communication between participants in a study to generate data.

Another important thing in the FGD is the existence of a group interaction in which there is verbal and nonverbal communication. Group interaction between members in a group can encourage subjects who are participants in it to make connections in various concepts through discussion that may not occur during individual interviews. The FGD method is able to provide richer data and add value to the data that is not obtained when using other data collection methods, especially in quantitative research (Lehoux et al., 2006).

The activity began with an explanation of the aims and objectives of the FGD and an explanation of the research topics to be carried out in Mopusi village in 2022 and 2023 by head of the research team. Then the members of the research team gave material on topic: Stunting Problems and the First 1000 Days of Birth as an introduction before doing the FGD.

The head of the research team acted as a facilitator giving an introduction to the exploration of stunting problems and food intake of children under five related to the research topic: "The Effect of Consuming Chicken Claw Broth Extract and Tuna Fish Bone Flour Crackers on Height Growth of 12-48 Months Child".

In general, the participants took part in the activities calmly and orderly in listening to explanations and created a good and two-way communicative discussion.

From the results of the FGD, various issues related to the issues discussed were stated:

1. Participants support the program to accelerate stunting reduction in Mopusi Village
2. Tackling the stunting problem requires the involvement of universities to assist the community in handling and preventing stunting.

3. There needs to be a socialization held regarding the role of parents in understanding nutrition and their children being free from stunting and the importance for children regarding nutrient intake to prevent stunting
4. Participants will be involved and help the research team so that the research can run well and smoothly.

2. **Scoring Test of Chicken Claw broth Extract and Tuna Fish Bone Crackers**

In general, the scoring test is used to determine the susceptibility or gap in quality between several similar products, including food products. It will provide an assessment in the form of a score on certain properties, including the organoleptic properties of a food product. It is usually carried out by panelists, either trained, semi-trained or untrained panelists. Each score given by the panelists in the scoring test symbolizes the level of the panelist's preference for the product being assessed. Usually, the scores is in the form of a number (the worst number to the best number) which will state the level of quality assessment of a product. The scoring test response is always a number that will directly describe the quantitative data from the hedonic test results.

Pictures 1: Chicken Claw Broth Extract

Pictures 2: Tuna Fizh Bone Flour Crackers

1. COLOR
The scoring test results on the color of the chicken claw broth extract showed that from each color assessment result, the internal panelists were somewhat appetizing, 4 panelists or 13.3% and 19 panelists or 63.3% appetizing with an average value of 3.1 (appetizing). Meanwhile, for external panelists, 11 panelists or 36.7% chose the somewhat appetizing category. Then, followed by 15 panelists or 50% choosing the appetizing category with an average value of 2.6 (appetizing). T-test Analysis Independent t-test of the sample showed that the p-value 0.006 <0.05 means that there is a significant difference between the color assessment of the internal and external panelists. The results of the scoring test are as in table 2.

Based on the results of the questionnaire shown in table 2, the color of the tuna fish bone crackers product from thirty internal panelists, 13 people or 43.3% of panelists chose to be appetizing. Then, followed by 16 people who chose the very appetizing category with a percentage of 53.3%, and no one chose the Very Unappetizing and Unappetizing category). Meanwhile, for external panelists, 10 panelists or 33.3% chose the appetizing category. Then followed by 16 panelists or 53.3% who chose the very appetizing category with an average value of 3.4 (appetizing). Independent t-test analysis of the sample shows

that the p-value 0.464 <0.05 means that there is no significant difference between the color assessment of the internal and external panelists**.**

Table 2. The Average Value of Internal and External Panelists on the Color Preference of the Products of Chicken Claw broth Extract and Tuna Fish Bone Crackers

PRODUCT	Very unappetizing		Not appetizing		Somewhat appetizing		Appetizing		Very appetizing		TOTAL		Means Rank	P-Value
	n	%	n	%	n	%	n	%	n	%	n	%		
Chicken Claw														
Internal Panelist	0	0	0	0	4	13.3	19	63.3	7	23.3	30	100	3.1	0.006
External Panelist	0	0	2	6.7	11	36.7	15	50.0	2	6.7	30	100	2.6	
Crackers														
Internal Panelist	0	0	0	0	1	3.3	13	43.3	16	53.3	30	100	3.5	0.464
External Panelist	0	0	1	3.3	3	10	10	33.3	16	53.3	30	100	3.4	

2. Aroma

From the results of the questionnaire the aroma of chicken claw extract broth products from 30 internal panelists, 8 panelists or 26.7% chose Very Tasty/Fragrant and the most chose the delicious/scented category were 16 panelists or 53.3%. The same thing also happened to the external panelists who differed only in the slightly unpleasant/scented category, there were 11 panelists or 36.7%. The average for the internal panelists is 3.1 and the external panelists are 2.6 in the savory/scented category. T-test Analysis Independent t-test of the sample showed that p-value 0.17 <0.05, meaning that there was no significant difference between the color assessments of internal and external panelists.

Based on table 3, the results of the questionnaire on the aroma of tuna bone crackers from thirty internal panelists, 13 people or 43.3% of the panelists chose Very Tasty/Fragrant. Then, followed by 16 people who chose the category of Delicious / Fragrant tastes by 53% with an average value of 3.4. Meanwhile, for external researchers as many as 8 panelists or 26.7% chose the very delicious / fragrant category, then followed by the fragrant category as many as 20 panelists or 66.7% with an average of 3.2 in the delicious / fragrant category. Independent t-test analysis of the sample shows that the p-value 0.142 > 0.05 means that there is no significant difference between the aroma ratings of the internal and external panelists.

Table 3. The Average Value of Internal and External Panelists on the Level of Preference for Aroma Products Extract Chicken Claw and Crackers Tuna Fish Bone Flour

PRODUCT	Very unpleasant / fragrant		Not good/smelly		Slightly unpleasant / fragrant		Delicious / fragrant		Very delicious / fragrant		TOTAL	Means Rank	P-Value
	n	%	n	%	n	%	n	%	n	%	%		

Chicken Claw														
Internal Panelist	0	0	0	0	6	20	16	53.3	8	26.7	30	100	3.1	
														0.17
External Panelist	0	0	1	3.3	11	36.7	16	53.3	2	6.7	30	100	2.6	
Crackers														
Internal Panelist	0	0	0	0	1	3.3	16	53.3	13	43.3	30	100	3.4	
														0.142
External Panelist	0	0	1	3.3	1	3.3	20	66.7	8	26.7	30	100	3.2	

3. Taste

Based on the results of the Taste questionnaire in table 4 chicken claw extract broth products from 30 internal panelists, 8 panelists or 26.7% chose Very savory and most chose the savory/scented category as many as 16 panelists or 53.3% with an average of 3.1 (savory). While the external panelists chose the savory category, there were 8 panelists or 26.7% followed by 19 panelists or 63.3% in the slightly savory category with an average of 2.5 (slightly savory). Independent t-test analysis of the sample shows that p - value $0.167 > 0.05$ means that there is no significant difference between the taste assessments of internal and external panelists

Based on table 5, the results of the questionnaire on the taste of tuna bone crackers from thirty internal panelists, 15 people each or 50% of the panelists chose tasty and very tasty with an average of 3.5 (very tasty). While the external researchers 13 panelists or 43.3% chose the savory category then followed by the very savory category 15 panelists or 50% with an average of 3.4 with the very savory category. Independent t-test analysis of the sample shows that p-value $0.652 > 0.05$ means that there is no significant difference between the taste assessments of internal and external panelists.

Table 4. The Average Value of Internal and External Panelists on the Level of Taste of Products with Chicken Claw Extract and Crackers Tuna Fish Bone Flour

PRODUCT	Not very tasty		Not tasty		Slightly savory		Tasty		Very tasty		TOTAL		Means Rank	P-Value
	n	%	n	%	n	%	n	%	n	%	n	%		
Chicken Claw														
Internal Panelist	0	0	0	0	6	20	16	3.3	8	26.7	30	100	3.1	
														0.167
External Panelist	0	0	0	0	19	63.3	8	26.7	3	10	30	100	2.5	
Crackers														
Internal Panelist	0	0	0	0	0	0	15	50	15	50	30	100	3.5	
														0.652
External Panelist	0	0	0	0	2	6.7	13	43.3	15	50	30	100	3.4	

4. Texture

Based on the results of the scoring test in table 5 on the texture of the chicken claw broth extract, it shows that from each color assessment result, the internal panelists were very thick 11 panelists or 36.7% and thick 13 panelists or 43.3% with an average value of 3.2

(thick). Meanwhile, for external panelists, 9 panelists or 30% chose a slightly less thick category. Then followed by 20 panelists or 66.7% choosing the thick category with an average value of 2.7 (thick). Independent t-test analysis of the sample shows that the p-value 0.12 <0.05 means that there is no significant difference between the texture assessments for internal and external panelists.

Based on table 5, the results of the questionnaire on the texture of crackers with tuna fish bone flour, internal panelists, 8 people or 26.7% of panelists chose thick. Then followed by 22 people who chose the very thick category with a percentage of 73.3%, with an average of 3.7 (very thick). Meanwhile, for external panelists, 11 panelists or 36.7% chose thick. Then followed by 19 panelists or 63.3% who chose the very thick category with an average value of 3.6 (very thick). Independent t-test analysis of the sample shows that the p-value 0.414 > 0.05 means that there is no significant difference between the texture assessments for internal and external panelists.

Table 5. The Average Value of Internal and External Panelists on the Level of Preference for the Texture of Chicken Claw Extract and Crackers Tuna Fish Bone Flour

PRODUCT	Very not thick / Crispy		Not thick/Crispy		Slightly less thick / Crunchy		Thick / Crispy		Very Thick / Crispy		TOTAL		Means Rank	P-Value
	n	%	n	%	n	%	n	%	n %		n	%		
Chicken Claw														
Internal Panelist	0	0	0	0	6	20	13	43.3	11	36.7	30	100	3.2	0.12
External Panelist	0	0	0	0	9	30	20	66.7	1	3.3	30	100	2.7	
Crackers														
Internal Panelist	0	0	0	0	0	0	8	26.7	22	73.3	30	100	3.7	0.414
External Panelist	0	0	0	0	0	0	11	36.7	19	63.3	30	100	3.6	

5. Whole Product

Based on the results of the overall questionnaire, chicken claw extract broth products from 30 internal panelists, 10 panelists or 33.3% chose Very like and most voted in the like category as many as 17 panelists or 56.7% with an average of 3.2 (likes). Meanwhile, the external panelists chose the like category, there were 11 panelists or 36.7% followed by 16 external panelists or 53.3% in the very like category with an average of 3.0. (like). T-test analysis Independent t-test sample shows that p - value 0.318 > 0.05 means that there is no significant difference between the overall assessment of the product on the internal and external panelists

Based on table 7, the results of the questionnaire on the whole product of tuna bone crackers from thirty internal panelists, 13 panelists each or 43.3% of the panelists chose to like and then 17 panelists or 56.7% chose the category very like with an average of 3.6 (very like). Meanwhile, for external writers 11 panelists or 36.7% chose the like category followed by the very like category 19 panelists or 63.3% with an average of 3.4 (likes).

Independent t-test sample t-test shows that p - value 0.391 > 0.05 means that there is no significant difference between the overall assessment of the product on the internal and external panelists.

Table 6. The Average Value of Internal and External Panelists on the Overall Preference Level of Chicken Claw Extract and Crackers Tuna Fish Bone Flour

PRODUCT	Very dislike		Do not like		Slightly Dislike		Like		Really like		TOTAL		Means Rank	P-Value
	n	%	n	%	n	%	n	%	n	%	n	%		
Chicken Claw														
Internal Panelist	0	0	0	0	3	10	17	56.7	10	33.3	30	100	3.2	0.318
External Panelist	0	0	0	0	3	10	11	36.7	16	53.3	30	100	3.0	
Crackers														
Internal Panelist	0	0	0	0	0	0	13	43.3	17	56.7	30	100	3.6	0.391
External Panelist	0	0	0	0	0	0	11	36.7	19	63.3	30	100	3.4	

DISCUSSION

1. Chicken Claw Broth Extract Product

Color is the first assessment of the product to be tested visually. The appearance of the color of the product greatly affects the interest of consumers / researchers, because the color of a confectionary product can arouse consumer tastes.

Color is a very important component in determining the quality and acceptance of food. Food that is considered delicious and has a good texture will not be eaten if it has an unsightly color or has deviated from its proper color. Determination of food quality depends on several factors, but before other factors are considered visually, the color factor comes first to determine quality (Maharani, 2018) . The color function of food, products is very important because it can affect consumer tastes and is able to arouse appetite (Utami et al., 2012).

The results of the study as shown in table 2 of the internal panelists' assessment of the chicken claw broth extract product, it is known that the average value is 3.1 and the average value for external panelists is 2.6 (appetizing the taste). The results of the Independent t-test sample t-test there is a significant difference between the color assessment on the internal and external panelists. This indicates that color has an important role in acceptance, besides that color is also used as an indicator of whether or not the mixing method or processing method is increasing which is characterized by the presence of a uniform or even color.

Most of the panelists liked the color of the liquid food formula of the product in this study. The color of the product is dark brown like coffee. Most of the panelists prefer the preferred food. Since ancient times, certain types of food have been consumed specifically because of the pleasures they offer consumers, such as ice cream, coffee, alcohol, and chocolate. These foods are usually consumed to provide a positive state of

mind or to reduce a negative state of mind (Fadila&Juhartini, 2021). The same thing according to, Lawless, 2010.The parameter that is often used to assess consumer acceptance of a food product is the taste aspect, which relies on one's tongue to judge it. The sense of taste is divided into four namely: salty, sour, bitter, and sweet. Texture is a primary attribute such as appearance, taste, and aroma that determines the quality of food products sensorily. Sometimes these physical characteristics are considered more important than smell, taste, and aroma.

Aroma on organoleptic quality was assessed using the sense of smell of the nose with an intermediary medium of olfactory receptors that work to capture substances in the air that pass through the nasal cavity(Octaviyanti, 2017).

The results of the aroma organoleptic quality scores can be seen in Table 3. The average aroma rating shows that the internal panelists got the highest score, which was 3.1 with a pleasant aroma characteristic, while the external panelist was 2.6 with a pleasant aroma characteristic. T-test analysis Independent t-test sample showed that p - value 0.17 <0.05 means that there is no significant difference between the assessment of aroma on the internal and external panelists. This indicates that the appearance of the aroma of food is caused by the formation of volatile compounds. The aroma released by each food is different. In addition, different cooking methods will cause different aromas. The taste of food is the second factor that affects the taste of food after the appearance of the food itself.

In general, the aroma of chicken claw extract broth was accepted by both panelists with an assessment score ranging from 2.6 - 3 (tasty / fragrant). Aroma is the odor caused by food products that are smelled by the olfactory nerves in the nasal cavity (Negara. et al., 2016). Aroma plays an important role in the production of flavours, which are used in the food service industry, to enhance taste and generally increase the attractiveness of the food product (Antara., 2014). Aroma determines the delicacy and taste of food. The smell produced from food determines the delicacy of this food and is related to the five senses of smell. Aroma has a very important role in determining the degree of assessment and quality of food. (Widiany et al., 2021)

Food odors form important sensory signals and a fundamental component of taste perception and shape the way people perceive the taste and texture of these foods. Aroma serves as a signal of edible or inedible food, even before the consumer sees the food (Wanjiru et al, 2018). The smell of food directs the acceptance of food that is specifically characterized by smell (Soekarto., 2012).

The results of the taste organoleptic quality scores can be seen in Table 3. The average taste rating shows that the internal panelists got the highest score, which was 3.1 with a pleasant aroma characteristic, while the external panelist was 2.6 with a pleasant aroma characteristic. T-test analysis Independent t-test sample showed that p - value 0.17 <0.05 means that there is no significant difference between the assessment of aroma on the internal and external panelists. This indicates that it shows that all the menus have the same taste. Taste is the most important factor in determining consumer decisions to accept or reject a food or food product. While the other parameters are good if the taste is not good or the product is not liked will be rejected. There are four basic tastes known to man, namely salty, sour, sweet, and bitter. While the other flavors are a combination of other flavors (Permata et al., 2019).

According to (Irawati, 2015), the taste is influenced by the ingredients added during the manufacture and cooking of processed meat products, especially the seasonings..

(Nurjannah et al., 2019). Also said that the taste of food is one of the factors that affect the acceptance of the food served. The taste of food includes two aspects, namely

the appearance of food when served and the taste of food when eaten. Both aspects are equally important to pay attention to in order to really produce a satisfying meal.

Texture is an indicator of organoleptic quality that is assessed by a combination of the senses of sight (visual texture), touch (tactile texture), and hearing (auditory texture) (Lawless, 2010). The average value of the internal panelists' assessment was 3.2 (thick), while the average value of the panelists was 2.7 (thick). Independent T-test analysis showed that p - value $0.12 < 0.05$, meaning that there was no significant difference between the texture assessment of internal and external panelists. In this study, texture observations were carried out by determining the sensory texture based on the pressure on the formula liquid food when touched using a spoon. The texture of this liquid food formula product is a bit thick.

The test results can be concluded that this chicken claw broth extract affects the change in the texture of the broth which is preferred by the panelists because the texture or thickness of the liquid food formula is one parameter that determines product quality.

Texture is one of the properties or products that can be felt through the touch of the skin or tasting. Texture includes the crunch, tenderness and hardness of food that is felt by the sense of taste. Tenderness and crunch are determined by the food ingredients used and the way they are cooked (Angkat&Simatupang, 2022).

Based on the panelists' assessment of the whole chicken claw extract broth product as shown in table 5, the average value of 3.2 (likes) for the internal panelists. Meanwhile, with an average of 3.0. (like). The results of the Independent T-test analysis showed that p - value $0.318 > 0.05$, meaning that there was no significant difference between the overall assessment of the product by internal and external panelists. In this study, it can be assumed that internal and external panelists gave the same response to all treatments, namely liking the overall assessment of the organoleptic quality assessment results (color, aroma, taste, and texture). Thus the chicken claw extract broth product can be continued for research at the next stage to see its effect on the growth of children's height.

2. Tuna Fish Bone Flour Crackers Products

Hedonic testing has been done to determine the level of preference of the panelists on the product subjectively. This test uses two panelists, the internal panelists lecturers and students majoring in nutrition while the external panelists are untrained mothers who have children under five 30 people each. The parameters tested were color, aroma, taste and texture and the overall product.

The hedonic test on tuna bone crackers conducted by the two panelists showed that 53.3% stated that the color of the product was very appetizing. The results of the independent sample t-test analysis showed that the p-value $0.464 > 0.05$ means that there is no significant difference between the color assessment of the internal and external panelists.

The addition of tuna bone crackers in the manufacture of biscuits produces a brown color. The color of the biscuits is influenced by the ingredients used in the manufacturing process, namely fat, sugar and eggs. The color of the cookies is also affected during the baking process. (Darmawangsyah et al., 2018) During the baking process, a browning reaction occurs, namely the Maillard reaction. The Maillard reaction is a reaction between carbohydrates, especially reducing sugars with the primary amino groups of proteins which produce hydroxymetrifurfural compounds which then continue to become furfural. The furfural formed is polymerized to form melanoidin compounds which are brown in color. Melanoidin is what gives the golden browncolor to the resulting cookies. (Fajiarningsih, 2013) . The same thing is also done by Cicilia et al., 2018, the Maillard reaction that occurs during the dough baking process, where reducing

sugars react with compounds that have NH2 groups (proteins, amino acids and peptides). This reaction will occur when the food is heated and when the reducing sugar reacts with a primary/secondary amino group to form a glucosamine. These components will then form a dark colored component of melanoidin which causes color changes in food ingredients. According toYuliani et al., 2018 , the addition of calcium source flour tends to affect the color of the product to be darker, this is probably due to the increase in protein and ash content in the product.

Aroma is an odor caused by chemical stimuli that are smelled by the olfactory nerves in the nasal cavity when food enters the mouth (Nadimin andFitriani, 2019).

Based on the results of the hedonic test, the aroma of tuna bone crackers as table 3 has an average value of 3.4 (tasty/scented) by the internal panelists with a percentage of 53%. The same thing happened to the external panelists in the savory category as many as 20 panelists or 66.7% with an average of 3.2. T-test analysis Independent sample t-test showed that p - value $0.142 > 0.05$, it means that there is no significant difference between the assessment of aroma on internal and external panelists.

The components that give the aroma are organic acids in the form of esters and volatiles. The presence of starch content is graded when baking cookie dough. The starch content undergoes extensive changes with the elimination of water molecules and the fragmentation of sugar molecules where there is a break in the carbon bond which results in carbonyl and volatile compounds resulting in a distinctive aroma in cookies. The use of margarine in the manufacture of cookies can strengthen the aroma produced by cookies. Fat is one of the important components in making cookies because it functions as an aroma enhancer (Anik andWikanastri, 2017). According toSeveline et al., (2019), the higher the substitution of flour used, the higher the average aroma indicator for the ingredients used. Nastitiand Christyaningsih, (2019)   stated that the addition of fish meal to biscuits or cookies will affect the taste of biscuits or cookies.   The taste of a food ingredient can come from the nature of the material itself or because of the presence of other substances added to the processing.(Gillian dan Picauly, 2015)

The hedonic test for the taste of tuna bone crackers from internal and external panelists was 50% with an average value of 3.5 (very tasty) for external panelists an average of 3.4 (savory). T-test analysis Independent sample t-test shows that p-value $0.652 > 0.05$ means that there is no significant difference between the taste assessments of internal and external panelists.

According to Ciciliaet al.,(2018) the taste of a food ingredient can be influenced by several factors, namely chemical compounds, temperature, and interactions with other flavor componentsSeveline et al., (2019) In addition, taste comes from the combination of ingredients and composition in a food product that is captured by the sense of taste. Assessment of taste involves the sense of the tongue, so that good taste can attract consumers' attention to tend to like food from taste.

There are four basic tastes recognized by humans, namely salty, sour, sweet and bitter. While other flavors are a combination of these four flavors. Besides that, taste can evoke flavors through the aroma that is spread, more than just bitter, salty, sour and sweet tastes. Through the process of giving aroma to a food product, the tongue can taste other flavors according to the aroma given (Midayanto&Yuwono, 2014).

Texture is one of the sensory assessment parameters that need to be considered in cookies and biscuit products. The crispness of a cookie can be measured by whether or not the cookie crumbles when bitten.(Seveline et al., 2019)

Based on the table; The results of the questionnaire on texture of the tuna fish bone cracker, internal panelists, the average value of 3.7 (very thick) and the external panelists (very thick). The results of the analysis of the Independent t-test of the sample showed

that the p-value 0.414 > 0.05 means that there is no significant difference between the texture assessment of the internal and external panelists.

Food texture plays an important role in influencing consumer preferences and preferences for a food product. Consumers' attention and interest in food textures varies from one type of food to another (Chen , 2015).

According to (Nadimin, Fitriani,2019), that texture is an assessment attribute that affects panelists' acceptance of acceptability. Texture has complex properties and the structure of the material consists of three elements, namely mechanical (hardness, elasticity), geometric (sandy, crumbly), and mouthfeel (oily, watery). Meanwhile, the tuna bone crackers is as shown in Table 6 both in terms of taste, color, aroma, and texture as well as other organoleptic properties of the product. The results of the overall preference test showed that the average value of the panelists' preference for the whole cracker was the average value for the internal panelists of 3.6. (very like) and the external panelists have a mean value of 3.4 (like) and descriptively the panelists rate like to very like. Thus the Tuna Fish Bone Flour Crispy Biscuit product can be continued for research at the next stage to see its effect on the growth of children's height.

The overall assessment is the overall organoleptic acceptance of the crispy biscuit product of tuna bone crackers as shown in Table 6 both in terms of taste, color, aroma, and texture as well as other organoleptic properties of the product. The results of the overall preference test showed that the average value of the panelists' preference for the whole amplang was the average value for the internal panelists of 3.6 (very like) and the external panelists have a mean value of 3.4 (like) and descriptively the panelists rate like to very like. Thus, the Tuna Fish Bone Flour Crispy Biscuit product can be continued for research at the next stage to see its effect on the growth of children's height.

Weaknesses in this study:

Based on the researcher's direct experience in the research process, there are some limitations experienced. Some of the limitations in this study are:

1. There was no proximate test of the two products in this study.
2. The temperature used in drying tuna bones using Solar Drying Model YSD-UNIB12 was unknown.
3. Researchers in the development of tuna bone crackers do not use any ratio of percentage on the flour making as well as the making of chicken claw extract broth which was only using recipes compiled.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. The overall results of the organoleptic quality assessment (color, aroma, taste, and texture) on the Chicken Claw Extract Broth wasfavored by both panelists and the statistical test results showed no significant difference between the texture assessment on internal and external panelists except for the color and significant difference between the color ratings of the internal and external panelists.
2. Crispy tuna bone meal biscuits based on the results of organoleptic tests where the results of organoleptic quality (color, aroma, taste, and texture) were in the likes and dislikes or acceptable to the panelists. The results of statistical tests there is no significant difference between the overall assessment of the product on the internal and external panelists.

Suggestion

It is recommended for further research to test the shelf life of the product, to determine the length of time the product is stored. and food safety (microbiological aspects) of Chicken claw broth extract and Tuna fish bone flour crackers.

RECOMMENDATIONS

This multi-year research will be continued in 2023 with the aim . To determine the effect of Chicken Claw Extract Broth and Tuna Fish Bone Flour Crackers on increasing the height of stunting children aged 24-48 months

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Analysis of Nutrition Worker Education in the Intensive Care Unit: A case study in the East Java Province, Indonesia

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ABSTRACT

Professional and competent nutritionists are required to prevent and treat malnutrition in the Intensive Care Unit (ICU) of all hospitals. In Indonesia, the nutritionist work is divided into three competencies based on education: Technical Registered Dietitian (TRD), who graduated with three years-education, Registered Nutritionist (RN) with a Bachelor's degree, and Registered Dietitian (RD), who takes professional education after Bachelor. The government of Indonesia regulates the sustainability of workers and education with the Minister of Health Regulation (PMK) No. 26 of 2013 concerning the implementation of work and practices for nutrition professionals. This research, aims to describe the composition of hospital ICU nutritionists in the East Java Province through a cross-sectional survey. Respondents were recruited by a convenience sampling technique. As many as 83 respondents filled out the questionnaire electronically, and the data were analyzed descriptively using the Pareto principle. If at most 20% of the TRDs serve in the ICU, the education level of nutrition professionals is categorized based on the regulations. Our survey unveiled that the composition of hospital ICU nutritionists comprised 26.3% Technical Registered Dietitians, 67.5% Registered Nutritionists, and 6.0% Registered Dietitians. These results imply that the composition of the hospital ICU nutritionists in the East Java Province has not yet suited to the regulatory requirement. Improvement of the educations is necessary since it will ensure that the nutritionists have the required competency and, thus, guarantee their working quality of in the ICU.

Keywords: Dietitian, Education, ICU, Nutritionist,

BACKGROUND

Health workers have acquired knowledge and skills in the health sector through education and then devote them; certain skills require authorization prior to service (Republik Indonesia, 2014). There are 13 clumps of healthcare workers in Indonesia, including nutrition workers, encompassing nutritionists and dietitians (Republik Indonesia, 2014). Nutritionists are those who pursue Diploma III Nutrition, Bachelor of Applied Nutrition, Bachelor of Nutrition, Master of Nutrition, and Doctoral of Nutrition degrees, whereas Dietitians are those pursuing professional education in nutrition after earning a bachelor's degree in nutrition and are subsequently authorized to oversee permission to provide services and

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perform nutrition practice (Kemenkes, 2020). On the one hand, as members of the health care profession, nutrition workers are obligated to prevent and resolve nutritional issues in Indonesia (Depkes, 1996). On the other hand, qualified nutrition workers are required to prevent and treat malnutrition in the community and hospitals (Hospital Malnutrition) using the most up-to-date Science and Technology (IPTEK) (Depkes, 1996; Kemenkes, 2020). Accordingly, it is essential to focus on the quality of service providers, particularly nutrition service providers, to achieve excellent health services. Consideration must be given to the placement of nutrition workers following their competence and authority (Penggalih et al., 2021).

In Indonesia, there are three stages of nutrition education: vocational, academic, and professional. Vocational education consists of a Diploma III Nutrition, a Diploma IV Nutrition, and a Master of Applied Nutrition. Meanwhile, academic education encompasses Bachelor, Master and Doctor of Nutrition. After obtaining a Bachelor's degree, one might pursue a professional education, consisting of professional and specialist education (Kemenkes, 2020). Under Law 36 of 2014 concerning Health Workers, nutritionists are graduates of Diploma III Nutrition, Diploma IV Nutrition, Bachelor of Nutrition, Master of Applied Nutrition, Master of Nutrition, and Doctor of Nutrition. Professional education graduates are known as dietitians (Kemenkes, 2020). Competence is using knowledge and skills in the workplace (ICDA, 2016). In terms of competency requirements, nutritionists and dietitians are distinct in Indonesia. Dietitian competence requirements include three competency areas: Clinical Nutrition, Food Service, and Community Nutrition (AIPGI & PERSAGI, 2016; Kemenkes, 2007). Minister of Health Regulation (PMK) No. 26 of 2013 on the Implementation of Work and Practices for Nutrition Professionals governs the authority to carry out the work and practice of nutrition professionals, organized into three groups: Technical Registered Dietitian (TRD), Registered Nutritionist (RN), and Registered Dietitian (RD). TRDs are Diploma III of vocational education graduates, RNs are Diploma IV of vocational education graduates and Bachelor of academic education graduates, while RDs are RNs continuing their professional education (Kemenkes, 2013)

The classification of nutrition professionals affects their authority to conduct work and nutritional practices. In general, nutritionists serve as (1) providers of counseling, education, and dietetic services; (2) providers of nutrition care; (3) educators, trainers, researchers, and developers of nutrition services; and (4) implementers of mass meals. In further detail, the jurisdiction of TRDs is restricted to providing nutrition services to healthy individuals with specific situations, including babies, adults, and the elderly. Under the supervision of an RD, TRDs are authorized to offer nutritional therapy to patients without problems in clinical nutrition (Kemenkes, 2013). RNs are given the autonomy to carry out the four mentioned responsibilities. In addition to the four roles, RDs possess the authority to receive patients directly (independent practice) or referrals from physicians. Furthermore, they are permitted to provide nutritional care for patients with complicated and non-complicated cases and collaborate with referring physicians on dietary prescriptions and nutritional therapy for critically ill patients (Kemenkes, 2013).

Nutrition services in the Intensive Care Unit (ICU) are complex, requiring rapid decisions on care and medical activities that can only be performed by qualified and skilled staff (Sirgo Rodrguez et al., 2014). Given that some physicians and intensive care nurses lack dietary knowledge, the presence of nutritionists is crucial (Terblanche, 2019). Almost half of ICU patients experience malnutrition (Zaki et al., 2018); thus, ICU nutritionists must have the knowledge and authority to manage enteral and parenteral nutrition (Ramezani Kapourchali et al., 2020). ICU nutritionists must also be able to provide recommendations on appropriate

dietary strategies to the multidisciplinary team (Terblanche, 2019). Although it is a new profession for dietitians in Indonesia, the government has attempted to restrict their participation in this treatment. In order to provide quality nutritional services, the placement of nutrition professionals must comply with current standards (Penggalih et al., 2021). Accordingly, to meet these requirements, ICU placement is restricted to qualified and authorized nutritionists under applicable regulations (the Republic of Indonesia, 2014). PMK No. 26 of 2013 states that nutrition services in the ICU are carried out by Registered Dietitians (RDs) or at least by Registered Nutritionists (RNs) (Kemenkes, 2013).

The output of nutrition education contributes to the availability of nutrition professionals in health facilities. In East Java, there were 6,919 Diploma III, Diploma IV, Bachelor, Master, and professional level nutrition education graduates in 2020 (Ma'ruf et al., 2021). Generally speaking, there are more Diploma III graduates than Diploma IV graduates (Ma'ruf et al., 2021). According to statistics from the Health Human Resources Section of the East Java Provincial Health Office, in 2020, the number of nutrition professionals was 2,723, with 1,319 working in hospitals throughout 38 regencies and cities (East Java Provincial Health Office, 2021). Although the number of nutrition professionals in hospitals, the required educational qualifications, and the obligation to have STR according to their education, have been officially reported, there is no information on whether special services, such as the ICU, have met the personnel qualifications. In light of PMK No. 26 of 2013 on the Implementation of Work and Practices for Nutrition Professionals, this study aims to examine the credentials of nutrition professionals working in the ICUs of hospitals in East Java.

According to a study from https://www.bps.go.id/, East Java is the province with the most hospitals in Indonesia in 2021, with 445 public and private hospitals. ICU services are exclusively provided by hospitals classified as class C (primary ICU), class B (secondary ICU), and class A (tertiary ICU) (Kemenkes, 2010). Although there are variances in service capacities, the supply of nutritional services, particularly enteral and parenteral nutrition therapy, is the same (Ministry of Health, 2010). The various responsibilities can be impacted by facilities and methods of operation (Ferrie & Allman-Farinelli, 2011). Through the adoption of credentials and re-credentialing, it is anticipated that the findings of this study will assist hospital administration in preserving the competence and education of ICU staff members who have been granted clinical authority. For educational institutions and nutrition professional organizations, the findings of this study can catalyze ICU nutritionists' ongoing education and training. As far as nutrition professionals are concerned, the findings of this study can be utilized as a basis for a retroactive effort to enhance their competency through more education. Together, the need for education and training in critical care clinic nutrition and the availability of suitable nutrition education facilities will assure the long-term viability of nutrition professionals

RESEARCH METHODS

This study belongs to quantitative research with a cross-sectional survey method (Islamy, 2019). The target population consists of nutritionists working in the ICU of East Java's hospitals. It is known that there are around 2,723 hospital nutritionists in East Java (Dinas Kesehatan Provinsi Jawa Timur., 2021). However, how many are on duty in the intensive care unit is unknown. Using convenience sampling (Siyoto & Sari, 2016), the ICU-assigned participants were selected using inclusion criteria. A Google form-based electronic questionnaire was utilized as the study instrument to obtain information from respondents without needing to meet in person. A week of data collecting was conducted from the end of

September to the beginning of October 2021 to coincide with the Covid-19 pandemic. The questionnaire consists of multiple-choice, closed-ended questions. Questionnaire links were sent through WhatsApp groups of hospital nutritionists in East Java Province. After questionnaires were distributed, arrangements were made to receive replies until the completion of data collection. After receiving replies, 83 ICU nutritionists were willing to complete an electronic questionnaire and return it to the researchers. The data obtained were processed and presented descriptively expressed in percentages; the analysis employed the Pareto principle (Alecu, 2010). The education level of ICU nutritionists is categorized according to PMK No. 26 of 2013 if 20% of ICU nutritionists have a Diploma III degree in Nutrition (TRDs).

RESULTS AND DISCUSSION

Results

The responses to the questionnaire originated from 31 urban districts in East Java, with a calculated response rate of 81.58 % from 38 urban districts. A total of 83 respondents came from 60 hospitals, eight from class A hospitals, 46 from class B hospitals, and 29 from class C hospitals. Most respondents (50.6%) were 25 to 40 years old, and 10 had a Diploma III degree or higher. Twenty respondents with a Diploma III educational background were dominated by women (89.2%). Moroever, 55.4% of responders were from class B hospitals, with 14 having a Diploma III degree. Regarding the length of service in the ICU, 55.4% had never attended courses/training/seminars relevant to nutrition services in the ICU, while 51.8% answered 1-5 years (Table 1).

Table 1. Characteristics of Respondents

Characteristics	D-III		D-IV		Bachelor		Profession		Total	
	n	%	n	%	n	%	n	%	n	%
Total	22	26.5	13	15.7	43	51.8	5	6.0	83	
Age										
< 25 years old	1	4.5	0	0	1	2.3	0	0	2	2.4
25-40 years old	10	45.5	8	61.5	22	51.2	2	40.0	42	50.6
41-56 years old	11	50.0	5	38.5	20	46.5	3	60.0	39	47.0

Sex										
Male	2	9.1	2	15.4	5	11.6	0	0	9	10.8
Female	20	90.9	11	84.6	38	88.4	5	100.0	74	89.2
Hospital Class										
Class A hospital	2	9.1	2	15.4	4	9.3	0	0	8	9.6
Class B hospital	14	63.6	7	53.8	22	51.2	3	60.0	46	55.4
Class C hospital	6	27.3	4	30.8	17	39.5	2	40.0	29	35.0
Years of Service in the ICU										
< 1 year	4	18.2	1	7.7	14	32.6	0	0	19	22.9
1-5 years	12	54.5	9	69.2	19	44.2	3	60.0	43	51.8
> 5 years	6	27.3	3	23.1	10	23.2	2	40.0	21	25.3
ICU-Related Informal Education										
Yes	11	50.0	5	38.5	19	44.2	2	40.0	37	44.6
No	11	50.0	8	61.5	24	55.8	3	60.0	46	55.4

Table 2 displays the survey results, exhibiting the distribution of ICU nutrition professionals at East Java hospitals. The classification of ICU services according to KMK No. 1778 of 2010 about Guidelines for the Implementation of ICU Services in Hospitals and PMK No. 26 of 2013 regarding the Implementation of Work and Practices for Nutrition Professionals informs the presentation of the data. The findings revealed that 67.5% of the ICU nutritionists were Registered Nutritionists (RNs). Furthermore, 26.5% of ICU nutrition services have been provided by Technical Registered Dietitians (TRDs). According to the categorization of ICU services, there were two TRDs in the tertiary ICU, 24 in the secondary ICU, and six in the primary ICU.

Table 2. Distribution of Nutritionist Qualifications by Classification of ICU Services

Classification of ICU/Type of Nutritionists	TRD		RN		RD		Total	
	n	%	n	%	n	%	n	%
Tertiary ICU	2	25.0	6	75.0	0	0	8	9.6
Secondary ICU	24	29.8	30	63.8	3	6.4	47	56.5
Primary ICU	6	21.4	20	71.4	2	7.1	28	33.7
Total	22	26.5	56	67.5	5	6.0	83	

Source: Primary Data

Description

TRD : *Technical Registered Dietitian*

RN : *Registered Nutritionist*

RD : *Registered Dietitian*

Discussion

It is known that more than 20% of TRDs work and provide nutrition services in the ICU, suggesting that there are still hospitals in East Java that have not fulfilled the requirements of PMK No. 26 of 2013 on the Implementation of Work and Practices for Nutrition Professionals. Article 18 stipulates that TRDs lack the authorization to provide dietary assistance to critically ill patients (Kemenkes, 2013). In addition, 50% of TRDs had never participated in informal education relevant to nutrition services in the ICU. TRDs' authority is limited to nutrition services for healthy individuals under specific situations, including pregnancy, breastfeeding mothers, children, adults, and the elderly (Kemenkes, 2013). Based on their education, TRDs are those who have completed the Diploma III Nutrition course outlined in Article 3 of PMK No. 26 of 2013 and hold an Associate Degree in Nutritionist (Kemenkes, 2013). The program consists of the national curriculum for nutrition education and the institution's curriculum and comprises 111 credits across six semesters (Kemenkes, 2007).

According to KMK No. HK.0107/Menkes/342/2020, these Diploma III Nutrition, Diploma IV Nutrition, Bachelor of Nutrition, Master of Nutrition, and Doctor of Nutrition graduates are members of the nutritionist family (Kemenkes, 2020). The Nutritionist Competency Standard specifies that a nutritionist's clinical skills include planning and delivering nutritional treatments of enteral feeding for cases in the ICU (Kemenkes, 2020). It contradicts the assertion in Article 18 PMK No. 26 of 2013 that Registered Dietitians (RDs) have the authority to provide nutrition services to critically ill patients. Article 7 PMK No. 26 of 2013 provides that if there is no RD at a health care facility, TRDs and RNs can also provide nutrition services alone or in collaboration with other health workers (Kemenkes, 2013). However, it must be assured that TRDs who give nutrition services in the ICU are competent in enteral feeding (Sirgo Rodrguez et al., 2014). Health services provided by incompetent staff will unquestionably compromise patient safety. It is thought that a lack of employee expertise, education, and training relating to their employment is the cause (Rajamani et al., 2011). Education will satisfy the competency requirements for enteral and parenteral nutrition interventions for nutrition professionals in the ICU (Gonya & Baram, 2015).

Regarding patient safety, although it has not been given much attention, nutritional therapy has been demonstrated to influence patient safety (Muhani et al., 2019; Nieuwoudt, 2014). Patient safety incidents related to feeding occur due to errors in the provision of enteral and parenteral feeding formulas (Nieuwoudt, 2014). Nutritionists who work in the ICU are required to have the competence to provide enteral and parenteral nutrition; these personnel must also have the authority to apply this knowledge (Gonya & Baram, 2015; Kemenkes, 2013). Based on their education, NRs have enteral feeding competence, while RDs, in addition to providing enteral feeding, are also assigned to parenteral nutrition therapy (AIPGI & PERSAGI, 2016; Kemenkes, 2020). The competence of enteral and parenteral nutrition therapy is not owned by TRDs (PERSAGI et al., 2018); even though they belong to the nutritionist group, their educational output does not cover these competencies.

Nutrition services in the tertiary, secondary and primary ICU are the same, but that does not mean the nutritional problems they face are the same. The higher the classification of ICU services, the more complicated and complex the patient cases are handled. Therefore, interprofessional collaboration services are crucial in ICU services (Goldman et al., 2018). Due to educational gaps, interdisciplinary communication in the collaborative work format can cause problems for all nutrition professionals, including TRDs. Adequate education can affect appearance when interacting with other health professionals (Asher et al., 2021). Some potential problems that may occur in the nutrition profession in the ICU include lack of cooperation with ICU team members, loss of professional freedom and independence, less active following the latest science and technology developments, lack of confidence, and lack of awareness of the scope of work of the nutrition profession (Ministry of Health, 2020). These potential problems were also experienced by nutritionists in Canada, where most nutritionists had a negative view of interprofessional interactions and felt that nutritionists were underutilized (Asher et al., 2021). The ability to communicate can increase the confidence of nutritionists if it is supported by sufficient knowledge (Silvia et al., 2016). Understanding roles, interpersonal skills, and professional perspectives when collaboration is highly required for the success of nutrition services in the ICU (Rich et al., 2021).

Several solutions can be offered to address the gap in the work implementation and practice of nutrition professionals in the ICU, including planning for nutritional needs according to the type of nutritional services expected at the institution (Aisyah & Aprianti, 2018). Planning for personnel in the nutrition sector is essential because one of the problems with inadequate

nutrition services is the availability of sufficient nutritional personnel (Pan & Wang, 2021). The needs for nutrition professionals of each hospital are certainly different; through careful planning, the recruited nutritionists are at least close to the expected qualifications and number. Hospitals with a limited number of nutrition professionals should prioritize service under their vision and mission. Suppose the shortage of personnel is related to appropriate staff education. In that case, cooperation efforts with RDs outside the hospital can be taken to provide guidance and supervision to TRDs, for example, by helping to make work guides in the ICU, standard operational procedures (SOPs), and supervising periodically (Worsfold et al., 2015).

Although communication between caregivers can be studied from two channels: education and training, the educational path provides evidence of higher communication skills than training (Yamanaka et al., 2017). Ideally, TRDs are allowed to improve their formal education, but it is not something easy for hospital institutions and requires careful planning. Another way to be taken is to involve TRDs in nutrition training concerning nutrition services in the ICU, considering that some have worked for 1-5 years and some have never attended such training. Accredited training accompanied by internships under the guidance of preceptors who have competence and skills in nutrition services in the ICU is an opportunity for educational institutions to collaborate with hospital institutions and professional organizations (Hutchins et al., 2021).

Identifying discrepancies in the level of education and competence of TRDs can be conducted through routine credentialing by hospital management. Credentials are one of the hospital accreditation materials to ensure that health workers who provide services meet competency and educational qualifications according to the hospital's vision and mission (Amalia et al., 2018). Efforts to maintain the competence and professionalism of nutrition professionals are carried out through continuous education and training, where this activity is the responsibility of the hospital institution. Through credentialing and re-credentialing, TRDs can determine their limited authority in the agency they work for by taking into account aspects of patient safety, service quality, and the vision and mission of the hospital (Amalia et al., 2018). Likewise, the provision of recommendations as a credential/re-credential result is expected to be performed by considering the nutritional and hospital management sides to meet expectations.

Monitoring and evaluating the suitability of education and competence of nutritionists in the ICU is critical that hospitals must always perform. Hence, high-risk services in their hospitals are safe and of good quality. Staff education and training not in line with expectations is the responsibility of the hospitals. However, the provision of education and training must be supported by the availability of education and training programs from educational institutions and professional organizations. Hospitals can carry out education and training inside or send their staff outside. In the end, the increase in education and knowledge of nutrition professionals in the ICU must always be improved, monitored and evaluated. The role of educational institutions and professional organizations is equally essential as providers of continuing education and training for nutritionists in hospitals.

CONCLUSION AND RECOMMENDATION
Regarding the authority of dietary services for critically ill patients, nutrition services in the ICU of hospitals in East Java violated PMK No. 26 of 2013 Article 18. Services were still carried out by technical registered dietitians (TRDs).

This study is restricted by its research method, sample representation, and geographical scope. In order to determine the makeup of ICU nutritionists in Indonesia, it is crucial to perform more studies with improved methods across a larger geographical region

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The Effect Of The "Indiscriminate Snacks" Emo Demo Method On The Level Of Knowledge, Attitude, Vegetable And Fruit Consumption Behavior of 5th Graders SDN 74 GRESIK

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ABSTRACT

Background, Riskesdas data in 2018 shows that in Indonesia in the age group > 5 years the number of less consumption of vegetables and fruit reaches 95.5% and in East Java it reaches 95.3% which is quite high. Nutrition education is needed to increase knowledge. **Objective,** To determine the effect of the emodemo method on indiscriminate snacks on the level of knowledge, attitudes, and behavior of consuming vegetables and fruit in 5th grade students of SDN 74 Gresik. **Subjects and methods,** This type of research is pre-Experimental Design with one group Pre- test and Post-test Design . The research was conducted at SDN 74 Gresik with a total sample of 32 respondents who were taken by total sampling. The method of collecting data was by filling out pre-test and post-test questionnaires. The statistical test used the Wilcoxon signed rank test. **Research Results** , The results showed the average knowledge score increased by 12,5. The average attitude score increased by 10,31. The average consumption behavior of vegetables and fruit increased by 118,81 after being given the emo demo. The results of statistical tests on the three variables (knowledge, attitude, behavior) showed a p-value = 0,000. **Research Conclusions,** Showing that there is an effect of the "indiscriminate snack" emo demo method on the level of knowledge, attitudes, and fruit consumption behavior of 5th graders at SDN 74 Gresik, it is hoped that the emo demo method can be used as a reference for counseling on health promotion .

Keywords: *Emo Demo, Knowledge, Attitude, Vegetable and Fruit Consumption Behavior*

BACKGROUND

Vegetables and fruits are food groups that provide many health benefits. Consuming vegetables and fruit is a requirement in fulfilling balanced nutrition and is a part of the Healthy Living Community Movement (GERMAS). The recommendation to eat vegetables and fruits is not only intended for adults, but also for elementary school children because that period is a golden period for growth and development for children.

The results of a survey conducted by the World Health Organization (WHO) in 2005 showed that the Asian continent, especially the Southeast Asian region, namely Indonesia, Thailand, and Sri Lanka had the lowest consumption prevalence of vegetables and fruit. The proportion of daily consumption of vegetables and fruits for children between the ages of 5 years to 14 years in boys only consumes about 189 grams. While the proportion of daily fruit

and vegetable consumption in girls aged 5 to 14 years is only about 183 grams per day (WHO, 2005).

In Indonesia, based on the 2013 Basic Health Research (Riskesdas) in the age group above 5 years, the prevalence rate of consumption of vegetables and fruit shows very low at 93.5%. Meanwhile, the Basic Health Research (Riskesdas) in 2018 showed the prevalence of the proportion of consumption of vegetables and fruit in the age group above 5 years had increased by 2%, which was 95.5%. The 2018 Basic Health Research (Riskesdas) placed East Java Province at number 20 with a percentage of 95.3%. Based on the Riskesdas of East Java Province in 2018, the proportion of consumption of vegetables and fruit in the age group above 5 years in Gresik Regency is low, namely less than 5 servings per day with a prevalence of 93.4%.

Elementary Schoolchildren by definition World Health Organization (WHO) is a group of children aged 7 to 12 years. There are problems faced by elementary school children, namely the lack of consuming vegetables and fruit. Less consumption of vegetables and fruit in elementary school children can endanger health because it causes the body to experience a lack of vitamins, minerals, fiber, and other nutrients so that it can increase the risk of chronic or non-communicable diseases.(Wulansari & Chandra, 2019). According to the 2002 World Health Report, under-consumption of vegetables and fruits worldwide can cause about 19% of gastrointestinal cancers, 31% of ischemic heart risk, and 11% of strokes worldwide. Low consumption of vegetables and fruit is one of the 10 risk factors for death in the world (WHO, 2002).

WHO/FAO recommends that each individual consumes 400-600 grams of vegetables and fruit daily to prevent chronic diseases.The Guide to Balanced Nutrition (PGS) recommendseach individual consumes 2-3 servings of fruit or the equivalent of 150 grams of fruit and 3-5 servings of vegetables or the equivalent of 250 grams of vegetables per day (Ministry of Health, 2014). The low consumption of vegetables and fruit in the age group above 5 years is caused by several factors, one of which is a lack of knowledge about nutrition. Lack of knowledge about nutrition can lead to wrong attitudes and behavior in choosing food, especially children's behavior towards the consumption of vegetables and fruit. Children tend to consume snacks more often than fruit and vegetables. Therefore, to overcome these problems is to increase their understanding of the importance of consuming vegetables and fruits through education about nutrition as early as possible. One example of nutrition education is the provision of education.

One method of Nutrition Education that is suitable for use is Emotional Demonstration what is known as emo demo is a very participatory activity guide using educational aids that aims to convey simple messages in a simple way which fun, innovative and touch emotions.The message conveyed is real, easy to remember and easy to absorb, so that it can awake high interest and awareness in outreach activities so that the target is willing to try new behaviors. The results of research conducted by Ermawati, et al. (2020) shows that the use of emo demo media in nutrition education can more effectively increase behavior change on the target (Ermawati et al., 2020). Similarly, the results of research by Aziz et al. in the field of primary school education, shows that nutrition education using emo demo media can increase knowledge and practice, this is because children's memory is getting honed after participating in emo demos to make better behavior changes (Aziz et al., 2019).

Based on a preliminary study that the author did at SDN 74 Gresik using the method of distributing questionnaires to grade 5 students, it was found that from 32 students there were 16 students (50%) who did not like vegetables. Students who don't like vegetables think that vegetables have a bitter taste. In addition, the attitude of grade 5 students in consuming vegetables and fruit is quite low. This is because they prefer to eat snacks compared to consuming fruit. From the results of the pre-study, it was found that 27 students (84.37%) consumed snacks more often than consuming vegetables and fruit. From the results of a preliminary study on grade 5 students, it was found that from 32 students there were 23 students (68.75%) who had not received nutrition education about the importance of consuming vegetables and fruit.

Based on this description, the researcher is interested in conducting research on the effect of the "indiscriminate snack" emo demo method on the level of knowledge, attitudes, and behavior of fruit and vegetable consumption of 5th grade students of SDN 74 Gresik.

RESEARCH METHODS

This type of research is research pre Experimental Design with one pre-test post-test group. This is because in this research design there is no comparison (control) group, there is only a group that gets a trial or treatment (Notoatmodjo, 2012). This study aims to provide treatment to the sample, namely by providing nutrition education with the Emo Demo method. However, before the treatment, the first observation was conducted by conducting an initial interview using a pre-treatment questionnaire (pre-test). Then another observation was made after the intervention was given to test the changes that occurred by giving a questionnaire to the respondents (post-test).

The location that will be used as a place for this research is SDN 74 Gresik and the sample in this study is grade 5 students at SDN 74 Gresik as many as 32 students who are willing to become respondents and follow the research process until the end. The sampling technique used in this research is Total Sampling.

Researchers make observations or direct observations by observing and collecting data directly. Researchers collected data using a systematic questionnaire and direct interviews with respondents. Respondents filled out knowledge and attitude pretest questionnaires regarding consumption of vegetables and fruits. After filling out the pretest questionnaire, the researcher conducted direct interviews about the consumption behavior of vegetables and fruits using a qualitative FFQ form. After the pretest is done, counseling or nutrition education is given using the Emo Demo. After the counseling, the researcher gave a posttest questionnaire regarding the consumption of vegetables and fruits and the respondents filled it out. After filling out the posttest questionnaire, the researcher conducted a direct interview 1 week after the counseling regarding the consumption behavior of vegetables and fruit using a qualitative FFQ form.

The data that has ben collected is then recap, processed using a computer, and displayed in tabular form. The results of data processing are then combined analytically using non-parametric statistical analysis. To find the effect before and after using wilcoxon signed rank test. With the conclusion then if the p value<0.05 then Ha is accepted, meaning that ther is an influence on the level of knowledge, attitudes, and behavior of consumption of vegetables and fruit in grade 5 SDN 74 Gresik.

RESULTS AND DISCUSSION

The results of this study include the characteristics of respondents according to the age of the respondents, the gender of the respondents, the level of knowledge of the respondents, the level of the attitudes of the respondents, the level of the behavior of the respondents, the average score of knowledge, the average score of the attitudes, and the average score of the consumption behavior of vegetables and fruits. The results of the study describe the effect of the "indiscriminate snack" emo demo method on the level of knowledge, attitudes, and behavior of consumption of vegetables and fruit in 5th grade students of SDN 74 Gresik.

Table 1. Age Frequency Distribution of Grade 5 Students at SDN 74 Gresik in 2022

Age	n	Percentage (%)
10	8	25%
11	24	75%
Total	32	100%

Source: Primary Data, 2022

Based on table 1, it can be seen that most of the respondents aged 11 years were 26 students with a percentage of 75%.

Table 2. Gender Frequency Distribution of Grade 5 Students at SDN 74 Gresik in 2022

Gender	n	Percentage (%)
Man	20	62.5%
Woman	12	37.5%
Total	32	100%

Source: Primary Data, 2022

Based on table 2, it can be seen that most of the respondents were male as many as 20 students with a percentage of 62.5%.

Table 3. Frequency Distribution of Knowledge About Consumption of Vegetables and Fruits of Grade 5 Students at SDN 74 Gresik in 2022

Knowledge	Before		After	
	n	%	n	%
Well	5	15.6	11	34.4
Enough	14	43.8	15	46.9
Not enough	13	40.6	6	18.8

	32	100%	32	100%
Total	32	100%	32	100%

Based on table 3, it can be seen that the respondents knowledge about the consumption of vegetables and fruit before being given "indiscriminate snack" emodemo who had good knowledge of 5 students (15.6%), sufficient knowledge of 14 students (43.8%), lack of knowledge 13 students (40 ,6%) and after being given the emo demo "indiscriminate snack" respondents who have good knowledge increased to 11 students (34.4), knowledgeable enough increased by 15 students (46.9%), and less knowledgeable 6 students (18.8%) .

Table 4 . Frequency Distribution of Attitudes About Consumption of Vegetables and Fruits of Grade 5 Students of SDN 74 Gresik in 2022

Attitude	Before		After	
	n	%	n	%
Well	1	3.1	4	15.6
Enough	17	53.1	19	59.4
Not enough	14	43.8	9	28.1
Total	32	100%	32	100%

Based on table 4, it can be seen that the attitude of the respondents about the consumption of vegetables and fruit before being given the "indiscriminate snack" emo demo had a good attitude of 1 student (3.1%), enough attitude 17 students (53.1%), less attitude 14 students (43.8%) and after being given an emo demo of "indiscriminate snack" respondents with good attitudes became 4 students (15.6%), 19 students had enough attitudes (19%) and 9 students lacked attitudes (28.1%).

Table 5. Frequency Distribution of Vegetable and Fruit Consumption Behavior of Grade 5 Students at SDN 74 Gresik in 2022

Behavior	Before		After	
	n	%	n	%
Enough	10	31.3	19	59.4
Not enough	22	68.8	13	40.6
Total	32	100%	32	100%

Based on table 5, it can be seen that the respondents with the behavior of consuming vegetables and fruit before giving the "indiscriminate snack" emo demo who had sufficient

consumption were 10 students (31.3%) and less consumption was 22 students (40.6%). After being given an emo demo, "indiscriminate snack" increased by 19 students (59.4%) and less consumption by 13 students (40.6%).

Table 6. The Effect of the Emodemo Method "Indiscriminate Snack" on Knowledge About Vegetable and Fruit Consumption of Grade 5 Students at   SDN 74 Gresik in 2022

Knowledge Score	n	Minimum	Maximum	Average	p- value
Before	32	35	90	62.66	0.000
After	32	50	95	75.16	

Source: Primary Data, 2022

Based on Table 6, the average knowledge pre-test score is 62.66 with a minimum score of 35 and a maximum score of 90. While the average knowledge post-test score is 75.18 with a minimum score of 50 and a maximum score of 95. From these results, it can be seen that there is an increase in the average knowledge after being given nutrition education through emo demo, which is 12.5.

Statistical test results using the Wilcoxon signed rank test namely p = 0.000 (p < 0.05) which means that there is an effect of the "indiscriminate snack" emo demo method on the level of knowledge about vegetable and fruit consumption of 5th grade students of SDN 74 Gresik.

Table 7. The Effect of the Emodemo Method "Indiscriminate Snack" on Attitudes About Consumption of Vegetables and Fruits in Grade 5 Students of   SDN 74 Gresik in 2022

Attitude Score	n	Minimum	Maximum	Average	p-value
Before	32	40	90	59.38	0.000
After	32	50	90	69.69	

Source: Primary Data, 2022

Based on Table 7, the average attitude pre-test score is 59.38 with a minimum score of 40 and a maximum score of 90. While the average attitude post-test score is 69.69 with a minimum score of 50 and a maximum score of 90. From these results, there is an increase in the average attitude after the "indiscriminate snack" emo demo, which is 10.31.

Statistical test results using the Wicoxon signed rank test namely p = 0.000 (p < 0.05) which means that there is an effect of the "indiscriminate snack" emo demo method on attitudes about vegetable and fruit consumption in 5th grade students of SDN 74 Gresik.

Table 8 . The Effect of the Emodemo Method "Indiscriminate Snack" on Vegetable and Fruit Consumption Behaviors in Grade 5 Students of SDN 74 Gresik in 2022

Behavior Score	n	Minimum	Maximum	Average	p-value
Before	32	103	665	290.13	0.000
After	32	109	775	408.94	

Source: Primary Data, 2022

Based on Table 8 the average behavioral pretest score is 293.13 with a minimum score of 103 and a maximum score of 665. While the average behavioral posttest score is 408.94 with a minimum score of 109 and a maximum score of 775. There is an increase in the average behavior after emo demo of "indiscriminate snack" that is equal to 118.81.

Statistical test results using the Wicoxon signed rank test namely p = 0.000 (p <0.05) which means that there is an effect of the "indiscriminate snack" emo demo method on the consumption behavior of vegetables and fruit in the 5th grade students of SDN 74 Gresik.

The Effect Of The "Indiscriminate Snacks" Emo Demo Method On The Level Of Knowledge, Attitude, Vegetable And Fruit Consumption Behavior Of 5th Graders SDN 74 GRESIK

The Emo Demo or Emotional demonstration nutrition education method is a method of using educational teaching aids that aims to convey a simple message in a fun, innovative and emotional way to promote behavioral change at the target. The message conveyed is real, easy to remember and absorb so that it can generate high interest and awareness in outreach activities so that the target is willing to try new behaviors .

Based on statistical tests carried out on the level of knowledge of grade 5 students at SDN 74 Gresik, it was found that the average knowledge about vegetable and fruit consumption showed an increase in knowledge scores before the emo demo was 62.66 and after being given the emo demo increased to 75.18. Based on the increase in the score, there is an effect of the "indiscriminate snack" emo demo method on the level of knowledge about vegetable and fruit consumption of 5th graders at SDN 74 Gresik (p = 0.000).

According to Budiman and Riyanto (2013), factors that influence student knowledge are education, experience and information received, age, environment, socio-cultural and economic support. One of the factors that can increase knowledge is the provision of nutrition education. The provision of Nutrition Education can influence the mindset and determine a person in receiving and understanding the information provided (Budiman et al., 2013). This theory is supported by research conducted by Agnesia (2019) which showed that participants knowledge increased after nutrition education was carried out. At the time of the pre test, the number of participants in the good category was 28% and increased to 38% after the Nutrition Education was carried out. This shows that the provision of nutrition education can increase the knowledge of respondents (Agnesia, 2019).

The results of this study are in line with research conducted by Aziz (2019) in the field of elementary school education, shows that nutrition education using the emo demo method can increase students' knowledge (p = 0.000). This is because after participating in the emo

demo, children's memory is getting honed to make better behavior changes (Aziz et al., 2019).

Increased knowledge and beliefs of schoolchildren have a major effect on their attitudes, including the response in responding to the nutrition education provided. Increased knowledge of respondents can form awareness of attitudes so that it affects individual consumption behavior which can be used as a basis for choosing healthy foods about a food.

Attitudes are influenced by positive or negative feelings as a person's response to an object, person, and environment resulting from the knowledge and experience that has been obtained. Based on research conducted by Pandutika (2014), it showed that attitudes towards counseling were 87.18% increased to 89.74% after receiving nutrition education. From this knowledge, it can be seen that the results of the knowledge gained affect awareness to cultivate a good attitude towards the consumption of vegetables and fruit (Pandutika, 2014).

In a study conducted in grade 5 at SDN 74 Gresik, there was an increase in attitudes that were categorized as good and sufficient because the increased knowledge affected their attitude in making decisions. Based on statistical tests conducted on the attitude level of 5th graders at SDN 74 Gresik, it was found that the average attitude score regarding the consumption of vegetables and fruit showed an increase in the score, namely before being given an emo demo of 59.38 and after being given an emo demo it increased by 10.31. Based on the increase in the score, there is an effect of the "indiscriminate snack" emo demo method on the level of attitudes about vegetable and fruit consumption of 5th grade students of SDN 74 Gresik ($p = 0.000$).

The results of this study are in line with research conducted by Grani (2018) which shows that the provision of nutrition education affects the attitudes of elementary school children towards the attitude of consuming vegetables with a value of $p = 0.000$ ($p < 0.05$), which means that there is a difference before and after receiving nutrition education (Grani, 2018).

The factors that change a person's attitude are personal experience, other people who are considered important, cultural influences, media, education and emotional factors. Therefore, in order to reach the stage of changing nutritional awareness attitudes and behavior and reducing existing nutritional problems, it is necessary to carry out nutritional interventions, namely by providing nutrition education. This is in line with the opinion of Azwar (2011), which states that educational media and emotional factors affect the formation of attitudes. Emotional factors obtained by respondents after attending nutrition education affect the attitudes of grade 5 students towards making decisions to consume vegetables and fruit (Azwar, 2011).

The intervention of the Emo Demo method "indiscriminate snack" showed an increase in knowledge so that it affected students' attitudes and awareness that consuming vegetables and fruit was very important. Awareness of the attitude in the form of intentions that are applied to the form of action or real behavior.

The factors that influence students consumption behavior are caused by 2 factors, namely internal factors and external factors (Notoatmojo, 2012). The most influencing factor in this research is the external factor, namely nutrition education. Nutrition education for elementary school children must be given in the right way and with appropriate media in order to make it easier for children to receive information about nutrition. Information

obtained after nutrition education using emo demos and teaching aids affects the level of knowledge and has an impact on students' attitudes towards behavior change in a more positive direction. Students who have good vegetable and fruit consumption behavior because they have good knowledge and attitudes and awareness of the importance of consuming vegetables and fruit. If the respondent has good knowledge and attitude, then the pattern of consumption behavior of vegetables and fruit will be sustainable or permanent. On the other hand, if the behavior is not based on good knowledge and attitude, then the awareness in implementing the consumption behavior of vegetables and fruit will not last long.

The increase in behavior after being given an emo demo is influenced by the knowledge that increases after participating in an emo demo. Based on statistical tests carried out, there was an average behavior of consuming vegetables and fruit in grade 5 students of SDN 74 Gresik showing an increase in the average score of behavior before and after the intervention was given by 118.81 with an average behavioral pretest score of 293.13 and behavioral posttest score of 408.94. Based on the increase in the score, there is an effect of the "indiscriminate snack" emo demo method on the level of fruit and vegetable consumption behavior of 5th graders at SDN 74 Gresik (p = 0.000).

From the results of the study, it was found that the emo demo method was effective in changing the behavior of 5th grade students at SDN 74 Gresik. This study is in line with the findings of research conducted by Dahlia (2017) which states that there is a significant difference in knowledge and practice after being given an intervention p-value = 0.000 with α = 0.05 meaning that health education with the emo demo method succeeded in increasing knowledge and practice. CTPS for MI Al Badri students (Dahlia, 2017). Another study by Desi, et al (2018) also showed that there was a difference in vegetable and fruit consumptionbefore and after being given nutrition education (p=0,000). There is a significant effect on the consumption of vegetables and fruit after being given nutrition education This shows that nutrition education can be the basis for changes in behavior (Desi et al., 2018).

In this study, although the behavioral score increased based on statistical tests, there were still students who had poor behavior after being given education through emo demo. Based on this, the researcher assumes that an attitude has not automatically manifested in the form of behavior. Someone who has good nutrition knowledge and attitude does not mean he wants to change his eating habits. They may understand the importance of eating vegetables and have the intention to eat them but have not been able to apply them in everyday life. The researcher assumes that this happens because there are other factors that influence the consumption behavior of vegetables and fruit in grade 5 students of SDN 74 Gresik such as the availability of vegetables and fruit at home, parental support, socioeconomic level, influence of friends, level of preference, and environment.

CONCLUSION AND RECOMMENDATION

Based on the results of research on the effect of the "indiscriminate snack" emo demo method on the level of knowledge, attitudes, and vegetable and fruit consumption behavior of 5th grade students of SDN 74 Gresik, it was concluded that there was an increase in the level of knowledge in the good category of 18.8% with an average score of 18.8%. the average knowledge increased by 12.5. The level of attitude in the good category is 12.5% with the average score of attitude increasing by 10.31. And the level of consumption behavior of

vegetables and fruit in the sufficient category is 28.1% with the average behavioral score increasing by 118.81 in 5th grade students of SDN 74 Gresik after being given an emo demo. Based on the increase in the score, there is an effect of the "indiscriminate snack" emo demo method on the level of knowledge, attitudes, and behavior of consumption of vegetables and fruit in 5th grade students of SDN 74 Gresik (p = 0.000). Therefore, it is hoped that the emo demo method can be used as a reference for counseling on health promotion.

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Description of The Posyandu Program Effectiveness and Nutritional Status During The Covid-19 Pandemic in Gading Village Surabaya

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ABSTRACT

The strategy of basic public health services with a focus on toddlers can be carried out in Posyandu activities. The effectiveness of the Posyandu programand monitoring nutritional status of children was obstructed during the Covid-9 pandemic, which led to a high number of nutritional problems for children.

The purpose is to identifying a description of the effectiveness posyandu program and the nutritional status of toddlers during the Covid-9 pandemic in Gading Village Surabaya.

This type of study is a descriptive research. The samples of this study were 9 posyandu cadres and 51 toddlers on two Posyandu. The result is 9 of 9 cadres stated that the implementation of the posyandu program during pandemic was effective. Nutritional status of toddlers based on weight/age and height/age, most of the toddlers in the weighing period from August 2021 to January 2022 had normal nutritional status. Nutritional status of toddlers based on weight/height, 17 (33,3%) toddlers had severe malnutrition in the period August 2021. Nutritional problems of toddlers in GadingVillage Area are quite high in the period August 2021. So, various innovations in posyandu program are needed and the community must fully participate.

Keywords: Nutritional Status of Toddlers, Posyandu, Covid-19, Antrhopometry

BACKGROUND

Maintenance and care for the welfare of toddlers is a strategy in an effort to fulfill basic services which include increasing the degree of health and good nutrition, a healthy and safe environment, psychosocial/emotional development, language skills and the development of cognitive abilities (thinking power and creativity) as well as the protection of children abandonment.

The strategy of basic public health services with a focus on toddlerscan be carried out by implementing Posyandu activities. (PPPA, 2018).[1]

Posyandu is a forum for communication, technology transfer and public health services that have strategic value for early human resource development (Priyoto et al, 2015). Posyandu is held every month at every village level, with various programs, including monitoring of Maternal and Child Health, Family Planning, Routine immunization, Measurement of weight and height of toddlers, Nutrition education and a supplementary feeding. (Apanga& Adam, 2015).[2]

As the Covid-19 pandemic has hit Indonesia for more than two years, people have to adapt to new habits in their daily lives. Daily activities cannot be carried out as in normal conditions, this also has an impact on the process of health services to the community, especially the implementation of the posyandu program. In the end, the posyandu program during the Covid-19 pandemic was carried out by cadres visiting each toddler's house to provide

additional food and measuring weight and height. According to Sutrisno, the effectiveness of the posyandu program during Covid-19 pandemic can also be seen through five indicators, including understanding of a program, right on target, on time and the achievement of goals and whether or not there are real changes that occur from the implementation of the program. Posyandu programs, especially in the context of monitoring the growth and development and nutritional status of toddlers, are experiencing difficulties, due to the Covid-19 pandemic (Lestari & Murti 2015).[3]

Based on the research of Riskesdas 2018, there are 17,7% of toddlers in Indonesia who are malnourished, and this number consist of 3,9% of toddlers with severe malnutrition and 13,8% are malnutrition. From the prevalence of nutritional status according to weight for age in 2018 at East Java, there were 3,3% severely underweight and 13,4% are underweight, according to height for age, there were 12,9% of toddlers are severly stunted and 19,9% are stunted. Based on the research of Riskesdas2018,there are 2,57% of toddlers in Surabaya experiencing severly wasted and 10,3% of toddlers are wasted, 10,68% of toddlers are indicated to be severly stunted and 15,82% are stunted. Based on the Health Profile of Surabaya 2019, in Gading Village area, the number of nutritional problems reached 8,5% of toddlers are severly wasted. [4]

These nutritional problems have increased in line with the Covid-19 pandemic that has dominated Indonesia for more than two years. UNICEF (United Nations InternationalChildren's Emergency Fund)said that the Covid-19 pandemic caused more than 7 milllion toddlers have nutritional problem. There is no proper program on overcoming nutritional problems in toddlers, it can cause a global increase of around 15% of toddlers experiencing wasting or acute malnutrition (Laporan Kinerja Kementerian Kesehatan 2021).[5]

Based on a preliminary study on two posyandu in the Gading village Surabaya, the posyandu program in each posyandu is still not running optimally and is unstable due to the Covid-19 pandemic. There are 30% of toddlers in PosyanduGading and 20% of toddlers in PosyanduMelati 1 experienced underweight nutrition problems during the weighing period in November 2021. The lack of effectiveness of the posyandu program during pandemic, which was in line with the increasing nutritional problems in toddlers, made researchers interested in conducting research on the description of the effectiveness implementation of the posyandu program and the nutritional status of toddlers during the Covid-19 pandemic.

The purpose of the research is to identifying a description of the effectivenessposyanduprogram andthe nutritional status of to ddlers during the Covid-19 pandemic inGading VillageSurabaya.

RESEARCH METHODS

The type of the research uses a descriptive type. This research was conducted at the Posyandu in Gading village area in January 2022. The population of the research were all toddlers aged 1-5 years at the Posyandu in the Gading Village area Surabaya. The sampling technique in this study was cluster random sampling, and a sample of 9 posyandu cadres and 51 toddlers in two Posyandu, namely PosyanduGading and Melati 1. The data collected were weighing data for toddlers from August to December 2021 and January 2022, The posyandu program effectiveness questionnaires and an informed consent form. Data analysis was performed univariately.

RESULTS AND DISCUSSION

The results of this study include the characteristics of respondents according to age of toddlers, gender of toddler, age of posyandu cadres, education of posyandu cadres, occupation of posyandu cadres, length of service as cadres, posyandu program effectiveness

and nutritional status of toddlers. The result of the study describes the posyandu program effectiveness and the nutritional status of toddlers during the Covid-19 pandemic.

Table 1. Frequency Distribution of Respondents Characteristics

Variable	Frequency	Percentage %
Age of Toddlers (Month)		
10-20	12	23,5
21-30	10	19,6
31-40	7	13,7
41-50	14	27,5
51-60	8	15,7
Gender of Toddlers		
Girl	25	49
Boy	26	51
Age of Posyandu Cadres (Years)		
30-45	5	55,6
46-60	4	44,4
Education of Posyandu Cadres		
Basis	4	44,4
Middle	5	55,6
Occupation of Posyandu Cadres		
Housewife	6	66,7
Merchant	1	11,1
Factory employee	2	22,2
Length of Service as Cadres (Years)		
1-10	3	33,3
11-20	5	55,6
21-30	1	11,1

Sources : Primary Data, 2022

Based on table 1, it is known that most of the toddlers are 41-50 months old, that is 14 toddlers (27.5%), the gender of toddlers is mostly male, that is 26 toddlers (51%), most of the posyandu cadres are 30-45 years old, that is 5 people (55.6%), most of the cadres education at the middle level were 5 people (55.6%), the majority of posyandu cadres were housewives as many as 6 people (66.7%) and most of the posyandu cadres became cadres during 11-20 years as many as 5 people (55.6%).

Program effectiveness is carried out to measure how far a program goal has been achieved. The program is said to be effective if it meets 5 indicators, including understanding of a program, right on target, on time and the achievement of goals and whether or not there are real changes that occur from the implementation of the program.

Table 2. Frequency Distribution of Posyandu Program Effectiveness

Program Effectiveness	Frequency (n)	Percentage (%)
Effective enough	1	11,1
Effective	8	88,9
Very Effective	0	0
Total	**9**	**100**

Sources : Primary Data, 2022

Based on table 2, it is known that 8 posyandu cadres (88,9%) thought that the posyandu program during the Covid-19 pandemic in the Gading Village area, Surabaya was said to be effective.

The implementation of the posyandu program in the Gading Village area is said to be effective because it has met 5 indicators of program effectiveness, that is :
First, understanding the program. Most of the cadres in the two posyandu in Gading village Surabaya have understood the programs in the posyandu, especially the implementation of the posyandu program in the Covid-19 pandemic situation. This is evidenced by filling out questionnaires on knowledge points about posyandu programs are good.
Second, right on target. According to the data obtained including data on the number of toddlers and the results of filling out questionnaires by cadres from two posyandu, in Gading Village Surabaya, it was found that the posyandu program was right on target, namely infants and toddlers, but cadres at PosyanduGading revealed that they experienced problems in data collection for toddlers because the community in the area there is less full participation and the minimum number of toddlers.
Third, on time. In a pandemic situation like this, the schedule for holding the Posyandu in the Gading Village Surabaya follows instructions from the Puskesmas, and from the data obtained, the Posyandu at two Posyandu in Gading Village Surabaya, during the Covid-19 pandemic, was held routinely according to a predetermined schedule, which is once a month with door-to-door activity process.
Fourth, the achievement of goals. From the results obtained in the research at two posyandu in Gading Village Surabaya, the posyandu program objectives have not been achieved and changes to the nutritional status of toddlers have not been maximized in this Covid-19 pandemic situation, because monitoring of toddler growth and development has not been fully controlled.
Fifth, there is a real change. Based on the results of a study conducted on 51 toddlers, the incidence of malnutrition decreased from August 2021 to January 2022. This was due to the fact that the supplementary feeding program at the two posyandu continued to run and was distributed to all toddlers in the area.
The effectiveness of the posyandu program in Covid-19 pandemic situation is a challenge for posyandu cadres. Posyandu cadres must continue to carry out monitoring of weight and height, the counseling process and the distribution of additional food to all toddlers in any way, so that toddlers can grow well and avoid all existing nutritional problems.

Table 3. Frequency Distribution of Toddler Nutritional Status Based on Weight of Age in January 2022

Category	Frequency (n)	Percentage (%)
Severly Underweight	3	5,9
Underweight	7	13,7
Normal	39	76,5
Possible risk of overweight	2	3,9
Total	**51**	**100**

Sources : Primary Data, 2022

Based on table 3, it is known that nutritional status of toddlers based on weight of age in Gading Village area Surabaya, most of the toddlers had normal nutritional status as many as

39 children (76,5%). This has increased since August 2021, there were only 28 toddlers (54,9%) who had normal nutritional status.

Table 4.Frequency Distribution of Toddler Nutritional Status Based on Height of Age in January 2022

Category	Frequency (n)	Percentage (%)
Severly stunted	4	7,8
Stunted	7	13,7
Normal	40	78,5
Tall	0	0
Total	**51**	**100**

Sources : Primary Data, 2022

Based on table 4, it is known that nutritional status of toddlers based on height of age in Gading Village area Surabaya. most of the toddlers had normal nutritional status as many as 40 children (78,5%). This has decreased since August 2021, there were 42 toddlers (82,3%) who had normal nutritional status.

Table 5.Frequency Distribution of Toddler Nutritional Status Based on Weight of Height in January 2022

Category	Frequency (n)	Percentage (%)
Severly wasted	1	2,0
Wasted	4	7,8
Normal	34	66,7
Possible risk of overweight	7	13,7
Overweight	1	2,0
Obese	4	7,8
Total	**51**	**100**

Sources : Primary Data, 2022

Based on table 5, it is known that nutritional status of toddlers based on weight of height in Gading Village area Surabaya. most of the toddlers had normal nutritional status as many as 34 children (66,7%). This has increased since August 2021, there were only 20 toddlers (39,2%) who had normal nutritional status.

The period of August is a very crucial month for the community. The existence of the PSBB and the high number of Covid-19 cases that month were in line with the high nutritional problems in toddlers. This statement is supported by the results of research conducted on toddlers in two posyandu in the Gading Village area of Surabaya. There are many factors that cause this, one of which is the uncontrolled weight and height of toddlers, due to delays in posyandu activities during the pandemic. As time goes by, the nutritional status of toddlers is increasing, because the provision of additional food is still ongoing with the door to door process.

The result are directly proportional to the research conducted by Efrizal, who stated that the COVID-19 pandemic that caused the Large-Scale Social Restrictions in Bangka Belitung had an impact on increasing the prevalence of stunting-risk children during the COVID-19 pandemic. The influence of children's nutritional status is due to PSBB affecting access to consumption and health services in Bangka Belitung.

CONCLUSION AND RECOMMENDATION

The implementation of the posyandu program during the Covid-19 pandemic in the Gading Village area, Surabaya, based on the perception of 88.9% posyandu cadres, was said to be effective. Meanwhile, the nutritional status of children under five in the Gading village, Surabaya based on weight of age 39 of 51 toddlers had normal nutritional status with a percentage of 76.5%, based on height of age 40 of 51 toddlers had normal nutritional status as many as 40 toddlers with a percentage of 78.5% and based on weight of height 34 out of 51 toddlers had normal nutritional status with a percentage of 66.7%.

As the Covid-19 pandemic goes on, the community must also adapt to all existing activities, so for posyandu cadres in the Gading Village area, Surabaya, it is hoped that they will continue to monitor the development of nutritional status and growth of toddlers by continuing to fill out KMS and providing PMT counseling as well as conducting socialization activities to increase mother's knowledge about the importance of posyandu activities for child growth and development. The community must also continue to support and participate in the process of implementing existing programs at the posyandu.

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THE 5th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA (ICOHPS)
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**Factors related incidence of stunting in children aged 0-60 months
in Bulo, Wori District, North Minahasa**
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ABSTRACT
Stunting is a picture of prolonged malnutrition during the most critical period of growth and development in early life. This can be interpreted as toddlers aged 0-59 months who have a height according to age below minus 2 standard deviations and minus 3 standard deviations from the median growth standard of toddlers. This study was to determine the factors associated with the incidence of stunting in children aged 0-60 months in Bulo Village, Wori District. This study used an observational analytic method with a cross sectional design. The sampling technique used was simple rundom sampling. The number of samples in this study were 26 samples which included: 13 case groups and 13 control groups. The data were processed and analyzed using the chi-square $p<0.05$ test in the SPSS program. The results showed that there was no significant relationship between maternal height, p-value 0.420 (CI 0.387-9.601), maternal education, p-value 0.431 (CI 0.937-2.185), exclusive breastfeeding, p-value 0.018 (CI 0.762-1.268), type sex p-value 0.695 (CI 1.850-1.234). The incidence of stunting in toddlers 0-60 months did not have a significant relationship with maternal height, mother's education, breastfeeding, birth weight, and gender. Keywords: Stunting, Maternal education level, Exclusive breastfeeding, Birth weight, Gender.

RESEARCH METHODS
Type of Research
This type of research is an analytical observational research with case control study design.
Location and Time
The research was conducted in Bulo Village, Wori District, North Minahasa. This research was conducted on June – Juli 2022
Population and Sample
Population
The population in this study were all children under five in the Bulo Village, Wori District, North Minahasa Regency, total sampling 46 children.
Sample
The sample in this study is children under five years old 0-60 months who meet inclusion and exclusion criteria.
1. Inclusion criteria
   a. All toddlers who were present during the research
   b. Toddlers who have KIA books
   c. Mothers of toddlers are willing to be respondents

2. Exclusion criteria

a. Not present during the research

b. Don't have KIA book

c. Parents of toddlers are not willing to be respondents

Research Variables

Dependent variable : the incidence of stunting Independent variables : mother's height, mother's education level, breastfeeding birth weight, gender

Research Places and Instruments

The tools and materials used in this research are: microtoise, scales, questionnaire

Data Collection Techniques

Primary Data

Collecting this data by conducting direct interviews by using a questionnaire given to mothers who have children under five. The primary data in this study is the provision of Breastfeeding to children and the level of education of mothers,

Secondary Data

This data collection was obtained from the child's MCH handbook, and journals that are relevant to the research topic. Secondary data in research These are the gender, birth weight and height of the mother, which are recorded in the the child's KIA book.

Place and Data Processing And Analysis

Data Analysis

The data analysis used in this research is Chi-square.

The data obtained will be tested with chi-square, if meet the requirements of chi-square test, that is, there is no expected value less than 5. If the chi-square test conditions are not met, then it can be The alternative test is the Fisher's Exact Test. Second the tested variables are said to have a significant relationship if with a 95% confidence level, the p-value is obtained less than 0.05.

RESULTS AND DISCUSSION

Description

Bulo Village is one of the villages in the Wori District, West Sumatra Regency North Minahasa, North Sulawesi Province with an area of ± 296. The population of Bulo Village comes from the Bajo tribe 75%, Sangir 24% and others 1% with a total of 845 people consisting of 423 men, 422 women people. Geographically, Bulo Village is in the position of 01˚35ʹ 29.19"U and 124˚ 50'16, 22"T with an altitude of 350 m above sea level. Topographical shape Bulo village is flat and hilly. Bulo Village is bordered by: North of the Sulawesi Sea and the village of Ponto, East of Ponto and Warisa Villages, South of Darunu Village, Northwest of Sulawesi.

Table 1. Frequency distribution of subjects based on mother's height

Mother's height	Stunting			Normal	
	n	%	n		%
≤ 150 cm	6	46.1	4		30.7
>150 cm	7	53.9	9		69.3
Amount	13	100	13		100

Results of the analysis of the relationship between maternal height and the incidence of stunting found that toddlers were stunted and had mothers with a high risk of height, which was 53.9%. Toddlers who are not stunted and have mothers with high risk are 69.3%. Statistical test results obtained p-value 0.420 means it can be concluded that there is no relationship between maternal height with Stunting Incidence. Stunting had a 1.929 times chance (95% CI 0.387–9.601) in infants born to mothers with a height of less than 150cm compared to infants born to mothers with a height of more than 150cm.

Results of the study contradicted the results of Miko's research (2017), it was found that the mother's height was significantly related to the incidence of stunting with a p value of 0.048 and the father's height obtained a p value of 0.023 which means it has a significant relationship with the incidence of stunting. (Andari, *et al*, 2020).

Table 1, it can be seen that the height of the mother of stunted children who are less than 150 cm is 7 people (53.9), while for normal children there are 9 people (69.3%) who have a mother's height > 150cm.

Table 2. Frequency Distribution by Mother's Education Level

Education Level	Stunting		Normal	
	n	%	n	%
Primary school	6	46.1	3	23.1
Junior high school	5	38.5	6	46.2
Senior High School	2	15.4	4	30.7
Amount	13	100	13	100

Table 2 above can be seen that the education level of mothers of stunting children with an elementary education level of 6 people (46.1%), junior high school as many as 5 people (38.5%) and high school as many as 2 people (15.4%). Meanwhile, the education level of mothers of normal children with elementary education level is 3 people (23.1 %), junior high school is 6 people (46.2%) and high school is 4 people (30.7%).

This research is in line with the research conducted by Cholifatun (2015). Who reported that there was no relationship between maternal education level and the incidence of stunting (p=0.581 and 0.605) (Ramdahni, *et al*, 2021).

Table 3. Distribution of Frequency Based on Exclusive Breastfeeding

Exclusive breastfeeding	Stunting		Normal	
	n	%	n	%
Exclusif	9	69.3	3	23.1
Non exclusif	4	30.7	10	76.9
Amount	13	100	13	100

Table 3 clearly shows that exclusive breastfeeding for stunting children is 4 (30.7%). While for normal children, 10 (76.9%) are exclusively breastfed.

Results of the analysis of the relationship between exclusive breastfeeding and the incidence of stunting showed that there were 9 children (69.2%) who experienced stunting and did not receive exclusive breastfeeding, while 3 people (23.1%). The statistical test results obtained a p-value of 0.018 which means that it can be concluded that there is no relationship between exclusive breastfeeding and the incidence of stunting. Stunting is 0.133 times (95% CI 0.762-1.268) in infants who are not exclusively breastfed compared to those who are exclusively breastfed.

This study challenges the research of Indrawati (2017) The relationship between exclusive breastfeeding and the incidence of stunting in toddlers 2-3 years. Where obtained -value = 0.000 with a significance level of 5%.

Table 4. Frequency Distribution by Birth Weight

Birth Weight	Stunting			Normal	
	n	%	n		%
≤2500g	1	7 6	0	0.0	
>2500g	1 2	92.4	13	100	
Amount	1 3	100	13	100	

Table 4 above can be explained that stunting children whose birth weight is >2500grams amounted to 12 people (92.4%).While in normal children there were 13 people (100%) whose birth weight was >2500grams.
The results of this study are similar to the results of Nasikhah's (2012) study, namely birth weight is not a risk factor for stunting with a P value of 1,000. (Winowatan, *et al*, 2017)

Results of Chi-Square Analysis on sample characteristics of Stunting Incidence in Toddlers in Bulo Village, Wori District, North Minahasa Regency. Statistical test results obtained p-value 0.431 means that it can be concluded that there is no relationship between maternal height and the incidence of stunting. Stunting had a 1.929 times chance (95% CI 0.387–9.601) in infants born to mothers with a height of less than 150cm compared to infants born to mothers with a height of more than 150cm. Statistical test results obtained p value of 0.431 means that it can be concluded that there is no relationship between maternal education level and the incidence of stunting. Stunting is 1,867 times (95% CI 0.937-2.185) in children under five born to mothers with a low level of education compared to infants born to mothers with a high level of education.
The statistical test results obtained a p-value of 0.018 which means that it can be concluded that there is no relationship between exclusive breastfeeding and the incidence of stunting. Stunting is 0.133 times (95% CI 10.762-1.268) in infants who are not exclusively breastfed compared to those who are exclusively breastfed.
Statistical test results obtained p-value 0.300 means that it can be concluded that there is no relationship between birth weight and the incidence of stunting. Stunting has a chance of 2,083 times (95% CI 1.385-3.133) in infants born with less birth weight than infants born with sufficient birth weight.

Statistical test results obtained p-value 0.695 means that it can be concluded that there is no relationship between gender and the incidence of stunting. Stunting has a 0.735 times (95% CI 1.850-1.234) probability in male toddlers compared to female toddlers.

The results of the analysis of the relationship between gender and the incidence of stunting found that there were 6 children under five who experienced stunting and male sex (46.1%). Toddlers who did not experience stunting and were male, as many as 7 people (53.8%). Statistical test results obtained p-value 0.695 means that it can be concluded that there is no relationship between gender and the incidence of stunting. Stunting has a chance of 0.735 times

CONCLUSION AND RECOMMENDATION

Conclusion
No significant relationship between the incidence of stunting in infants 0-60 months which has been proven from the results of the chi-square test between maternal height with p = 0.420, mother's education level with p value = 0.431, exclusive breastfeeding with p value = 0.018, Birth weight with p value = 0.300, Gender with p value = 0.695.

Recommendation
1. Health agencies and health workers are expected to improve routine monitoring of supplementary feeding and provide counseling on stunting.
2. Mothers are expected to increase awareness, especially on maternal and child health to prevent stunting.
3. Future researchers are expected to pay more attention to other, more complex variables that can affect stunting.

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The Correlation Between Student Satisfaction Level and Energy Intake in the Food Organization at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City

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ABSTRACT

Background: Satisfaction is a feeling of pleasure or disappointment that arises after comparing the product performance results obtained with the expected product performance results. The level of satisfaction with the provision of food is one of the factors that affect the level of satisfaction. Based on the results of the preliminary study, it is known that the food service at the Tahfidz Putri Darul Quran Islamic Boarding School has had a seven-day menu cycle but has not yet determined how long the menu cycle will be used. So that it can be one of the factors that affect the level of satisfaction and energy intake of respondents. **Objective:** This study aims to determine the relationship between the level of satisfaction and the level of energy intake of students at the Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City. **Method:** This research is included in an analytical observational study with a cross sectional design. The population of this study were all students with a large sample of 74 respondents. Data on satisfaction level was obtained from filling out questionnaires and data on energy intake was obtained from interviews using the 2x24 hour food recall method. The data was processed using the Spearman correlation statistical test. **Results:** From the results of the study, it is known that the satisfaction level variable is 63.5% in the satisfied category and 82.4% in the energy intake level is in the severe deficit category. There is no relationship between the level of satisfaction with the level of energy intake (p = 0.445) **Conclusion:** There is no relationship between the level of satisfaction with the level of energy intake of students.
Keywords: level of satisfaction, level of energy intake, food organization

BACKGROUND

The definition of food service is a series of activities from the menu planning process to food distribution. Provision of food is one form of the process of providing food. The food administration process includes recording, reporting, and evaluation activities. The principle of food administration is to provide food in accordance with nutritional needs that is served with high taste and fulfills hygiene and sanitation requirements" (Rotua, 2017) in (Sholichah&Syukur, 2020).

According to Kotler (2009: 150), satisfaction is a feeling of pleasure or disappointment that arises after comparing the performance (outcome) of the product thought to the expected performance (or outcome). Consumer satisfaction is not seen from taste and nutritional adequacy alone, but food organizers also pay attention to a variety of diverse menus supported by various food ingredients, food presentation to sanitation that is served in a hygienic and attractive way for students.

There are 11 Islamic boarding schools registered at the Mojokerto City Ministry of Religion in 2021 and one of them is the Tahfidz Putri Darul Quran Islamic Boarding School. Tahfidz Putri Darul Quran Islamic Boarding School or commonly called PPTP Darul Quran

is one of the private educational institutions in Mojokerto City. The food service at the Tahfidz Putri Darul Quran Islamic Boarding School in Mojokerto City has had a seven-day menu plan that has been used for two years. From the planning of the seven-day menu cycle, it can be seen that the organization of food at the Islamic boarding school tries to plan food variations so that the santri students do not get bored but have not determined how long the seven-day menu cycle will be used. Besides that, procurement to receipt of food ingredients obtained through suppliers does not yet have clear specifications so that it can affect the quality of the food served. The process of distributing food in the provision of food at the Tahfidz Putri Darul Quran Islamic Boarding School by providing rice and allowing students to take it as they wish, while the side dishes are distributed per class according to the number of members. So there is no clear division of portions according to the needs of students.

Based on the explanation of the problems above, the authors are interested in knowing how the relationship between the level of satisfaction and the level of energy intake of students in the food administration system at the Tahfidz Putri Darul Quran Islamic Boarding School in Mojokerto City is related. The process of distributing food in the provision of food at the Tahfidz Putri Darul Quran Islamic Boarding School by providing rice and allowing students to take it as they wish, while the side dishes are distributed per class according to the number of members. So there is no clear division of portions according to the needs of students.

RESEARCH METHODS

This type of research is included in the type of analytic observational research with cross sectional method. This study aims to determine the relationship between risk factors for the occurrence of a problem with causal factors or facts. This research was carried out in one period of time and variable observations were carried out in the same period of time.

This research was conducted from October 2021 to June 2022 at the Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City. The population of this study was all students with a total sample of 74 respondents obtained using random sampling method.

Data collection techniques carried out in this study used direct interviews to retrieve primary data in the form of respondents' characteristics, satisfaction levels using a questionnaire form of satisfaction levels and energy intake levels using the 2x24 hour food recall method. In addition, for secondary data obtained by direct observation at the research site. The required instruments are informed consent form, satisfaction level questionnaire form, food recall form 2x24 hours, food picture. The results of univariate analysis are presented in the form of percentages in the frequency distribution table and cross distribution table. The results of the bivariate analysis are intended to determine the relationship between two variables, namely the level of satisfaction with the level of energy intake. The correlation test used Spearman test with $\alpha = 0,05$.

RESULTS AND DISCUSSION

The results of the study include the age of the respondents, education level, satisfaction level, energy intake level, cross tabulation between satisfaction level and energy intake level, and the relationship between satisfaction level and energy intake level in students at Darul Quran Islamic Boarding School.

Respondent Age

Based on table 1. The frequency distribution based on the age of the respondents shows that most of the respondents are aged 13-15 years, namely 43 respondents with a percentage of 58.2%.

Table 1.Distribution of Age Frequency on Santri Students at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City in 2022

Age	Frequency	
	n	%
10-12	17	22.9
13-15	43	58.2
16-18	14	18.9
Total	**74**	100

Source: Primary data researchers in 2022

Respondent Education Level

Based on table 2. The frequency distribution based on the education level of the respondents shows that most of the respondents are at the junior high school (SMP) education level, namely 51 people with a percentage of 68.9%.

Table 2.Frequency Distribution of Education Levels for Santri Students at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City in 2022

Level of education	Frequency	
	n	%
Junior High School	51	68.9
Senior High School	23	31.1
Total	**74**	100

Source: Primary data researchers in 2022

Satisfaction Level

Based on table 3. The frequency distribution based on the level of satisfaction shows that most of the respondents chose the level of satisfaction in the satisfied category as many as 47 people with a percentage of 63.5%.

Table 3.Frequency Distribution of Satisfaction Levels for Santri Students at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City in 2022

Satisfaction Level	Frequency	
	n	%
Very Dissatisfied	0	0
Not satisfied	0	0
Quite satisfied	15	20.3
Satisfied	47	63.5
Very satisfied	12	16.2
Total	**74**	100

Source: Primary data researchers in 2022

Energy Intake Rate

Based on table 4. The frequency distribution based on the level of energy intake shows that most of the respondents have a level of energy intake in the category of severe deficit as many as 61 people with a percentage of 82.4%.

Table 4.Distribution of Age Frequency on Santri Students at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City in 2022

Energy Intake Rate	Frequency	
	n	%
More	0	0
Normal	4	5.4
Mild Deficit	3	4.1
Medium Deficit	6	8.1
Weight Deficit	61	82.4
Total	**74**	100

Source: Primary data researchers in 2022

Cross Tabulation of Satisfaction Level with Energy Intake Level

Based on table 5. Cross tabulation between the level of satisfaction with the level of energy intake shows that most of the respondents fall into the category of being satisfied with the category of energy intake level of severe deficit, which is 47 people with a percentage of 76.6%.

Table 5.Frequency Distribution of Satisfaction Levels for Santri Students at Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City in 2022

Satisfaction Level	Energy Intake Rate										p	R
	Normal		Mild Deficit		Medium Deficit		Weight Deficit		Total			
	n	%	n	%	n	%	n	%	n	%	0.445	0.090
Quite satisfied	0	0	0	0	0	0	15	100	15	100		
Satisfied	3	6.4	3	6.4	5	10.6	36	76.6	47	100		
Very satisfied	0	0	0	0	1	8.3	11	91.7	12	100		
Total	3	4.1	3	4.1	6	8.1	62	83.8	74	100		

Source: Primary data researchers in 2022

Based on the results of research on the level of student satisfaction related to the provision of food at the TahfidzDarul Quran Islamic Boarding School, it was found that as many as 63.5% or as many as 47 respondents said they were satisfied with the provision of food in Islamic boarding schools.

From the results of a 2x24 hour recall conducted on santri students at the Tahfidz Putri Darul Quran Islamic Boarding School, it was found that 61 respondents with a percentage of 82.4% were in the severe deficit category. This can be influenced by several factors, one of which is that the side dishes served at the time of the recall are not in accordance with the tastes of the students, so that many students do not eat the food served. In addition, with a busy schedule, many students choose to sleep at rest rather than eat and there has never been an evaluation by Islamic boarding schools to improve the quality of the food service process. Most students fall into the category of teenagers so it is important to meet their energy needs in order to support their growth and development. Energy intake must be met to support body activities. Humans need energy to sustain life, support growth, and perform physical activity. Energy comes from carbohydrates, fats and proteins in food. The content of carbohydrates, fats and proteins in foodstuffs will determine the energy value (Almatsier, 2004).

From the correlation test of the level of satisfaction with the level of energy intake, the correlation coefficient value of 0.090 is obtained which falls into the very weak category. Based on the output above, the significance or Sig. (2-tailed) of 0.445. Due to the significance value > 0.05, there is no relationship between the level of satisfaction with the level of energy intake. This is in line with research conducted by Gina Sela, et al (2017) that there is no relationship between the level of food satisfaction and the level of energy consumption in BPSAA Pagaden Subang adolescents.

CONCLUSION AND RECOMMENDATION

Based on the results of research conducted on students at the Tahfidz Putri Darul Quran Islamic Boarding School, Mojokerto City, it is known that as many as 63.5% of respondents stated that they were satisfied with the food service there and most of the respondents' energy intake was in the heavy deficit category, which was 82.4 %. There is no relationship between the level of satisfaction with the level of energy intake. It is hoped that the Islamic boarding school can evaluate the provision of food on a regular basis to improve the quality and meet the nutritional needs of students.

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The Correlation Between Physical Activity And Obesity Status In Adolescent Class XI SMA Negeri 17 Surabaya

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ABSTRACT

Background. Obesity occurs due to excessive fat accumulation due to an imbalance between energy intake and energy expended over a long period. Based on a preliminary study conducted by researchers, it was found that 30% of class XI students at SMA Negeri 17 Surabaya were classified as obese and mostly did the moderate physical activity. **Research Objectives.** To analyze the correlation between physical activity and obesity status in class XI adolescents at SMA Negeri 17 Surabaya. **Methods.** This research is an observational study with a cross-sectional approach. The sampling technique used is simple random sampling with several respondents as many as 65 students. Data was collected from anthropometry, measurements including weight and height, and obtained from filling out the physical activity questionnaire (IPAQ). **Research Result.** It shows that most respondents have non-obese nutritional status (73.8%) and moderate physical activity (64.6%). The Spearman Rank statistical test result showed no significant correlation between physical activity and obesity status (p = 0.343). **Research Conclusion.** Given that most of the percentage of students doing a moderate activity and still in the category of obesity status, it is hoped that schools can monitor weight and height regularly and periodically through the School Health Business (UKS) program.

Keywords: Physical Activity, Obesity, Adolescents

BACKGROUND

Obesity among adolescents is a global problem whose percentage increases significantly every year. Obesity occurs due to excessive fat accumulation in the body because energy intake is not balanced with energy expended and occurs over a long period (World Health Organization, 2018)[1].

The based on 2018 Riskesdas data shows that the prevalence of obesity in adolescents aged 16-18 years is 13.5%. This is also accompanied by a lack of proportion of physical activity, which is 150 min/week with a prevalence of 33.5% (Riskesdas, 2018)[2]. From the data obtained through the health profile of the City of Surabaya in 2019, it is known that the

prevalence of obesity in Surabaya in the population aged 15 years who are female is higher at 29.3%, while for the male, the majority is 17.8% (Surabaya City Health Office, 2019)[3].

It is known that the cause of obesity is an imbalance of energy intake with energy expended. This imbalance is caused by increased intake of high-calorie foods, high-fat content, and decreased activity due to augmented sedentary lifestyles from various forms of work, changes in transportation modes, and increased urbanisation (WHO, 2018). During the Covid-19 pandemic, learning is carried out by implementing home learning activities that are carried out online. Policy changes with online learning certainly affect lifestyle changes in low physical activity (Mattioli et al., 2020)[4]. Low physical activity accompanied by excessive food consumption causes obesity (Rukmana et al., n.d.)[5].

Obesity status in adolescents will affect their health in the future, which increases the risk of degenerative diseases. Various factors that influence obesity are nutritional intake, lifestyle, and physical activity. The impact of obesity is a severe problem for adolescents, because it can continue into adulthood. Adolescents who are obese have a higher risk of suffering from severe health problems such as heart disease, diabetes, and stroke (Mokolensang and Manampiring, 2016)[6].

Based a preliminary study conducted by researchers on November 8, 2021, in class XI students at SMA Negeri 17 Surabaya, the percentage of obesity was 30% among 10 students. The results of anthropometric measurements on students who are obese and the results of filling out the physical activity questionnaire (IPAQ) show that they rarely do physical activity. Through this, researchers are interested in researching the correlation between physical activity and obesity status in class XI adolescents at SMA Negeri 17 Surabaya.

RESEARCH METHODS
The type of research conducted is analytic observational with a cross-sectional study design that aims to see the correlation between physical activity and the incidence of obesity. This research was conducted at SMAN 17 Surabaya, Rungkut District, Surabaya City, from November 2021 – June 2022. The number of samples in this study was 65 people selected by simple random sampling, namely students of SMAN 17 Surabaya who met the sample criteria, namely class XI students, were not in sick condition, and were willing to be the research sample. The data used is primary data consisting of student characteristics (age and gender), anthropometric data, and data on the level of physical activity. The data collection technique was carried out by filling out an informed consent form willing to participate in the study, then explained by the researcher regarding filling out the IPAQ (International Physical Activity Questionnaire)(World Health Organization, 2005) [7]. And then, taking anthropometric measurements by measuring body weight using a stepping scale with an accuracy of 0.1 kg and measuring height using a microtoise with an accuracy of 0.1 cm. Data processing is done by using a scoring technique. Then, the scoring results are analyzed, which aims to see the correlation between the problems discussed using the correlation test.

RESULTS AND DISCUSSION

The results of this study include the characteristics of respondents according to age and gender, level of physical activity, and obesity status in class XI adolescents of SMA Negeri 17 Surabaya. The results of the study explain the correlation between physical activity and obesity status in adolescents in class XI SMA Negeri 17 Surabaya.

Table 1. Frequency Distribution of Respondents Characteristic in Class XI Students of SMA Negeri 17 Surabaya in 2022

Respondent Characteristic	(n)	(%)
Age		
15 years	1	1,5
16 years	29	44,7
17 years	35	53,8
Gender		
Man	25	38,5
Woman	40	61,5

Source : Primary Data, 2022

Based on table 1, it is known that most of the distribution of respondents based on the age of 17 years is 35 people with a percentage of 53.8%. As for the frequency distribution of respondents based on gender, it is known that most of them are female as many as 40 people with a percentage of 61.5%.

Table 2. Distribution of Frequency of Physical Activity and Obesity Status in Class XI Students of SMA Negeri 17 Surabaya in 2022

Variable	(n)	(%)
Physical Activity		
Low	17	26,1
Moderate	42	64,6
High	6	9,3
Obesity Status		
Non Obesity	48	73,8
Obesity	17	26,2

Source : Primary Data, 2022

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Based on table 2, it is known that most of the distribution of respondents based on moderate physical activity is 42 people with a percentage of 64.6%. As for the frequency distribution of respondents based on obesity status with the highest frequency, namely non-obese status as many as 48 people with a percentage of 73.8%.

Table 3. Analysis of the Correlation Between Physical Activity Variables and Obesity Status in Class XI Students of SMA Negeri 17 Surabaya in 2022

| Physical Activity | Obesity Status | | Amount | p-value | r |
| | Non Obesity | Obesity | | | |
	%	%			
Low	16,7	33,3	100,0		
Moderate	17,1	54,3	100,0	0,774	0,034
High	19,4	41,9	100,0		

Based on table 3, it can be seen that the highest results were in the respondents who had moderate physical activity categories with obesity status as many as 12 people with a percentage of 18.8%. From the correlation test of physical activity with obesity status, it is found that the correlation coefficient is -0.119 (very weak). Based on the above output obtained significance or Sig. (2-tailed) of 0.343 > 0.05, which means more than the standard limit of significance so that H0 is accepted, there is no correlation between physical activity and obesity status in class XI adolescents at SMA Negeri 17 Surabaya.

The Correlation Between Physical Activity and Obesity Status In Adolescent Class XI SMA Negeri 17 Surabaya

Based on the results of the study in table 1, it is known that most of the respondents aged 17 years were 35 people (53.8%), and the characteristics of respondents based on age were at least 15 years old, namely 1 person (1.5%). Then in table 2, it is known that the characteristics of respondents based on gender are primarily female, as many as 40 people (61.5%), and male, as many as 25 people (38.5%). It is known that there are differences in nutritional needs between men and women. This is evidenced by the conditions between men and women distinguished in the 2019 Nutrition Adequacy Rate (Indonesian Ministry of Health, 2019)[8].

In this study, it showed that most of the class XI students of SMA Negeri 17 Surabaya did the moderate physical activity, as many as 42 people (64.6%), low as 17 people (26.1%), and heavy activity, six people (9.3%). According to WHO (2017), WHO recommends that children and adolescents aged 5-17 years moderate to vigorous physical activity with a minimum duration of 60 minutes. This theory result from research data that the students of class XI at SMA Negeri 17 Surabaya are primarily moderate in physical activity. Based on data from the IPAQ questionnaire that respondents have filled out, most moderate physical activity due to cycling and walking fast when going to school. Some take futsal and

basketball extracurricular activities, which are carried out at least once a week for 1-2 hours/day. This Study's results align with Soegih & Miramihardja's research (2019) that moderate to high physical activity will reduce the likelihood of obesity(Soegih and & Wiramihardja, 2019)[9].

The results of anthropometric measurements, show that 17 students in the category of obesity status are more significant in female students than male students. According to observations, this happens because women prefer snacking, often eat sweet foods, and rarely do sports compared to men. This is also in line with research (Sandjaja, 2005) which states that the high status of obesity in women is influenced by several factors, including frequent consumption of fatty foods, which are consumed more often than men, and rarely do physical activity and exercise (Sandjaja, S., & Sudikno, S., 2005)[10].

The results showed that 26.2%, equivalent to 17 students of 65 in the study's sample, had low levels of physical activity. Online learning during the Covid 19 pandemic, carried out for 3 – 4 hours daily, can affect students' low physical activity. Students generally do activities sitting, lying down, watching TV, and playing with a smartphone. It is known that only six students (9.3%) with a high level of activity tend to carry out sports activities in their daily lives, such as football, basketball, badminton, and long-distance running which the average time is 1-2 hours per day.

The results of this study are in line with research conducted by IDAI (2014), which states that the activities of sitting, lying down, watching television, and playing on a smartphone that is carried out repeatedly for a long time can lead to obesity (Indonesia, I. D. A., 2014)[11]. Another study by Wahyuni Hafid and Sunarti Hanapi (2019) also states a significant correlation between physical activity and obesity in adolescents in Gorontalo Regency in 2019. Adolescents who do low physical activity or do not do balanced physical activity and consume foods high in fat, will tend to be obese. Lack of physical activity will affect a person's body condition (Kurdanti et al., 2015)[12].

CONCLUSION AND RECOMMENDATION

Based on the results of research on the correlation between physical activity and obesity status in class XI students at SMA Negeri 17 Surabaya, it was concluded that the students who were the samples in this study were predominantly female with a percentage of 61.5% and the highest frequency in the age category was students with 17 years with a percentage of 53.8%. Then, as many as 262% of class XI students at SMA Negeri 17 Surabaya were obese based on BMI/U, while 73.8% of other students were in the non-obese category. Furthermore, the obesity nutritional status group of class XI students at SMA Negeri 17 Surabaya had a moderate level of physical activity with a percentage of 18.5% and an average IPAQ score of 1,082 METs. So that the results of the study show that there is no significant correlation between physical activity and obesity status in class XI adolescents at SMA Negeri 17 Surabaya in 2022.

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DIFFERENCES IN THE BABIES FREQUENCY AND DURATION OF BREASTFEEDING BASED ON THE PRACTICE OF MOTHERS CONSUMING TORBANGUN LEAVES (Coleus Amboinicus Lour) IN TOBA REGENCY

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ABSTRACT

Torbangun leaves (*coleus amboinicus lour*) are a traditional food Batak people in Indonesia containing lagtagogum substance usually given to breastfeeding mothers for one month after giving birth that can increase the breast milk volume. Data coverage in exclusive breastfeeding based on the Department of Health profile of Toba Regency in 2020 is still very far from the national and provincial targets of 24.3%. The purpose of this study was to determine the differences and babies' duration of breastfeeding based on the practice of mothers who consumed torbangun leaves and those who did not. This prospective cohort research method was carried out for two months in 226 babies aged 0-3 months, consisting of 112 babies from mothers who consumed *torbangun* leaves and 112 babies from mothers who did not. Subjects were selected by multistage random sampling. Data analysis was performed using the Chi-Square. The results of this study showed that the babies' frequency of breastfeeding whose mothers consumed *torbangun* leaves in months I, II and III was 5-17 times, while the babies' duration of breastfeeding whose mothers did not consume in months I, II, and III was 5-35 minutes. In conclusion, there was no significant difference in the frequency of breastfeeding and the duration of breastfeeding between babies from mothers who consumed *torbangun* leaves and babies from mothers who did not.

Keywords: Torbangun Leaves, Toba Regency, Breastfeeding

1. INTRODUCTION

Breastfeeding is the most optimal nutrition in infants that can contribute to low mortality and morbidity rates (Daou et al., 2020). Breast milk (ASI) is the best food for babies in the first 6 months of life to meet physical and psychological needs that are very in line with the digestive system, more hygienic and economically beneficial (Budiyanto, 2015).

Breast milk contains countless bioactive compounds such as immunoglobulins, oligosaccharides and other components that affect immunity, brain neurodevelopment, high amounts of germ killers so that exclusive breastfeeding can reduce the risk of death in infants (Bode et al., 2014).
The target of achieving exclusive breastfeeding in a number of regions in Indonesia is still low, this is due to disruptions or uneven milk production. The national target of exclusive

breastfeeding coverage set by the government is 50%. Data on exclusive breastfeeding coverage in North Sumatra province in 2018 of 47% is still below the national target (Riskesdas, 2018). Data on the scope of exclusive breastfeeding according to the profile of the Health Office (2020) of Toba Regency is still very far from the national and provincial targets of 24.3%.

Breast milk is the perfect food source for the growth and development of babies to increase, especially in terms of weight, of course, breastfeeding must be more optimal and the breastfeeding process is carried out through lactation activities (Santosa et al., 2019)

Many factors affect the lactation process, especially breastfeeding techniques, the frequency, duration and nutritional needs of breastfeeding mothers (Pertiwi et al., 2012). The frequency and duration of breastfeeding is also something that affects the increase in the baby's weight, the higher the frequency and duration of breastfeeding, the baby gets more optimal nutrition so that his weight increases (Sari et al., 2017). The frequency of feeding in babies should be about 10 to 12 times in one day (Almatsier et al., 2017). The duration of feeding in babies regularly for at least 15-25 minutes on one breast (Almatsier, 2011).

Breastfeeding with a long duration is associated with a low risk of infectious diseases and chronic diseases and higher intelligence in children compared to children who breastfeed with a shorter duration (Daou et al., 2020).

In the physiological state of breastfeeding, the nutritional needs of the mother increase due to the need to produce breast milk. Previous research has shown that torbangun leaves (coleus ambonicius lour) can increase quantity and quality Breast milk (Nasution et al., 2022). Various studies have shown that the leaves of the torbnagun contain lactagogum. The function of lactagogum itself is to increase the rate of secretion and volume of breast milk production (Syarief et al., 2014).

Until now, the tradition of consuming torbangun leaves of the Toba community in rural areas is still carried out, which is very strictly a hereditary tradition with the aim of breastfeeding immediately coming out and increasing breast milk production. However, with the development of the times that are increasingly developing, this tradition has been abandoned by the torbangun leaf consuming power by the Toba people, especially those who live in urban areas and there are no more torbangun leaf plants cultivated around the yard. This study aims to determine the differences in the frequency and duration of breastfeeding babies based on the practice of mothers consuming torbangun leaves (coleus amboinicus lour) in Toba Regency.

2. RESEARCH METHODS

Design, place and time

This study is an observational study with a prospective cohort design, using two groups, namely (1) babies from mothers who consume torbangun leaves; (2) babies from mothers who do not consume torbangun leaves. The study was conducted in 8 sub-districts of Toba Regency, North Sumatra Province from May to July 2022.

The number and method of taking subjects

The population in this study was all breastfeeding babies aged 0-3 months in 97 villages in the Toba Regency, North Sumatra Province. The number of samples in this study was calculated using the Openepi program, which is a web-based statistical analysis calculator for epidemiological, medical and biostatistic purposes (Sullivan et al, 2009). Based on the sample calculation below This, the number of samples was obtained in variables to infants whose mothers consumed torbangun leaves, namely 113 subjects and samples to babies whose mothers did not consume torbangun leaves, namely 113 subjects. The minimum total sample required was 226 subjects aged 0-3 months. Inclusion Criteria are: Subjects aged

0-3 months in good health, getting breast milk before the study is carried out, the subject's birth age is sufficient months, not BBLR, the baby does not have congenital abnormalities/defects that interfere with health, a native of Toba Regency, willing to be a study subject with the subject's mother signing informed consent. The exclusion criterion is to stop breastfeeding at the time of the study and suffer from severe illness until hospitalized at the time of the study.

Types and ways of collecting data

The data collected is primary data including the characteristics of respondents and research subjects. The frequency and duration of feeding babies using the 24-hour recall form. The practice of mothers consuming torbangun leaves (coleus amboinicus lour) using screening questionnaires. Secondary data obtained from the Toba Regency Health Office, namely demographics.

Research stages

The research stage begins the collection of secondary data and the identity of the subject. Researchers worked closely with local village midwives to obtain data on mothers and babies, as well as their addresses. Request the respondent's willingness to be the subject of the study by signing an informed consent. Furthermore, a data screening questionnaire was carried out on respondents to be able to group research subjects. Then the subjects of the study are selected based on the inclusion criteria. Anthropometric status data were obtained by conducting anthropometric measurements including BB and PB at the beginning and end of the study, then categorized based on the application of the WHO Anthro 2005 index. Data on the frequency of breastfeeding and duration of breastfeeding subjects were conducted using a 24-hour recall form at the beginning and end of the study. Continued to group data according to the categories carried out by conducting data analysis.

Data processing and analysis

Data processing is carried out with steps, namely cleaning (data selection), entry (entering data into the computer), coding (providing code to facilitate grouping), editing (correcting during the entry and coding process and completing data). Data analysis was performed by univariate and bivariate analysis of Chi-Square.

3. RESULTS AND DISCUSSION

Characteristics of the Research Subject

The study was conducted on 226 babies aged 0-3 months, consisting of 112 babies from mothers who consumed torbangun leaves and 112 babies from mothers who did not consume torbangun leaves.

Table 1 Characteristics of respondents

Characteristic	Babies of the mother consume torbangun leaves		Babies of mothers do not consume		P*
	n	%	n	%	
Gender					
Man	54	48,6	57	51,4	0,690ª
Woman	59	51,3	56	57,5	

Sum	113	50,0	113	50,0	
Maternal education					
Junior	8	61,5	5	38,5	0,173[a]
High school/equivalen	80	46,5	92	53,5	
PT	25	61,1	16	39,0	
Sum	113	50,0	113	50,0	
Paternal education					
No school	0	0,0	2	100,0	0,173[a]
Junior	9	45,0	11	55,0	
High school/equivalen	97	49,7	98	50,3	
PT	7	77,8	2	22,2	
Sum	113	50,0	113	50,0	
Mother's work					
Farm laborers	1	100,0	0	0,0	0,096[a]
Small businessman	7	77,8	2	22,2	
Farmer	26	49,1	27	50,9	
PNS/TNI/POLRI	3	100,0	0	0,0	
Private/honorary employees	19	38,8	30	61,2	
Housewives	57	51,4	54	48,6	
Sum	113	50,0	113	50,0	
Father's work					
Farm Laborers	3	60,0	2	40,0	0,094[a]
Handyman/driver	5	71,4	2	28,6	
Small businessman	9	69,2	4	30,8	
Farmer	54	46,2	63	53,8	
PNS/TNI/POLRI	0	0,0	5	100,0	
Private/honorary employees	42	53,2	37	46,8	
Sum	113	50,0	113	50,0	

*signifikan pada α ≤ 0,05; a: Chi Square

The gender of the subjects of the babies whose mothers consumed the most torbangun leaves were women, while from the babies that the mother did not consume were that there was no difference between women and men. Most of the subjects in both study groups had been given formula milk and did not get colostrum. There is no difference in father's education and maternal education between the two research groups, most of the parents' education is high school graduation. The work of father and mother is no different between the two research groups. Most fathers worked as farmers, and mothers mostly worked as farmers and housewives.

BIVARIATE TEST

Results of Frequency And Duration Of Breastfeeding
Infant intake in this study was assessed based on the frequency of breastfeeding and the duration of breastfeeding obtained from the results of interviews using a 2x24 hour recall form

Table 2 Differences in breastfeeding frequency and duration of breastfeeding at the beginning of the month of the study between the two groups

Variable	Babies of the mother consume torbangun leaves			Babies of mothers do not consume			P*
	Median	SB	Min-Maks	Median	SB	Min-Maks	
Frequency breastfeeding/day	11	2,45	5-16	11	2,21	6-16	0,60[a]
Duration Breastfeeding (minutes)	15	6,47	5-35	15	6,75	5-33	0,94[a]

* Significant on α=0,05; a: Mann-Whitney

Table 3 Differences in breastfeeding frequency and duration of breastfeeding in the second month of the study between the two groups

Variable	Babies of the mother consume torbangun leaves			Babies of mothers do not consume			P*
	Median	SB	Min-Maks	Median	SB	Min-Maks	
Frequency breastfeeding/day	12	2,3	5-16	12	2,12	6-16	0,86[a]
Duration Breastfeeding (minutes)	20	6,5	5-30	20	6,99	5-35	0,15[a]

*Significant on α=0,05; a:Mann-Whitney

Table 4 Differences in breastfeeding frequency and duration of breastfeeding in the third month of the study between the two groups

Variable	Babies of the mother consume torbangun leaves			Babies of mothers do not consume			P*
	Median	SB	Min-Maks	Median	SB	Min-Maks	

Frequency breastfeeding/day	12	2,2	6-17	12	2,0	6-16	0,88[a]
Duration breastfeeding(minutes)	20	7,66	5-35	25	7,73	5-35	0,14[a]

*Significant on α=0,05; a:Mann-Whitney

Discussion

There was no significant difference in the frequency of breastfeeding months I, II, III studies with the duration of breastfeeding months I, II, III studies between the two study groups. Signs that the baby gets enough breast milk can be seen from the frequency of feeding the baby about 10 to 12 times in one day (Almatsier et al, 2017) and the duration of breastfeeding regularly for at least 15 to 25 minutes on each breast (Almatsier, 2011).

Breastfeeding is the most optimal nutrition in infants that can contribute to low mortality rates and morbidity (Daou et al., 2020). Babies are recommended to be breastfed exclusively during the first six months of life and breastfeeding is continued accompanied by complementary foods (Mendoza et al., 2022). Most of the subjects on the study were not exclusively breastfed, as they had obtained formula milk. The frequency of breastfeeding in this study was found to be 6-17 times and the duration of breastfeeding was 5-35 minutes. The results of this study were lower than the results of briawan and Safitri's research, namely the average breastfeeding baby for 26.6±17.7 minutes and the average frequency of breastfeeding in a day was 12.3±1.4 times (Idindili et al., 2007)

CONCLUSIONS AND SUGGESTIONS
Conclusions
There was no significant difference in the frequency of breastfeeding and the duration of breastfeeding between babies from mothers who consumed torbangun leaves and babies from mothers who did not consume
Suggestions
It is necessary to conduct further research within a period of 6 months regarding differences in the status of frequency and duration of breastfeeding on the behavior of consuming torbangun leaves.

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SUBSTITUTION OF RED SPINACH FLOUR AND DRAGON FRUIT ON THE LEVEL OF FAVORITE CAKES

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ABSTRACT

One of the healthy substitutes for local ingredients for processing cake batter is red spinach flour and dragon fruit. Dragon fruit adds to the nutritional value of the product because it contains substances that increase the immune system, while red spinach flour (Amaranthus tricolor) is a nutritious food ingredient that contains Vitamins A, C, and Folic acid. The purpose of this study was to determine the level of preference for talam cake modified with red spinach flour and dragon fruit. This type of research is a quasi-experimental using 3 completely randomized designs (CRD) with formulation 1 (F1) 5 g red spinach flour, 60 g dragon fruit and formulation 2 (F2) 3 g red spinach flour, 40 g dragon fruit, while formulation 3 (F2) F3) 2 g of red spinach flour and 30 g of dragon fruit. Types of panelists are moderately trained and trained panelists. The results of the test of the level of consumer liking for the color of talam cakes, most of them chose the category very like the formulation 2 (F2) with the highest percentage of 65.0%. For the aroma, most of them choose the category they like very much, namely in formulation 2 (F2) 75.0%. For texture, most of them chose the category like formulation 3 (F3) 65.0%. For the taste, most of them chose the very like category, namely in formulation 2 (F2) which was 75.0%, the aroma for formulation 3 (F3) had a liking category of 40.0%, because the aroma of dragon fruit was more dominant than the aroma of red spinach flour. It is recommended for further research to implement this research product for those with nutritional problems, especially low blood pressure.
Keywords: level of preference, modification of talam cake, red spinach flour, dragon fruit

BACKGROUND

In 2016 compared to neighboring countries, Indonesia had the highest anemia problem (42%). The percentage of anemia in women is 27% higher than men (20.3%). Anemia in adolescent girls alone reaches 32%.

Based on Riskesdas data in 2013 in North Sulawesi Province alone the prevalence of anemia was low compared to several other provinces, 8.7% in women, 5.0% in men, and 2.5% in children.

Spinach is a high-fiber vegetable with a content of 2.8 grams per 100 grams of ingredients. In 100 grams of red spinach, there are calories, carbohydrates, protein, fat, vitamins (A, B1, E, C, and folate), and minerals (calcium, phosphorus, and iron).

The benefits of dragon fruit for health keep the skin firm and elastic, reduce the risk of cancer, improve heart health, control blood sugar levels, boost the immune system, relieve coughs and colds, lose weight, the benefits of dragon fruit for digestion, maintain bone health, and fight arthritis.

Talam cake is a traditional Betawi cake and is estimated to be more than 500 years old. This cake is influenced by Chinese and Dutch cuisine who inhabited the Batavia area (now called Jakarta).

Based on Riskesdas data in 2013 in North Sulawesi Province alone the prevalence of anemia was low compared to several other provinces, 8.7% in women, 5.0% in men, and 2.5% in children. This is influenced by the habit of nutritional intake that is not optimal and lack of physical activity. Adolescent girls generally experience menstruation, have the characteristics of unhealthy eating habits. If this happens in the long term it will cause Hb levels to continue to decrease and cause anemia (Suryani, 2015).

Spinach is a high-fiber vegetable with a content of 2.8 grams per 100 grams of ingredients. The nutritional content of spinach is a nutrient-dense vegetable and is indispensable for the body. In 100 grams of red spinach, there are calories, carbohydrates, protein, fat, vitamins (A, B1, E, C, and folate), and minerals (calcium, phosphorus, and iron).

The iron content in spinach plants is relatively high compared to other vegetables, which is very useful for people with anemia (Rizki, 2013). Red spinach contains anthocyanin pigments with a total dissolved solid of 5.8 Brix anthocyanin content of 18.94 mg/ml (saati, 2014). The benefits of spinach leaves are usually used as vegetables that can be processed into various types of food, including clear vegetables, lodeh vegetables, pecel, spinach and lalap (Supriati, 2014).

According to Dalimartha, Adrian (2013), from the results of examination of hemoglobin levels after 1 week and 2 weeks of treatment, it was proven that the consumption of red spinach juice had an effect on increasing hemoglobin levels. According to Setiyani (2012), it was found that red spinach is useful for treating anemia. In addition, there are other benefits, namely increasing the work of the kidneys, cleaning the blood after childbirth, dysentery and strengthening hair roots.

Dragon fruit is consumed in the form of fresh fruit, because the water content of this fruit is very high, so it can quench thirst (Winarsih, 2007). The nutritional content of dragon fruit whose flowers are like clean white trumpets, consisting of a number of yellow stamens (Anon, 2008) is a fruit that is much favored by the public because it has efficacy and benefits as well as high nutritional value. Part of the dragon fruit 30-35% is the skin of the fruit but is often only disposed of as waste (Nazzarudin et al., 2011). The benefits of dragon fruit for health keep the skin firm and elastic, reduce the risk of cancer, improve heart health, control blood sugar levels, boost the immune system, relieve coughs and colds, lose weight, the benefits of dragon fruit for digestion, maintain bone health, and fight arthritis.

Talam cake is a traditional Betawi cake and is estimated to be more than 500 years old. This cake is influenced by Chinese and Dutch cuisine who inhabited the Batavia area (now called Jakarta). In addition to rice flour and sago flour, one of the main ingredients in making talam cake is coconut milk (Nurdin, 2012). However, the creation of talam cake processing is still small, so it is necessary to create creations in the processing of talam cake, one of which can be done by adding the basic ingredients of making talam cake with modified dragon fruit and red spinach flour to increase hemoglobin levels in the body in young women.

Nutrients obtained from snacks are used to add nutrients obtained from the main meal, so that the snacks eaten should be healthy and nutritious snacks. Therefore we need a snack product that is not only delicious, but also healthy and nutritious. One of the snacks is talam cake. The ingredients used in the process of making talam cakes consist of the main ingredients and additional ingredients.

RESEARCH METHODS

This type of research uses quantitative research with quasi-experimental methods with the level of consumer preference for cakes modified with red spinach flour and dragon fruit with one formulation (one text). The research location is in the Nutrition Food Administration Laboratory of the Manado Health Ministry of Health Polytechnic and this research was carried out in June 2022. The dependent variable in this study was the level of consumer preference and the independent variables were taro cake modified with dragon fruit and red spinach flour.

This research was conducted in 3 stages, namely: 1) Preparation Stage; Before carrying out the research, the research must coordinate with the campus, prepare a questionnaire to be filled out by the panelists. In making the cake tray, the preparation of materials and tools, especially those that are in direct contact with the ingredients/mixture, must be cleaned or sterilized, 2) The Modification Stage of Red Spinach Flour and Dragon Fruit in the Cake Tray. All materials that have been cleaned, then separate the parts that are not used and do according to the treatment.

To determine the level of consumer acceptance, organoleptic tests were carried out on color, aroma, texture, and taste. In this organoleptic test, 20 panelists were selected, namely students from the Department of Nutrition, Health Polytechnic, Ministry of Health, Manado, as many as 20 people. This preference test uses a hedonic score scale and in filling out the format, the panelists are asked to fill in according to a certain code on the level of consumer preference for the modification of red spinach and dragon fruit cereals on talam cake. The scoring scores were given as follows: Strongly like : 3, Like : 2, Dislike : 1. The data obtained from the organoleptic test were graded and arranged in tabular form and then presented in the form of a computer frequency distribution of the SPSS 16.0 program.

RESULTS AND DISCUSSION

Research conducted on talam cake with modified red spinach and dragon fruit flour aims to determine the organoleptic quality. The research was conducted to determine the effect of modified red spinach and dragon fruit flour on the level of consumer preference, and the best results from the 3 formulations. In this study, organoleptic tests were carried out which included color, aroma, texture, and taste. After conducting the research, the following results were obtained:

The results of the organoleptic test on the color of the cake tray with modifications of red spinach and dragon fruit flour obtained the level of consumer preference for each formulation, it was found that the level of consumer preference for the color of the cake in formulation 1 (F1) category likes which has the most, which is 40.0% , and in formulation 2 (F2) the very like category, which has the most that is 65.0%, while in formulation 3 (F3) the dislike category has the lowest 5.0%, because consumers prefer the color of formulation 1 (F1) and formulation 2(F2).

The results of the organoleptic test on the taste of talam cake with modified red spinach and dragon fruit flour obtained the level of preference for each formulation on the taste of talam cake in the 1st (F1) category of liking, which has the most, which is 45.0%, and in the 2nd formulation (F2) very like category, which has the most, which is 75.0%, while in formulation 3(F3) the dislike category is to have the lowest, which is 5.0%, because consumers prefer the taste of formulation 1(F1) and formulation 2(F2).).

The average value of the consumer's level of preference for red spinach and dragon fruit flour cakes in formulation 1 (F1) is 9.62, and formulation 2 (F2) is 11.5, while in formulation 3 (F3) is 9.35. The results showed that the color of the taro cake with modified red spinach and dragon fruit flour showed that the most preferred by consumers was

formulation 2 (F2) with a formulation of 40 g dragon fruit and 3 g red spinach flour. Color assessment is influenced by the sensitivity of the different senses of sight.

Color test involves more of the sense of sight and one of the indicators to determine whether a food is accepted or not. Color is a material property that is ascribed to the spread of the light spectrum. In addition, color is not a substance or object but a person's sensation due to the stimulation of a beam of radiant energy that falls into the eye's senses or retina of the eye.

Color preference is the first assessment that will determine consumer preferences for talam cake products (Kartika et al, 2017). Color can be used as an indicator of freshness or maturity in a food ingredient (Winarno, 2019). Color in food is very important because it affects the appearance so that it increases its attractiveness and gives panelists more information about the characteristics of the food (Libaedillah, 2018).

The results of the panelist's assessment of the three formulations showed that there were panelists who liked the color of the cake tray and some did not. The best color was obtained from talam cake with a modification of 40 grams of dragon fruit and 3 grams of red spinach flour. The results showed that the aroma of the taro cake with modified red spinach and dragon fruit flour showed that the most preferred by consumers was formulation 2 (F2) with a formulation of 40 g dragon fruit and 3 g red spinach flour. Aroma is an odor component caused by a product that is identified by the sense of smell (Mulyadi, 2014).

The aroma of food determines the delicacy of food and taste. Things that affect the taste of foodstuffs consist of three, namely smell, taste, and oral stimulation. The talam cake produced is a distinctive aroma of dragon fruit and red spinach flour, the aroma will be strong when the talam cake has been steamed in the pan. The results of the panelist's assessment of the two treatments showed that there were panelists who liked the aroma of talam cake and some didn't.

The best aroma was obtained from talam cake with a modification of 40 grams of dragon fruit and 3 grams of red spinach flour. The results showed that the texture of the taro cake with modified red spinach and dragon fruit flour showed that the most preferred by consumers was formulation 2 (F2) with a formulation of 40 g dragon fruit and 3 g red spinach flour. One of the quality parameters that plays a very important role in displaying the characteristics of the talam cake is texture.

Texture is a pressure sensation that can be observed by seeing and feeling when it is bitten, chewed, swallowed or touched with a finger (Aliyah, 2010). One way to determine the texture of a material is by using the preference drops method on the mouthfeel (mouth texture). From the texture, you can feel the sensation of chewy, hard, soft, soft, and sticky, smooth and gritty, and others. Overall, the taro cake with modified dragon fruit 40 grams and red spinach flour 3 grams was preferred by the panelists.

The texture of the tart cake with red spinach flour and dragon fruit was not chewy in formulation 3 (F3) with a modification of 30 g dragon fruit, 2 g red spinach flour. In this formulation, the resulting talam cake is not chewy because the dragon fruit has less effect on the texture of the talam cake and less coconut milk mix makes the talam cake not chewy. According to Ayudya (2012), the increasing number of dragon fruit in the manufacture of cakes, the texture of the cakes decreases or becomes less chewy.

The results showed that the taste of talam cake with modified red spinach and dragon fruit flour showed that the most preferred by consumers was formulation 2 (F2) with a formulation of 40 g dragon fruit and 3 g red spinach flour. Taste is an important sensory component because consumers tend to like food with a good taste (Mulyadi, 2014).

Taste is a biological perception like sensation produced by matter that enters the mouth. Taste is caused by water-soluble compounds and interacts with receptors on the tongue in the oral cavity. In general, taste is supported by aroma receptors in the nose and

receptors in the mouth. Taste is a chemical compound or mixture that can affect the senses of the body, for example the tongue as a taste bud.

Basically the tongue is only able to taste the types of taste, namely bitter, sour, salty, and sweet. In addition, taste can arouse the taste buds through the aroma it causes, more than just bitter, salty, sour, and sweet tastes. Through the process of giving aroma to a food product, the tongue can taste other flavors according to the aroma given (Tarwendah, 2017). Based on the results obtained, taste acceptance in F1, F2, F3 and the most chosen by consumers, namely F2 (11.5) in the category of very like, but not much different from F1, consumers choosing the category of liking very much, namely F1 (9.62), while formulation 3(F3) chose the dislike category, namely F3 (9.35)

Changes in the lifestyle of Indonesians have resulted in a drastic increase in functional food products, especially during the Covid-19 pandemic sweeping the world. Public awareness of health is the main reason for this change to occur. Functional food is food that contains bioactive components that are beneficial to health. Indonesia is a country that is rich in natural resources, and has the potential for local food ingredients that can be processed to meet community nutrition (Hariyadi, 2021).

Some of the superior local food ingredients that have the potential are dragon fruit and red spinach cereal, with the enormous potential of these local foodstuffs that can be developed into products that have more benefits, especially for health, namely functional food products. The use of local food in the development of functional food is intended to show superior local food produced and consumed by the local area so that it is in accordance with local wisdom and culture (Herlina and Nuraeni, 2014).

The COVID-19 pandemic has had a positive impact on the high demand for functional food products, because consumers already know and care about health and a healthy lifestyle, so it is estimated that in the future the demand for functional food sources and products will be greater and faster in Indonesia. (Hariyadi, 2006). Therefore, don't hesitate to take an active role in developing local ingredients around us by consuming these ingredients or turning them into high-value products as a form of food diversification, one example of which is the modification of red spinach cereal and dragon fruit on talam cake.

The red spinach flour dragon fruit cake has several advantages over the traditional cakes on the market, including: a. Has antioxidants that help the body ward off free radicals b. Expel cancer-causing toxic substances (anticarcinogenic) and fight microbial nuisance (anti-microbial). c. Avoid osteoporosis and premature aging. d. Healthy heart, as well as blood circulation, helps the digestive process and is very good for diabetics. e. Able to cure anemia which contains high enough folic acid.

CONCLUSIONS AND RECOMMENDATIONS

Research conducted on the level of consumer preference for cakes modified red spinach and dragon fruit flour can be concluded as follows: The level of consumer preference for the color of the modified taro cake with red spinach and dragon fruit flour in formulation 2 (F2) is preferred, for the aroma of modified taro cakes Red spinach and dragon fruit flour in formulation 2 (F2) was preferred, on the texture of the modified taro cake, red spinach and dragon fruit flour formulation 2 (F2) was preferred to formulation 1 (F1) and formulation 3(F3), namely F2 as much as 19 people, and the taste of the modified taro cake with red spinach and dragon fruit flour formulation 2 (F2) was preferred to formulation 1 (F1) and formulation 3 (F3), namely F2 as many as 19 people. The community is expected to be able to take advantage of food products with dragon fruit and red spinach flour combined with talam cake, which has nutritional value in the form of vitamin C obtained from dragon fruit, and iron obtained from red spinach flour.

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INCREASED FREQUENCY OF BREASTFEEDING AFTER INTERVENTION FOOD SNACKS SANGIHE LOCAL WISDOM

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ABSTRACT

Exclusive breastfeeding is the only sure food for babies for 6 months after birth without being given any other drinks or food. The problem is that breastfeeding mothers do not give exclusive breastfeeding because there is insufficient or insufficient breast milk. Luhu leaf is a local plant known by the Sangihe community as a plant that can increase breast milk products. This study aims to determine the effect of giving Luhu rolls and breast milk production to breastfeeding mothers in the Sangihe Islands Regency. This type of quantitative research with a quasi-experimental pre-post test design on 16 samples in the working area of the Puskesmas Salurang. The data were analyzed by statistical univariate test and paired t test with a significance value = 0.05. The average result of breastfeeding frequency before presenting the product was 6.99 and before giving an increase was 8.06. see also the volume of breast milk before and before presenting the product has a difference, namely 657.06 ml to 757.64 ml per day. In conclusion, there is a significant difference between before and before offering the luhu roll cake and breast milk production to breastfeeding mothers. Suggestion: Analysis of phytochemical content that can increase breast milk production alternative food supplements for breastfeeding mothers.

Keywords: roll cake, luhu, breast milk production

BACKGROUND

Breast milk is the only food or source of nutrition for babies from birth to 2 years of age. Based on government regulation number 33 of 2012 it is stated that for 6 months from the time the baby is born, only breast milk can be given, then after the baby is 6 months old, the mother can give complementary foods to breast milk while continuing to breastfeed the baby until the baby reaches 24 months of age (Kemenkes RI, 2013). 2014).

Early Breastfeeding Initiation or known as IMD is a short but very important moment for the baby's future. In 2013 the results of basic health research showed that the percentage of the process of starting breastfeeding in children aged 0-24 months less than one hour after birth in the province of North Sulawesi was 56.8%. Bolaang Mongondow Regency occupies the highest position with a percentage of 76.8%, while the lowest is in the Sangihe Islands Regency, which is 17.5%. Based on these data, it indicates that the lack of public attention in providing exclusive breastfeeding to infants will have a major impact on the survival of the baby, as a result, babies will be more prone to problems or disease and even the worst possibility is death (Balitbangkes, 2013).

In 2013, the Central Bureau of Statistics showed that the infant mortality rate in North Sulawesi province was 33 per 1000 live births, while according to the health profile of the Sangihe Islands Regency the figure experienced fluctuating symptoms, in the same year the

infant mortality rate reached 18 per 1000 live births. and continues to increase until it reaches 29 per 1000 live births in 2014. This figure is very unfortunate considering that the Sangihe Islands Regency has a variety of nutritious local foods that can help support the success of exclusive breastfeeding, one of which is the local food plant luhu leaf (Sangihe Health Office, 2015).

Luhu leaves was one of the local food plants of the katuk type, but until now there has been no clearer information about plants that have distribution areas or are often found in coastal areas such as Sangihe, Talaud and Sitaro. This plant, which has the Latin name Ormocarpum Cochinchinense, has long been known and consumed by the people of the Sangihe Islands Regency, apart from the fact that this type of vegetable is easy to find, the processing method is sufficient and it is often used as a vegetable specially made to be given or consumed by nursing mothers which is believed to increase breast milk production for mothers. breastfeeding (Layuk et al, 2016). Based on this, researchers are interested in knowing whether luhu leaves can increase breast milk production, with the aim of research to determine the effect of giving luhu leaves served in the form of rolls in an effort to increase breast milk production in breastfeeding mothers in Sangihe Islands Regency.

RESEARCH METHODS

This type of *quasi experiment non randomized one group pretest and posttest design*. The research was conducted for 2 months in Salurang villages , Tabukan Selatan Tengah Subdistrict. The population in this study were 31 breastfeeding mothers in the working area of the Channel Health Center. The sample in this study were 16 mothers. The sample size used was accidental sampling, namely the research sample was taken from respondents who happened to be in a certain place or situation.

The provision of modified cake rolls with the addition of luhu leaf flour to determine the difference in the frequency of breastfeeding before and after administration. Each respondent was given three snack products with a serving size of 3 cake rolls in one meal and given for seven days.

The research instrument uses an informed consent form which includes the respondent's age, education, occupation and age of the baby. Data collection is done by interview method. Prior to that, it was notified that the data to be collected would be kept confidential so that respondents did not hesitate to answer. The data collected is in the form of breastfeeding frequency so that the researcher gets the information orally. After obtaining data on the frequency of breastfeeding, then a data normality test was carried out where the test was to find out whether the data had a normal distribution and then look for the average frequency of breastfeeding before and after giving the luhu roll cake.

Then an analysis was carried out to determine the relationship or difference in breast milk production before and after giving the product through the paired samples t test.

RESULTS AND DISCUSSION

The results of the study obtained that the research sample data was 16 respondents with the characteristics found that the most respondents aged 20-30 years were 11 people, and at least 31-40 years old were 5 people, the most respondents were high school educated as many as 11 people, junior high school educated as many as 3 2 people and highly educated, most of the respondents work as housewives (IRT) as many as 14 people and only 2 respondents who work as ASN, all research samples have babies aged less than 6 months, most respondents have nutritional status 8 people overweight, normal nutritional status 4 people, obese nutritional status 2 people and respondents who have nutritional status underweight 2 people.

So that the results of the analysis of the intake of cake rolls in a day are:Every day each respondent gets 476.4 kcal of energy, the content of vitamin A can function as an antioxidant to prevent free radicals and viruses, high calcium can accelerate bones and teeth for babies and can prevent anemia for mothers and children. The large number of nutritional content in the product can guarantee the quality of the milk that comes out and can meet all the needs of the baby.

The frequency of breastfeeding for each respondent is different, after the research, the results of the frequency of breastfeeding before and after giving the product were obtained. There is a difference in the average frequency of breastfeeding, where the average frequency of breastfeeding before giving the product is 6.99 while the average frequency of breastfeeding after giving the product has increased to 8.06. The milk production is said to be normal or enough if the mother breastfeeds 8-12 times/day, the frequency of breastfeeding before giving the product is normal 8 times/day as many as 8 breastfeeding mothers, while the frequency of breastfeeding after giving the product increases, which is normal 8 times/day to 12 breastfeeding mothers.

Which means the product has an effect on the frequency of breastfeeding. The results of this study found that the significance value or Sig. (2-tailed) was $0.000 < 0.05$, so these results indicate that there is a significant or significant difference between before and after product administration.

The increasing frequency of breastfeeding is in line with the increase in breast milk production of nursing mothers. It is known that infants aged 0-6 months have a need for breast milk consumption of 750-850 ml / day with a frequency of breastfeeding 8-12 times / day or as much as 94 ml / once breastfeeding, so that the volume of breast milk produced before and after product administration is obtained. The total volume of breast milk produced before and after giving the product has a difference of 100 ml, this result shows that there is a difference in the volume of breast milk.

The results of the research that have been analyzed as a whole show that there are differences or the effect of giving roll cakes on the frequency of breastfeeding and milk production. Research conducted by Lis Nurrani et al on the active ingredient content of herbal plants shows that there are active ingredients in luhu leaves, the active ingredients are steroids and tannins, other studies say that the increase in breast milk secretion can be influenced by the presence of phytochemical compounds in the body, namely steroids and tannins. polyphenols that affect or increase the hormone prolactin so that it stimulates the alveoli cells in the breast glands that function in the secretion of breast milk, besides that polyphenols can affect the hormone oxytocin which then causes contractions between cells so that the alveoli will be empty and trigger for the next milk synthesis (Istiqomah et al., 2015)).

The steroid / triterpenoid compounds and polyphenols are components of the active ingredients found in plants and then processed into herbal ingredients or medicines. Polyphenol compounds are characterized by aromatic rings that carry more than one hydrogen ion, polyphenolic compounds are divided into two groups, namely flavonoids

(flavones, flavanols, flavanones, isoflavones, anthocyanidins and chalcones) and tannins (polymers of phenolic acids, catechins or isocatechins (Elly et al. 2019).

CONCLUSIONS AND RECOMMENDATIONS

From the results of research that has been carried out, it is known that the contribution of nutritional intake from Luhu Rolls cakes to nursing mothers per day is energy (476.4 cal), protein (6.3 g), fat (32.4 g), carbohydrates (44.7 g).), vitamin A (403.8 g), vitamin C (9.6 mg), calcium (174.9 mg), phosphorus (125.4 mg) and iron (3.9 mg). Changes occurred in the frequency of breastfeeding and milk production, the results of the analysis of the average frequency of breastfeeding before the product was given were 6.99 and after giving the product the average value increased to 8.06 per day. significance 0.000 <0.05 which means there is a significant difference.Mother's milk production has increased from 657.06 ml/day to 757.64 ml/day, indicating that there is an effect of giving luhu roll cake products on breast milk production. This research can be continued with Luhu innovation so that analysis of phytochemical content that can increase breast milk production alternative food supplements for breastfeeding mothers.

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Adequacy of Potassium Intake for Blood Pressure Control in the Daily Diet of Hypertensive Elderly by Consumption Combination of Vegetable and Fruit Juices.

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ABSTRACT
Elderly is an age group that is very susceptible to suffering hypertension. In addition to taking medication, blood pressure can be controlled by managing diet by maintaining a balance of daily potassium and sodium intake. Some fruits and vegetables that are known to contain high potassium include mustard greens, tomatoes and ambon bananas. This study aims to see the effectiveness of controlling blood pressure in hypertensive elderly with the addition of daily potassium intake in the form of a combination of vegetable and fruit juices. This research method is a quasi-experimental. The total sample in this study was 81 elderly people out of a 108 total population of with purposive sampling techniques.The intervention provided was to complement the standard diet for the elderly at the TresnaWerdha Budi Sejahtera Social Institution Banjarbaru by adding a combination of vegetable and fruit juices that contain high potassium. Each glass of combination juice is 200 ml with a composition consisting of 140 ml of vegetables & fruit (tomatoes, mustard greens and Ambon bananas), 50 ml of water, 5 ml of honey and 5 ml of lime juice as a fresh taste and aroma enhancer. The subjects blood pressure was measured twice a day, before and after the intervention with an interval of 6 hours. This blood pressure measurement was carried out for 3 days with a day's break in each treatment. Each subject was controlled with the same and measured food intake and continued to take anti-hypertensive drugs that had been prescribed from the social care clinic. Intake of sodium and potassium was calculated based on the average planning section of the social care provider with a menu cycle of 10 days Interpretation of treatment effect is known by looking at fluctuations in blood pressure measurement results before and after treatment. Measurement of blood pressure in the elderly was carried out using a digital sphygmomanometer brand Omron (clinically validated ESH control) produced in Japan with an accuracy value of 1 mmHg. For the analysis, the tests used are t-test dependent. This data analysis was performed using SPSS statistical software. The results showed that giving a glass of mixed fruit and vegetable juice in the daily diet of hypertensive elderly contributed an additional 518.5 mg of potassium intake with an average decrease in blood pressure before and after the intervention of 9.44 mmHg. Further analysis showed that there was a significant difference in mean systolic blood pressure before and after the intervention (p value <0.001).
Keywords: elderly; fruit juices, hypertension; vegetable

BACKGROUND
Hypertension is a cardiovascular disease that continues to increase every year and has a high prevalence. Epidemiologically, hypertension is estimated to be the cause of death around 7.1 million people in the world or about 13% of the total deaths (Nwankwo T et al, 2013). The results of the 2013 Basic Health Research showed that the prevalence of hypertension in

Indonesia based on the measurement results at the age of ≥ 18 years was 25.8%, the highest in Bangka Belitung (30.9%), followed by South Kalimantan (30.8%), East Kalimantan (29.6%) and West Java (29.4%) (Kementerian Kesehatan RI, 2013). Data from the South Kalimantan Provincial Health Office (2016) shows that as many as 51,022 people suffer from hypertension and in 2017 it increased to 154,343 people. This means that hypertension in South Kalimantan does need special attention (Dinas Kesehatan Prov. Kalsel, 2013). Based on data taken from the Head of the Social Institution TresnaWerdha Budi Sejahtera as for the number of elderly people in the orphanage 178 people. From the data of health clinics in Panti, hypertension always occupies the top 3 most diseases every month in the range of 2016 to April 2018. Control of blood pressure in patients with hypertension in addition to anti-hypertensive drugs and routinely controlling blood pressure, needs to be supported by proper dietary regulation. Eating regulation is important for people with hypertension by increasing sodium intake and consuming more food with a high content of potassium, calcium and magnesium, especially from vegetables and fruits (Kresnawan T., 2011). Treatment of hypertension is also combined with various complex diuretic drugs such as hydrochlorothiazide and Lasix. These drugs are a class of drugs that greatly stimulate the release of body fluids through urine (Sari RP., et al, 2017). Some types of fruits and vegetables are known to contain high potassium, calcium, and magnesium which are diuretic and play a role in maintaining acid-base balance, and help control heart muscle contraction and blood circulation (Almatsier S, 2010), as well as being high in fiber and water content. So that it can naturally be used to help control blood pressure of hypertension sufferers. Several epidemiological studies show that diet has an important role in regulating blood pressure. One form of diet that is known to help control blood pressure is potassium. Potassium intake has antihypertensive effects, prevents strokes, and improves cardiovascular outcomes. The underlying mechanism for these beneficial effects of high K+ diets may include vasodilation, enhanced urine flow, reduced renal renin release, and negative sodium (Na+) balance (Penton D., et al, 2015). Therefore, this study was conducted to see the amount of addition to daily potassium intake with additional consumption of mixed vegetable and fruit juices and their effectiveness in controlling hypertension in the elderly at the TresnaWerdha Budi Sejahtera Social Institution.

RESEARCH METHODS

This study is a Quasi Experiment in the form of a Time Series Design. The study population was all hypertensive elderly at PantiTresnaWerdha Budi Sejahtera as many as 108 elderly with a research sample of 81 elderly with purposive sampling techniques. Measurement of the daily intake of sodium and potassium on the diet of food is calculated based on the average daily menu intake provided from social home in the 10-day cycle. The content of sodium and potassium in the fruit vegetable combination juice formula is calculated manually using the Food Ingredients Composition List (DKBM). The intervention provided was to complement the standard diet for the elderly at the TresnaWerdha Budi Sejahtera Social Home Banjarbaru by adding a combination of vegetable and fruit juices that contain high potassium. In each intervention, 200 ml of juice is given as an interlude menu. Each glass of combination juice is 200 ml with a composition consisting of 140 ml of vegetables & fruit (tomatoes, mustard greens and Ambon bananas), 50 ml of water, 5 ml of honey and 5 ml of lime juice as a fresh taste and aroma enhancer. The subjects blood pressure was measured twice a day, before and after the intervention with an interval 6 hours. Each subject was controlled with the same and measured food intake and continued to take antihypertensive drugs that had been prescribed from the social care clinic. Interpretation of treatment effect is known by looking at fluctuations in blood pressure measurement results before and after treatment. Measurement of blood pressure in the elderly was carried out using a digital

sphygmomanometer brand Omron (clinically validated ESH control) with an accuracy value of 1 mmHg. For the analysis, the tests used are t-test dependent. This data analysis was performed using SPSS statistical software. This research has been approved by the board of ethical committee research on Sari Mulia University with decree number 060/KE-LPPM/UNISM/VII/2019.

RESULTS AND DISCUSSION

The elderly at the TresnaWerdha Budi Sejahtera Social Home receive food based on the calculation of the average energy and nutrient adequacy of the elderly using the 2013 RDA standard. The pattern of feeding is 3 main meals, 1 snack (interlude) and 1 fruit on afternoon. One time an interlude in the form of cakes or drinks in the form of milk or packaged green bean juice and one time giving cut fruit in the form of ripe papaya. The consumption of potassium and sodium of the elderly before the intervention was carried out by calculating the average daily intake based on the 10-day menu list provided by the social care institution. Then the intake after the intervention is added according to the results of the calculation of potassium content in a glass (200 ml) of vegetable and fruit combination juice (tomato, mustard, ambon banana).

Table 1. Daily Nutritional Value in Food Standards for the Elderly at TresnaWerdha Budi Sejahtera Social Home

Nutrients content	Nutrients Value		
	RDA	Before Intervention	After Intervention
Natrium	1200 mg	1276.3 mg	1254.2 mg
Potassium	4700 mg	1157.5 mg	1.676 mg

Table 1 shows that sodium consumption is greater than daily potassium consumption. Where potassium consumption is also still very less than the RDA. The results of the calculation of daily food standards shows that the elderly's sodium intake is 1276,3 mg/day. The addition of fruit and vegetable juices as much as 200 ml/day contributed ±518.5 mg of potassium so that potassium intake increased to 1.676 mg/day. The distribution of respondents' systolic blood pressure categories before and after the intervention can be seen in Table 2.

Table 2. Distribution of systolic blood pressure categories of respondents before and after intervention

Category Systolic Blood Pressure	Before Intervention		After Intervention	
	n	%	n	%
Normal (<120 mmHg)	-	-	2	2.5
Pre-hypertension (120-129 mmHg)	4	5	16	19.75

1st degree hypertension (130-139 mmHg)	23	28.4	16	19.75
2nd degree hypertension (≥140 mmHg)	52	64.2	43	53.1
Critical hypertension (>180 mmHg)	2	2.5	6	7.4
Total	81	100.0	81	100.0

Table 2 shows that prior to the intervention most respondents were categorized as 2nd-degree hypertension (≥140 mmHg) of 64.2%, first-degree hypertension (130-139 mmHg) of 28.4%. After the intervention was given, hypertension of degrees 2 and 1 decreased to 53.1% and 19.75% shifted down to the category of pre-hypertesion (120-129 mmHg) by 19.75% and normal (<120 mmHg) by 2.5%.

Table 3. Distribution of systolic blood pressure changes of respondents after intervention

Systolic Blood Pressure	Treatment group	
	n	%
Decrease	51	63.0
Constantly	0	0.0
Increase	30	37.0
Total	81	100.0

Table 3 shows that after intervention 63% of hypertensive elderly people experienced a decrease in systolic blood pressure, but there were also 37% who actually experienced an increase. To see the difference in blood pressure before and after the intervention, blood pressure mean was calculated both from before and after the intervention from all elderly samples can be seen in Table 4.

Table 4. Analysis of the difference in mean systolic blood pressure between before and after intervention

Systolic Blood Pressure (mmHg)	Mean	SD	p value
Before	148.22	23.732	< 0.001
After	138.78	23.43	
Average reduction		9.44	

Table 4 shows that the mean blood pressure of the elderly before the intervention was 148.22 mmHg and after the intervention was 138.78 mmHg, with an average decrease in blood pressure of 9.44 mmHg. The results of further analysis showed that there was a significant difference in mean systolic blood pressure between before and after the intervention (p value <0.001).

DISCUSSIONS

Overview of Kalium Intake

The pattern of feeding in the Social Home is three main meals, one time snack and one time fruit. The main meals include white rice 3 times a day weighing about 150 grams per serving, animal side dishes with a frequency of 3 times a day about 50 grams per serving and vegetables 2 times a day, namely at lunch and dinner about 100 grams per serving with 1 interlude consist of one piece cakes and drinks in the form of packaged milk or Green Beans juice and fruit in the form of papaya or banana with the addition of salt per person in 1 day as much as teaspoon or equivalent to 1000 mg sodium. So it can be illustrated that the content of sodium and potassium in the provision of standard food in the social home is 1276.3 mg and 1157.5 mg where from the 4700 mg recommended potassium in the daily diet, only 1157.5 mg or only 28.94% of the RDA. This number could be even smaller considering that most of the elderly do not fully consume the portion of vegetables and cut fruit provided in the daily menu. This is because the provision of vegetables is only 2 times and fruit is only 1 time so that the potassium is not sufficient. According to Jannah et al (2013) the recommended ratio of Na: K is at least 1:1 with a ratio of potassium intake greater than sodium intake. However, as shown in table 1 that the ratio of sodium is greater than the intake of potassium.

Therefore, in this study, the need for potassium was added in the form of giving a combination of fruit and vegetable juices (tomatoes, mustard greens, bananas Ambon) as much as 200 ml/day with a potassium content of ± 518.5 mg so that the daily intake of potassium increased to 1,676 mg/day. When compared to the standard RDA, it is still lacking, but the potassium content exceeds sodium so it can help lower blood pressure. According to Atun (2014) low sodium intake with high potassium intake prevents and reduces high blood pressure.

Systolic Blood Pressure Control

Hypertension or high blood pressure is a condition where a person experiences an increase in blood pressure above normal which is indicated by systolic and diastolic numbers on blood pressure checks using a blood pressure gauge either manually (sphygmomanometer) or digital and has been diagnosed by health personel. Classification of blood pressure in adults based on the AHA Guideline (2017) classifies hypertension from the category; Increased/ high (systolic 120-129 mmHg), first-degree hypertension (systolic 130-139 mmHg), second-degree hypertension (systolic ≥140 mmHg) and critical hypertension (systolic> 180 mmHg) (Whelton PK., et al, 2018).

In this research, before the intervention all elderly responden had hypertension and had increased blood pressure. From the results of the study note that prior to the intervention of giving formula of vegetable and fruit juices, most respondents (64.2%) had a pressure of ≥140 mmHg or second-degree hypertension (Table 2). The subjects blood pressure was measured twice a day, before and after the intervention with an interval of 6 hours for 3 days with a day's break in each treatment. In each time blood pressure measurement, each respondent is measured a minimum of 2 times then averaged. Changes in systolic blood pressure after the intervention as much as 63% of respondents experienced a decrease in blood pressure, but there were 37% who actually experienced an increase (Table 3).

High blood pressure or hypertension is influenced by various factors. After dietary factors, activity patterns and the use of anti-hypertension medication are controlled, one factor that is difficult to control is the stress factor. In the results of Seke's research (2016), there was a significant relationship between the incidence of stress and the level of hypertension. High

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blood pressure or hypertension can be caused by the stress suffered by an individual because the reaction that appears to stress impulses is an increase in blood pressure. In addition, most individuals who experience stress have difficulty falling asleep, so that it will have an impact on their blood pressure which tends to be high (Seke PA., et al, 2016).

The elderly who live in TresnaWerdha Budi Sejahtera Social Home have different backgrounds in life and reasons. The background, reasons and current conditions in each institution contribute as a stressor or source of stress for the elderly at the Social Home. Of course, the contribution of stress from each of these stressors will differ depending on the individual factors as well. The size of the contribution of stress from stressors that surround the lives of elderly orphans will provide a variation on the level of stress experienced (Setyawan AB, 2017).

Some respondents also admitted that it was difficult to sleep at night so that respondents get poor sleep quality. This is supported by Havisa (2014) which states that increasing age will cause changes in physiological function, especially a decrease in the amount of sleep time needed and sleep well. Poor sleep quality is also associated with an increase in blood pressure. Inadequate quality and quantity of sleep can damage memory and cognitive abilities. If this continues for years, it will have an impact on high blood pressure, heart attacks, strokes, and psychological problems such as depression and other mood disorders (Setiawan A, 2018).

Several studies have shown that there is an effect of giving several types of vegetable and fruit juices to control systolic blood pressure. This change in systolic blood pressure may be due to an increase in potassium intake through the addition of consumption of vegetables and fruit into the elderly's daily menu. Vegetables and fruits are very rich in fiber, vitamins and minerals. Especially the minerals potassium, calcium and magnesium which are known to play a role in helping control high blood pressure. From 200 ml of mixed fruit and vegetable juice each 47 grams of tomatoes, mustard greens and ambon bananas contain 169.2 mg, 180.48 mg dan 169 mg potassium (Taslim T, 2021; Ismalia, N. and Zuraida, R., 2016). The highest potassium is found in mustard greens. In addition to the content of potassium in the formula of vegetable and fruit juices, it also contains other minerals that support blood pressure control, namely the content of calcium and magnesium.

Potassium, calcium, and magnesium of each of these minerals have a role in helping control blood pressure. Potassium helps control blood pressure by causing vasodilation effects, causing total peripheral retention. Potassium plays a role in maintaining fluid and electrolyte balance as well as acid and base balance (Almatsier S, 2010). Potassium also has a diuretic effect so that the secretion of liquid sodium increases and potassium is also useful to inhibit the Renin-Angiotensin System (RAS) so that a decrease in aldosterone secretion causes a decrease in reabsorbsi sodium and water directly on the kidneys. Studies conducted on potassium content can reduce blood pressure, that increased potassium intake reduces blood pressure in people with hypertension and has no adverse effect on blood lipid concentrations, catecholamine concentrations, or renal function in adults (Aburto NJ., et al, 2013).

In this study, it was seen that there were significant results in changes in the average systolic blood pressure of the hypertensive elderly before and after the intervention (p value <0.001) with an average decrease in blood pressure of 9.44 mmHg. However, it appears that there is a fairly large standard deviation in the systolic blood pressure of the elderly both before (23.7 mmHg) and after the intervention (23.43 mmHg). This could be due to the varying levels of hypertension that were sampled in this study.

CONCLUSION AND RECOMMENDATION

The addition of a combination of vegetable and fruit juices that are high in potassium in the daily diet of hypertensive elderly can be a good alternative to increase their consumption of vegetables and fruit and fulfill their daily potassium intake, which has positive implications for controlling blood pressure. Research with a similar formula can be carried out with a larger sample and a more homogeneous level of hypertension, so that the magnitude of the decrease in blood pressure can be more visible and the standard deviation is less.

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Characteristics Of Nutritional Status

Of Toddlers Aged 3-5 Years In Gorontalo

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ABSTRACT

This study aims to determine the diet and nutritional status of toddlers aged 3-5 years. This is because diet greatly affects a person's nutritional state. A good diet can improve nutritional status. Undernourished conditions occur due to a lack of one or several types of nutrients that the body needs, on the contrary for a state of overnutrition. The research method uses a quantitative descriptive approach, with variables including maternal education, SEZ of pregnant women, infectious diseases of toddlers, birth weight of toddlers, eating patterns which include food intake and eating frequency and nutritional status of toddlers. The population of toddlers aged 3-5 years in the working area of PKM Monano is 476 children, a sample of 217 children under five and taken by purposive sampling technique. Data analysis used univariate analysis. The results of the study: most of the mothers had secondary education (SMA) (67.3%), mothers did not experience CED during pregnancy (86.2%), children under five had no history of infectious diseases (73.3%) and normal birth weight (96 ,8%). Nutritional status based on the BW/TB index was mostly good (85.7), the BW/U index was mostly normal weight, (85.7%) and the TB/U index was mostly normal nutrition (90.8%). Based on food intake, most of them were sufficient (89.9%) and the frequency of eating was good (94.5%). most children under five received adequate food intake including energy (73.7%), protein (67.7%), fat (69.1%) and carbohydrate intake (49.3%). Conclusion: The nutritional status of toddlers 3-5 years old in the work area of the Monano Health Center is related to characteristics that include maternal education, chronic energy, infectious diseases in mothers, infectious diseases of toddlers and birth weight. In addition, food intake for toddlers is sufficient which includes energy, protein, fat and carbohydrate intake. Meanwhile, the frequency of eating toddlers often

Keywords: food intake, diet, nutritional status

BACKGROUND

The problem of nutrition is essentially a public health problem, but it cannot be tackled with a medical approach and health services alone. The causes of nutritional problems are multifactorial, therefore the approach to overcome them must involve various related sectors. (Supariasa, 2016). The nutritional status of children under five has a very big influence in realizing quality human resources in the future. Nutritional status is related to

children's intelligence. Lack of or poor nutrition in infancy and childhood, especially those aged less than 5 years can result in disruption of physical growth and intelligence of children (Manafe et al., 2019).

The emergence of nutritional problems in children under five is influenced by many interrelated factors. It is directly influenced by several things, namely children do not get enough balanced nutrition, which is inadequate at the age of toddlers and children suffer from infectious diseases. Poverty is also one of the causes of the emergence of malnutrition problems related to the availability and consumption of family food (Maesarah et al., 2018).

Of the 34 provinces in Indonesia, the province with the highest and lowest prevalence of very thin and thin is Maluku province. According to the 2015-2016 PSG in West Sumatra, the percentage of children aged 0-23 months based on the BB/TB index in 2016 was 2.3% very thin, 8.8% thin, 85.7% normal, and obese 3 ,2% (Ministry of Health RI, 2018).

Based on the 2017 Nutritional Status Monitoring (PSG) conducted by the Ministry of Health, children under five who experienced malnutrition problems in 2017 reached 17.8%. Other nutritional problems that exist in toddlers include the stunting toddler rate which reaches 29.6%, the thin toddler rate 9.5% and the obese toddler rate reaches 4.6%. There is a difference in the number of nutritional problems in 2016, there are some problems that the number goes up and some goes down. The increase in the number of problems occurred in stunting, namely in 2016 by 27.6% and in 2017 it increased by 29.6% (Directorate of Public Nutrition, Directorate General of Public Health, Ministry of Health, Republic of Indonesia, 2018).

The North Gorontalo District Health Office in 2020 recorded 11386 toddlers with good nutritional status, then followed by toddlers with poor nutritional status, there were 279 toddlers and finally there were 38 toddlers with poor nutritional status. Monano Health Center in 2020, the number of toddlers is 17 toddlers with BGM (2.86%), nutritional status of 10 toddlers (1.68%), and poor nutritional status of 3 toddlers (0.50%) (North Gorontalo District Health Office, 2021). Based on the background that describes the increase in nutritional status problems, especially in North Gorontalo district, a holistic study is needed to determine the determinants of nutritional status problems in toddlers.

Diet shows the culture and habits and beliefs of a particular community group. This causes one group to be different from another group. From the diet, it can be found how a group obtains food, the types of food consumed by children, the amount used when serving and how much consumption of these foodstuffs (Putri, 2013). A person's diet can be influenced by socio-cultural and environmental, knowledge, advertising, self-image, as well as religion and beliefs (Almaitsier, 2013).

Monano Health Center has 10 villages, with 10 cases of malnutrition. Where from the report of the Monano Health Center, there were toddlers with a weight below the Red Line (BGM) in January to December 2020, 17 BGM toddlers were found at the Monano Health Center. Based on the initial survey conducted at the Monano Public Health Center on 10 respondents, it was found that 3 toddlers were underweight, while 7 toddlers experienced normal nutrition. The state of varying nutritional status like this is influenced by varied eating patterns. Where the diet that is accustomed to by parents is the main milestone in the occurrence of nutritional problems. Toddlers often experience a difficult phase of eating, which can interfere with their growth and development. This is because the amount and nutrients that enter the body are not in accordance with their needs, which will give birth to problems of malnutrition and poor nutrition.

RESEARCH METHODS

Descriptive quantitative method, with variables including maternal education, SEZ of pregnant women, infectious diseases of toddlers, birth weight of toddlers, eating patterns which include food intake and eating frequency and nutritional status of toddlers. The population of toddlers aged 3-5 years in the working area of PKM Monano is 476 children, a sample of 217 children under five and taken by purposive sampling technique. Data analysis used univariate analysis.

RESULTS AND DISCUSSION

Research result

Characteristics of Respondents

Table 1 Characteristics of Respondents in the Work Area of the Monano Health Center

Characteristics	Frequency	Persenta
Mother's Job		
Civil Servant	15	6.9
Private	41	18.9
Self Employed	29	13.4
IRT	132	60.8
Family Income		
Sufficient	53	24.4
Insufficient	164	75.6
Anemia of Pregnant Women		
Anemia	14	6.5
No Anemia	203	93.5

Toddler Gender		
Male	105	48.4
Female	112	51.6

Toddler Age		
37-48 Months	110	50.7
49-60 Months	107	49.3

What order do you come in your family		
Child 1	100	46.1
Child 2	69	31.8
Child 3	31	14.3
Child 4	17	7.8
Total	**217**	**100**

Source: Primary Data (2021)

Based on the table, it can be seen that in 217 children under five 3-5 years old in the working area of the Monano Health Center, most of the mothers are housewives, namely as many as 132 people (60.8%), family income is insufficient because it is below the Regional Minimum Wage of Gorontalo Regency. North (Rp. 2,788,826,-) as many as 164 people (75.6%), and mothers who did not experience anemia during pregnancy as many as 203 people (93.5%). In addition, most of the children under five years old 3-5 based on gender, most of them are female, as many as 112 people (51.6%), aged 37-48 months, as many as 36-48 people (50.7%) and the most is the first child as many as 100 people (46.1%).

1. Overview of Education of Mothers Toddlers of 3-5 Years in the Monano PKM Working Area

Table 2 Overview of Education of Mothers Toddlers of 3-5 Years in the Monano PKM Working Area

Mother's Education	Frequency	Percentage
Elementary	36	16.6
Intermediate	146	67.3
Height (College)	35	16.1
Total	217	100,0

Source: Primary Data (2021)

Based on table 2, it can be seen that most of the mothers have secondary education (SMA) as many as 146 people (67.3%) and the least have higher education (University) as many as 35 people (16.1%).

The results showed that most of the mothers were good, that was, they had completed secondary and higher education. With a good education, it will be easier to receive and understand health information so that it will increase knowledge and health behavior, in this study about the importance of good nutritional status in children under five. People with higher education will give a more rational response to incoming information and will think about the extent of the benefits that might be obtained from the idea. Mother's education level determines her attitude and behavior in dealing with various problems.

Soetjiningsih&Ranuh (2013) explained that parental education is one of the important factors in nutritional status. Because with a good education, parents can receive all information from outside about good parenting, especially how mothers give food to children, how to maintain children's health, education, and so on. So that the more knowledge possessed and the expected behavior will appear good parenting.

The results of this study are in line with research from Damping (2018) in Manado City which showed that the most mothers were at the secondary education level, namely 50 people (66.7%). If viewed from the tree, the factors that occur in nutritional problems, the level of education, is directly or indirectly the main problem that also affects the occurrence of nutritional problems, especially in children under five.

2. Overview of the History of Pregnant Women with SEZ in Toddlers 3-5 Years in the Monano PKM Working Area

Table 3 Description of the History of Pregnant Women with SEZ in Toddlers 3-5 Years in the Monano PKM Working Area

Pregnant KEK	Percentage (n)	Frequency (%)
KEK	30	13.8
Normal	187	86.2
Total	217	100,0

Source: Primary Data (2021)

Based on table 3, it can be seen that most of the mothers did not have a history of chronic energy deficiency (CED) during pregnancy as many as 187 people (86.2%), while those who experienced CED were 30 people (13.8%).

The results showed that there were still pregnant women who experienced SEZ. SEZ in pregnant women shows that pregnant women have experienced malnutrition. The nutritional status of the mother before and during pregnancy can affect the growth of the fetus being conceived. If the nutritional status of the mother is normal before and during pregnancy, it is likely to give birth to a healthy, full-term baby with a normal weight, in other words, the quality of the baby born is very dependent on the nutritional state of the mother before and during pregnancy. Poor fetal growth of pregnant women with SEZ will produce babies with low birth weight.

Pregnant women with CED are characterized by the circumference of the upper arm on the hand that is not used with daily activities with a circumference of < 23.5 cm. Upper arm circumference can provide an overview of the state of muscle tissue and fat layers under the skin. LILA detection was carried out during the first visit (K1) for Antenatal Care (ANC) examination. The purpose of the LILA measurement is to screen whether the pregnant woman is in the SEZ category or not. This action is important to do, because it is not only to screen pregnant women who are SEZ but also to find out the possible risk of giving birth to stunting (Ruaida&Soumokil, 2018).

This result is in line with previous research from Apriani&Ningsih (2021) at Karang Jaya Public Health Center, Musi Rawas Utara Regency which found that out of 52 respondents, there were 32 people (61.5%) who had no history of SEZ. Mothers with SEZ conditions during pregnancy are more likely to experience stunting than respondents who do not have SEZ conditions. This can be caused by a lack of maternal nutrition, one of which is lack of energy for a long time during pregnancy.

3. Overview of the History of Infectious Diseases for Children 3-5 Years in the Monano PKM Working Area

Table 4 Description of the History of Infectious Diseases for Children 3-5 Years in the Monano PKM Working Area

Infectious Disease	Frequency	Percentage
Measles	6	2.8
Diarrhea	32	14.7
ARI	12	5.5
Pneumonia	8	3.7
Not Experiencing	159	73.3
Total	217	100,0

Source: Primary Data (2021)

Based on table 4, it can be seen that most of the children under five years old 3-5 in the working area of the Monano Health Center do not have a history of infectious diseases, as many as 159 people (73.3%). While other children under five experienced measles as many as 6 people (2.8%), diarrhea as many as 32 people (14.7%), ARI as many as 12 people (5.5%) and pneumonia as many as 8 people (3.7%).

The results showed that there was still a history of infections such as measles, diarrhea, ARI and pneumonia. Malnutrition and infection can coexist. Infection can lead to malnutrition, whereas malnutrition can increase the risk of infection. Malnutrition in children who have weak immune systems will easily fall ill, thereby reducing their ability to fight disease and delays in child growth resulting in stunting.

A history of infectious disease is associated with the incidence of stunting in children aged 12-60 months. Infectious diseases have a substantial effect on the growth of children. Infectious diseases suffered by children, usually there will be an increase in body temperature, so there will also be an increase in the need for nutrients. If this condition is not balanced by food intake, adequate nutritional intake, malnutrition will arise and failure to thrive. Diarrhea and ARI are infectious diseases that are often suffered by children. Infectious diseases have a negative impact on children's nutritional status in terms of reducing appetite and absorption of nutrients in the intestines, there is an increase in catabolism so that the available nutrient reserves are not sufficient for body tissue formation and growth (Pibriyanti et al., 2019).

This result is in line with previous research from Ramadani&Sodikin (2020) at the KalimanahPurbalingga Health Center which found that most of the children under five did not have infectious diseases as many as 71 respondents (67%). Malnutrition and infection often work synergistically and when working together will give a worse prognosis than the two factors, each of which works separately. Infectious diseases that often occur in children under five include acute respiratory infections or ARI and diarrhea.

4. Overview of Birth Weight History Toddlers 3-5 Years in the Monano PKM Working Area

Table 5 History of Birth Weight Toddlers 3-5 Years in the Monano PKM Working Area

History of Birth Weight	Frequency (n)	Persentage (%)
LBW	7	3.2
Normal	210	96.8
Total	217	100,0

Source: Primary Data (2021)

Based on table 5, it can be seen that most children under 5 years old in the working area of the Monano Health Center have a history of being born with normal birth weight (> 2500 grams) as many as 210 people (96.8%) while toddlers with low birth weight (<2500 grams) as many as 7 people (3.2%).

The results of the study found that most children under 5 years old in the working area of the Monano Health Center had a history of being born with normal birth weight (> 2500 grams) as many as 210 people (96.8%), although there were still toddlers with low birth weight (<2500 grams) as many as 7 people (3.2%)

Generally, babies with low birth weight find it difficult to pursue optimal growth during the first two years of life. Growth failure that causes stunting generally occurs in a short period (before birth to approximately 2 years of age), but has serious consequences later in life. Babies with low birth weight are more at risk for impaired growth and development in the future. This is because babies born with body weight are more or less at risk in terms of metabolism, especially if born with less gestational age, where the baby's organs have not functioned adequately.

Children with a history of low birth weight (LBW) is one of the factors that have the potential to affect a child's growth. Babies born with a weight that does not reach the normal standard are caused because the mother before pregnancy had an eating pattern that did not consume food sourced from animal protein. Birth weight is also a potential indicator for infant growth, response to environmental stimuli, and for infant survival. Low birth weight carries a 10-fold higher risk of neonatal death compared with newborns weighing 3 to 3.5 kg. Babies with low birth weight are associated with growth disorders, impaired cognitive development and chronic diseases in later life (Noviana&Ekawati, 2019).

LBW is also closely related to the nutritional status of the mother during pregnancy, the nutritional status of pregnant women can affect the growth and development of the fetus. Chronic energy deficiency in pregnant women causes the mother to not have adequate nutritional reserves for the physiological needs of pregnancy, namely increased blood volume and also hormonal changes for the growth and development of the fetus that is conceived so that the supply of nutrients from the mother to the fetus is reduced, resulting in

fetal growth and development. stunted and babies born with low birth weight (Lestari &Adisasmita, 2021).

In line with the results of a previous study from Pangestu (2021) in Mojotengah Village, Reban District, Batang Regency which found that most of the toddlers did not experience LBW, as many as 72 people (92.3%). The proportion of children under five with a history of LBW was more in the stunting group, which was 10.3% compared to the non-stunted group, which was 5.1%.

5. Overview of the Nutritional Status of Toddlers 3-5 Years in the Monano PKM Working Area

Table 6 Overview of the Nutritional Status of Toddlers 3-5 Years
in the Monano PKM Working Area

Nutritional Status	Frequency	Persentage
Nutritional Status Based on BB/TB		
Good	186	85.7
Less	20	9.2
Over nutrition Risk	11	5.1
Nutritional Status Based on BB/U		
Normal Weight	186	85.7
Underweight	20	9.2
At risk of being over weight	11	5.1
Nutritional Status Based on TB/U		

Normal	197	90,8
Short	20	9.2
Total	217	100

Source: Primary Data (2021)

Based on table 6, it can be seen that the nutritional status based on BB/TB, most of the respondents had good nutritional status as many as 186 people (85.7%). Meanwhile, at least there are children under five with nutritional status at risk of overnutrition, as many as 11 people (5,1%). Nutritional status based on BB/U, most of the respondents had normal weight nutritional status as many as 186 people (85.7%). While the least, namely children under five with nutritional status at risk of being overweight, as many as 11 people (5.1%). Nutritional status based on TB/U, most of the respondents had normal nutritional status as many as 197 people (90.8%) while respondents with short nutritional status were 20 people (9.2%).

The results of the study found that most children under five 3-5 years old in the working area of the Monano Health Center had good nutritional status. However, there are still toddlers with nutritional status who are at risk of overnutrition. On nutritional status based on weight/TB, most of the respondents have good nutritional status, although there are still children under five with nutritional status at risk of overnutrition. Meanwhile, nutritional status based on TB/U, most of the respondents have normal nutritional status, but there are still toddlers with short nutritional status.

That the nutritional status parameters based on BB/TB and BW/U get similar measurement results, whereas based on TB/U the measurement results are slightly different. The similarities and differences in the measurement results are due to the different threshold (z-score) between the weight index for age and weight for height with the height for age index.

In Indonesia, the spectrum of malnutrition is very wide and occurs at all stages of life, including in the form of Protein Energy Deficiency (KEP), micronutrient deficiencies, low birth weight, and growth disorders as seen from the indicators of height for age. To determine the classification of nutritional status, the z-score is used as the category threshold. The unit standard deviation (z-score) is used to research and monitor growth and to determine the classification of nutritional status. Growth is related to the problem of changes in size, number, size or dimensions at the level of cells, organs and individuals, quantitative in nature so that it can be measured by weight (grams, pounds, kilograms), length (cm, meters), age, bones and metabolic balance (body calcium and nitrogen retention) (Amirullah et al., 2020).

The results of this study are in line with the results of previous studies from Amirullah et al. (2020) who got the results after measuring Nutritional status during the Covid 19 pandemic at EkasariBuyat I PAUD/TK, the results were 22 respondents with normal nutritional status (81.5%), 1 person obese nutritional status (3.7%), There is no obesity nutritional status, 4 people (14.8%) thin nutritional status and very thin nutritional status does not exist.

6. Overview of Feeding Intakes in Toddlers 3-5 Years in the Monano PKM Working Area

Table 7 Overview of Food Intake in Toddlers 3-5 Years
in the Monano PKM Working Area

Food Intake	Frequ	Persentage
Energy Intake		
More	37	17.1
Enough	160	73.7
Less	20	9.2
Protein Intake		
More	35	16.1
Enough	147	67.7
Less	35	16.1
Fat Intake		
Over	23	10.6
Enough	150	69.1
Less	44	20.3

Carbohydrate Intake		
More	10	4.6
Enough	107	49,3
Less	100	46,1
Total	217	100

Source: Primary Data (2021)

Based on table 7, it can be seen that most children under five years old 3-5 years get adequate intake including energy as many as 160 people (73.7%), protein as much as 147 people (67.7%), fat as much as 150 people (69.1 people). %) and carbohydrate intake as many as 107 people (49.3%). While respondents with less energy intake were 20 people (9.2%), less protein was 35 people (16.1%), less fat was 44 people (20.3%) and less carbohydrate intake was 100 people (46.1 %).

The eating patterns of children under five years old in the working area of the Monano Health Center already have sufficient intake. But there are also toddlers with more food intake. The food intake was measured through the intake of energy, protein, fat and carbohydrates. Most children under five years old 3-5 get adequate intake including energy as many as 164 people (75.6%), protein as many as 162 people (74.7%), fat as many as 154 people (71.0%) and carbohydrate intake as much as 111 people. people (51.2%).

Toddler food intake affects growth and development. An imbalance in food intake can lead to nutritional problems. Nutritional disorders describe an imbalance between the energy that enters the body and the energy released by the body which leads to an excess or lack of energy from food intake that enters the body. Food intake is assessed by comparing the energy that enters the body with the recommended energy needs.

Protein intake is an important nutrient intake for toddlers. Protein intake is related to nutritional status in toddlers (BB/TB). Protein is useful for forming antibodies, if protein intake is low, toddlers will be susceptible to infectious diseases so that it affects their nutritional status. Low protein intake in toddlers increases the risk of 1.8 times greater experiencing malnutrition than toddlers with adequate protein intake. The need to produce energy is assisted by carbohydrate and fat intake so that the energy reserves in the body are still sufficient to carry out daily activities (Fadlillah&Herdiani, 2020).

Lack of energy intake or insufficient consumption of essential nutrients needed by the body will usually cause a decrease in the activities carried out. Energy functions as an energy substance for metabolism, growth, body temperature regulation, and

physical activity. Children's protein needs are useful for tissue maintenance, changes in body composition, and for the synthesis of new tissue. Children should get 13-15% protein needed from the total food intake per day. Animal protein is very much needed to support the growth and development of children because the nutrients contained in animal protein are mostly nutrients that support children's brain growth and play a role in growth (Langi et al., 2019).

Sources of fat intake in respondents include food sources of high-fat protein sources, oils used for cooking, and formula milk. Formula milk contributes fat to toddlers from working mothers by 45.5% in a day. Excess fat intake, especially saturated fat in the long term can trigger obesity. The risk of obesity increases by 4.4 times greater in children with higher levels of fat intake (Permata Sari et al., 2021).

The body's main source of energy comes from carbohydrates, adequate carbohydrate intake is associated with sufficient energy. The process of glycolysis produces energy that comes from food related to its glucose content. Excess carbohydrate intake can then be stored in the form of glycogen and fat, causing overweight or obesity (Afifah, 2019).

The results of this study are in line with previous research from Sulistianingsih&Yanti (2016) in TanjungBaru Village, Bandar Lampung City which obtained based on food intake, most toddlers consumed food according to the RDA. It can be seen from the number of calories (66.7%), carbohydrates (64.6%), protein (70.8%), vitamin A (62.5%), iron (60.4%) and zinc (64.6%).

7. Overview of Feeding Frequency in Toddlers 3-5 Years in the Monano PKM Working Area

Table 8 Overview of Feeding Frequency in Toddlers 3-5 Years

in the Monano PKM Working Area

Frequency of Feeding	Frequency	Persentage
Good	205	94.5
less	12	5.5
Total	217	100

Source: Primary Data (2021)

Based on table 8, it can be seen that most children under five years old 3-5 in the working area of the Monano Health Center have a good frequency of eating as many as 205 people (94.5%) and a frequency of eating less as many as 12 people (5.5%).

Children under five years old in the working area of the Monano Health Center have frequent meals. But there are also those who eat less frequently. Sometimes the food consumed by children in a day is not stable. This results in the frequency of children's eating being irregular and even exceeding or less than the required nutritional needs. This can lead to nutritional problems. The frequency of eating for toddlers is very different from adults, this means that toddlers eat less because toddlers have less nutritional needs than adults.

The stomach of a child is smaller than the stomach of an adult, so a child cannot eat large amounts of food at each meal. A child needs to eat often, to meet all his needs. In children aged one year and over, almost all children are able to consume solid "family food". They can still be given semi-solid foods, which are easier for children to digest. Since the child is six months old, additional food in the form of nutritious snacks (such as fruit, or cake) can be given once or twice a day, according to the child's taste. Once or twice a day, according to the child's taste (IHC, 2021).

In line with previous research conducted by Rosdiana et al. (2020) in the KassiKassi Health Center Work Area, Makassar City, who found that the frequency of eating enough children was 14.8% and 85.2% less. Frequency of eating is defined as how much an individual eats in a day including breakfast, lunch, dinner and snacks. Against the background of less intense parental supervision of children, children's eating patterns are often irregular.

CONCLUSION AND RECOMMENDATION

It was concluded that most of the mothers had secondary education (SMA) (67.3%), mothers did not experience CED during pregnancy (86.2%), under-fives had no history of infectious diseases (73.3%) and were born with normal birth weight (96.8%). Nutritional status based on the BW/TB index was mostly good (85.7), the BW/U index was mostly normal weight, (85.7%) and the TB/U index was mostly normal nutrition (90.8%). Most children under five years old 3-5 in the working area of the Monano Health Center have adequate food intake (89.9%) and frequent meals (94.5%). Most children under five received adequate food intake including energy (73.7%), protein (67.7%), fat (69.1%) and carbohydrate intake (49.3%). It is recommended that parents continue to maintain a good diet for their children. Parents who still have children with less or more nutritional status should always provide food that contains energy, protein, fat and carbohydrate intake for children with appropriate eating frequencies in order to maintain the child's nutritional status in good condition. At the Puskesmas to continue to provide socialization to the community about the importance of food with balanced nutrition.

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QUALITY ANALYSIS OF MODIFIED ICE CREAM BASED ON SOY MILK WITH A MIXTURE OF

SALAK FRUIT EXTRACT

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ABSTRACT

It is rare to find ice cream products using vegetable milk (soy milk) because they generally use cow's milk. Salak fruit is a local food that has never been studied to be used as a mixture of ice cream. However, salak fruit has the advantage that it contains nutrients that are good for health. This study aims to determine the organoleptic quality of modified ice cream products made from soy milk with a mixture of salak fruit extract. This type of research is a true experiment with two treatments, namely formula 1: soy milk 1000 ml – salak fruit 500 gr, formula 2: soy milk 500 ml – salak fruit 500 gr. The results of the organoleptic quality analysis test in formula 1 obtained the highest results with a value of 73.3% in the taste category in the assessment criteria like very much. While the lowest result with a value of 16.7% in the category of aroma criteria for liking. In formula 2, the highest results obtained with a value of 83.3% in the aroma category are in the category of liking ratings. While the lowest result with a value of 16.7% in the category of aroma, texture in the criteria for the assessment of likes. Conclusion: In formula 1 and formula 2, the result is p = 0.000, which means that there is a difference. Suggestion: It this also necessary to do further research on the parameters to determine the quality of ice cream such as : overrun and melting point ice cream

Keywords: quality analysis, ice cream, soy milk, salak fruit.

BACKGROUND

Currently, there have been many developed various kinds of processed products from various types of food that are used as a snack or dessert, one of which is ice cream. Ice cream is one of the most popular foods for all ages, from children to adults. Many people like ice cream because of its delicious, sweet taste and soft texture. This trend is realized by the consumption of ice cream in terms of quantity and value from 2011 - 2014 from 3.34%% to an increase of 3.44% (Food Consumption Statistics, 2015).

Most of the ice cream products on the market use cow's milk as the main ingredient. It is rare to find ice cream products using vegetable milk. The results of research on the group of teenagers from Habibi Ahmad et al in 2016, concluded that there was an effect of increasing body weight by 0.90 ± 4.37 kg in the control group in giving ice cream to adolescents (Habibi Ahmad et al., 2016), increasing the frequency of consumption of milk-based ice cream which high fat content has an effect on weight gain in adolescents. At the age of teenagers, ice cream snacks are in great demand.

Soy milk comes from soybeans that are processed into milk. Soybean production in Indonesia in 2018 increased by 82.39% and soybean production in North Sulawesi Province in 2018 which was 50,026 tons increased by 13.06% compared to 2017 (Ministry of Agriculture RI, 2018).

In 100 g of soy milk contains 3.6 g of protein, 2.0 g of fat, 2.9 g of carbohydrates and isoflavones. Isoflavones are compounds known to function as antioxidants. Soy milk is white like milk. In addition, soy milk also contains calcium, phosphorus, iron, provitamin A, vitamin B complex (except B12), and water (Margono et al, 2000). Another advantage of soy milk is that it does not contain lactose, so this milk is suitable for consumption by people with lactose intolerance, namely someone who does not have the enzyme lactase in their body. For this reason, soy milk is good to use as a substitute for cow's milk (Wikan, 2017).

Soy milk has a characteristic unpleasant odor so it is necessary to add other food ingredients to neutralize the smell and taste in soy milk, including using fruit extracts. Salak fruit is a local food that has never been studied to be used as a mixture of ice cream. However, salak fruit has the advantage that it contains nutrients that are good for health. The nutritional content of salak fruit flesh in 100 g is Protein 0.40 g. Carbohydrate 20.90 g, iron 4.20 mg, Vit C 2.00 mg (Directorate of Nutrition, Ministry of Health RI, 2002).

Salak (Salacca edulis) is a fruit plant that grows in the tropics which has a fairly high nutritional content. Salak is a fruit that can be consumed directly without being processed before. The content of salak fruit consists of calcium, tannins, saponins, and flavonoids (Sukandar, 2010). The content of salak fruit in the form of tannins and flavonoids that can play a role in overcoming diarrhea. There is an effect of juice of salak fruit (Salacca edulis) on the frequency of defecation and duration of diarrhea in Rattus norvegicus (Fifi Alviana, 2019).

Data from the Agriculture Service of Southeast Minahasa Regency in 2014 shows that the East Ratahan District, especially the Pangu area which consists of Pangu Parent, Pangu Satu, Pangu Dua is an area that has the potential to develop salak fruit farming with production of salak fruit reaching 44,256 tons and the number of plants that produce as much as 553,200 trees (Tambulus, 2015). Salak fruit productivity in Indonesia in 2019 experienced a growth of 1.15% compared to 2018 (Central Statistics Agency, 2018).

The abundance of salak during the harvest season makes the price reduction very cheap, so the fruit often rots and is thrown away. This gave rise to the creation of the Pangu community to process fresh salak fruit into various kinds of processed products including salak lunkhead, salak jam, salak seed coffee. Salak fruit has a distinctive taste, namely sweet, sweet, slightly sour which if added to ice cream products will add flavor and nutritional value.

Based on this background, research has been done on modified ice cream made from soy milk with a mixture of salak fruit extract, the quality of the product will be assessed organoleptically. The aim of the study was to determine the organoleptic quality of modified ice cream products made from soy milk with a mixture of salak fruit extract.

RESEARCH METHODS

The type of research used is experimental research with a trus experiment in laboratory. This research was conducted in June 2022. The location of the research was at the Poltekkes Campus of the Ministry of Health, Manado, Department of Nutrition. To make soy milk ice cream with a mixture of salak fruit extract, it was carried out at the Culinary Laboratory of the Department of Nutrition. For organoleptic quality testing, includes aspectcs of color, flavour, taste and texture. The independent variable (independent) is soy milk ice cream with a mixture of salak fruit extract formulas 1 and 2and the dependent variable is organoleptic quality (taste, aroma, color, texture).

The panelists in this research were classified as semi-trained panelists from applied undergraduate student of the Nutrition and Dietetics, Department of Nutrition, Poltekkes, Ministry of Health, Manadoas many as 30 people who had passed the Food Technology Science Course (ITP).

Primary data was obtained from the general data of the panelists and the results of organoleptic testing using an organoleptic test questionnaire using a hedonic scale. Secondary data includes an overview of the Food Technology Laboratory, Department of Nutrition, Poltekkes, Ministry of Health, Manado. For the presentation, formula 1 and formula 2 will be provided, which are prepared in the same container in the same shape, size and material and have been given their respective codes. Each formula will be presented on a test table that is strong and not easily brittle and is equipped with chambers. Researchers will provide drinking water that will be used by the panelists to rinse their mouths before trying other formulas. This is intended to avoid possible bias. Bivariate analysis was conducted to see the

difference between the independent variable and the dependent variable. The analysis in this study used the Willcoxon test to see whether there was a difference in the organoleptic quality of the 2 formulas of soy milk ice cream with a mixture of salak fruit extract. Technical data analysis using computer program SPSS 16.0 for Windows.

RESULTS AND DISCUSSION

Based on the results of the organoleptic quality analysis test of soy milk ice cream with a mixture of salak fruit extract in formula 1, the highest results were obtained with a value of 73.3% in the taste category in the assessment criteria of very like. While the lowest result with a value of 16.7% in the category of aroma in the assessment criteria like. In formula 2, the highest result was obtained with a value of 83.3% in the aroma category which was in the like rating scale. While the lowest result with a value of 16.7% in the category of aroma, texture in the rating scale likes.

Based on the distribution of the average value of soy milk ice cream with a mixture of salak fruit extract, the highest average value of taste assessment is in formula 1 with a value of 4.73 and the lowest is in formula 2 which is 4.27. The highest average color rating is in formula 1 with a value of 4.67 and the lowest is in formula 2 with a value of 4.23. For the average aroma rating, the highest is in formula

 1 with a value of 4.83 and the lowest is in formula 2 with a value of 4.17. For the average texture assessment, the highest is in formula 1 with a value of 4.57 and the lowest is in formula 2 with a value of 4.17.

The average value of organoleptic quality of soy milk ice cream with a mixture of salak fruit extract obtained the highest results, namely at F1 with a value of 4.7 on the organoleptic test assessment criteria very like.

The results of bivariate data analysis using the Wilcoxon test with a significant level of of 0.005 for the organoleptic quality of soy milk ice cream with a mixture of salak fruit extract in formula 1 and formula 2. both formulas of soy milk ice cream with a mixture of salak fruit extract, namely on taste, color, aroma and texture.

Ice cream is the result of a mixture of several raw materials such as milk, sugar, stabilizer, emulsifier and other additives through a heating and homogenization process. Additional ingredients such as fruit can be used to improve the quality of ice cream. Fruit substitution with the right concentration can improve the organoleptic quality of ice cream as well as consumer preference (Aisiyah et al, 2010).

From the results of the organoleptic quality assessment, soy milk ice cream with a mixture of salak fruit extract in formula 1 has advantages in terms of taste, color, aroma and texture, which are highly favored by the panelists. This indicates that this ice cream product is acceptable and liked by the panelists. This product can be further developed to see more specific nutritional content through the proximate test and can be used for healthy snacks.

Soy milk can be an alternative that can be used as a substitute for cow's milk because it has the advantages that it does not contain lactose, the protein does not cause allergies, is low in fat, free of cholesterol, the manufacturing technology is relatively easy, the production cost is relatively cheap, and can be further processed into ice. cream (Pamungkasari, 2008). Salak fruit flesh extract has high antioxidant activity, lowers cholesterol levels and is anti-diarrhea (Novrianti, 2014).

Taste is a very influential thing in a product. Taste is a stimulus by the sense of taste caused by the material eaten. A product can be liked or accepted by consumers if it has the desired taste (Kartika, et al 1998 in Yohana 2017).

Taste is one of the parameters that generally determines the preference of a food. Comments that usually appear after tasting a food is the taste of the food. The memory of the five types of taste perception is stronger when compared to color. There are five types of flavors that are commonly detected by the human sense of taste, namely taste, sour, bitter, salty, and savory (Giyatmi et al, 2018).

Based on the results obtained, there are differences in the taste test on soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2. In the formula 1 test there are 22 panelists who choose very like with a value of 73.3%, 8 people choose like with a value of 30% . While in the formula 2 test there are 8 people who choose very like with a value of 30% .22 people choose like with a value of 73.3%. This means that the panelists are more interested in organoleptic quality in formula 1 with the assessment criteria being very like.

According to Manurung (2018), the delicious taste that appears in the product is influenced by the addition of salak fruit extract which has a unique taste, namely sweet and sour. Panelists really like formula one because the 1:1 composition is 1000 ml of soy milk: 500 g of salak fruit produces a taste that is not too sour and tends to be sweeter than formula 2 which uses a 1:1 composition of 500 ml of soy milk: 500 g of salak fruit .

The color factor is more influential and sometimes very decisive for a food ingredient that is considered delicious, nutritious, and has a very good texture, it will not be eaten if it has a color that gives the impression that it has deviated from the color it should be (Winarno, 1995 in Sanggur 2017). Color is the first impression of a product that determines the panelists' acceptance or rejection of the product (Lanusu, et al 2017).

Based on the results obtained, it can be seen that there are differences in the color test on soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2. In the formula 1 test there are 20 panelists who choose very like with a value of 66.7%, 10 people choose like with value 33.3%. While in the formula 2 test there are 7 people who choose very like with a value of 23.3%, 23 people choose like with a value of 76.7%. Most of the panelists chose to like formula 1 but for the criteria of very like it was superior to formula 1 which indicated that the quality of formula 1 was the most favored or accepted by the panelists. Actually the resulting color is not much different, but because formula 1 uses more milk, the color in formula 1 is whiter than formula 2 which is a bit cloudy.

The contribution of aroma to the diversity of food tastes comes from volatile compounds detected by the sense of smell. Scent helps to distinguish and recognize food. Even familiar foods may not be recognized if the sense of smell is not functioning. Similar to taste perception, memory perception of aroma is stronger when compared to color (Delahunty, 2018).

Based on the results obtained, it can be seen that there are differences in the aroma test on soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2. In the formula 1 test there are 25 panelists who choose very like with a value of 83.3%, 5 people choose like with value 16.7%. While in the formula 2 test there are 5 people who choose very like with a value of 16.7%, 25 people choose to like with a value of 83.3%. In accordance with the results of the panelists' assessment, it can be seen that most of the panelists chose the quality of formula 1 which was on the criteria of very like, but in formula 2 the panelists also chose the same value but were on the criteria of rating like. This indicates that the quality of formula 1 is superior to formula 2. The aroma of milk generally characterizes a distinctive aroma that can change when exposed to certain compounds or objects (Nurwantoro, 2009).

According to (Delahunty, 2018) In terms of food preferences, texture is considered important and contributes significantly to food palatability. Food will not appeal to the taste buds if the food loses its texture and texture can also determine whether a product is acceptable or not by consumerst. One of the quality parameters that plays a very important role in displaying the characteristics of ice cream is texture. The ideal ice cream texture is smooth and the solid paticles are too small to be felt in the mouth. The texture referred to in the sensory testing of this study is the level of softness of the ice cream mouth when chewed. This reference can be used reference for further ice cream development.

Based on the results obtained, there are differences in the flavour test on soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2. In the formula 1 test there are 17 panelists who choose very like with a value of 56.7%, 13 people choose like with a value of 43, 3%. While in the formula 2 test there are 5 people who choose very like with a value of 16.7, 25 people choose like with a value of 83.3%.

Based on the results of the data normality test, a significant value was obtained (0.000) < (0.005), which means the data was not normally distributed, then the data was tested using the Wilcoxon test with a significant value of (0.000) < (0.005). So it can be concluded that there are organoleptic differences between modified soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2 and the most preferred is formula 1 with the assessment criteria being very like. This means that H0 is rejected and H1 is accepted.

CONCLUSIONS AND RECOMMENDATIONS

The organoleptic quality of modified soy milk ice cream with a mixture of salak fruit extract in formula 1, most of the panelists' assessments were on the criteria of very liking for

taste with a value of 73.3%, color 66.7%, aroma 83.3% and texture 56.7%. In formula 2, most of the panelists' assessments were on the criteria for liking the taste with a value of 73.3%, color 76.7%, aroma 83.3% and texture 83.3%. There is a difference between the organoleptic quality of soy milk ice cream with a mixture of salak fruit extract between formula 1 and formula 2 with p value = 0.000 < (0.005).

This research is expected to provide product innovations through modifications of soy milk and salak fruit into healthy ice cream product. This research needs to be further developed by referring to the parameters of the quality of the ice cream, choosing the right design, ect.

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Evaluation Study of Stunting Intervention Target Setting in Bangka Belitung Province

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ABSTRACT

The results of the evaluation study with the adequacy of the accuracy of the targets of stunting interventions can provide greater leverage when used as the basis for formulating a policy and program. This study aimed to evaluate the effectiveness of policy implementation and program target setting in stunting intervention programs. The research method used a qualitative research design that is operationalized following a spec of the Korten Conformity Model, which consists of aspects of stunting intervention programs, program targets or benefits, and program implementors. Data analysis was carried out through an iteration process by integrating findings from desk reviews and in-depth interviews using a descriptive analysis approach with Nvivo versus 12 software. The data report uses quotes to answer the question: Have the targets or beneficiaries of the program been set appropriately? Triangulation analysis techniques are used to obtain mutual validity and strength of relationships between data from various sources. The results showed the suitability of the target group's needs with the benefits received and the ability of the implementer to carry out the required tasks even though they needed improvement over time. This study recommends quality, precise, orderly, and integrated data collection to ensure the accuracy of convergent target setting and intervention programs. Local governments must prioritize resources for specific and nutrient-sensitive intervention programs to be implemented and ensure the availability of convergent financing for such interventions.

Keywords: stunting evaluation, effectiveness, target accuracy

BACKGROUND

Empirical phenomena in connection with the characteristics of the archipelago area include limited accessibility of government public services and essential public service facilities and infrastructure due to the low financial capabilities of the regions (Stefanus, 2011). Regional income from coastal and marine resources in the archipelago also contributes only 20 percent to GDP. This condition is ironic because it is not only economic benefits obtained from potential sources of marine food but also strategic benefits in providing food and protein from the oceans. The Central Statistics Agency also stated that the Bangka Belitung area, one of the island areas with agricultural business fields, is the most significant contributor (20.47%) to the regional economy. Bangka Belitung Province has problems with the proportion of stunting according to the results of Riskesdas, namely 28.7 percent in 2013 and 24.0 percent in 2018 (Balitbangkes Kemenkes RI, 2018). A different figure when looking at the results of Nutritional Status Monitoring (NSM), which experienced an increase from 22.0 percent in 2016 to 25.6 percent in 2017 (Kemenkes RI, 2018). Districts also have varying stunting rates. The central government further designated West Bangka District (39.1%) and Bangka District (32.3%) as priority areas for national stunting intervention based on the results of Riskesdas

(TNP2K, 2017). Based on NSM results, South Bangka District (30.0%) was also designated a priority district for handling.

The district stunting proportion figure, which still shows a figure above 20 percent, indicates cronies' nutritional and public health problems. Disruption of child growth and development is a problem that demands an immediate solution to be sought by the local government. Local governments must carry out systematic efforts to accelerate specific and sensitive nutrition intervention programs immediately. The recommendation of one of the intervention action plans on the main pillars of stunting prevention is monitoring and evaluation as an integral part of its implementation. Evaluation activities are carried out to ensure the provision and quality of services for stunting intervention programs, budgeting and result-based planning and budgeting at the central and regional levels, and control of stunting intervention programs.

Scientific analysis of a policy can be carried out using policy evaluation research (Slade et al., 2020). Evaluation research is an analytical tool used to investigate policy programs, including food and nutrition, such as stunting interventions, to assess performance in processes and results. A choice of criteria can underlie a policy decision: fecundity, efficiency, adequacy, similarity, responsiveness, and accuracy (Dunn, 2018). The policy of stunting intervention can be evaluated at least by referring to the criteria of adequacy or adequacy. The adequacy criteria are based on the effectiveness and efficiency criteria. The effectiveness of stunting implementation has been technically established by the presence of various specific and sensitive intervention activities. The target of the stunting intervention policy has also been set on certain community groups within the cycle range of 1000 HPK.

An evaluation related to the assessment of the accuracy of the targets to ensure that the intervention provides greater leverage in island areas such as the Bangka Belitung Islands is essential. Therefore, this study aimed to evaluate the effectiveness of implementing food and nutrition policies related to the accuracy of setting targets for stunting intervention programs.

RESEARCH METHODS

This study used a qualitative research design using secondary and primary data. The research location is an archipelago area, Bangka District, and West Bangka District, the Bangka Belitung Islands Province. The location was determined purposively, considering that this area belongs to the priority districts of national stunting interventions. Evaluation studies need to be developed for areas with a geographical area of the archipelago. This research was carried out from May to August 2019. The Research Ethics Commission approved this study at the Institute for Research and Community Service - IPB University Number 217/IT3.KEPMSM-IPB/SK/2019.

The types of data collected in the study include primary and secondary data. Primary data is obtained directly from key sources or informants. Primary data was collected through interviews with officials, program implementers, and the community at the research site, as many as twenty-two purposively determined as attached. Community members selected as informants in the study were the target group of beneficiaries of stunting interventions in the village. The secondary data collected consisted of reports and documents related to countermeasures intervention at the study site. Operationalization of the aspect studied follows the Korten Model of Conformity. The implementation of the Korten Model in the implementation of the stunting program is seen in three aspects: the stunting program itself, the target or utilization of the stunting program, and the implementer or implementer within the framework of the local government organizational structure. The success of the program's performance is assessed on the achievement and suitability of the three aspects above.

The research aspects analyzed are poured into data collection instruments in general interview guidelines. The collected data were analyzed through an iteration process by integrating findings from desk reviews and in-depth interviews using a descriptive analysis approach. Data analysis was performed with the help of Nvivo versus 12 data processing software. The data report uses quotes to answer the question: Have the targets or beneficiaries of the program been set appropriately?

Triangulation analysis techniques are used to see the mutual validity and interconnectedness between various powerful data sources. The final result or conclusion is obtained by finding patterns from the collected data. The analysis is often carried out in conjunction with data collection so that deficiencies are directly sought from key informants/sources and documents in the field.

RESULTS AND DISCUSSION

Suitability between programs and utilization groups

The target groups in the stunting intervention program in the two districts are presented in Figure 1. The group of stunting users or targets who will get intervention at the research sites, namely Bangka and West Bangka District, has been outlined in policy documents and implemented by various district offices to village governments. The mechanism for determining program targets in both districts is based on electronic data on Community-Based Nutrition Reporting Records or e-PPGBM, especially in stunting-specific interventions. However, mechanisms other than e-PPGBM are also used by district offices in targeting sensitive interventions. Figure 2 describes the various stunting targeting mechanisms in the two districts. The determination of intervention activities in the two districts is carried out through the Development Planning Deliberation (Musrenbang) for activities that have been documented in regional policy documents and are a priority. In addition, West Bangka District conducted a Bedah Desaku deliberation. As a result, it proposed District Budget or APBD changes to determine activities that have not been included in the policy document in the initial conditions of determining the district as a stunting locus district.

Conformity of the program with the implementing organization

The budget provided to finance stunting intervention activities of the two districts from the sources of financing for the State Budget (APBN) and the Regional Budget (APBD) of the provinces and districts. Problems related to stunting financing include budget limitations or deficits, and no special funds are available, especially in West Bangka District. Budgeting problems also occur because no stunting performance target is explicitly mentioned in policy documents such as the Regional Medium-Term Development Plan (RPJMD), Strategic Plan (Renstra), or regional action plan for food and nutrition (RAD-PG). Figure 3 succinctly describes stunting budgeting in both districts.

Personnel or apparatus at various administrative levels involved in the convergence of stunting prevention in the two districts have not fully understood the technical guidelines for stunting reduction interventions. District Communication, Information, and Statistics Office (Diskominfotik), District Health Office (Dinkes), and District Education and Culture Office (Dikbud) were the District Offices that revealed this. Stunting prevention at the research site also received support and facilitation from non-governmental institutions to form the third stunting convergence action, Rembuk Stunting. The third action of stunting convergence was carried out to get support from all parties in reducing stunting in their respective districts. Bangka District is recorded to have collaborated with various private companies, especially PT. Timah Tbk and PT. Samsung Electronic, mass media such as Radio Republik Indonesia (RRI), and financial institutions such as Bank Indonesia (BI). West Bangka District recorded cooperation with the wives of PT. Lead Tbk.

Suitability of the utilization group with the implementing organization

Changes that occur after the intervention program is implemented are recognized by the beneficiaries and implementers in the convergence of stunting prevention. Success is assessed in each district, and assessment indicators are recorded in policy documents in the form of the Regional Action Plan for Food and Nutrition (RAD-PG) of Bangka Belitung 2017 - 2022 and Bangka Regent Regulation Number 21 of 2019 concerning Stunting Reduction. At least three informants in this study stated the satisfaction of the beneficiary group as the target of the stunting intervention program.

Discussion

The implementation of stunting intervention policies is one of the general processes of administrative action that can only be started if the goals and objectives have been set and a series of activities and financing have been prepared and can be distributed to the target or beneficiary. The target groups for (Akib 2010) stunting interventions set by Bangka and West Bangka Districts are not only limited to the 1000 HPK phase but also include peasant women and religious leaders, and community leaders. This goal would be better because (Figure 1) can be done through community-based service-delivery platforms. Stunting intervention programs can be implemented through behavior change communication and community mobilization strategies. The potential of this activity can be implemented among populations that are difficult to reach locally in homes, villages, or community groups (World Health Organization 2018). Research in East Java has succeeded in proving that the communication theory of behavior change is not only successful in promoting hygiene but also in the promotion of nutrition (White et al. 2016).

The National Team for the Acceleration of Poverty Reduction (TNP2K), as the secretariat of the Steering Committee in the National Stunting Prevention Acceleration Committee, promotes the use of the Integrated Database (BDT) as a systematic effort to unify the national target setting system in integrating and synchronizing between programs. BDT is also used in the context of convergence of integrated services starting from the planning, financing, and monitoring activities carried out by local governments within a cross-sectoral framework on sensitive nutrition interventions for all community groups, especially the poor. The target-setting mechanism used in both districts, especially in stunting-specific interventions, uses e-PPBGM as a database, while nutrition-sensitive interventions use each database. However, various obstacles were conveyed by informants related to the use of BDT, including the problem of changing data too quickly, data validity, and data collection implementing officers as stated below:

"So we have not connected that data yet, sir, because the BDT data is constantly changing. Yesterday, the last time we got the latest decree from the Ministry of Social Affairs related to BDT, there were 40,000 people. Furthermore, this is all shifting. Well, now the question is whether we want to use BDT 2016, 2017, 2018, or 2019. That is the case, and it is moving on. At the time of 2018, we said he was BDT; at the time of 2019...eh... he is not BDT anymore. Then the second, when removing the data from BDT, is not the data valid? The real thing was yesterday that we took out of the BDT data... the reality is that the person is not capable and still asks for help with the province. So this BDT we also doubt, it is valid not to describe in his village or not." (Mr AS, District Health Office, West Bangka).

"BDT is the first challenge for our human resources, sir. Because I do not know this too, what is it called... what the original concept was like because I entered it in the middle of it. To be sure, we depend on our data collectors in the villages. That is the main challenge, in my opinion. Because if you look at the quality that exists, right, because there were until yesterday, last year we had several villages that we did not disburse because the report card was not... it does not work, it is about validation." (Mr. S, Bappeda of West Bangka).

These differences in mechanisms can occur when a new policy is implemented. This condition occurred in West Bangka District, which was newly designated as one of the loci for handling stunting by the central government at the time this study was conducted. The same is almost the case throughout Indonesia due to the absence of shared databases in convergent program goal-setting actions. (Permanasari et al. 2020). Implementors carry out mechanisms to achieve the goals set, such as developing a different mindset or replicating synergies and combinations while considering the implementation's relevance and effectiveness. The mechanisms carried out by District Offices or OPD in these two districts have been considered based on the effectiveness and achievement of the implementor's performance (Akib 2010). The following opinion confirms this:

"If in ... in what is it called directly that the stunted person should enter this BDT, no. Nevertheless, this is what this is called... maybe most of it is if this is what the stunting suspects are in BDT. So that but needs to... need... What is it called further research, because the problem is that if the economy causes it, it usually comes in". (Mr. S, Bappeda of West Bangka).

".... because its nutritional status does not accompany it. So the deputy governor of the time he had ... who is the SKPD who has data by name by address stunting toddlers? So yes, we are; we even have the baby's NIK, right?" (Mr B, District Health Office, West Bangka).

"Nope... so each one might have what got... their respective authorities yes. They may be yes... the data that is an indicator in them may be different from the indicator of food insecurity in us". (Mrs. HAD, District Food Office, West Bangka).

"No, sir. We do not specialize in the incapacitated ... no... We are based on the needs based on the proposal that came in. So even if he, for example, is incapable and does not convey proposals to us, we still do not accommodate, that is yes. Even if he, for example, is capable of a group but they submit a proposal to us, and we survey them worthy, we still love that, sir". (OPD, Mrs. ES DKP West Bangka District).

Consideration of the existing determination mechanism in Bangka District that does not use BDT because a convergence team for stunting mitigation has been formed that has routinely communicated. Another critical research finding in this study is that the Bangka District RPJMD document for 2019 -2023 already includes performance indicators for reducing stunting by 15.48% in 2023. The derivative policy document has also been operationalized with the Statute of Bupati Bangka Number 21 of 2019 concerning Stunting Reduction and strengthened by the Statute of Bupati Bangka 38 of 2019 concerning Regional Action Plans for Stunting Reduction in Bangka District in 2019-2023. Edward III's implementation model also requires the success of the implementation process on preconditioning factors, one of which is communication (Akib 2010). The following statement confirms the communication that has been carried out in Bangka District:

"Never have been. If it is for intervention, we are indeed integrated. So there is the technical team, the social, and there is from the OPD. From there, we coordinate with each other; for example, to intervene, they do what, we do what, so later stay.. what has it called... targeting the same group, the same target. Well, the one for BDT just now... means he should.... so that is the weakness... So the Bappeda invited all OPDs to discuss that there is a stunting problem, meaning what their respective OPDs should do. Then we have planning that proposes that activity. Then we create activities that are official indeed meant, which are already binding on the district. However, it was a small team meeting; first, a special technical team directly played a role in stunting, which Bappeda bought". (Mrs. DY, District Health Office, Bangka).

"Yes, if that is the case, the action that we have made is in the form of policies related to planning. Starting from the RPJM has entered, the RPJMD, RKPD, and Renja (Work Plan) are confirmed to be all there; the stunting is there. Then we have also made a stunting RAD, that we have made, then the Regent's Regulation on Stunting Management. It already refers to stunting performance. So we reference stunting performance because stunting success is performance; that is what is measured, right? (Mr. R, Bappeda of Bangka).

Convergence through the Stunting Bust action involving multisector in Bangka District also integrates stunting intervention planning. Intervention planning and target setting are also carried out through the Musrenbang mechanism or Bedah Desaku in West Bangka, which involves a multisector. An essential lesson in Kenya is that similar practices encourage change in health and economic status

compared to the challenges of a relatively long time. The success of (Cole et al. 2016) in reducing stunting by 2.18 percent in ten villages in Banggai District, South Sulawesi, was carried out in a convergent manner as well as involving multi-sectoral, especially in planning, budgeting, and implementation of intervention programs. The suitability of setting targets as beneficiaries with the planning of intervention programs in both districts has at least been pursued in implementing (What et al. 2021) stunting intervention policies.

The problem of the budget to finance policy implementation occurs if the source of financing owned by one region is limited, so it experiences a deficit. This condition occurs when policies are prioritized by the central government to be implemented immediately in the regions, such as stunting interventions. Initially, the stunting intervention policy was not accompanied by stimulant funds or particular budgets from the central government. West Bangka District is the area that feels this the most, as the informant said the following:

> "... particular budget does not exist, sir, because in West Bangka, this is related to the limited budget. So we... where there is a budget that can go there, that is what we are making this... Activities. Moreover, we also do not have any specificity for the one below, but at least when we survey it, we look for the one that goes there, sir. So later, we will look for his incapable group members. (Mrs. ES, District Marine and Fisheries Office, West Bangka District)

> "... that is it, the budget is also limited... we are a bit limited". (Mrs. HAD, District Food Office, West Bangka)

> "Wow... it is not limited anymore; it is a budget deficit; that is the problem". (Mr AS District Health Office, West Bangka)

This problem will result in hampering the smooth implementation of stunting policies. Healthcare performance relies on public spending to finance organization, management, and service productivity. Integrating public and private financing is necessary to ensure public sector investments such as health provide optimal leverage. Local governments have greater responsibility for funding and delivery of health services, but the central and state jointly determine the amount and type of public financing. The local government bears most of the total government's health expenditure, while the central government will account for the remaining one-third. (Kumar et al., 2011)

Planning and budgeting must also be documented in a policy document as targets for achieving performance indicators, such as stunting reduction. Some regions in Riau have also not included stunting indicators as performance targets in the RPJMD document or the OPD Strategic Plan, even though the mission of human resource development has been clearly stated (Tampubolon, 2020). Performance indicators are not enough to be stated, but they must be operationalized through derivative documents such as the RAD and Renstra. The review of the West Bangka District policy document also has not explicitly stated the performance indicators for stunting reduction in the West Bangka District RPJMD document for 2016 – 2021. Likewise, the derivative documents in West Bangka District's Food and Nutrition Regional Plan (RAD-PG) in 2019 - 2023 have also not been declared indicators of stunting reduction. This study confirms the findings that the difficulties that occur when there are no stunting performance indicators and the RAD-PG and even the district strategic plan do not include stunting reduction activities in one of the District Offices, with the following statement:

"So the strategic plan is the basis for our submission. The district strategic plan... that is what it has not been, sir. So District Budgeting Team (TAPD) cannot disburse the budget or allocation, and we what... , wrong also them. So basically, that is where it is, sir. Well... now ni has not entered the nomenclature in his Strategic Plan has not entered. So all-round... it hits it, right. So TAPD has not dared to disburse; there is no basis yet. We have a National Strategic Plan. Put in and out... forced-forced there. However, it is not too much of a joke, right... Well... get 33 Million right. That is what I

said yesterday, Mr. Guntur...: Mr. Guntur, usually, there is a sharing of funds, you know, what are the obstacles? Yes, that was it... some can, ade who do not. Because of what? Because of the data proposed here, the center's determination is not necessarily... for example, and we follow Rp. 20,000, the decrease may only be Rp. 15,000, which is Rp. 5000. Well... I mean that rp5,000 we backup the APBD. However, it cannot be backed up because the strategic plan does not exist. From yesterday's regional coordination meeting... with that cross-sector, there is bappeda, dinkes, this... related to stunting. It is related to stunting... just this month. That is why I said... I am protesting, you know, is only now the coordination meeting" (Mr. Y District Social Office, West Bangka).

The existence of problems often expressed as problematization in the realm of public policy analysis is guided by the issues to be resolved. Therefore, discovering problematization is even an act of conceptualizing issues in other policies (Sugianto 2021). Therefore, the temporary resolution carried out by the local government at the research site is to refocus or even rename activities and changes to the APBD at the end of the current year. The following statement revealed this:

"There is... for which problem what is the name... in this coordination team, we already have a change in the 2018 APBD. It is just that maybe this, those handlings in the programs have also grazed a lot. Only when this issue arises, or our old yes program is finally the focus. There was something new that we were also trying to get there. This includes a new program". (Mr. S, Bappeda of West Bangka)

"... we only enter District Budgeting Revision or APBD-P, that too can only enter PMT, not others. In other words, we force and use routine costs, including water sampling and specialist doctors, that we can include in the APBD-P". (Mr AS, District Health Office, Bangka Barat).

The potential for financing stunting interventions through the Dana Desa or Village Fund was a solution carried out by Bangka District to this budget problem. The potential of Dana Desa to develop an intervention program that combines fund transfer with multifaceted training in entrepreneurship, health nutrition, and social awareness can significantly improve food security, sanitation, and the duration of exclusive breastfeeding. In addition, t nutritional status of children who settled or resided in poor non-participant households was also positively affected, although no effect was found in children from non-poor households (Race et al. 2018). The informant conveyed the potential optimization of the Dana Desa in the following statement:

"What are the priorities of the area? For example, the village must also be stunted if it is stunting. So when they, for example, because the planning and budgeting have been established, they inevitably have to improve and change. Because of what? Because in 2019, the disbursement of village funds is tied to stunting, a prerequisite. So if the village does not make a report, does not attach a stunting report, the village fund will be... cannot be thawed'. (Mr. R Bappeda Bangka District)

"Kalo secara khusus untuk awal sih dakde mari a, mungkin untuk tahapan perubahan ne kami isik lah lak a, karena kan kriteria a mungkn kita lah agak mengetahui kan kriteria a…. Ade yang dapet terbare tu ade, cuman di kita ne lom masok untuk awal tadi kan. Jadi di perubahan.Sekarang ne bulan 7, sekarang ne kami tengah godok perubahan. Keluar a ne lah disahkan oleh camat, bupati cq camat kan. Ya lah kita realisasikan, salah satu a harus ade KPM a. Kita yang disuruh membiayai, dari anggaran desa". (Mr. SB, Village Government, Mendo Village, Bangka).
(If there was not one at first, maybe the next stage in the change we put in. Because we already know the criteria (activities). The latest criteria were not included in the initial disbursement yesterday. So in change, we are making those changes in the seventh month. The sub-district... regent CQ Camat, will then authorize it. We will realize that later, one of which is that there

must be a KPM (Community Development Cadre) we are asked to finance from the village budget).

As one of the resources for policy implementation, the apparatus or staff must be equipped with the formation needed in decision making and committed to the program's implementation (Akib 2010). The implementing apparatus in stunting interventions in the two districts did not fully understand the technical guidelines because it was a new policy at the time this study was carried out, so socialization and advocacy were still limited. One of the obstacles to implementing the convergence of stunting interventions in Indonesia is that there is still no optimal socialization and the untimely distribution of implementation instructions or Juklak as well as technical or juknis guidelines, which results in a lack of a thorough understanding of stunting prevention programs. The delayed information obtained because there has been no dissemination in the internal OPD by the staff who follow the socialization and the region's demographic conditions is estimated to be the cause (Permanasari et al. 2020). The following statement of the research informant illustrates this as well:

"In general, yes. However,... because this is new content, yes... but in what... in detail, what is stunting, how to handle it, yes, we may not be 100% yet. So we are slowing down, but the issue is that if we have a meeting, we also say that in this way, there has to be a detailed description, right? So what is stunting, and what kind of handling? Well... that I think it is in the process". (Mr E, District Education And Culture Office, West Bangka).

"If it is in health, it is already. Their interest outside of health has not been, especially the village chief". (Mr B, District Health Office, West Bangka).

"Well, because the technical instructions are not too late in the early days, this just came out, right? So at the beginning of the formation, it did not exist yet. However, after getting the Juknis, you can get what each OPD does, so you understand it, so you have to coordinate. So they understand, oo... means that it is mandatory to play a role, to have their role. So inform each other, for example, ask for this data, so coordinate with each other". (Mrs. DY, District Health Office, Bangka).

"We from OPD are also invited to synergize to understand this is a problem, yes... most of the understanding is in terms of OPD, it is not like that yet. If it is personal, I understand; yes, stunting is right... development... growth patterns related to a child's nutrition so as not to grow... short or out of the standard, like that". (Mr. A, District Communication and Information Office, Bangka).

"Kita ngacu ke apa nama...ke Bappeda karena dek...a lom ama ne ade dapet dari bappeda, mungkin kah kapan kami nak hubungi bappeda untuk minta..apa nama a materi apa...juklak juknisnya yang masalah stunting ya. Lah ko tengong mari a ade, Cuma waktu ya..wktu pon lah sore kan, ade bupati nutup acara jadi dek sempet ko minta data a". (Mr. SB, Village Government, Mendo Village, Bangka).

(We refer to the Bappeda rules, but since there is none, we may contact to ask for material related to implementation instruction stunting problems. In the past, we have seen that there is this, but when there is a meeting that is closed by the regent, we have no time because it is already problematic).

Adjustment of sources of financing and socialization of technical guidelines for apparatus in the two districts shows a match between the program and the implementing organization. Implementing a policy such as stunting mitigation requires clarity of management and negotiation on its content and objectives so that the implementation of national policies locally can be understood and motivated.

Policy implementation is often faced with various problems, especially in the health sector, ranging from budgets and financing curative and preventive health services and health information (Blank & Burau, 2007; Jansson et al., 2011). Multi-governance and decentralization systems also sometimes have the potential to make it difficult for the central government to have a strong influence on policy implementation, especially if the implementation of a policy is not legally binding and does not have the possibility of law enforcement(Jansson et al. 2011).

The study also showed results that key informants assessed that what implementors did in both districts showed success, and there was a change compared to previous conditions. The development of public health policies requires cross-policy coordination such as agricultural, food, marine, fisheries, and education. Community policies that are successful and accepted by society are implemented in conjunction with the policies of one field (Trein et al., 2021). The suitability of the benefits received by the targets of the stunting intervention program in Bangka and West Bangka Districts indicates changes from the initial conditions before the policy implementation. The statement of the beneficiary also confirms the success in the statement as follows:

> *"Bermanfaat, makanan kek budak kecit tu lah nak dicukupi maksud ku. PKH ade, umah ne dapet lah. Kartu Indonesia Pintar ade, Indonesia sihat...berubat".* – (Mrs. M, Peradong Village Community, West Bangka)
> (Useful food for children is fulfilled, in my opinion. The Family Hope Program (PKH) exists, and this house is also given. Smart Indonesia Card exists, Healthy Indonesia Card... for treatment)

> *"Kami sendiri Alhamdulillah pak, masyarakat…. saya sendirik pun dari duluk a tu dak tau sama sekali nanem sayur tu cemana kan".* – (Mrs. R of Peradong Village Community,, West Bangka)

> (We Thank God, sir, for the community... I did not know at all how to grow vegetables)

> *"Asa bahagia umun a. ko ne terima kaseh, syukor umun bantuan dari urang ya. Men dek de bantuan ya a. WC dari urang, KWh dari urang, beres apagik dapet lah".* – (,Mr. A / Mrs. W, Rukam Village Community, Bangka)

> (It feels so happy; I am grateful, very grateful for the help from them. If there is no help, toilets from them, electricity from them, feel also given)

CONCLUSION AND RECOMMENDATION

This study understood the three aspects of the suitability of policy implementation in setting stunting intervention targets in Bangka and West Bangka Districts as part of the performance. First, the output of stunting interventions can also be achieved optimally and meet conformity if the targets of performance indicators are clearly stated in the regional planning document. Second, the achievement of conformity is also assessed by fulfilling the target group's needs through benefits received. Third, the implementation capabilities required by the program show conformity, although some are still being improved from time to time. Finally, the suitability of stunting reduction programs, program implementers, and beneficiaries can be assessed as having led to the accuracy of targets, even though it requires continuous acceleration and recommendations.

The most important recommendation to ensure the successful implementation of stunting reduction policies is to clearly state the performance indicators of stunting reduction in regional planning policy documents such as the RPJMD or at least derivative documents such as the RAD-PG and Renstra. Integration of integrated databases with the central database of e-PPGBM in all stunting reduction intervention activities. Other databases are expected to be used within the framework of synchronization and convergence and strengthen integrated stunting reduction efforts.

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ATTACHMENT
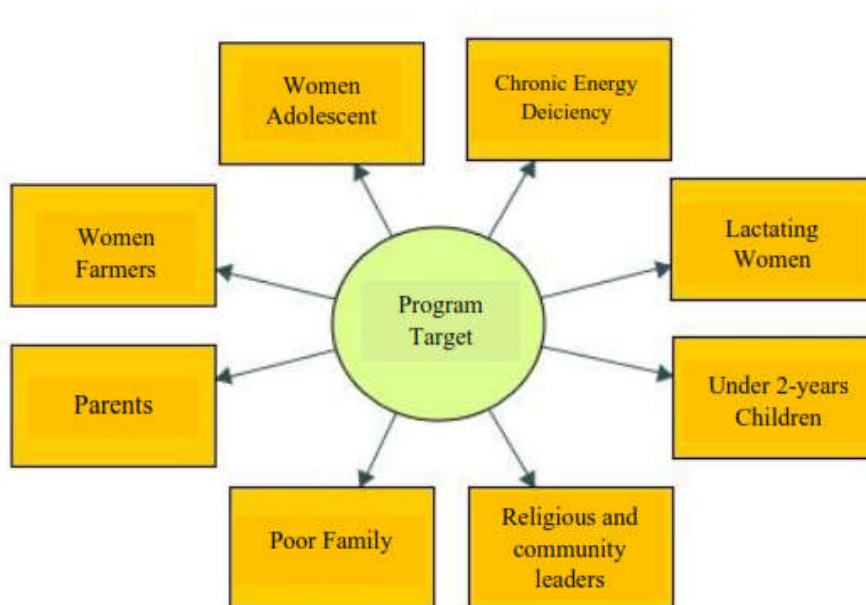
Figure 1 Target groups of stunting intervention programs in Bangka and West Bangka
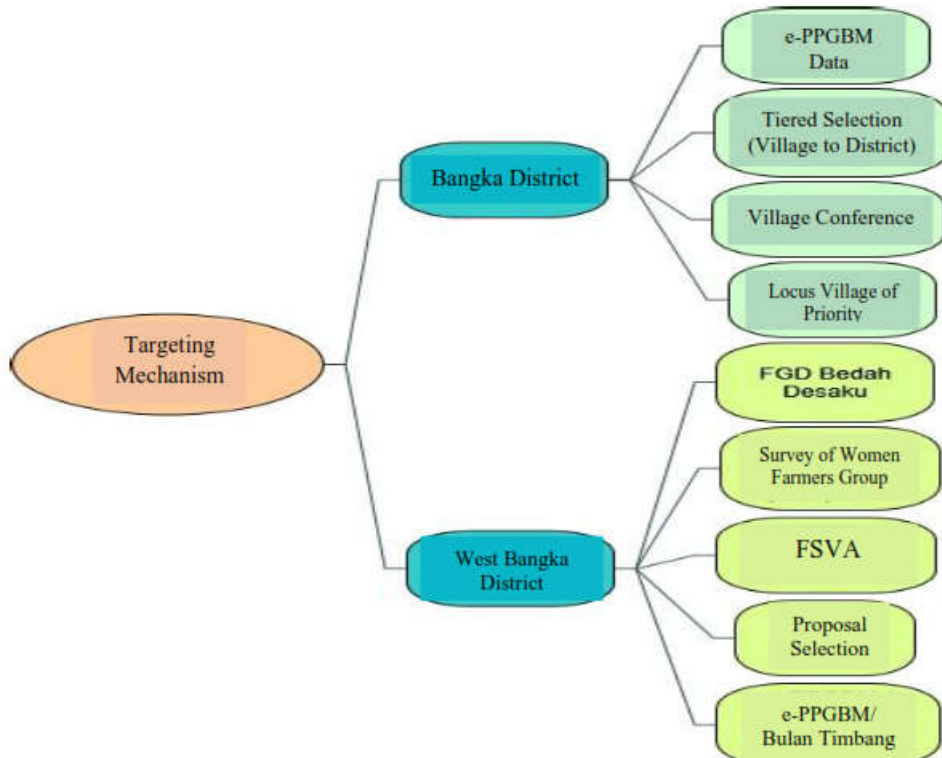
Figure 2. Stunting targeting mechanism in Bangka and West Bangka
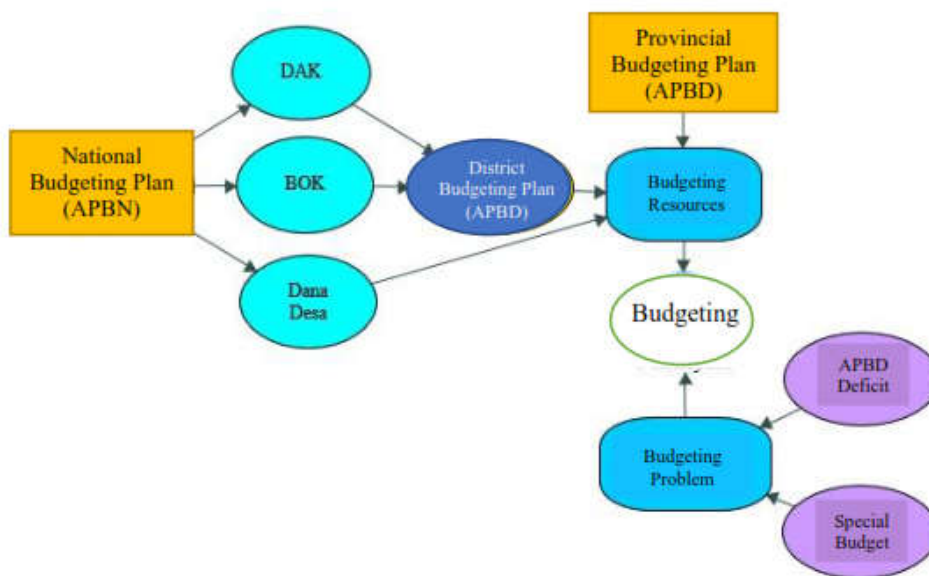
Figure 3. Budgeting mechanism for stunting intervention in Bangka and West Bangka
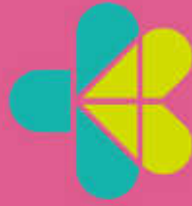
The Relationship Between The Attitude of Maintaining Dental Health and Tooth Loss in The Elderly at The Hargodedali Nursing Home Surabaya in 2022

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ABSTRACT

Background:Tooth loss can be classified as an oral cavity problem. The cause of tooth loss is often caused by disease factors such as caries and periodontal disease. Health behavior consists of knowledge, attitudes and actions that contribute to determining health status. Other factors such as trauma, attitudes and characteristics towards dental health services, social factors, demographics, and lifestyle also influence tooth loss.

Objective: to determine the relationship between dental health care attitudes and tooth loss in the elderly.

Method: This research is a cross-sectional study which was conducted in July 2022 at the Hargodedali Nursing Home in Surabaya. The research subjects were 35 elderly who met the criteria taken by purposive sampling technique. The data collection instrument used a questionnaire to determine the attitude of maintaining dental health, and dental examination to determine the number of missing elderly teeth. Chi-Square test to analyze the relationship between dental health care attitudes and tooth loss in the elderly with a degree of significance $(\alpha) = 0.05$.

Result: of 27 elderly people who do not have dental function or less than 20 teeth, 11 of them have negative dental health maintenance attitudes, the remaining 16 have positive dental health maintenance attitudes, while 8 elderly who have dental function or more than 20 teeth 5 of them have a very positive attitude to maintaining dental health and the rest have a positive attitude. This shows that only the elderly who do not have functional teeth have negative dental health maintenance attitudes.

Conclusion: There is a relationship between the attitude of maintaining dental health with tooth loss in the elderly.

Keywords: elderly; dental health maintenance attitude; tooth loss

BACKGROUND

Government programs related to services for the elderly carried out by the Ministry of Health and the Ministry of Social Affairs, have carried out various programs and activities that support and support services for the elderly, both in terms of health and social. Elderly can still perform activities optimally supported by good health conditions. With the increase in Life Expectancy (UHH), it is expected that the productivity of the elderly can increase. Maintenance of dental and oral hygiene is one of the efforts to improve health. Dental and oral health problems that often occur in the elderly are tooth supporting tissue disease and cases of tooth loss.(Permenkes RI, 2015).

Tooth loss can be classified as an oral cavity problem. The cause of tooth loss is often caused by disease factors such as caries and periodontal disease. Health behavior consists of knowledge, attitudes and actions that contribute to determining health status. Other factors such as trauma, attitudes and characteristics towards dental health services, social factors, demographics, and lifestyle also influence tooth loss. According to the Regulation of the Minister of Health of the Republic of Indonesia No. 89 of 2015 the elderly are expected to have good oral and dental health and the number of natural teeth is more than 20. With a minimum number of 20 teeth, the masticatory function is close to normal, although slightly reduced. Likewise, the aesthetic function and speech function can still be considered normal.(Senjaya, 2017).

Loss of teeth in the elderly has an impact on various problems, including psychological effects such as feeling embarrassed, tense, losing appetite, malnutrition, disturbed sleep, difficulty getting along, avoiding going out, not having friends, disturbed concentration, and unable to work completely. Dental health is one aspect of a person's health which is the result of the interaction of physical, mental, and social conditions(Edi et al., 2021).

RESEARCH METHODS

This research is a cross-sectional study which was conducted in July 2022 at the Hargodedali Nursing Home in Surabaya. The research subjects were 35 elderly who met the criteria taken by purposive sampling technique. The data collection instrument used a questionnaire to determine the attitude of maintaining dental health, and dental examination to determine the number of missing elderly teeth. Chi-Square test to analyze the relationship between dental health care attitudes and tooth loss in the elderly with a degree of significance $(\alpha) = 0.05$.

Ethical approval for this study was obtained from the Surabaya Health Polytechnic Ethics Committee, with the approval number: No. EA/1215/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1. Status of tooth loss in the elderly

Research subject	Tooth Loss Status					Total
	Have Functional Teeth (≥20 Teeth)		No Functional Teeth (< 20 Teeth)			
	n	%	n	%		
n=35	8	22.9	27	77.1		100%

Based on the table above, it is known that more than half of the elderly at the Hargodedali Nursing Home in Surabaya do not have functional teeth as many as 27 people (77.1%).

Table 2. The level of attitude of maintaining dental health in the elderly

Research subject	Dental Health Attitude Level								Total
	Very Positive Attitude		Positive Attitude		Negative Attitude		Very Negative Attitude		
	n	%	n	%	n	%	n	%	
n=35	5	14.3	19	54.3	11	31.4	0	0	100%

Based on the table above, it is known that the highest level of attitude in maintaining dental health in the elderly is in a positive attitude status, namely 19 people (54.3%).

Table 3. The relationship between dental health care attitudes and tooth loss in the elderly

Research subject	Dental Health Attitude Level	Tooth Loss Status		Total	P Value
		Have Functional Teeth	Not Having Functional Teeth		
n=35	Very Positive Attitude	5	0	5	0.000
	Positive Attitude	3	16	19	
	Negative Attitude	0	11	11	
	Very Negative Attitude	0	0	0	
	Total	8	27		

A negative attitude is owned by the elderly who have no functional teeth, while a positive attitude and a very positive attitude are owned by the elderly who still have functional teeth. Based on the results of statistical tests using the chi-square data analysis technique, the P Value of 0.000 was obtained, which means it is smaller than the significant value (α) which is set at 0.05 so that H0 is rejected and H1 is accepted, it can be concluded that there is a relationship between dental health maintenance attitudes with tooth loss in the elderly at the Hargodedali Nursing Home in Surabaya.

There is a relationship between the attitude of maintaining dental health with tooth loss, namely where tooth loss in the elderly is mostly due to dental caries. Elderly people usually have less motivation to check their dental health to the dentist or health center, this includes attitudes in maintaining dental health that are not good (Baqiyah et al., 2022). The better the attitude towards maintaining oral and dental hygiene, the better the dental health status of the elderly (Rahayu et al., (2014).

CONCLUSION AND RECOMMENDATION

There is a relationship between the attitude of maintaining dental health and tooth loss for the elderly at the Hargodedali Nursing Home in Surabaya in 2022. For the elderly, it is expected to maintain the health of the remaining teeth, for caregivers to pay more attention to

the dental health of the elderly and for health workers to improve dental health services. and mouth and provide socialization about the importance of teeth in old age.

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PARENT'S ATTITUDE ABOUT THE MAINTENANCE OF DENTAL HEALTH TO THE PREVALENCE OF DENTAL CARIES IN DEAF CHILDREN

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ABSTRACT

Background:Based on the results of the Caries Prevalence examination in deaf children at SDLB Karya Mulia Surabaya, it was found that the Caries Prevalence was in the bad category. Individuals with special needs have lower levels of dental and oral health and hygiene compared to normal individuals. This happens because they have limitations in caring for their own teeth. **Objective:**This study aims to determine the effect of parent's attitude about dental maintenance on the prevalence of caries in deaf children at SDLB Karya Mulia Surabaya . **Methods:**This study uses a quantitative research method with a cross sectional approach which was carried out at SDLB Karya Mulia Surabaya. The research subjects were 31 parents with deaf children and were taken using a total random sampling technique. The data collection instrument used a parent's attitude questionnaire and an observation sheet for caries. The Chi-square test was used to analyze the effect of parent's attitude on the deaf children,s Caries Prevalence with a significance level (α) = 0.05.**Results:**Most parents of deaf children SDLB Karya Mulia Surabaya were have good attitude about dental maintenance and most deaf children with SDLB Karya Mulia Surabaya were have some caries. Based on statistical tests, it was found that there was no effect of attitude abut dental maintanace on the Caries Prevalence of deaf children at SDLB Karya Mulia Surabaya (p>0.05). **Conclusion:** There is no effect of attitude about dental maintanace on the Caries Prevalence of deaf children at SDLB Karya Mulia Surabaya

Keywords: Deaf,Attitude,Dental Maintenance,Caries

BACKGROUND

Children with special needs (ABK) are individuals who have different characteristics from other individuals who are considered normal by society in general. More specific, children with special needs show physical, intellectual, and emotional characteristics that are lower or higher than normal children of their age or are outside the normal standards prevailing in society. education(Mirnawati, 2019)

Based on data from the World Health Organization, the incidence of dental caries in children is 60% -90%. The prevalence of dental caries in Indonesia, according to age group, is 60% for 3 years, 85% for 4 years and 86.4% for 5 years. This shows that the prevalence of caries in preschoolers is still quite high (Alfiati *et al*., 2017). In line with the survey data, the results of dental health checks on deaf children at the SDLB Karya Mulia, Surabaya, the caries prevalence was 82%.

Deaf children show about hearing difficulties from mild to severe categories, classified into hearing loss and deafness. Deaf people are people who have lost the ability to hear so that it hinders the process of language information through hearing, either using or

not using hearing aids where the hearing limit they have is sufficient to allow the success of the process of language information through hearing(Rahmah, 2018).

In connection with the limitations of children with special needs, dental and oral health of children with special needs tends to require more handling than normal children and it is unfortunate that many parents of children with special needs have inadequate attitudes and knowledge and children with special needs are still often considered second-class society in line with with the results of the examination conducted by Sadimin et al., 2018 dental health in deaf children was mostly in the very low category (73%) (Sadimin et al., 2018).

The cause of caries comes from various factors. The attitude includes several predisposing factors related to the formation of caries. Attitude linkages can provide an assessment to individuals when exposed to a disease(Panjaitan & Tampubolon, 2018).Parents' attitudes and behavior greatly affect their children's attitudes and behavior which is reflected in their child's dental health. Attitude is not just a purely psychological internal condition, but a process of individual consciousness that is influenced by personal experience, other people, culture and mass media. A person's behavior is influenced by the environment through observational learning, perspectives, and ways of thinking that a person has of information. Parents are models that are imitated by a child (Sadimin et al., 2017).

RESEARCH METHODS

This research has been approved by the Health Research Ethics Commission of the Polytechnic of Health Surabaya No.EA/1250/KEPK-Poltekkes_Sby/V/2022.This study uses quantitative research methods with a cross sectional approach. The targets in this study were children with disabilities in SDLB Karya Mulia Surabaya totaling 31 parents with deaf children.The sampling technique was carried out by total random sampling technique. The data collection method used in this research is primary data. The primary data was obtained through filling out a questionnaire which was composed of prepared statements and answer choices. The instrument used was a questionnaire about parent's attitude and an caries prevalence. The Chi-square test was used to analyze the effect of parent's attitude on caries prevalence in deaf children with a significance level (α) = 0.05.

RESULTS AND DISCUSSION
1. Parents' Attitude About Dental Health at SDLB Karya Mulia Surabaya

Table 1.1 Distribution of Measurement of Parents' Attitude about Dental Health at SDLB Karya Mulia Surabaya

No.	Attitude	Frequency	Percentage
1.	Good	27	87%
2.	Medium	4	13%
3.	Low	0	0%
	Total	31	100%

Based on table 1.1, it is found that most parents of deaf children at SDLB Karya Mulia Surabaya have an good attitude about dental health with a frequency of 27 people with a percentage of 87%. The results was relate with the research by (Rizaldy *et al*., 2017) the result was maintenance of dental health in parents showed good results (77.37%). Respondents are in the good category because most of the respondents have a positive attitude towards maintaining the health of the show(Rizaldy *et al*., 2017)

This level of good attitude is related with their level of knowledge in maintain oral and dental health. Knowledge here more possibilities lead to positive aspects, so that the attitude in maintaining dental and oral health tend to be more good (Julia *et al,* 2018). This matter shows that one's knowledge about an object contains two aspects, namely: positive and negative aspects. These two aspects which will determine one's attitude, the more positive aspects and known objects, it will lead to a more positive attitude towards the object certain(Liza & Diba, 2020)

2. Prevalence of dental caries in deaf children at SDLB Karya Mulia Surabaya

No.	Kriteria	Frequency	Percentage
1.	Caries	28	90%
2.	No Caries	3	10%
	Total	31	100%

Table 1.2 Distribution of Prevalence of dental caries in deaf children at SDLB Karya Mulia Surabaya

The results from data analysis, Based on table 1.2, it was found that most of the deaf children in SDLB Karya Mulia Surabaya experienced dental caries with a frequency of 28 people with a percentage of 90% it was placed in bad level related with older research result by (Sadimin *et al.,* 2018) that deaf children as responden having a dental health status and oral hygiene in very low category and supported by (Essie Octiara *et al.*, 2018) research revealed that the prevalence of caries in children with special needs is very high(Essie Octiara *et al.*, 2018). This condition it can be related with the other internal and external's factor may caused the caries as described by(Sadimin *et al.*, 2018). Other factors it can be cause is about deaf children's knowledge and motivation about maintenance of dental and oral health related with the research by (Aziza *et al.*, 2022) that the lower the level of knowledge, the weaker the motivation for maintaining oral health.

3. Analysis of the The influence of parents' attitudes about dental health on the prevalence of dental caries in children with hearing impairment at SDLB Karya Mulia Surabaya

Table 1.3 The influence of parents' attitudes about dental health on the prevalence of dental caries in children with hearing impairment at SDLB Karya Mulia Surabaya

Attitude	Caries Prevalence		total	P *value*
	Caries	No Caries		
Good	24	3	27	
Medium	4	0	4	0,483
Low	0	0	0	
Total	28	3	31	

Based on the results of statistical tests using the Chi-Square data analysis technique, the value of is obtained. Value 0.483, which means it is greater than the significant value (α) that is set, which is 0.05 (0.619 > 0.05), so H1 is rejected and H0 is accepted, it can be concluded that there is no effect of parent's attitude about dental maintanace on caries prevalence in deaf children SDLB Karya Mulia Surabaya. This is not related with the research results of (Sadimin *et al*., 2018) in their research there is an influence between parent's attitude and the Dental Health of caries in the deaf children(Sadimin *et al*., 2018). If the parent's attitude not affected into experienced of dental caries in deaf children, it may be caused by other internal or external factors like knowledge and motivation by themselves that can affected their oral health status include caries experience related with the research by (Aziza *et al*., 2022).
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CONCLUSION AND RECOMMENDATION

After conducting research on " Parent's attitude About Dental Maintainance On The Prevalence Of Dental Caries Of Deaf Children" it can be concluded

1. Most parents of deaf children SDLB Karya Mulia Surabaya were have good attitude about dental maintenance.
2. Most deaf children with SDLB Karya Mulia Surabaya were have some caries.
3. There is no Effect Of Attitude Abut Dental Maintenance On The Caries Prevalence Of Deaf Children at SDLB Karya Mulia Surabaya.

For further researchers, it is hoped that they can conduct further research on parent's attitude and caries experienced and prevalence in deaf children.

Based on the results of the research and the conclusions above, the following suggestions can be given:

1. For Parent's Deaf Children at SDLB Karya Mulia Surabaya
   Parents are expected to improve their practice about dental and oral health maintenance so the children have a role model for practice about dental and oral health maintenance. This can be done by multiplying information from various sources in order to improve the status of dental and oral health in deaf children.
2. For Teachers at SDLB Karya Mulia Surabaya
   Teachers are expected to improve information from various sources in order to improve the status of dental and oral health knowledge and expected the students also improve their knowledge as on of the factors improving health degrees so it can be also improve their health status of dental and oral health.
3. For Health Workers
   Local dental health workers are expected to provide dental and oral health education, especially about caries in deaf children and how about ways to maintenance. The role of health workers is very important considering that one of the sources of information for parents is health workers in order to improve the status of dental and oral health especially in deaf children.

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EFFECT OF NUTRITIONAL STATUS ON DELAY IN ERUPTION OF PERMANENT M1 TEETH IN GRADE 1 ELEMENTARY SCHOOL STUDENTS (STUDY AT KUTISARI VILLAGE ELEMENTARY SCHOOL, SURABAYA)

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ABSTRACT

Delayed tooth eruption is a delay in the growth of teeth towards the oral cavity which begins when the teeth are still in the oral cavity. The eruption time of the permanent M1 teeth is when the child is 6-7 years old. When the permanent M1 tooth erupts, if it doesn't fit properly, the growth of a person's body can generally be said to be stunted. Objective: to determine the effect of nutritional status on delayed eruption of permanent M1 teeth in grade 1 elementary school students in Kutisari Village, Surabaya. Method: The type of research used is the cross sectional method with purposive sampling technique and obtained a sample of 159 respondents. This research was conducted on grade 1 elementary school students in Kutisari Village, Surabaya in April 2022. Data processing and analysis techniques were carried out using the Kruskal-Wallis test. Results : There was no influence of nutritional status on the delayed eruption of the maxillary permanent M1 teeth, while on the mandibular permanent M1 there was an influence of nutritional status on the delay of eruption of the permanent M1 teeth in grade 1 elementary school students in Kutisari Village, Surabaya. Conclusion : Most of the respondents have poor nutritional status and experience delayed eruption of permanent M1 teeth, it is necessary for parents to play a role in parenting their children's diet.

Keywords : Nutritional Status, Tooth Eruption, Students

BACKGROUND

The eruption of one's teeth reflects the general growth of the body. When a person experiences delayed tooth eruption, the growth of a person's body can generally be said to be hampered (Badruddin et al., 2017).

Tooth eruption is the movement toward the oral cavity that begins when the teeth still in the jawbone. Eruption is a continuous process begins as soon as the crown is formed (Wangidjaja, 2014).

The eruption of permanent M1 teeth in grade 1 elementary school students in Kutisari Village at Bethel Sulung 3 Christian Elementary School, Eleos Christian

Elementary School, and Bisma Dua Elementary School Surabaya showed that in tooth 16 there were 14 students (42.4%) who had not erupted, there were 11 students. (33.3%) whose eruption was not perfect, there were 8 students (24.3%) who had a perfect eruption. In tooth 26 there were 15 students (45.4%) who had not erupted, there were 10 students (30.3%) who had incomplete eruption, there were 8 students (24.3%) who had fully erupted. In tooth 36 there were 23 students (69.7%) who had not erupted, there were 3 students (9.1%) who had incomplete eruption, there were 7 students (21.2%) who had fully erupted. In tooth 46 there were 23 students (69.7%) who had not erupted, there were 3 students (9.1%) who had incomplete eruption, there were 7 students (21.2%) who had fully erupted.

Molars or first permanent molars are the first permanent teeth to erupt when a child is 6-7 years old, or at the same time as the first incisor or 1 (one) incisor. The first permanent molars or molars grow behind the milk molars (Pangarso, 2017).

Factors that influence tooth eruption are nutrition, genetics, and hormones. Malnutrition can delay tooth eruption in low socioeconomic populations and tooth age may reflect age- comparable physiological assessments based on skeletal development, weight or height (Rajendran, 2020).

Good nutritional status of children occurs because the food consumed contains nutrients in sufficient quantities for the body's needs and there is a balance between the amount of energy that enters the body and the energy released from outside the body according to individual needs (Zakiyah et al., 2017).

At the beginning of the age of 6 years the child begins to enter school and enters a new world, where he begins to relate a lot to people other than his family and socialize with the new atmosphere and environment in his life and has many activities. This greatly affects their eating habits (Ariani, 2017).

Parents always assume that the permanent teeth that grow always shake the milk teeth first, even though the eruption of the molarsor first permanent molargrow on its own without moving its milk teeth. If there is a delay in the eruption of the tooth, it will have an impact on the child's masticatory system.

Eruption of molarsor first permanent molarThis needs special attention for parents, taking into account the nutritional status of their children. The nutritional status of children can be improved by paying attention to their child's diet. Here the role of parents is very important in providing the presentation of food menus and paying attention to what foods their children will consume.

Researchers are interested in researching the effect of nutritional status on delayed eruption of permanent M1 teeth in grade 1 elementary school students in Kutisari Village, Surabaya because parenting plays an important role in maintaining tooth development and growth.

RESEARCH METHODS

This research has been approved by the Health Research Ethics Commission of the Polytechnic of Health Surabaya No.EA/1249/KEPK-Poltekkes_Sby/V/2022. The research method used iscross sectional method with non-parametric Kruskal-Wallis

statistical test. With the statistical test with a confidence level of (0.05). The population in this study were grade 1 elementary school students in Kutisari Village, Surabaya, that is Bisma 2 Elementary School, Eleos Christian Elementary School, Bethel Sulung 3 Christian Elementary School, Saroja Islamic Elementary School, Kutisari I State Elementary School and Kutisari II Elementary School with a total sample of 159 students. The sampling technique in this research is purposive sampling

RESULTS AND DISCUSSION

The research data was obtained from an examination of grade 1 students regarding the nutritional status of the permanent M1 teeth.

Table 1 Frequency Distribution of Respondents' Characteristics at Elementary Schools in Kutisari Village, Surabaya in 2022

Characteristics	Frequency	%
Gender		
● Man	73	45.9
● Woman	86	54.1
Age		
● 6 years	7	4.4
● 7 years	103	64.8
● 8 years	49	30.8

Based on table 1, it is known that the research subjects amounted to 159 respondents and most of the respondents were female with 86 respondents (54.1%) and most of the respondents aged 7 years with a total of 103 respondents (64.8%).

Table 2 Frequency Distribution of Children's Nutritional Status Categories at Elementary Schools in Kutisari Village, Surabaya in 2022

No.	Category Nutritional Status	Frequency	%
1.	Not enough	74	46.5
2.	Well	58	36.5
3.	More	17	10.7

4.	Obesity	10	6.3

Based on table 2, it is known that most of the respondents have poor nutritional status as many as 74 respondents (46.5%).

This can also be supported by a statement which states that most mothers who have poor knowledge apply poor food parenting to their children. Although mothers have good knowledge about nutrition, the food parenting they apply is not good because of the lack of time for mothers to pay attention to their children because some mothers work outside the home so that directly and indirectly it is the main cause of malnutrition in children.(Izhar, 2017).

The ability of parents to buy groceries depends on the size of their income. In addition, the level of income can determine the pattern of eating. Parents with limited income cause their food purchasing power to be low so they are unable to buy the required amount of food and in the end this has a bad impact on the nutritional status of their children under five. Conversely, the higher the income of parents, the nutritional needs of family members can be guaranteed (Wandani et al., 2021).

Table 3 Frequency Distribution of Categories of Permanent M1 Tooth Eruption in Elementary Schools in Kutisari Village, Surabaya in 2022

M1 Permanent Teeth	Category Permanent M1 Tooth Eruption							
	1		2		3		4	
	F	%	F	%	F	%	F	%
16 . teeth	69	43.4	62	39	0	0	28	17.6
26 . Teeth	69	43.4	62	39	0	0	28	17.6
36 . teeth	75	47.2	57	35.8	0	0	27	117
46 . teeth	75	47.2	57	35.8	0	0	27	17
Total	288	45.3	238	37.4	0	0	110	17.3

Based on table 3, it is known that most of the respondents have the first category in the eruption of M1 teeth, namely the teeth have not been seen in the oral cavity with a total of 288 teeth (45.3%).

Table 4 Grouping of the eruption of tooth 16 and tooth 26 with nutritional status in elementary schools in Kutisari village, Surabaya in 2022

Nutritional status	Category Eruption Tooth 16 and Tooth 26				
	1	2	3	4	Total

	F	%	F	%	F	%	F	%	F	%
Not enough	38	51.4	30	40.5	0	0	6	8.1	74	46.5
Well	24	41.4	20	34.5	0	0	14	24.1	58	36.5
More	6	35.3	8	47.1	0	0	3	17.6	17	10.7
Obesity	1	10	4	40	0	0	5	50	10	6.3
Total	69	43.4	62	39	0	0	28	17.6		

Based on table 4, it is known that most of the respondents have the first category in the eruption of M1 teeth, namely teeth that have not been seen in the oral cavity on tooth 16 and tooth 26 as many as 69 respondents (43.4%) with poor nutritional status as many as 74 respondents (46.5%) .

Table 5 Grouping of Eruption of Tooth 36 and Tooth 46 with Nutritional Status in Elementary Schools in Kutisari Village, Surabaya in 2022

Nutritional status	Category Eruption Tooth 36 and Tooth 46									
	1		2		3		4		**Total**	
	F	%	F	%	F	%	F	%	F	%
Not enough	41	55.4	27	36.5	0	0	6	8.1	74	46.5
Well	30	51.7	15	25.9	0	0	13	22.4	58	36.5
More	4	23.6	10	58.8	0	0	3	17.6	17	10.7
Obesity	0	0	5	50	0	0	5	50	10	6.3
Total	75	47.2	57	35.8	0	0	27	17		

Based on table 5, it is known that most of the respondents have the first category in the eruption of M1 teeth, namely teeth that have not been seen in the oral cavity on tooth 36 and tooth 46 as many as 74 respondents (47.2%) with poor nutritional status as many as 74 respondents (46.5%) .

This can be supported by the statement which states that the environment can affect the delay in the eruption of the deciduous teeth, namely a group of families who live in industrial areas that have excessive Co (cobalt) content which can interfere with the formation of dentin since in the womb.(Wu, et al., 2020).

In the tooth formation phase, this nutrient is an important factor that must be present because it will later affect the occurrence of the tooth eruption phase (Zakiyah et al., 2017).

Table 6 Kruskal-Wallis Test Results Effect of Nutritional Status on Permanent M1 Tooth Eruption in Grade 1 Elementary School Students in Kutisari Village, Surabaya in 2022

	16 . teeth	**26 . Teeth**	**Teeth 36**	**46 . teeth**
Kruskal-Wallis H	14,591	15,237	14,794	15,011
p-value	.008	.008	.001	.001

Based on table 6, the p-value shows that in tooth 16 and tooth 26 it is 0.008, while in tooth 36 and tooth 46 it is 0.001. So*p-value*> 0.05, it can be concluded that there is an effect of nutritional status on the eruption of permanent M1 teeth in grade 1 elementary school students in Kutisari Village, Surabaya.

This is also supported by a statement which states that the largest number of unerupted teeth is found in children who have underweight nutritional status because if the intake of nutrients obtained by the child is not appropriate, it will have an impact on the child's growth pattern, both in general and specifically in children. eruption of permanent teeth in the oral cavity (Zakiyah et al., 2017).

In the group of children who have underweight nutritional status also shows that there is a delay in the eruption of permanent M1 teeth compared to children who have obese nutritional status or vice versa which shows an acceleration in the eruption of permanent M1 teeth. This is because body composition plays an important role in the eruption of permanent teeth(Prijatmoko & Zakiyah, 2019).

Table 7 Kruskal-Wallis Test Results Effect of Nutritional Status on Delayed Eruption of Permanent M1 Teeth in Grade 1 Elementary School Students in Kutisari Village, Surabaya in 2022

	16 . teeth	**26 . Teeth**	**Teeth 36**	**46 . teeth**

Krusk al-Wallis H	9,866	10,625	13,134	13,056
p-value	.073	.073	.002	.002

Based on table 7 obtained *p-value* it shows that on tooth 16 and tooth 26 it is 0.073, whileon tooth 36 and tooth 46 it is 0.002. So*p-value*> 0.05, it can be concluded that there is no effect of nutritional status on the eruption of teeth 16 and 26, while on teeth 36 and 46 thereis an influence of nutritional status on the delay in eruption of permanent M1 teeth in grade1 elementary school students in Kutisari Village, Surabaya.

This is also supported by the statement that the maxillary teeth erupt earlier than the mandibular teeth due to ethnic diversity, where growth and development patterns are not universally applied (Khan et al., 2020).

CONCLUSION AND RECOMMENDATION

The conclusion of this study is that most of the grade 1 elementary school students in the Kelurahan have poor nutritional status and there is a delay in the eruption of the permanent M1 teeth. There is no effect of nutritional status on the delayed eruption of the maxillary permanent M1 teeth, while on the mandibular permanent M1 there is an influence of nutritional status on the delay of eruption of the permanent M1 teeth in grade 1 elementary school students in Kutisari Village, Surabaya.

It is recommended to the school at the Kutisari Village Elementary School, Surabaya to further increase activities at UKS, such as checking height and weight regularly as well as School Dental Health Efforts (UKGS) activities. It is necessary to collaborate with the nearest puskesmas to provide counseling to students and parents of students at the Kutisari Village Elementary School, Surabaya regarding food parenting and dental and oral health. The role of parents is also important to pay more attention to their child's diet so that they have good nutritional status and their child's dental growth.

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Relationship between nutritional status and occurrence of dental caries in mentally retarded children at Karya Bhakti Special School In 2022

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ABSTRACT

Background: Dental caries is a disease of dental tissue which is characterized by damage to the surface tissue of the teeth. Children with mental retardation have a higher caries rate and poor oral hygiene than normal children in general. Dental and oral health is part of the body's health that influences each other, namely the nutritional status which can be measured through anthropometric assessment. Nutritional status is an important element in shaping health.

Objective: the purpose of this study was to determine the relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti.

Method: this research is a cross sectional study which was conducted in July 2022 at the Karya Bhakti Special School on Jalan Sidoyoso Wetan Lebar No.14, RT 005/RW12 Simokerto, Simokerto District, Surabaya City, East Java 60143. The research subjects were 28 mentally retarded children who met Inclusion and exclusion criteria were taken using simple random sampling technique. The data collection instrument in this study used an observation sheet to measure the nutritional status of mentally retarded children and an examination sheet to measure dental caries in mentally retarded children. The Wilcoxon test was used to analyze the relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti with a significance level (α) = 0.05.

Result: The nutritional status of mentally retarded children at Karya Bhakti Special School is in the normal category and mentally retarded children at Karya Bhakti Special School have dental caries. Based on the results of statistical tests, it is known that there is a relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti ($p < 0.05$).

Conclusion: there is a relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti.

Keywords: Nutritional Status, Dental Caries, Mentally Disabled

BACKGROUND

Dental caries is one of the problems in oral health that can affect public health. The incidence of dental caries is experienced by both children and adults. The high incidence of dental caries requires optimal treatment, especially in the prevention of dental caries in children (WHO, 2019 *cit.* (Hidayati *et al.,* 2021).

According to the 2018 Basic Health Research Results (RISKESDAS), in Indonesia, dental and oral health is still a problem, with a national prevalence of dental and oral problems of 57.6%. And the largest proportion of dental problems in Indonesia is cavities as much as 45.3% (Hidayati *et al.,* 2021).

According to WHO, children with mental retardation in Indonesia are around 5-9%, which is about 7-11 million of the entire population of Indonesia, but the exact data is not yet available. Children with mental retardation are divided into 3 groups, namely mild, moderate and severe mental retardation (Dewi *et al.,* 2022).

The process of the occurrence of caries continues to the deeper part of the tooth so that it forms a hole. In this process demineralization occurs which is caused by the interaction of germs, carbohydrates that are suitable on the surface of the teeth and mouth (Margareta, 2012).

Many factors can cause dental caries in children, including factors in the mouth that are directly related to the process of dental caries, including tooth structure, tooth morphology, arrangement of teeth in the jaw, acidity of saliva, oral hygiene related to the frequency and habits of brushing. tooth. (Rehena et al., 2020 *cit.* (Dewi *et al.,* 2022).

Children with mental retardation have a higher caries rate and worse oral hygiene than normal children in general (Sabilillah, M.F., *et al.* 2016 *cit.* (Amiqoh *et al.,* 2022).

Dental and oral health is part of the health of the body that affect each other. The degree of health can be assessed by several indicators, one of which is nutritional status which can be measured through anthropometric assessment. Variable height for age (TB/U) and body mass index for age (BMI/U) can be used to determine the prevalence of nutritional status of school children and adolescents (Aulia *et al.*, 2019).

Nutritional status is one of the important elements in shaping health status. Nutritional status is a condition caused by a balance between the intake of nutrients from food and the nutritional needs of the body. Nutritional status is strongly influenced by nutritional intake. Utilization of nutrients in the body is influenced by two factors, namely primary and secondary. The primary factor is a condition that affects nutritional intake due to the improper composition of the food consumed, while the secondary factor is that the nutrients are not sufficient for the body's needs due to disturbances in the utilization of nutrients in the body (Par'i *et al.,* 2017).

Based on the 2013 Riskesdas data, undernutrition in Indonesia has a prevalence of 13.9% while the 2018 Riskesdas data has a prevalence of 13.8%, which means that only 0.1% has decreased the prevalence of undernutrition in the last 5 years. So that this problem becomes a problem that must be considered by health workers and the local government (Kemenkes, 2018 *cit.* (Aulia *et al.,* 2019).

Good and proper nutrition is important to support dental health. On the other hand, dental health is also important for adequate nutritional intake. Glucose is a major part of the diet of the population in Indonesia. Apart from being a staple food, sugar is also consumed as a snack or snack as found in candies, wafers, cakes, biscuits, and in soft drinks. The most widely used type of sugar is sucrose (Agung & Nurlitasari, 2017).

Consumption of large amounts of sucrose can reduce the buffering capacity of saliva so that it can increase the occurrence of caries. The habit of consuming foods/drinks with high sugar content, fast food, and snacks between meals increases the risk of caries in children (Agung & Nurlitasari, 2017).

Based on preliminary data from the results of a dental examination conducted on March 9, 2022 on mentally retarded children at the Karya Bhakti Special School with a total of 13 children, it was found that 10 mentally retarded children had dental caries (77%), and 3 mentally retarded children were caries-free (23%). This is still not in line with expectations, respondents should have a high percentage of being free from caries risk. Thus, the problem in this study is the severe dental caries condition in mentally retarded children at SLB Karya Bhakti in terms of nutritional status.

RESEARCH METHODS

This research is a cross-sectional study that was conducted in July 2022 at the Karya Bhakti Special School on Jalan Sidoyoso Wetan Lebar No. 14 14, RT 005/RW 12 Simokerto, Simokerto District, Surabaya City, East Java 60143. meet the inclusion and exclusion criteria taken by simple random sampling technique. The data collection instrument in this study used an observation sheet to measure the nutritional status of mentally retarded children and an examination sheet to measure dental caries in mentally retarded children. The Wilcoxon test was used to analyze the relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti with a significance level (α) = 0.05.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1226/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1 Nutritional Status of Mentally Impaired Children at Karya Bhakti Special School

Research Subjects	Nutritional Status Diagnosis										Total
	Very Thin		Thin		Normal		Fat		Obesity		
	n	%	n	%	n	%	n	%	n	%	
n=28	3	10,7	4	14,3	9	32,1	5	17,9	7	25,0	100%

In this study, according to table 1, it is known that the mentally retarded children in SLB Karya Bhakti are mostly nutritional status with the normal category as many as 9 people with a percentage of 32.1%. This is in accordance with the results of research conducted by Hafiza et al, (2018) based on the results of this study that most of the samples had normal nutritional status, namely 51 (82.3%). The results of this study were seen that there were still many respondents who had normal nutritional status, this may be nutritional needs in accordance with expenditures and nutritional needs that enter the body.

Table 2 Dental caries in mentally retarded children at Karya Bhakti Special School

No.	Dental Caries	Frequency	Persentase (%)	Assessment Criteria
1.	Caries Free	9	32,1%	0 = No Caries
2.	Caries	19	67,9%	1 = There Is Caries
	Total	**28**	**100%**	

In this study, according to table 2, it is known that most of the mentally retarded children in SLB Karya Bhakti have dental caries, as many as 19 people with a percentage of 67.9%. According to (Achmad et al., 2016) dental and oral health problems that are most often found in people with mental retardation are higher dental caries, especially in severe and very severe mental retardation. Caries disease and high rates of mental retardation in patients with mental retardation may be caused by the inability of the patient to clean the oral cavity and parents pay less attention to the child's diet.

Table 3 Analysis of the Relationship between Nutritional Status and the Occurrence of Dental Caries in Children with Mental Requirements at SLB Karya Bhakti

Nutritional Status	Dental Caries		Total	P *Value*
	Xerostomia Diagnosis	Low		
Very Thin	0	3	3	
Thin	2	2	4	0,000
Normal	4	5	9	
Fat	2	3	5	
Obesity	1	6	7	
Total	9	19	28	

Based on table 3 the results of statistical tests using the Wilcoxon test data analysis technique found that there was a relationship between nutritional status and the occurrence of dental caries in mentally retarded children at Karya Bhakti Special School (P<0.05). From the Wilcoxon test, it shows the P Value of 0.000 which means it is smaller than the significant value (α) that is set, namely 0.05 (P <0.05) so that H0 is rejected and H1 is accepted, it can be said that statistically there is a relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti. This study is in line with research conducted by Mirawati et al (2019) that there is a significant relationship between dental caries and nutritional status.

Dental caries in children showed a significant relationship with nutritional status. The lower the dental caries index in children, the better their nutritional status. A person with a good nutritional intake is consuming carbohydrates, protein, fat, vitamins, magnesium, air and minerals. In sufficient quantities, these nutrients have a function in the growth and development of teeth, namely forming a protective layer on the tooth surface and preventing tooth decay. Dental caries causes disruption of masticatory function which can affect food intake and nutritional status (Mirawati & Yauri, 2019).

Nutritional status is the state of the body as a result of food consumption and use of nutrients. Distinguished between poor, less, good and more nutritional status (Ariani, 2017).

Nutrition plays a role in every stage of tooth growth and in maintaining the balance of the oral environment which is associated with dental health. Nutrition for optimal tooth growth is the same as the nutrients needed by the body because the period of tooth growth is in line with the growth period of the body as a whole. The nutrients needed for tooth growth are Protein, Minerals (flour, calcium, phosphorus and magnesium), Vitamins (Vitamins A, C and D) and water. (Nurdin, 2011 cit (Mirawati & Yauri, 2019).

Caries occurs not due to one event like other infectious diseases but due to a series of processes that occur over several periods of time, in general there are four main factors that play a role, namely: host or host factors, agents or microorganisms, substrates or diet and factors. These four factors are interrelated with each other because they are related to human behavior itself (Margareta, 2012).

CONCLUSION AND RECOMMENDATION

There is a relationship between nutritional status and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti. For SLB Karya Bhakti teachers to pay attention to the food intake consumed by students who have thin, fat and obese nutritional status in order to be able to improve nutritional status to normal and increase dental health

maintenance. For health workers, it is hoped that they can improve dental and oral health services and provide socialization about nutritional status and caries.

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Development of Demonstration And Video Animation (Davim) in DHE as an Effort to Increase Knowledge of Brushing the Teeth of Mentally Impaired Children at SLB Karya Bhakti Surabaya

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ABSTRACT
One of the efforts that can be done in maintaining dental and oral health is by improving teeth brushing skills. There are several kinds of efforts to improve brushing skills in mentally retarded children, namely, occupational therapy, use of video media, total-task presentation techniques, individual guidance, demonstration methods and picture and picture methods (Az-Zahrah et al., 2021). Objective: To determine the effectiveness of counseling using the demonstration and video animation (davim) method in increasing the knowledge of brushing teeth in mild mentally retarded children. Methods: The type of research used is Quasi-Experimental Control Group Pre-Test and Post-Test Design. Held in July 2022 at SLB Karya Bhakti Surabaya. The research subjects were 26 mentally retarded students who met the inclusion criteria taken by random sampling technique. The data collection instrument used a questionnaire using the Mc-Nemar test to measure changes before and after counseling and to analyze the effectiveness of counseling with the demonstration and animation method (davim) in increasing knowledge of brushing teeth in mentally retarded children at SLB Karya Bhakti Surabaya in 2022. Results: from p-value, it can be concluded that the Demonstration and Video Animation (Davim) intervention proved to be more effective in increasing children's knowledge than the intervention carried out in the control group. Conclusion: demonstration and video animation (davim) method is effective in increasing knowledge of brushing teeth in mild mentally retarded children.

Keywords: Toothbrushing, Demonstration and Video Animation, Mentally retarded

BACKGROUND

Dental and oral health problems are not only experienced by elementary school children with normal physical and mental conditions, but also experienced by children with special needs. One of the children with special needs is children with mental retardation. The oral cavity of mentally retarded children is worse compared to children their age. This is because mentally retarded children are difficult to take care of themselves and lack of knowledge and the role of parents, families or caregivers in maintaining the oral health of mentally retarded children (Aruldas, 2020).

Children with mental retardation have different mental, emotional and physical limitations compared to normal children, so mentally retarded children need the help of their families and caregivers in maintaining personal hygiene, especially dental and oral hygiene. The differences in the limitations of mentally retarded children affect their behavior in maintaining dental and oral hygiene (Julia et al., 2018).

One of the efforts that can be done in maintaining dental and oral health is by improving teeth brushing skills. There are several kinds of efforts to improve brushing skills in mentally retarded children, namely, occupational therapy, use of video media, total-task presentation techniques, individual guidance, demonstration methods and picture and picture methods (Az-Zahrah et al., 2021).

Audiovisual/video media such as animated films can also improve the ability to brush teeth in mentally retarded children this is because videos can convey messages and information to mentally retarded children by describing a process accurately and can be repeated, as well as instilling attitudes and other effective aspects (Ita , 2019).

Extension using video has several advantages that are dynamic, impressive and easy to stimulate so that it speeds up development and one's understanding (Pratiwi et al., 2019).

RESEARCH METHODS

The type of research used is Quasi-Experimental Control Group Pre-Test and Post-Test Design. Which will be held in July 2022 at SLB Surabaya Pusat. The research subjects were 26 mentally retarded students who met the inclusion criteria taken by random sampling technique. The data collection instrument used a questionnaire to measure the knowledge of brushing teeth in mentally retarded children. Using the Mc-Nemar test to measure changes before and after counseling and to analyze the effectiveness of counseling with the demonstration and animation method (davim) in increasing knowledge of brushing teeth in mentally retarded children at SLB Karya Bhakti Surabaya in 2022.

Ethical approval for this study was obtained from the Surabaya Health Polytechnic Ethics Committee, with the approval number:No. EA/1236/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table.1 Distribution of Pre-Test and Post-Test Knowledge of Brushing the Teeth of Children with Intellectual Requirements

In the Intervention Group

Pre-test Intervention Group	Post Test Intervention Group	
	not enough	good
not enough	1	8
good	0	4

Source: Primary Data, 2022

From the table above, it is found that of the 13 respondents in the intervention group, the category was less before the intervention and after the intervention was 1, the less category before the intervention became good as many as 8 after the intervention. And in the good category it became less before and after the intervention did not exist, while the good category remained in the good category as many as 4 respondents.

Table. 2 Distribution of Pre-Test and Post-Test Knowledge of Brushing the Teeth of Children with Intellectual Requirements

In the control group

Pre-test Control Group	post test control group	
	not enough	good
not enough	4	6
good	0	3

Source: Primary Data, 2022

Based on the table above, it was found that of the 13 respondents in the control group, the category was less before the intervention and after the intervention was 4, the category was less before the intervention became good as much as 6 after the intervention. And in the good category it became less before and after the intervention did not exist, while both remained in the good category as many as 3 respondents.

Table.3 Analysis The Effectiveness of Counseling Using Demonstration And Video Animation (Davim) Methods in Improving Knowledge of Brushing Teeth in Mild Tungrahita Children

Test Statistics

	Pre-Test Intervention Group & Post-Test Intervention Group
N	13
Exact Sig. (2-tailed)	.008b

a. McNemar Test
b. The binomial distribution is used.

Test Statistics

	pre test Control Group & post test Control Group
N	13
Exact Sig. (2-tailed)	.031b

a. McNemar Test
b. The binomial distribution is used.

Based on table 3, it is known that with a p-value of 0.031 in the control group and 0.008 in the intervention group (sig < 0.05), both proved that there was a significant difference in the level of knowledge of children before an

d after the intervention, but based on the p-value, it can be concluded that It is concluded that the Demonstration and Video Animation (Davim) intervention proved to be more effective in increasing children's knowledge than the intervention carried out in the control group. So H1 is accepted and H0 is rejected.

p . rateKnowledge of mentally retarded children about dental and oral health increased significantly between before and after the delivery of learning materials using animated video learning media(Constantika et al., 2022).

CONCLUSIONS AND RECOMMENDATIONS

The demonstration and video animation method is proven to be effective in increasing the knowledge level of brushing teeth in mentally retarded children. With this research, it is hoped that mentally retarded children can maintain their own dental and oral health. The way to maintain dental and oral health, one of which is brushing teeth in a good and correct way, and knowing foods that can damage teeth and foods that are healthy for teeth, as well as regular checkups. teeth to the dental clinic every 6 months.

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Parents' Parenting Patterns On The Independence Of Brushing The Tooth In Children With Physical Disability at SLB/D-YPAC Surabaya

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ABSTRACT
Background: Based on the results of the Debris Index examination in children with disabilities at SLB-D YPAC Surabaya, it was found that the Debris Index result was 2.05 in the bad category. The indicator of dental and oral health is the level of dental and oral hygiene. Individuals with special needs have lower levels of dental and oral health and hygiene compared to normal individuals. This happens because they have limitations in caring for their own teeth. **Objective:** This study aims to determine the effect of parenting on the level of independence in brushing the teeth of children with disabilities in SLB/D-YPAC Surabaya. **Methods:** This study uses a quantitative research method with a cross sectional approach which was carried out at SLB-D YPAC Surabaya. The research subjects were 15 children with disabilities who met the inclusion and exclusion criteria and were taken using a total random sampling technique. The data collection instrument used a parenting style questionnaire and an observation sheet on brushing teeth. The Chi-square test was used to analyze the effect of parenting on the independence of brushing the teeth of children with disabilities with a significance level (α) = 0.05. **Results:** most parents of children with disabilities at SLB-D YPAC Surabaya apply permissive parenting and most children with disabilities at SLB-D YPAC Surabaya are not independent in terms of brushing their teeth. Based on statistical tests, it was found that there was no effect of parenting style on the independence of brushing teeth in children with disabilities at SLB-D YPAC Surabaya (p>0.05). **Conclusion:** there is no effect of parenting style with independence in brushing teeth in children with disabilities at SLB-D YPAC Surabaya
Keywords: Physical disability, parenting style, independence

BACKGROUND

Children with special needs are a high risk group for health problems so they need help and cooperation with others to obtain and maintain health, including in maintaining their dental and oral health. Clean and healthy teeth and mouth conditions are very important to support the lives of these children. Dental health is one of the most important things for a child's growth. However, in Indonesia there are not many parents who care about their children's dental health, especially children with special needs (disabled children) (Essie Octiara et al., 2018).

Based on the results of the Debris Index examination in children with disabilities at SLB-D YPAC Surabaya, the results of the Debris Index were 2.05 in the bad category. One indicator of dental and oral health is the level of dental and oral hygiene. Individuals with special needs have lower levels of dental and oral health and hygiene compared to normal individuals. The

low level of knowledge about maintaining oral and dental health causes high rates of caries, calculus, and debris (Motto et al., 2017).

Children with Special Needs need assistance in maintaining dental and oral hygiene, they cannot carry out normal daily life activities so they need the help of others around them, be it parents, family members, caregivers, or teachers at school (Louisa et al., 2021). This is in line with the results of interviews conducted by (Fitriani et al., 2020) on parents of autistic children aged 11-15 years who explained that children still do not have the independence in doing personal hygiene, for brushing teeth there are still many who get help from teachers (at school) and parents (at home).

The factors that can influence the behavior of independence according to Hurlock cit (Restiani et al., 2017) are parenting patterns, gender and the order of the child's position. Independence is an important ability in a person's life that needs to be trained from an early age. A person is said to be independent if in living life he is not dependent on others, especially in carrying out daily activities. Independence is also shown by the ability to make decisions and solve problems. An independent attitude is not a selfish attitude or living alone, but an attitude of being willing and able to build one's own life in the context of togetherness (Sa'diyah, 2017). Independence for children with special needs aims to prepare people who are free (not dependent on others), responsible, creative and active and can stand on their own according to their conditions and abilities (Lestari & Widyawati, 2020).

The role of parents in raising children is the most important responsibility for the development of children's attitudes and mentality by caring for and guiding children well and attentively. As for families who have children who are born normally and can develop according to their abilities and developmental tasks well. But there are also families who have children with various obstacles that can interfere with the development process of the child. This can indirectly affect the form of parenting set by parents for their children (Haryanto et al., 2020).

The ignorance of parents about the right parenting pattern for children with special needs can cause children with special needs not to get parenting according to their abilities and potential, so that children with special needs cannot develop and cannot live independently in the future, therefore it is better parents pay more attention to their children in addition to providing the right education parents must also apply the right parenting style to children with special needs. So the problem in this study is the high Debris Index of children with disabilities.

RESEARCH METHODS

This research has been approved by the Health Research Ethics Commission of the Polytechnic of Health Surabaya No.EA/1238/KEPK-Poltekkes_Sby/V/2022. This study uses quantitative research methods with a cross sectional approach. The targets in this study were children with disabilities in SLB/D-YPAC Surabaya totaling 15 people who met the inclusion and exclusion criteria. The sampling technique was carried out by total random sampling technique. The data collection method used in this research is primary data. The primary data was obtained through filling out a questionnaire which was composed of prepared statements and answer choices. The instrument used was a questionnaire about parenting patterns and an observation sheet on the independence of brushing teeth. The Chi-square test was used to analyze the effect of parenting on the independence of brushing the teeth of children with disabilities with a significance level (α) = 0.05.

RESULTS AND DISCUSSION

1. Parental Parenting on the independence of brushing teeth

Table 1.1 Distribution of Measurement of Parenting Patterns of Parents of Children with Disabilities at SLB-D YPAC Surabaya

No.	Pola Asuh	Frekuensi	Persentase
1.	Permisif	8	53,3%%
2.	Otoriter	7	46,7%%
3.	Demokratis	0	0%
	Total	15	100%

Based on the data analysis that has been done, it can be seen that most of the parenting patterns of parents of children with disabilities at SLB-D YPAC Surabaya are permissive parenting as many as 8 people with a percentage of 53.3%. Parents tend to free their children to do whatever they want. This is in line with (Nuryatmawati & Fauziah, 2020) in his journal revealing that permissive parenting is characterized by the way parents educate children who tend to be free, children are considered adults or young, they are given the widest leeway to do whatever they want.

Evitasari et al., 2021 proved from the results of their research that there is an effect of permissive parenting on children's independence. Parents teach independence to children by giving them the freedom to choose and do activities they like, so that children will have a sense of courage and confidence in themselves with the decisions that have been taken. In this study, parents give freedom to their children in the form of: freeing children to brush their teeth at any time, allowing children to brush their own teeth.

But other facts show that there is an impact of permissive parenting for children's independence, namely children become spoiled, passionate, always depend on life, like to impose desires, lack of self-confidence, low self-esteem, miscommunication, naughty, selfish, irresponsible, and children become less independently (Putri, 2021). The author argues that this permissive parenting pattern has positive and negative impacts on children, where children can do everything without restrictions so that they can make children independent. However, with permissive parenting, children are also uncontrollable in socializing with their environment because children do not know what they are doing, good or bad.

2. Independence in brushing the teeth of children with disabilities at SLB-D YPAC Surabaya

Table 1.2 Distribution of Independence Measurements for children with disabilities in SLB-D YPAC Surabaya

No.	Kriteria	Frekuensi	Persentase
1.	Belum mandiri	8	53,3%
2.	Mandiri	7	46,7%
	Total	15	100%

From the results of data analysis, it was found that most of the children with disabilities in SLB-D YPAC Surabaya tend to be independent in brushing their teeth as many as 8 people with a percentage of 53.3%. One of the children's independence can be seen through their daily activities, namely through personal hygiene such as brushing their own teeth. A person is said to be independent if in living life he is not dependent on others, especially in carrying out daily activities (Sa'diyah, 2017).

From the results of observations made by physically disabled children who cannot move their hands to reach the entire area of the teeth, they have limitations in moving their limbs according to their function, so that in terms of brushing their teeth they are still not optimal. This is in line with the results of the study (Kencana *et al*., 2022) that brushing skills for disabled children at SLB Negeri Tabanan are included in the category of needing guidance, because they have mental and physical deficiencies and limitations to perform optimal self-cleaning of teeth in this case brushing teeth.

Riyadi et al., 2020 revealed that the ability to brush teeth properly and correctly is an important factor for dental and oral health care, the success of brushing teeth is also influenced by the use of tools, methods of brushing teeth, and the frequency and time of brushing the teeth properly. The ability of children with disabilities at SLB-D YPAC Surabaya in terms of brushing their teeth is mostly not done, such as not brushing every part of the teeth, starting from the teeth that are usually used for chewing, the teeth near the cheeks and tongue. There are also those who do not rinse their mouths and brush their teeth with water until clean. So it can be concluded that the quadriplegic children at SLB-D YPAC Surabaya do brushing their teeth as they do everyday at home, but not correctly or not sequentially.

3. **Analysis of the influence of parenting patterns on the independence of brushing the teeth of children with disabilities**

Table 1.3 Influence of parenting style with independence in brushing teeth in children with disabilities at SLB-D YPAC Surabaya

Pola asuh	Kemandirian menyikat gigi		total	P *value*
	Belum mandiri	**mandiri**		
Permisif	5	3	8	
Otoriter	3	4	7	0,619
Demokratis	0	0	0	
Total	8	7	15	

Based on the results of statistical tests using the Chi-Square data analysis technique, the value of is obtained. Value 0.619, which means it is greater than the significant value (α) that is set, which is 0.05 (0.619 > 0.05), so H1 is rejected and H0 is accepted, it can be concluded that there is no effect of parenting style on children's brushing independence. quadriplegic at SLB-D YPAC Surabaya. This is not in line with the research results of Hardika *et al*., (2020) in their research there is an influence between parenting patterns and the level of personal hygiene independence in mentally retarded children.

Instilling independence in children in terms of tooth brushing activities can be taught by parents, by providing direct examples and always reminding children. Anggraini, (2020)

revealed in his journal that parents should provide opportunities for children to repeat their activities until they can and do exercises in a pleasant atmosphere.

CONCLUSION AND RECOMMENDATION

After conducting research on " Parents' Parenting Patterns On The Independence Of Brushing The Tooth In Children With Physical Disability at SLB/D-YPAC Surabaya" it can be concluded that there is no effect of parenting with independence in brushing teeth in children with disabilities at SLB-D YPAC Surabaya. For further researchers, it is hoped that they can conduct further research on parenting patterns on the independence of brushing teeth with a larger number of targets.

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The Impact of Motivation on Denture Usage on Older People in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

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ABSTRACT

The problem in this research is the low denture usage in older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi. The purpose of this study was to determine the impact of motivation on denture usage on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi. The research method used was cross-sectional to analyze the impact of motivation on denture usage on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi with 40 respondents. The research instrument used for motivation on denture usage is a questionnaire sheet and to collect data on the use of dentures is a checklist sheet. The data analysis technique is the impact motivation on denture usage on older people by using the SPSS data processing application, with data analysis using the Chi-Square test with a significant degree of = 0.05. The results of this research found that there is an impact motivation on denture usage in older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Keywords: Motivation, Denture Usage, Older People

BACKGROUND

All humans will experience old age and getting old is a process that cannot be avoided by every living being. In elderly people, there is a lot of decline in the ability of physical reason, one of which is due to the aging process (Wongkar *et al.,* 2019).

Dental caries and periodontal disease are the main causes of tooth loss for the elderly in Indonesia (Muhida *et al.,* 2021). The results (Riskesdas, 2018) show that the proportion of dental and oral health problems in Indonesia is 57.6%, the rate of tooth loss in Indonesia in the 35-44 year age group is 7.02%, and at the age of 65 years is 17.12%. but the percentage of denture use is only 1.4%.

Missing teeth and not being replaced can cause various losses that initially occur in the emergence of discomfort. Loss of teeth also has a negative effect on individuals because it will cause gaps and empty spaces that result in aesthetic dissatisfaction. Another function that is impaired due to the loss of teeth is the function of speech. The worst impact is the disruption of masticatory function which will affect food selection so that later it will affect a person's food intake and nutritional status (Murwaningsih & Wahyuni, 2019).

So that the older people who experience tooth loss are moved to use dentures, there must be factors that can support them. One of them is motivation. According to research results (Rumambi *et al.,* 2021), one of the factors that play a major role in a person's use of dentures is motivation. Individuals, who use dentures have certain motivations so what is expected to be achieved after using these dentures. Motivation is a psychological drive that moves a person to take action and behavior.

According to (Uno, 2019) from the point of view of the source that gave rise to it, motivation can be divided into two types, namely intrinsic motivation and extrinsic motivation. The

emergence of intrinsic motivation does not require stimulation that comes from outside because it already exists within the individual himself, namely according to or in line with his needs. While extrinsic motivation arises due to stimulation from outside the individual.

Based on the results of an examination conducted by researchers at the Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi in 2022, 40 of the 45 older people showed that all the older people experienced tooth loss with a percentage of 100%, the older people who had more than 20 functioning teeth with a percentage of 42.5%. The older people who have less than 20 teeth function with a percentage of 57.5%. There are only 5 older people who use dentures with a percentage of 12.5%. Older people who have lost teeth should be made dentures to restore chewing function, speech function, and aesthetic function.

RESEARCH METHODS

This research has been approved by the Health Research Ethics Commission of the Polytechnic of Health Surabaya No.EA/1228/KEPK-Poltekkes_Sby/V/2022. This study is a cross-sectional study to analyze of motivation on denture use on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi. The sample size in this study was 40 people. Samples were taken using a simple random sampling technique. Simple random sampling is a technique of taking samples from members of the population in a random way without regard to the strata in the population. This research was conducted in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi, which is located at the Kantor Desa Cangakan on Jalan Raya Ngawi-Caruban km. 6, Ngawi, East Java. This research was conducted from May 2022 to August 2022. The data analysis technique is to analyze the impact of motivation on denture usage in older people using the SPSS data processing application, with data analysis using the *Chi-Square* test with a significant degree of = 0.05. The method of collecting data on the motivation of denture usage in older people is to fill out a questionnaire sheet. While the examination of the use of dentures by examining the oral cavity in older people.

RESULTS AND DISCUSSION

Table 5.1 Distribution of Respondents Frequency by Elderly Age in the Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Age	Frequency	Percentage
45-59	13	32,5%
60-70	20	50%
71-90	7	17,5%
Amount	40	100%

Source: primary data

Based on table 5.1, data on the frequency of respondents based on age, the most frequency of respondents' age is 60-70 years as many as 20 people with a percentage of 50%.

Table 5.2 Distribution of Respondents Frequency by Gender in the Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Gender	Frequency	Percentage
Male	6	15%
Female	34	85%
Amount	40	100%

Based on table 5.2, most of the respondents are female as many as 34 people with a percentage of 85%.

Table 5.3 Frequency Distribution of Respondents by Profession at the Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Profession	Frequency	Percentage
Farmer	23	57,5%
Private	2	5%
Doesn't work	11	27,5%
Another job	4	10%
Amount	40	100%

Source: primary data

Based on table 5.3 it is found that most of the respondents work as farmers as many as 23 people with a percentage of 57.5%.

Table 5.4 Results of Measurement of Motivation on Denture Usage on Older People in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Assessment Criteria	Frequency	Percentage
Strong	4	10%
Medium	15	37,5%
Weak	21	52,5%
Amount	40	100%

Source: primary data

Based on table 5.4, it was found that most of the respondents had weak motivation criteria in the use of dentures as many as 21 people with a percentage of 52.5%.

Based on the results, it is known that most older people have weak motivation in using dentures. It is known that in the results of filling out the questionnaire, there is intrinsic motivation and extrinsic motivation in the weak category in the use of dentures. This is in line with research (Sukini *et al,* 2015) *cit.* (Rumambi *et al.,* 2021), one of the factors that have a major role in denture usage is motivation. Someone who uses dentures has a certain motivation so that what they hope to achieve after using the denture. Motivation consists of intrinsic and extrinsic.

According to the results of the study, most of the elderly feel disturbed by their chewing because there are missing teeth. This is in line with research (Sukini *et al,* 2015) *cit.* (Rumambi *et al.,* 2021), the most common cause of the older people's internal motivation for the use of dentures is a feeling of disturbed mastication due to missing teeth and the belief that using dentures will overcome the obstacles that arise before using dentures. For example, before using dentures, you cannot eat hard food, especially if you have lost your back teeth or molars.

Most older people consider the need to replace missing teeth with dentures something that is not urgent, the older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi. prefer to prioritize doing their work rather than taking the time to go to the nearest health service to install dentures. Most of the work of the older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi.is as a farmer. According to research (Pili *et al.,* 2018), work is one of the factors inherent in each individual. Work is closely related to the economy or income of the older people to allow the older people to take advantage of available health services. The better the type of work carried out by the older people, the better the dental and oral hygiene care for the older people.

The motivation of the older people in the interest to replace missing teeth in the oral cavity with dentures and the interest in using dentures because of their own volition shows weak criteria. According to the results of interviews, several respondents stated that they were not interested in installing dentures because they were afraid that the dentures produced were not as expected, so they were not comfortable when used. According to research (Natassa *et al.,* 2021), a person's level of knowledge can motivate a person to act, for example, knowledge about the function and use of dentures, how to care for dentures, and knowledge of experts to make dentures. Knowledge gained from own experience or the experience of others.

The results showed that most older people's families never suggested wearing dentures. According to (Iksan *et al.,* 2018) family support, which is the immediate environment of the individual, is a very strong source of motivation if the family has the correct understanding and perception of dentures. According to research conducted by (Oftedal, 2011) *cit.* (Iksan *et al.,* 2018) which states that when a person is motivated by external stimuli, namely family, environmental and social support, it will form an expectation that influences the response so that it can produce attitudes or behavior in this case the use of routine dentures that will last a long time. or sustainable.

Some respondents answered no to the statement that the costs incurred for the manufacture of dentures were commensurate with the materials and benefits. This is in line with research (Rinaldy *et al.,* 2019), respondents consider that denture treatment is expensive and is not a major need of life that must be met. Thus, this problem requires the active role of dentists who perform denture-making treatments in providing education through information provided to patients regarding the use of dentures which is later expected to arouse the respondent's motivation to use dentures according to the advice of the dentist who treats them.

Table 5.5 Results of Measurement Denture Usage in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Assessment Criteria	Frequency	Percentage
Use	5	12,5%
Did not use	35	87,5%
Amount	40	100%

Source: primary data

Based on table 5.5, it was found that most of the respondents did not use dentures as many as 35 people with a percentage of 87.5%.

Tooth loss will be the biggest problem if no follow-up treatment is carried out which can cause migration and elongation of the remaining teeth, decreased chewing efficiency, temporomandibular joint disorders, overload on supporting tissues, speech disorders, and deteriorating appearance, and oral hygiene. disturbed, and can affect the health of the soft tissues of the oral cavity. Efforts that can be made to overcome this problem are by using dentures. A denture is an artificial device that is used to replace part or all of natural teeth that have been lost and restore changes in tissue structure that occur due to the loss of natural teeth (Rinaldy *et al.,* 2019).

Based on the results of the study, only 5 out of 45 respondents used dentures. Missing teeth must be replaced with dentures to restore the ability to chew, speak, provide support for facial muscles, and be aesthetic (Rinaldy *et al.,* 2019). According to the World Health Organization (WHO), the standard of dental health that is considered to function and chew normally in the elderly is 20 functioning teeth. Twenty teeth function is very important for the elderly

because with 20 teeth, the ability of the older people to chew functions well so that they get a healthy food intake (Dwiastuti *et al.,* 2018).

The possible cause of the low use of dentures for the older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi is the cost factor. According to (Andriani *et al.,* 2019) the manufacture of dentures can be said economically requires additional costs that are relatively quite expensive.

Table 5.6 The Impact Motivation on Denture Usage on Older People in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Motivation	Denture Usage		Total	P *Value*
	Use	Did not use		
Strong	3	1	4	
Medium	2	13	15	0,000
Weak	0	21	21	
Total	5	35	40	

Based on table 5.6 the results of SPSS calculations using Chi-Square data analysis techniques obtained the value of. Value 0.000 which means it is smaller than the significant value (α) which is set at 0.05 (0.000 < 0.05), so H_0 is rejected and H_1 is accepted, it can be concluded that there is an impact motivation on denture usage in older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi.

Based on the results of data analysis on the impact motivation on denture usage on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi it can be seen that there is an impact motivation on denture usage on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi. This is in line with research (Andriani et al., 2019) that the lower the community's motivation to improve tooth function, the lower the public's interest in making artificial teeth.

The results of the study on motivation to use dentures showed that the criteria for motivation were weak, and most older people did not use dentures. One of the causes of the weak motivation factor is the lack of interest in the older people themselves to use dentures. The possible cause of the older people not using dentures is due to the economic factors of the older people who mostly earn as farmers and think that dentures are not the main needs that must be met by the elderly. This is in line with research (Moreira *et al.,* 2005) cit. (Ersita & Eldarita, 2022) A person's economic level is closely related to various health problems. People with low economic levels will concentrate more on fulfilling basic needs that support their lives and family life, on the other hand, people with high economic levels will have greater opportunities to take education. People with a high economic level will more easily receive information so the more knowledge they have, this has the more impact attention to their health of themselves and their families.

According to the theory (Uno, 2019), motivation can influence a person's behavior. In this study, the behavior in question is the use of dentures. Intrinsic motivation consists of needs, expectations, and interests. At the same time, extrinsic motivation is family encouragement, environment, and rewards.

Intrinsic factors or factors contained in the older people themselves can affect the use of dentures. According to (Uno, 2019), intrinsic motivation is the motives that become active or function and do not need to be stimulated from the outside, because in every individual there is an urge to do something.

In addition to intrinsic factors, extrinsic factors can also influence older people in making decisions to use dentures. One of the extrinsic factors is family encouragement. The low

possibility of using dentures is because older people's families have less knowledge about the importance of dentures as replacements for missing teeth in the oral cavity. This is in line with research (Iksan *et al.,* 2018), the family is a very strong source of motivation if the family has the correct understanding and perception of dentures.

Not only family but motivation from the environment also influences denture usage in older people. Based on the results of interviews with some of the older people they received information about the installation of dentures because of experiences from neighbors or closest relatives. This is in line with research (Ersita & Eldarita, 2022), the higher the environmental support, either from colleagues or the surrounding environment, the higher one's interest in doing something because they feel they have great support from the surrounding environment.

CONCLUSION AND RECOMMENDATION

Based on the results of research there is an impact motivation on denture usage on older people in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Based on the results of the research and the conclusions above, the following suggestions can be given:

1. For Older People in Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

Older people are expected to follow the advice of dental health workers to always maintain proper oral and dental health, especially in using dentures as replacements for missing teeth in the oral cavity.

2. For Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi

As input for the Chair of the Posyandu Lansia Desa Cangakan Kecamatan Kasreman Kabupaten Ngawi, she invited dental health workers to provide training on the importance of maintaining dental and oral health for the older people to posyandu cadres. So that the cadres can provide motivation and counseling on dental and oral health problems in the elderly.

3. For Health Workers

Local dental health workers are expected to provide counseling and motivation about the importance of maintaining oral health in the elderly, especially in dealing with the problem of missing teeth in the oral cavity. So that older people can choose the right treatment for dental and oral health.

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THE 5th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA (ICOHPS)
2nd *International Conference of Dental and Oral Health* (ICoDOH)
THE ROLE OF PARENTS REGARDING DENTAL AND ORAL HEALTH TO THE EVENT OF DENTAL CARRIES IN THE CHILDREN OF THE DEAF

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ABSTRACT
Dental health is an important part of the body that needs to be maintained. Deaf children have limited hearing, so deaf children need a role from their parents to maintain their dental health. The role of parents is needed by deaf children to guide, educate, and direct positive things, especially on their dental and oral health. One indicator of the degree of dental health is dental caries. This study aims to determine the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf in Karya Mulia, Surabaya. This type of research is an analytical study with a cross sectional design. The research subjects were 31 respondents. The sampling technique was carried out by full sampling. Data analysis using SPSS software using the Chi-Square test. The results of statistical tests showed that the role of parents regarding dental and oral health on the incidence of caries in deaf children had no influence between the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya, with - value 0.267. The conclusion of this study is that there is no influence of the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya.
Keywords: the role of parents, Dental Caries, dental health

BACKGROUND

Dental and oral hygiene is a condition that indicates that a person's oral cavity is free from food residue or dirt, such as plaque and calculus. Plaque will form if dental hygiene is neglected, even the formation of plaque can reach the entire surface of the teeth. The national prevalence of dental and oral health problems reaches 57.6% with coverage in 33 provinces in Indonesia. Poor oral and dental hygiene can be a factor in the emergence of various diseases in the oral cavity, one of which is dental caries. Dental caries in Indonesia is the highest problem with 45.3%. Based on the 2016 Global Burden Disease Study, dental and oral health problems, especially dental caries, are a disease experienced by almost half of the world's population, which is 3.58 billion people (Ministry of Health, 2019). Caries is the result of the interaction of bacteria on the tooth surface, plaque or biofilm and diet (especially carbohydrate components that can be fermented by plaque bacteria into acids, especially lactic and acetic acids) resulting in demineralization of dental hard tissue and takes time to occur. Snacks and sweets are one of the factors causing dental caries in children. No pain does not mean there is no dental caries (Jayanti, 2019). The main factors that influence the occurrence of caries are cariogenic bacteria, fermented carbohydrates (substrate) of teeth that are susceptible to dental caries and time. Supporting factors include age, gender, diet, individual behavior and habits, knowledge and place of residence (Marinda, 2017).

Parents are a strong influence in changing children's attitudes. The attitudes and behavior of parents, especially mothers, are very significant in maintaining children's teeth (Utami, 2020). Mother's level of knowledge influences dental health maintenance behavior in

children and low level of mother's knowledge is associated with high prevalence of dental caries (Afiati et al., 2017). the role of parents is very important in the process of children's education, how parents become good examples, guide, direct and motivate. If parents play a role, children will understand and observe then children can imitate what their parents do or teach.

RESEARCH METHODS

This type of research is an analytical study with a cross sectional design. The population of this study was conducted on all parents and students of SDLB for the Deaf in Karya Mulia, Surabaya, which amounted to 31 targets. Sampling was carried out by full sampling. To see the effect of the independent variable and the dependent variable, the Chi-Square test was carried out.

Ethical approval for this study was obtained from the ethics committee of the Health Polytechnic of Health Kenkes Surabaya, with approval number No. EA/1227/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1 Characteristics of Respondents Based on Age of SDLB Students

No.	Student Age	Frequency	Percentage (%)
1.	7 -10	12	38,7
2.	11 - 15	19	61,3
	Total	**31**	**100**

Source: Primary Data

Based on table 1, it is known that most of the ages of the Deaf Primary School students in Karya Mulia are 11-15 years old, as many as 19 students with a percentage of 61.3%.

Table 2 Characteristics of Respondents Based on the Gender of Students

No.	Gender of Students	Frequency	Percentage (%)
1.	Male	15	48,4
2.	Female	16	51,6
	Total	**31**	**100**

Source: Primary Data

Based on table 2, it is known that most of the sexes of SDLB Deaf Karya Mulia students are female, as many as 16 students with a percentage of 51.6%

Table 3 Characteristics of Respondents Based on Parents' Occupations

No.	Parent's Occupation	Frequency	Percentage (%)
1.	Housewife/Not Working	13	41,9
2.	Entrepreneur	2	6,5
3.	Private Employee	16	51,6
	Total	**31**	**100**

Source: Primary Data

Based on Table 3, it is known that most of the parents' occupations are IRT/Not Working, namely as many as 13 people with a percentage of 41.9%.

Table 4 Characteristics of Respondents Based on Parents' Education

No.	Parents' Education	Frequency	Percentage (%)
1.	Middle School	7	22,6
2.	High School / Vocational High School	13	41,9
3.	D1/D2/D3/Bachelor 1	11	35,5
	Total	**31**	**100**

Source: Primary Data

Based on table 4, it is known that most of the parents' education is SMA/SMK, namely 13 people with a percentage of 41.9%.

Table 5 Distribution of Parents' Role Measurements on Dental and Oral Health on the Incidence of Dental Caries in Deaf Children at the Karya Mulia Elementary School for the Deaf in Surabaya

No.	Category Role	Frequency	Percentage (%)
1.	Good	4	12,9
2.	Fairly Good	27	87,1
3.	Not Good	0	0
	Total	**31**	**100**

Source: Primary Data

Based on table 5, it is known that the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya City, the highest score was 27 respondents with a fairly good category with a percentage of 87.1%.

The results of measuring the role of parents can be seen that most of them are included in the fairly good category. the role of parents is very important in the process of children's education, how parents are good examples, guide, direct and provide motivation. If parents play a role, children will understand and observe then children can imitate what their parents do or teach. Parents must know how to take care of their children's teeth and parents must also teach their children how to take good care of their teeth (Jahirim & Guntur, 2020).

Ekoningtyas et al. (2021) stated that with the involvement of parents when accompanying dental hygiene activities for children with special needs, namely brushing teeth in the form of instilling the value of independence, instilling the value of self-confidence. This makes the child feel comfortable and carry out activities without pressure or coercion but it is a necessity. The better the behavior of cleaning teeth, the better the level of oral hygiene, the more correct the way to brush teeth, this causes a healthy oral cavity.

The results of this study are also supported by Anwar (2022) showing that most parents have a role in the moderate category, this is because parents have a very important role in raising the existence of children with special needs. Children will have the confidence to do activities and show their abilities. Parents have an obligation to empower the ability or potential of children with special needs.

Table 6 Percentage of Dental Caries Incidence in Deaf Children at the Karya Mulia Primary School for the Deaf in Surabaya.

No.	Dental Caries	Frekuensi	Persentase (%)
1.	There is Caries	28	90,3
2.	No Caries	3	9,7

	Total	31	100

Based on table 6, it is known that the incidence of dental caries in deaf children at SDLB for the deaf, Karya Mulia, Surabaya City is the highest, as many as 28 respondents with a percentage of 90.3%.

The results of measuring the incidence of dental caries in deaf students can be seen that most of them have dental caries. based on the theory of H.L. Blum in Notoatmojo (2018), the dental health status of a person or community can be influenced by four factors, namely heredity, environment (physical and socio-cultural), behavior and health services. Behavioral factors play an important role in influencing dental and oral health status. Dental and oral health status can be measured, one of which is the prevalence of dental caries indicators. Dental caries is caused by 4 main factors, namely host, microorganism, time and substrate (Marinda, 2017).

Children with special needs are a group of children who are at high risk of health problems so they need help and cooperation with others to obtain and maintain health, including in maintaining their dental and oral health. The condition of clean and healthy teeth and mouth is very important to support the lives of these children (Rachmawati & Ermawati, 2019). Deaf people are people who have lost the ability to hear so that it hinders the process of language information through hearing, either using or not using hearing aids where the hearing limit they have is sufficient to allow the success of the process of language information through hearing (Rahmah, 2018).

Research conducted by Sadimin et al (2018) on deaf children in elementary school shows that the dental caries status is very low due to decreased or lost physiological, psychological or anatomical function disorders, so that they cannot carry out normal daily life activities which result in changes in the realm of thoughts, feelings and actions.

Research is also supported by Dewi (2020) which states that the dental caries status of students in deaf children is in the very low category, this is because deaf children are very difficult to receive information due to limited hearing function.

Table 7 Analysis of the Influence of Parents' Roles on Dental and Oral Health on the Incidence of Dental Caries in Deaf Children at the Karya Mulia Elementary School for the Deaf in Surabaya

The Role of Parents	Dental Caries		Total	P *Value*
	There is Caries	No Caries		
Good	3	1	4	
Fairly Good	25	2	27	0,267
Total	28	3	31	

Based on the analysis of table 7 using the Chi-Square data analysis technique, the value of is obtained. Value 0.267, which means it is greater than the significant value (α) that is set, which is 0.05 (0.267 > 0.05), so Ho is accepted and H1 is rejected, it can be concluded that there is no influence of the role of parents on dental and oral health on the incidence of dental caries in deaf children at the Karya Mulia Primary School for the Deaf in Surabaya.

Based on the results of data analysis using the Chi-Square test, it shows that there is no relationship between the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya. Children with

special needs are a high risk group for health problems so they need help and cooperation with others to obtain and maintain health, including in maintaining their oral health. Clean and healthy teeth and mouth conditions are very important to support the lives of these children. Dental problems that usually arise in children with special needs include dental caries (holes) (Rachmawati & Ermawati, 2019).

Caries is the result of the interaction of bacteria on the tooth surface, plaque or biofilm and diet (especially carbohydrate components that can be fermented by plaque bacteria into acids, especially lactic and acetic acids) resulting in demineralization of hard tooth tissue and takes time to occur. Snacks and sweets are one of the factors causing dental caries in children. No pain does not mean there is no dental caries (Jayanti, 2019).

According to Sadimin et al. (2018) states that children with special needs have social problems that can affect the educational needs of these children so that they have less knowledge, especially knowledge in the health sector. Knowledge of how to maintain low dental health supports the high caries rate in children with special needs. Therefore, children with special needs require more types of health services than normal children in general.

The role of parents is very important for children, especially for children with special needs. Parents have the responsibility to educate, nurture, guide their children to grow and develop into better children and can socialize further with the community. If parents play a role, children will understand and observe then children can imitate what their parents do or teach. Parents must know how to take care of their children's teeth and parents must also teach their children how to take good care of their teeth.

The role of parents has no influence on dental and oral health on the incidence of dental caries in deaf children, this is due to internal factors from children and external factors from the role of parents to cause dental caries. Deaf children have limitations in their hearing so that it is difficult for deaf children to obtain information, causing the child's intellectual ability to be disturbed or become sluggish (Rachmawati & Ermawati, 2019). School children, especially deaf children, tend to be free to express their emotions freely and openly. Parents also tend to be more willing to obey their children's wishes, such as giving them the food they like, especially foods that cause dental caries. as parents, of course, have an important role in guiding children in maintaining dental health, but most of the roles of parents have a lesser role, this is evidenced by the lack of understanding of parents towards teaching children to brush their teeth that is not appropriate and the role of parents in raising children such as Check your child's teeth at least every 6 months.

CONCLUSION AND RECOMMENDATION
CONCLUSION
Based on the results of research on the influence of the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya, it can be concluded that:
1. The role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf in Karya Mulia, Surabaya, mostly (87.1%) is quite good
2. The incidence of dental caries in deaf children at SDLB for the Deaf in Karya Mulia, Surabaya, mostly (90.3%) of respondents had dental caries
3. There is no influence of the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf, Karya Mulia, Surabaya City with value (0.267).

RECOMMENDATION

Based on the results of the study and the conclusions obtained, in order to improve the category of parental roles for the better and reduce the incidence of dental caries, the researchers suggest that schools can establish collaborative activities with health workers or puskesmas in their target areas to conduct dental health education programs. and mouth to parents. Because so far dental health education activities in schools are only aimed at providing dental health education to school students and not to parents.

The role of parents is also very important in maintaining the dental health of their children, especially for children with special needs such as deaf children, it is hoped that the school can hold a dental and oral health counseling program for parents of students by establishing collaborative activities with health workers or health centers in their target areas. , for example at the time of taking the semester report card or grade promotion.

Based on the results of the analysis, it was concluded that there was no influence of the role of parents regarding dental and oral health on the incidence of dental caries in deaf children at SDLB for the Deaf in Karya Mulia, Surabaya with a total of 31 respondents. So, it is hoped that further researchers can increase the number of respondents to be studied.

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Parental relationship regarding dental and oral health with dental caries for mentally retarded children (at SLB Karya Bhakti 2022)

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ABSTRACT
Background : Dental caries is damage to the hard tissues of the teeth caused by acids present in carbohydrates through the intermediary of microorganisms in saliva. The prevalence of dental caries in mentally retarded children is categorized as quite high, because mentally retarded children have different mental, emotional and physical limitations compared to normal children, so mentally retarded children need help from their families and caregivers in maintaining personal hygiene, especially dental and oral hygiene.
Objetive : the purpose to determine the relationship between parental knowledge about dental and oral health with the occurrence of dental caries in mentally retarded children at SLB Karya Bahkti.
Method : used is data collection by means of examination and questionnaires. This type of research is a cross sectional research. The respondents in this study were 28 parents and 28 children with mental retardation. The analysis technique used in this research is statistical test if the data is normally distributed using the Pearson correlation test, but if the data is not normally distributed then use the Spearman correlation test.
Results : of the study were $0.231 > 0.05$. This shows that there is no significant relationship between parental knowledge about dental and oral health and the occurrence of dental caries in mentally retarded children at SLB Karya Bhakti in 2022.
Conclusion : is that there is no relationship between parental knowledge about oral health and dental caries in mentally retarded children.

Keywords: Knowledge, Dental Caries, Parents, Mentally Retarded Children

BACKGROUND

Dental and oral health is part of overall body health. Dental and oral health can reflect the overall health of the body, including in the event of nutritional deficiencies and other diseases in the body. Disturbances in dental and oral health can have a negative impact on daily life, including decreased levels of self-confidence (Budijanto *et al.*, 2019).

Dental caries is damage to the hard tissues of the teeth caused by acids present in carbohydrates through the intermediary of microorganisms present in saliva (Irma and Intan, 2013). The process of the occurrence of caries continues to the deeper part of the tooth so that it forms a hole. In this process demineralization occurs which is caused by the interaction of germs, carbohydrates that are suitable on the surface of the teeth and mouth (Margareta, 2012).

According to Riskesdas in 2018, the largest proportion of dental problems in Indonesia was cavities at 45.3% (Budijanto *et al.*, 2019). According to data from the Ministry of Health in 2010, the prevalence of caries in Indonesia is around 60-80%. The prevalence of dental caries in mentally retarded children reaches 82.6%, including in the fairly high

category (Rismayani *et al.,* 2021). Mentally retarded children usually experience a higher prevalence of caries, gingivitis, and periodontal disease compared to normal children of the same age (Palupi *et al.,* 2017).

Children with mental retardation have different mental, emotional and physical limitations compared to normal childr
en, so mentally retarded children need the help of their families and caregivers in maintaining personal hygiene, especially dental and oral hygiene. The differences in the limitations of mentally retarded children affect their behavior in maintaining dental and oral hygiene (Julia *et al.*, 2018).

The oral cavity of mentally retarded children is worse than that of children their age. Because mentally retarded children are difficult to take care of themselves and lack of knowledge and the role of parents, family or caregivers in maintaining the oral health of mentally retarded children (Amelia, 2017)

Parents of mentally retarded children must be more responsible for the development and independence of their children, because mentally retarded children experience physical and motor limitations that cause the need for self-care to experience obstacles. According to Amelia (2017), parents must remain active in supervising their child's dental and oral health care. Parental help is needed to help reduce or remove plaque on the teeth.

Parental knowledge affects the behavior of maintaining dental health in children and a low level of maternal knowledge is associated with a high prevalence of dental caries. Lack of parental knowledge about the effect of diet on the development of dental caries, increasing the provision of sweet foods to their children, so that children are more often exposed to risk factors for dental caries (Ulfah and Utami, 2020).

RESEARCH METHODS

This research is a cross-sectional study that was conducted in July 2022 at SLB Karya Bhakti Jalan Sidoyoso Wetan II No.14 Simokerto District, Surabaya City, East Java 60143. The sampling method used in this study was a simple random sampling technique, that is, those that met the inclusion and exclusion criteria were taken. The data collection instrument in this study used a questionnaire to measure knowledge about dental caries in mentally retarded children and a caries examination sheet to measure caries in mentally retarded children. The analysis used in this study was the Spearman correlation test to determine the relationship between parents' knowledge about oral health and the incidence of dental caries with a significance level (α) = 0.05.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1214/KEPK-Poltekkes_Sby/V/2022

RESULTS AND DISCUSSION

Table 1. Distribution of Parents' Knowledge Level about Dental Caries

No.	Knowledge Level	Frequency	Precentage
1.	Less	6	21%
2.	Amply	12	43%
3.	Decent	10	36%
Total		28	100%

Based on Table 1, it can be seen that most of the respondents' parents' knowledge is sufficient as many as 12 people with a percentage of 43%.

Tabel 2. Distribution of Dental Caries Frequency for Karya Bhakti Special School students

No.	Caries	Frequency	Precentage	Criteria Assessment
1.	Caries Free	9	32%	0 = No Caries
2.	Caries	19	68%	1 = Caries
Total		28	100%	

Based on table 2, it can be seen that most of the respondents had caries as many as 19 people with a percentage of 69%.

Tabel 3. Analysis of the relationship between parental knowledge about dental and oral health with the occurrence of dental caries in mentally retarded children

Parental Knowledge	Child Dental Caries				P value
	Free Caries		Caries		
	Frequency	%	Frequency	%	
Less	3	10,7%	3	10,7%	0.231
Amply	4	14,3%	8	28,6%	
Decent	2	7,1%	8	28,6%	
Total	9	32,1%	19	67,9%	

Based on table 3, it is known that mentally retarded children with sufficient and good parental knowledge have carious dental conditions and it is also known that P value > 0.231, it can be concluded that there is a significant "No Relationship" between Parents' Knowledge of Dental and Oral Health and the occurrence of caries. Teeth in mentally retarded children at Karya Bhakti Special School in 2022. So H_0 is accepted and H_1 is rejected.

CONCLUSION AND RECOMMENDATION

From the conclusions above, overall it can be said that the knowledge of parents in maintaining the dental health of mentally retarded children at SLB Karya Bhakti shows that there is no relationship between parental knowledge and dental caries of mentally retarded children.

With this research, it is hoped that parents should be able to play a more active role in paying attention, guiding, helping and motivating their children in maintaining dental and oral hygiene.

Mentally retarded children are expected to brush their teeth at least 2 times a day, in the morning after breakfast and at night before going to bed, reduce sweet and sticky foods and eat more fruits and vegetables.

It is hoped that health workers in the local area will pay more attention to the health of students in their working areas, especially knowledge about Dental Health by providing counseling, mass toothbrushing together and routine checks on children with special needs or dental care for students who need treatment.

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Influence Of Parent Knowledge About Tooth Filling With Lower PTI Numbers For Mentally Retarded Children (At SLB Karya Bhakti Surabaya)

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ABSTRACT

Dental caries is a disease of dental tissue which is characterized by damage to the surface tissue of the teeth. Children with mental retardation have a higher caries rate and poor oral hygiene than normal children in general. Parental knowledge is very important in maintaining the cleanliness of children's teeth and mouth, especially for children with special needs. Parental behavior is very important in the formation of supportive or unsupportive behavior by children in maintaining oral hygiene. Objective: The purpose of this study was to determine the effect of parental knowledge about dental fillings with low PTI rates in mentally retarded children at SLB Karya Bhakti. Method: this research is a cross sectional study which was conducted in August 2022 at the Karya Bhakti Special School. subjects 28 mentally retarded children who met Inclusion and exclusion criteria were taken using simple purposive sampling technique. Instrument in this study used a question sheet to measure the level of parental knowledge and an examination sheet to measure dental caries in mentally retarded children. the data will be analyzed using linear regression analysis method. Result : Parental knowledge about dental fillings is mostly in good criteria, while the PTI rate for mentally retarded children is in the bad category. The results of statistical tests showed that there was no effect between parental knowledge about dental fillings and the low PTI rate of mentally retarded children (p> 0.05). Conclusion: There is no effect between knowledge of dental fillings and the low number of PTI.

Keywords: parents knowledge; PTI number; mentally disabled

BACKGROUND

Dental and oral health is part of the overall health of the body so that maintaining dental and oral health is also important. Dental and oral health is a healthy state from diseases of the hard and soft tissues of the teeth that allow the teeth and mouth to function properly without any problems that can interfere with life. individuals so that individuals can live more productively. (Kemenkes RI, 2015 cit Putri, 2021)

According to the 2018 Basic Health Research Results (RISKESDAS), in Indonesia, dental and oral health is still a problem, with a national prevalence of dental and oral problems of 57.6%. And the largest proportion of dental problems in Indonesia is cavities as much as 45.3% (Riskesdas, 2018).

PTI describes the motivation of a person to fill his cavities in an effort to maintain permanent teeth. For the dental and oral health target, the Performed Treatment Index (PTI) in 2020 is 50% (Kemenkes RI, 2014). The percentage of teeth that have been filled or filled due to

cavities (PTI) in Indonesia at the age of 10 -14 years is 3.0% and in school children is 3.6% (Riskesdas, 2018).

The oral cavity of mentally retarded children is worse than that of children their age. This is because mentally retarded children are difficult to take care of themselves and lack of knowledge and the role of parents in maintaining the health of the child's oral cavity (Aruldas, 2020)

Parents of children with special needs, especially children with mental retardation, have more responsibilities in influencing the development and independence of children. This is because children with special needs mostly experience physical and motor limitations, this condition causes the fulfillment of self-care needs to experience obstacles (Sandy, 2018)

Lack of parental knowledge about the effect of diet on the development of dental caries, increasing the provision of sweet foods to their children, so that children are more often exposed to risk factors for dental caries (Ulfah & Utami, 2020)

Parental knowledge is very important in maintaining the cleanliness of children's teeth and mouth, especially for children with special needs. Parents are the closest people to children who educate, train and give love to children. Parental behavior is very important in the formation of supportive or unsupportive behavior by children in maintaining oral hygiene (Aruldas, 2020)

RESEARCH METHODS

This research is a cross-sectional study that was conducted in July 2022 at the Karya Bhakti Special School on Jalan Sidoyoso Wetan Lebar No. 14 14, RT 005/RW 12 Simokerto, Simokerto District, Surabaya City, East Java 60143. meet the inclusion and exclusion criteria taken by purposive sampling technique. The data collection instrument in this study used a question sheet to measure the level of parental knowledge and an examination sheet to measure dental caries in mentally retarded children. In this study the data will be analyzed using SPSS version 25 software with linear regression analysis method. The analysis used to determine the effect of one independent variable on one dependent variable.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1256/KEPK-Poltekkes_Sby/V/2022

RESULTS AND DISCUSSION

Table 1. Distribution of Parent's Work

No.	Education Level	Frequency	Percentage
1.	Housewife	12	43%
2.	Self-employed	14	50%
3.	Civil Servant	2	7%
	Total	28	100%

Based on table 1, it can be seen that most of the respondents' parents' occupations are at most self-employed as many as 14 people with a percentage of 50%.

Table 2. Distribution of Parents' Last Education

No.	Education Level	Frequency	Percentage
1.	Elementary school	2	7%

No.		Frequency	Percentage
2.	Junior High school	7	25%
3.	Senior High school	16	61%
4.	Undergraduate	2	7%
	Total	28	100%

Based on table 2 it can be seen that most of the respondents' parents' education is high school as many as 16 people with a percentage of 61%

Table 3. Distribution of Parents' Knowledge About Dental Filling

No.	Knowledge Level	Frequency	Percentage
1.	Less	6	21%
2.	Enough	10	43%
3.	Good	12	36%
	Total	28	100%

Based on table 3 it can be seen that most of the respondents' parental knowledge is good as many as 12 people with a percentage of 36%

Table 4. Distribution of PTI to Children with Mental Requirements

No.	PTI	Frequency	Percentage
1.	Good	2	7%
2.	Bad	26	93%
	Total	28	100%

Based on table 4, it can be seen that most of the respondents' PTI numbers are in the bad category as many as 26 people with a percentage of 93%

Table 5. Analysis of the influence of parental knowledge about dental fillings with low PTI

Parents' Knowledge	PTI Number				n. Sig
	Good		Bad		
	Frequency	%	Frequency	%	
Less	0	0%	6	21,4%	0.604
Enough	1	3,6%	9	32,1%	
Good	1	3,6%	11	39,3%	

Total	2	7,2%	26	92,8%

In this study, according to table 5, it is known that mentally retarded children with sufficient and good parental knowledge have poor dental PTI conditions and it is also known that n. Sig 0.604, which is said if n. Sig > from 0.05 then there is no effect. So it can be concluded that there is a significant "no effect" between parents' knowledge of dental fillings and the low PTI rate for mentally retarded children in SLB Karya Bhakti in 2022. So H0 is accepted and H1 is rejected.

Knowledge and education cannot guarantee children's daily behavior to maintain and maintain the cleanliness of their oral cavity, therefore the role of parents is needed in guiding and motivating children, especially for mentally retarded children (Muhtar et al., 2020)

A high level of parental knowledge does not guarantee that dental and oral hygiene will be good if it is not applied or carried out in daily life, as well as a lack of parental knowledge will affect inappropriate actions and will affect children's dental and oral hygiene (Qomariyah, et al.2020).

CONCLUSION AND RECOMMENDATION

There is no effect between knowledge of dental fillings and the low number of PTI, it is hoped that parents and teachers will play an active role in maintaining the dental and oral health of mentally retarded children, not only in terms of knowledge but also in terms of the application of that knowledge.Health workers are expected to improve dental and oral health services and provide socialization regarding dental and oral health maintenance for mentally retarded children.

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The Relationship of Mother's Parenting Patterns in Maintenance of Dental and Oral Health with Caries Numbers
(Study on mentally retarded students at the Central Surabaya Special School in 2022)

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ABSTRACT

Background: Mothers have a significant influence on children's behavior in maintaining dental and oral health, especially on dental caries status. Parenting is the best way for parents to educate their children. Different children's habits result from different parenting patterns, including in terms of tooth brushing behavior. Teaching how to brush teeth so that it becomes a habit to prevent the accumulation of dental plaque needs to be done by parents, especially mothers as the closest figures to children (Aulina, 2018).

Objective: To know the relationship between maternal parenting in maintaining oral and dental health with the number of dental caries in mentally retarded students.

Method: The type of research used is cross sectional analytic research. Which was carried out in July 2022 at the Central Surabaya Special School. The research subjects were 47 mothers of mentally retarded students and 47 mentally retarded students who met the criteria taken by purposive sampling technique. The data collection instrument used a questionnaire to measure maternal parenting in maintaining oral and dental health, conducting dental caries examinations on mentally retarded students. Using the Chi-square test to analyze the relationship between maternal parenting patterns in maintaining dental health and caries rates in mentally retarded students in SLB Surabaya Central in 2022.

Result: The parenting pattern of the mother of mentally retarded students is in the sufficient category and the dental caries rate of mentally retarded students in the Central Surabaya Special School in 2022 is in the medium category. Based on the analysis test results that there is no significant relationship between maternal parenting in the maintenance of dental and oral health with the number of dental caries in mentally retarded students at SLB Surabaya Center in 2022 ($p > 0.05$).

Conclusion: there is no relationship between maternal parenting in maintaining dental health with the dental caries rate of mentally retarded students at SLB Surabaya Central in 2022.

Keywords: Mother's Parenting Patterns, Dental Caries, Mentally Retarded

BACKGROUND

Children with special needs are children who in education require specific services, different from children in general. Children with special needs have different developmental barriers to learning and learning needs (Sukadari, 2020). Various dental and oral health problems that are most often found in children with special needs are dental caries, periodontal disease, damage to the oral environment, dental eruption abnormalities, and trauma (Satria *et al.*, 2021).

The maintenance of children's oral and dental health must involve interaction between children, parents and dentists. Children with Special Needs such as mentally retarded cannot carry out normal daily life activities so they need the help of other people around them, be it parents, family members, caregivers, or teachers at school. Children with mental retardation need help in maintaining dental and oral hygiene. For mentally retarded children, due to limitations in terms of cognitive, psychomotor, and affective, training will be more effective if given to companions such as parents and teachers (Louisa *et al*., 2021).

Parenting is the best way for parents to educate their children. Different children's habits result from different parenting patterns, including in terms of tooth brushing behavior. Teaching how to brush teeth so that it becomes a habit to prevent the accumulation of dental plaque needs to be done by parents, especially mothers as the closest figures to children (Aulina, 2018).

Mothers have a significant influence on children's behavior in maintaining dental and oral health, especially on dental caries status. Parents also play a role in the occurrence of dental caries in children in terms of providing sweet foods and milk and the attitude of guiding children to rinse their mouths. In addition, the mother's lifestyle such as eating food also has an influence on dental caries because it allows children to follow the habits of their parents (Jyoti *et al.,* 2019).

RESEARCH METHODS

The type of research used is cross sectional analytic research. Which was carried out in July 2022 at the Central Surabaya Special School. The research subjects were 47 mothers of mentally retarded students and 47 mentally retarded students who met the criteria taken by purposive sampling technique. The data collection instrument used a questionnaire to measure maternal parenting in maintaining oral and dental health, conducting dental caries examinations on mentally retarded students. Using the Chi-square test to analyze the relationship between maternal parenting patterns in maintaining dental health and caries rates in mentally retarded students in SLB Surabaya Central in 2022.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1216/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table.1 Frequency Distribution of Parenting Patterns for Mothers of Mentally Impaired Students in SLB Surabaya, Central part

N0.	Parenting Category	F	%
1	Well	19	40.4
2	Enough	22	46.8
3	Not enough	6	12.8
Total		**47**	**100%**

Source: Primary Data, 2022

Based on Table 1, it is known that some of the parenting patterns of mothers of mentally retarded students in the Central Surabaya Special School are sufficient as many as 22 respondents (46.8%)

Tabel. 2 Distribution of Dental Caries Frequency for Mentally Impaired Students in SLB Surabaya, Central Section

No.	Dental caries	Frequency	Percentage	Assessment criteria
1.	Caries Free	10	21.3	0 = Caries Free
2.	There's Caries	37	78.7	1 = There is Caries
	Total	47	100%	

Source: Primary Data, 2022

Based on table 2, it can be seen that most of the respondents had caries as many as 37 students with a percentage of 78.7%.

Table.3 Analysis of the Relationship between Maternal Parenting Patterns and Dental Caries for Students at SLB Surabaya Central

Parental Knowledge	Children's Dental Caries				P value
	There isn't any		There is		
	Frequency	%	Frequency	%	
Well	7	14.9%	12	25.5%	0.077
Enough	3	6.4%	19	40.4%	
Not enough	0	0.0%	6	12.8%	
Total	10	21.3%	37	78.7%	

Source: Primary Data, 2022

Based on table 3, it is known that respondents with adequate and good maternal parenting have carious dental conditions. The results of the statistical test using Chi-Square obtained a significant value of Asymp.sig.(2-sided) 0.077 which means the p value>⟨(0.05) then the hypothesis (h_0) is accepted. The results of the study can be concluded that there is a significant "no relationship" between the relationship of maternal parenting in maintaining dental and oral health with the number of dental caries in mentally retarded students at the Central Surabaya Special School in 2022. So H_0 is accepted and H_1 is rejected.

Dental caries in the good category, the parents take care of their children properly and pay more attention to the child's condition, so that the child always brushes his teeth. Compared to parents who pay less attention to the condition of their children and are too busy with their work. Parenting is in the less category and brushing teeth is in the less category. In this case, parents who do not pay attention to the condition of their children, tend to be busy with their work and the age of parents who are too young or too old may not be able to carry out this role optimally, so that children do not want or rarely brush their teeth (Al Amin, 2020).

CONCLUSION AND RECOMMENDATION
There is no relationship between maternal parenting in maintaining dental health with the dental caries rate of mentally retarded students at SLB Surabaya Central in 2022. With this research, it is hoped that mothers can increase motivation in maintaining their child's dental and oral health by playing an active role in giving attention, guiding, assisting in maintaining

dental and oral hygiene, such as teaching how to brush their teeth properly, checking children's teeth.

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Knowledge of Dental and Oral Health with Tooth Loss Incidence in the Elderly at Hargodedali Nursing Home

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ABSTRACT

Background : Dental and oral health is a fundamental part of general health and affects overall well-being. Having optimal oral and dental health can help a person to maintain oral function, and can make a person feel better and confident. A person who gets older will experience a decrease in physical abilities so that they often experience health problems, especially in the elderly. The elderly or the elderly often do not pay attention to and maintain good oral and dental health due to disruption of physical health, so that a decrease in the level of dental and oral hygiene often causes tooth loss and tooth loss. The results of the 2018 Basic Health Research found that 57.6% of Indonesians had dental and oral problems, with 54.2% of the age group over 65 years old. Elderly aged over 65 years experienced dentulous incidence as much as 79.8% and 9.0% experienced edentulous. (RISKESDAS, 2018). Based on the examination that has been carried out on 10 elderly people at the Hargodedali Nursing Home, the results obtained as many as 7 (70%) elderly have less than 20 teeth in the oral cavity and only 3 (30%) elderly have more than 20 teeth in the oral cavity. **Purposes :** To determine the relationship between knowledge of oral and dental health and tooth loss at Panti Werdha Hargodedali Surabaya 2022. **Design :** This study is a quantitative study with a cross sectional type of research. **Results:** There is a relationship between knowledge and the incidence of tooth loss in the elderly at the Hargodedali nursing home ($P<0,05$).
Keywords : Knowledge, Tooth Loss, Elderly.

BACKGROUND

Oral and dental health is a fundamental part of general health and affects overall well-being. Having optimal oral and dental health can help a person to maintain oral function, and can make a person feel better and confident (Wulandari *et al*., 2018). Efforts to achieve optimal dental and oral health can start from increasing knowledge about teeth and mouth, the most common dental and oral diseases and how to treat them so as to avoid the occurrence of various dental and oral diseases (Amaliya *et al*., 2020). Dental and oral disease is a disease that can affect all ages, both in children, adolescents, adults and the elderly (Ermawati, 2015 ; Auli *et al*., 2020).

A person who gets older will experience a decrease in physical abilities so that they often experience health problems, especially in the elderly. Elderly or elderly often do not pay attention and maintain good dental and oral health due to disruption of physical health, resulting in a decrease in the level of dental and oral hygiene which causes tooth loss and results in tooth loss (Watuna, 2015 ; Auli *et al*., 2020). This tooth loss will have an impact on psychological and social aspects, namely the elderly will feel embarrassed so that it is difficult to interact with other people and causes disruption of concentration when doing activities. Tooth loss can also affect the function of teeth in the oral cavity, one of which is the masticatory function. The elderly will have difficulty chewing food if the number of teeth in the oral cavity is missing,

the decreased function of digesting food can affect the nutritional needs of the elderly (Setyowati *et al.*, 2021).

The results of the 2018 Basic Health Research found that 57.6% of Indonesians had dental and oral problems, with 54.2% of the age group above 65 years. Elderly aged over 65 years experienced dentulous incidence as much as 79.8% and 9.0% experienced edentulous. (RISKESDAS, 2018). Based on the results of the examination that was carried out on 35 elderly people at the Hargodedali Nursing Home, it was found that 27 (77%) elderly had less than 20 teeth in the oral cavity and only 8 (23%) elderly had more than 20 teeth in their oral cavity.

Knowledge is a guide in shaping one's actions, behavior based on knowledge will last longer than those that are not based on knowledge (Induniasih et al., 2016). The results of a survey that has been conducted on nurses who take care of the elderly at the Hargodedali Nursing Home for the last 5 years have not provided counseling and routine dental checks by dental health workers. Health checks and counseling are only carried out by nurses. Counseling is one way that can be done to add information and increase one's knowledge. Minister of Health Regulation no. 89 of 2015 states that to determine the factor of tooth loss, an index is made for young adults or pre-elderly before entering old age. When someone enters old age, they still have good teeth with more than 20 natural teeth (Permenkes RI, 2015). The statement shows that the target for tooth loss in the elderly is not appropriate, the elderly must have more than 20 natural teeth in the oral cavity. The problem in this study is the high prevalence of tooth loss for optimal mastication in the elderly at the Hargodedali Nursing Home in Surabaya.

RESEARCH METHODS

This study is a quantitative study with a cross sectional type of research that aims to analyze the relationship between the knowledge of the elderly about dental and oral health with the incidence of tooth loss in the elderly at the Hargodedali Nursing Home in Surabaya. The population used in this study were all the elderly living in the Panti Werdha Hargodedali Surabaya, amounting to 47 people. Samples were taken using purposive sampling, namely sampling with several considerations according to inclusion and exclusion criteria. The inclusion criteria in this study were the elderly at the Hargodedali Nursing Home who were willing to participate in the study, willing to fill out informed consent, cooperative and able to communicate well. After considering the inclusion criteria, there were 35 people. The data collection instrument in this study used a questionnaire sheet to measure the level of knowledge of the elderly about dental health, an oral examination sheet and a diagnostic tool set to determine the number of teeth in the oral cavity of the elderly at the Hargodedali Nursing Home in Surabaya. Data analysis in this study used the SPSS version 25 application using the chi square test with a significance degree of = 0.05, to analyze the relationship between knowledge about oral health and the incidence of tooth loss in the elderly at the Hargodedali Nursing Home in Surabaya. The hypothesis in this study is H0 which shows that there is no relationship between knowledge of oral health and the incidence of tooth loss in the elderly at the Hargodedali Nursing Home in Surabaya. While H1 shows that there is a relationship between knowledge of oral health and the incidence of tooth loss in the elderly at Hargodedali Nursing Home in Surabaya.

This research has been approved by the Health Research Ethics Commission of the Surabaya Health Polytechnic No. EA/1240/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table Results of Measurement of Dental and Oral Health Knowledge Data with Tooth Loss Incidence in the Elderly at Hargodedali Nursing Home in Surabaya.

No.	elderly knowledge	frequency	percentage
1.	Good	8	23%
2.	Medium	6	17%
3.	Low	21	60%
	Total	35	100%

Based on table Results of Measurement of Dental and Oral Health Knowledge Data with Tooth Loss Incidence in the Elderly at Hargodedali Nursing Home in Surabaya, it was found that the knowledge of the elderly about dental and oral health in 35 people as many as 8 people (23%) in the good category, as many as 6 people (17%) in the medium category and as many as 21 people (60%) in the poor category. Based on the results of the questionnaire observations, it was found that respondents did not know about the characteristics of a healthy mouth, the impact of tooth loss can cause difficulty chewing, regular dental check-ups are carried out every 6 months and the right time to brush their teeth is in the morning after breakfast and at night before going to bed. These questions are basic questions that someone needs to know with the aim of being able to practice them in everyday life. Knowledge is one of the factors that influence a person's behavior. If someone has good knowledge, he will know the actions that should be taken to prevent and overcome the health problems that are being experienced so that they can improve their health status (Abarca, 2021).

Table Results of Data Collection on Tooth Loss in the Elderly at Hargodedali Nursing Home in Surabaya.

No.	The incidence of tooth loss	frequency	percentage
1.	Teeth Function (≥20 Teeth)	8	23%
2.	Non-Function Teeth (<20 Teeth)	27	77%
	Total	35	100%

Based on table Results of Data Collection on Tooth Loss in the Elderly at Hargodedali Nursing Home in Surabaya, it is known that from 35 respondents, 27 (77%) elderly at Hargodedali Nursing Home in Surabaya in 2022 had non-functioning teeth (<20 teeth) in the oral cavity and as many as 8 (23%) elderly at Hargodedali Nursing Home had functioning teeth. (≥20 Teeth). Dental caries is one of the main causes of tooth loss, in line with the research conducted by Sari & Jannah (2021) which stated that the elderly in Wreda Surakarta had dental caries, missing/removed teeth, filling and loose teeth. The majority of the elderly living in Panti Wreda Surakarta no longer have teeth because their teeth have fallen out or have been extracted due to dental caries and residual roots on the teeth that cause functional impairment in the oral cavity of the elderly.

Table Relationship of Knowledge about Dental and Oral Health with the Incidence of Loss of Elderly Teeth at Hargodedali Nursing Home

Elderly Knowledge Variables	Variables of Tooth Loss		P Value
	Teeth Function (≥20 Teeth)	Non-Function Teeth (<20 Teeth)	
Good	4	4	
Medium	3	3	0.008
Low	1	20	
Total	8	27	35

Table Relationship of Knowledge about Dental and Oral Health with the Incidence of Loss of Elderly Teeth at Hargodedali Nursing Home, shows that of the 21 people who had poor knowledge, as many as 20 people (95%) had non-functioning teeth (<20) and only 1 person (5%) had functioning teeth (≥20 teeth). Elderly with moderate category knowledge of 6 people found 3 people (50%) had non-functioning teeth (<20) and 3 people (50%) had functioning teeth (≥20 Teeth). Based on the results obtained from 8 people with good knowledge, 4 people (50%) had non-functioning teeth (<20) and 4 people (50%) had functioning teeth (≥20 teeth). After statistical test using Chi-Square obtained a significant value of 0.008 which means (sig <0.05) then the hypothesis (H1) is accepted and (H0) is rejected. This shows that there is a relationship between knowledge of oral health and the incidence of tooth loss in the elderly at the Hargodedali nursing home. Knowledge is an important domain in the realization of a person's health status, in line with the results of research by Pili et *al*., (2018) which was conducted in the working area of UPTD Puskesmas I Penebel which showed a relationship between the level of knowledge and the dental and oral hygiene of the elderly. Good knowledge can improve health status and affect a person's behavior in maintaining oral hygiene.

CONCLUSION AND RECOMMENDATION
Results Based on the research on dental and oral health knowledge with the incidence of tooth loss conducted at the Hargodedali Nursing Home, the following results were obtained:
1. Knowledge of the elderly at the Hargodedali Nursing Home is in the bad category (60%).
2. The incidence of tooth loss in the elderly at Hargodedali Panti is that the elderly have teeth that do not work (<20 teeth) in the oral cavity (77%).
3. There is a relationship between knowledge of oral health and tooth loss in the elderly at the Hargodedali Panti (p <0.05).

Based on the results of the research that has been done, the suggestions that can be given by researchers are as follows:
1. Advice for the elderly at the Hargodedali Nursing Home
   Dig more information about dental and oral health, so that it can increase knowledge about dental and oral health. Besides paying more attention to dental and oral health, it is hoped that it can maintain healthy teeth and can replace missing teeth with dentures.

2. Suggestions for staff at the Hargodedali Nursing Home
Pay attention to health as a whole, not just general health. Provide counseling about dental and oral health so that it is expected to increase the knowledge of the elderly about dental and oral health.

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The Effectiveness of Involvement Test of kaffir lime (*Citrus hystrix*) Fruit Extract on the Growth of Streptococcus Mutans Bacteria (in vitro)

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ABSTRACT

Background : Dental and oral health problems in Indonesia according to the Basic Health Research of Riskesdas in 2018 is tooth decay/cavities/ sickness. Dental caries is one of the infectious diseases with multifactorial causes. The bacteria that play a role an important factor in the formation of dental plaque is the bacterium Streptococcus mutans. One of the natural ingredients used as herbal medicine is kaffir lime fruit. Kaffir lime leaves contain alkaloids, polyphenols, essential oils, tannins, flavonoids.. Kaffir lime leaves and fruits have a pharmacological effect as an antiseptic and contain antioxidants.

Objective: The purpose of this study was to determine the effectiveness of the inhibition test of kaffir lime fruit extract against the growth of Streptococcus mutans bacteria (in vitro).

Method: This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory of the Faculty of Dentistry, Airlangga University, Surabaya, which is located on Jl. Major General. Prof. Dr. Moestopo 47 Surabaya 60132. The method in this study is to observe and measure the diameter of the inhibition zone of Streptococcus Mutans bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data is normally distributed, bivariate analysis is performed using the One Way Anova test.

Result: Based on the results of the One Way Anova test in the table above, it can be seen that the significance value or p-value is 0.000 <0.05 so it can be concluded that there is a significant difference in the average diameter of the inhibition zone between all treatment groups. To find out the difference between the 2 groups. The smallest significant difference test was continued

In the K+ group, the 50% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 < 0.05 so that there was a significant difference in the average diameter of the inhibition zone for the growth of Streptococcus mutans bacteria non ATCC. In the K+ group with the given group kaffir lime fruit extract concentration 50%.

- In the K+ group, the 30% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 <0.05 so that there was a significant difference in the average diameter of the inhibition zone for the growth of Streptococcus mutans bacteria non ATCC. In the K+ group with the given group kaffir lime fruit extract concentration 30%.

- In the group that was given a concentration of 50% kaffir lime fruit extract and the group that was given a 30% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 <0.05 so that there was a significant difference in the average diameter of the inhibition zone for the growth of non-Streptococcus mutans bacteria. ATCC In the group that was given kaffir lime fruit extract with a concentration of 50% and the group that was given a 30% concentration of kaffir lime fruit extract.

Conclusion: based on the statistical test results above, it can be concluded that kaffir lime fruit extract is effective in inhibiting the growth of non-ATCC Streptococcus mutans bacteria

Keywords: inhibition test; kaffir lime fruit extract; Streptococcus mutans

BACKGROUND

The high number of dental caries according to the Basic Health Research of Riskesdas in 2018 illustrates that the largest proportion of dental problems in Indonesia are damaged/cavities/sick teeth. The prevalence of dental caries in Indonesia is 88.8% and the prevalence of root caries is 56.6%. The prevalence of dental caries tends to be high (above 70%) in all age groups. The prevalence of dental caries at the age of 5 - 9 years is 92.6%, while at the age of 55 - 64 years is 96.8% (Ministry of Health, 2019).

Dental caries can be caused by several factors such as host factors (tooth structure), agent factors which are the number of microorganisms in the oral cavity, environmental factors such as substrate or food, and time factors (Margareta, 2012).

Dental caries is an infectious disease with multifactorial causes. One of the causes of dental caries is plaque. Bacteria that play an important role in the formation of dental plaque are Streptococcus mutans bacteria which are found in large numbers in caries sufferers (Dewi, 2011 in Listrianah, 2017). Streptococcus mutans as the main bacteria causing dental caries, which was previously known as part of the normal flora in the oral cavity that plays a role in the carbohydrate fermentation process to produce acid which ultimately causes tooth demineralization. Streptococcus mutans is a pathogenic bacteria in the mouth which is the main causative agent of plaque, gingivitis, denture stomatitis and caries. (Juvensius et al, 2014 in Listrianah, 2017).

In recent years, the Indonesian government's attention to the use of herbal medicines in the health sector has continued to increase. Many studies are aimed at developing herbal ingredients as a source of drugs that have inhibitory power against bacteria. Herbal ingredients can reduce side effects and have a more economical value (Yuliani et al, 2011 in Eq et al., 2017). Kaffir lime (Citrus hystrix) is a type of plant originating from the Citrus genus, which is a plant that produces essential oils. This plant is widely used for treatment, because of the content it has. Kaffir lime leaves contain alkaloids, polyphenols, essential oils, tannins, flavonoids. Kaffir lime fruit contains at least 21 kinds of coumarins, 4 of which are bergamottin, N-(iminoethyl)-L-ornithine (L-NIO), oxypeucedanine, (dihydroxy, dimethyl, octenyl) oxypsoralen.

The objective of the study is this research tends to know the inhibition potency of the lime extract with 30 % and 50 % concentration towards the growth *non ATCC Streptococcus mutans* bacteria by *in vitro.*

RESEARCH METHODS

This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory of the Faculty of Dentistry, Airlangga University, Surabaya, which is located on Jl. Major General. Prof. Dr. Moestopo 47 Surabaya 60132. The method in this study is to observe and measure the diameter of the inhibition zone of Streptococcus Mutans bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data is normally distributed, bivariate analysis is performed using the One Way Anova test.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number : No.EA/1267/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 5.1 The results of the average diameter of the inhibition zone of the kaffir lime fruit extract group against Streptpcoccus mutans bacteria after 24 hours

NO	K(+) KHLORHEXIDINE	K(-) AQUADES	Ekstrak buah jeruk purut 50 %	Ekstrak buah jeruk purut 30 %
1	24,75	—	21,40	18,20
2	24,20	—	21,15	18,00
3	24,80	—	21,00	17,80
4	24,60	—	21,20	17,60
5	24,55	—	21,40	17,75
6	24,40	—	21,55	17,40
7	24,55	—	21,35	17,20
8	24,60	—	21,40	17,15
9	24,75	—	21,60	17,55
10	24,40	—	21,00	17,40
11	24,55	—	21,20	17,20
12	24,40	—	21,40	17,15
13	24,55	—	21,55	17,40
14	24,60	—	21,35	17,20
15	24,75	—	21,40	17,15
16	24,80	—	21,45	17,55
Mean std deviasi	24,578	—	21,31	16,86

Table 5.1 shows that each concentration was repeated sixteen times and each group had a different average, namely kaffir lime fruit extract with a concentration of 30% had an average of 16.86 mm while kaffir lime fruit extract with a concentration of 50% has an average of 21.31 mm.

This research test uses the One Way Anova test. Before the One Way Anova test is carried out, the first test that must be carried out is the normality test using the Shapiro-Wilk

test. This normality test aims to test whether the test material data for kaffir lime fruit extract with concentrations of 30% and 50% and chlorhexidine are data that are normally distributed or not.

Table 5.2 Test results of normality of inhibition zone of kaffir lime fruit extract group against non-ATTC Streptococcus mutans bacteria after 24 hours.

Tests of Normality

	Kelompok	Shapiro-Wilk		
		Statistic	df	Sig.
Diameter Zona Hambat	K+	.920	16	.170
	Konsentrasi 50%	.913	16	.130
	Konsentrasi 30%	.892	16	.060

a. Lilliefors Significance Correction

Based on the results of normality testing with Shapiro-wilk in the table above, it can be seen that:
- The diameter data of the non-ATCC Streptococcus mutans bacterial growth inhibition zone in the K+ group had a significance value or p-value $0.170 > 0.05$ so that it was normally distributed.
- Data on the diameter of the inhibition zone for the growth of non-ATCC Streptococcus mutans bacteria in the group given a 50% concentration of kaffir lime fruit extract had a significance value or p-value $0.130 > 0.05$ so that it was normally distributed.
- Data on the diameter of the inhibition zone for the growth of Streptococcus mutans non-ATCC bacteria in the group that was given a 30% concentration of kaffir lime fruit extract had a significance value or p-value of $0.060 > 0.05$ so that it was normally distributed.
All data are normally distributed so that hypothesis testing is carried out with One Way Anova as follows:

Descriptives
Diameter Zona Hambat

	N	Mean	Std. Deviation	Minimum	Maximum
K+	16	24.5781	.16928	24.20	24.80
Konsentrasi 50%	16	21.3375	.18120	21.00	21.60
Konsentrasi 30%	16	17.4813	.32346	17.15	18.20
Total	48	21.1323	2.94064	17.15	24.80

In the table above, general statistics are presented which include a lot of data, average, standard deviation, minimum value and maximum value of the diameter of the growth inhibition zone of Streptococcus mutans non-ATCC bacteria in each group. When viewed from the average K+ group, the average diameter of the largest inhibition zone was 24.5781, then followed by the group that was given kaffir lime fruit extract with a concentration of 50% and the smallest average diameter of the inhibition zone was the group that was given the extract. kaffir lime fruit concentration 30%. To find out whether the difference is significant, the One Way Anova test is carried out as follows:

ANOVA

Diameter Zona Hambat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	403.936	2	201.968	3647.504	.000
Within Groups	2.492	45	.055		
Total	406.427	47			

Based on the results of the One Way Anova test in the table above, it can be seen that the significance value or p-value is 0.000 <0.05 so it can be concluded that there is a significant difference in the average diameter of the inhibition zone between all treatment groups. To find out the difference between the 2 groups, the smallest significant difference test was continued as follows:

Post Hoc Tests

Multiple Comparisons
Dependent Variable: Diameter Zona Hambat
 LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
K+	Konsentrasi 50%	3.24063*	.08320	.000	3.0731	3.4082
	Konsentrasi 30%	7.09688*	.08320	.000	6.9293	7.2644
Konsentrasi 50%	K+	-3.24063*	.08320	.000	-3.4082	-3.0731
	Konsentrasi 30%	3.85625*	.08320	.000	3.6887	4.0238
Konsentrasi 30%	K+	-7.09688*	.08320	.000	-7.2644	-6.9293
	Konsentrasi 50%	-3.85625*	.08320	.000	-4.0238	-3.6887

*. The mean difference is significant at the 0.05 level.

Based on the results of the smallest significant difference test in the table above, it can be seen that:

- In the K+ group, the 50% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 <0.05 so that there was a significant difference in the average diameter of the Streptococcus mutans non-ATCC bacterial growth inhibition zone. In the K+ group with the given group kaffir lime fruit extract concentration 50%.
- In the K+ group, the 30% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 <0.05 so that there was a significant difference in the average diameter of

the inhibition zone for the growth of non-ATCC Streptococcus mutans bacteria. In the K+ group with the given group kaffir lime fruit extract concentration 30%.

- In the group that was given a concentration of 50% kaffir lime fruit extract and the group that was given a 30% concentration of kaffir lime fruit extract had a significance value or p-value of 0.000 <0.05 so that there was a significant difference in the average diameter of the inhibition zone for the growth of non-Streptococcus mutans bacteria. ATCC In the group that was given a concentration of kaffir lime fruit extract at 50% concentration, the group that was given a concentration of 30% kaffir lime fruit extract.

Discussion:

According to *Bell* in 1984, in Suciawati an ingredient is told that it has antibacterial activity if the diameter of inhibition zone is bigger or as same as 6 mm (Suciati *et al*., 2012 in Eq *et al*., 2017)). Accordance with David and Stout, 1971 in (Eq *et al*., 2017), the antibacterial activity is told that :

1. Very strong : the inhibition zone approaches 21 - 30 mm
2. Strong : the inhibition zone among 11-20 mm
3. Medium : the inhibition zone among 5-10 mm
4. Weak : the inhibition zone less than 5 mm

This research tends to know the inhibition potency of the lime extract with 30 % and 50 % concentration towards the growth *non ATCC Streptococcus mutans* bacteria by *in vitro*.

Based on the observation result which is conducted in each test in sixteen petri dishes, it is shown that there is the inhibition zone formed around the discs which is given the lime extract with 30 % concentration, it is about 16,86 mm and the 50 % concentration is about 21,31 mm, while for the positive control, the average is about 24.578 mm. There is the difference between the result of this observation and the previous observation which was conducted by (Eq *et al*., 2017) that the lime juice with 100 % concentration has the inhibition potency towards *Staphylococcus aureus* bacteria, it is about 13,05 mm and is included strong category. Based on the data analyses, the inhibition potency of the lime extract with 30 % concentration is categorized strong and it is as strong as the inhibition potency of the lime juice with 100 % concentration. While the lime extract with 50 % concentration is categorized very strong.

In this research the lime extract with 30 % concentration has strong inhibition potency and 50 % concentration has very strong inhibition potency towards the growth of *non ATTC Streptococcus mutans bacteria* by *in vitro* because the lime extract contains chemical compound which are antibacterial. This is supported by the result of phytochemical test on the content of lime compounds which is conducted in the laboratory of Surabaya Industrial Consultation and Research Institute that the lime extract contains 6,10 % *flavonoid*, 5,08 % *peliphenol*, 1,01 % *Tanin, 1,64 % essential oil* and 8,01 % *alkaloid*.

The negative control which is used in this research is aquades and positive control which is used in this research is *chlorhexidine* as the comparison of the lime extract with 30 % and 50 % concentration. The negative control which is used in this research gets the result that the visible limpid zone do not form when it is measured by the vernier caliper around the aquades, it can be interpreted that aquades as the negative control has no inhibition potency towards the growth of *non ATTC Streptococcus mutans* by *in vitro*.

The positive control which is used in this research gets the result that the visible limpid forms when it is measured by the vernier caliper around *chlorhexidine,* this can be interpreted that *chlorhexidine* as the positive control has the inhibition potency towards the growth of *non ATTC Streptococcus mutans* by *in vitro*.

The result of zone potency observation which is produced from each treatment has different diameter and irregular shape. Furthermore, the observation is conducted by

measuring the diameter of inhibition zone which is formed vertically and horizontally from limpid zone formed. The inhibition zone which is formed is the clear area formed in the area which there is no bacteria growth and the inhibition zone which is around the disc paper shows that there is antibacterial activity. The comparison of lime extract result with *chlorhexidine* shows that disc given the lime extract smaller than disc given *chlorhexidine* , while in the disc given aquades does not show the inhibition zone. The result of lime extract diameter is smaller than *chlorhexidine,* it is because *chlorhexidine* has been proved effectively towards the oral bacteria while the ability of the lime extract has not been known the most appropriate concentration to inhibit the growth of *non ATTC Streptococcus mutans* bacteria.

Based on the description above, it can be stated that the inhibition potency of lime extract with 50 % concentration is bigger than the inhibition potency of lime extract with 30 % concentration because the diameter of limpid zone of lime extract with 50 % concentration is bigger than the diameter of lime extract with 30 % concentration. In addition, the high and low content of chemical compounds in lime extract also affects the number of concentration which is researched. This is supported by research of Maju, J., & Sihombing, A. (2019) . it shows that the higher the concentration in lime extract, the higher the content contained in lime juice. Thus, in this research explains that H_1 is accepted and H_0 is rejected, H_1 could mean that there is the difference of the inhibition potency of lime extract with 50 % and 30 % concentration towards *non ATTC Streptococcus mutans* bacteria by *in vitro*.

Can be concluded based on the statistical test results above, it can be concluded that kaffir lime fruit extract is effective in inhibiting the growth of non-ATCC Streptococcus mutans bacteria.

CONCLUSION AND RECOMMENDATION
Conclusion:

Based on the research about the effectiveness of inhibition potency test of lime extract with 50 % and 30 % concentration towards *non ATTC Streptococcus mutans* bacteria by *in vitro,* it can be concluded that :

1. The inhibition potency of lime extract with 50 % and 30 % concentration towards *non ATTC Streptococcus mutans* bacteria by *in vitro* categorized strong.
2. The inhibition potency of lime extract with 50 % concentration towards *non ATTC Streptococcus mutans* bacteria by *in vitro* categorized very strong.
3. The inhibition potency of *chlorhexidine* as the positive control towards *non ATTC Streptococcus mutans* bacteria by *in vitro* categorized very strong.
4. There is no inhibition potency in aquades as the negative control towards the growth of *non ATTC Streptococcus mutans* bacteria by *in vitro*
5. The inhibition potency of lime extract with 50 % concentration is bigger in inhibiting the growth of *non ATTC Streptococcus mutans* bacteria by *in vitro* than lime extract with 30 % concentration.
6. Based on the test statistically above, it can be concluded that the lime extract is effective to inhibit the growth of *non ATTC Streptococcus mutans* bacteria by *in vitro*

Recommendation:
Based on the research, discussion and conclusion, it can be recommended as the following :
1. Hopefully, further research can be carried out on the antibacterial of lime extract (*Citrus hystrix*) towards other bacteria
2. Hopefully, further research can be carried out about the inhibition potency of lime extract (*Citrus hystrix*) so that it can be known the minimum concentration of lime extract towards the growth of *non ATTC Streptococcus mutans* bacteria

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The Effectiveness Of The Inhibition Of Red Ginger (Zingiber Officinalle Var Rubrum) Decoction With A Concentration Of 40% 50% 60% Against The Growth Of Staphylococcus Aureus Bacteria

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ABSTRACT

Background Dental and oral health is a part of body health that cannot be separated from each other because dental and oral health can affect the overall health of the body. The risk posed by poor oral and dental hygiene conditions can increase the occurrence of dental plaque. Staphylococcus aureus bacteria are most often found, so it is said that this bacterium has an important role in the formation of dental plaque. Utilization of the decoction is used as an effort to deal with health problems or diseases that attack. One of the efforts to reduce the amount of dental plaque in the community requires an inhibitor that can inhibit Staphylococcus aureus bacteria. One of the natural antibacterials that can be used as medicine is red ginger (Zingiber Officinalle Var Rubrum). Red Ginger (Zingiber Officinalle Var Rubrum).Objective: Among this group of bacteria, Staphylococcus aureus is the most common, so it is said that this bacterium has an important role in the formation of dental plaque. Staphylococcus aureus is a cariogenic bacteria that can ferment carbohydrates and produce acids. Usually, the use of red ginger is used as an effort to deal with the problem of dental plaque formation.Method: This research is an experimental laboratory research conducted from July to August 2022 at the Central Health Laboratory (BBLK). The method in this study was to observe and measure the diameter of the inhibition zone of Staphylococcus aureus bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data were normally distributed, bivariate analysis was performed using the One Way Anova test or the Kruskal-Wallis test if the data were not normally distributed.**Result:** based on the results of statistical tests using the One-way Anova test obtained p-value 0.000 so that p-value <0.05, which means that the concentration of boiled water from red ginger tested affects the growth of Staphylococcus aureus (p-value <0.05) indicates that red ginger boiled water at concentrations of 40%, 50% and 60% effectively inhibited Staphylococcus aureus bacteria.**Conclusion**: Based on the results of the research that has been done, it can be concluded that there is a test of antibacterial activity of lemongrass (Cymbogopon Citratus) boiled water at concentrations of 5%, 10% and 15%.

Keywords: inhibition test; red ginger stew; Staphylococcus aureus

BACKGROUND

Dental and oral health is a part of body health that cannot be separated from each other because dental and oral health can affect the overall health of the body. The risk posed by poor oral and dental hygiene conditions can increase the occurrence of dental plaque. Staphylococcus aureus bacteria are most often found, so it is said that this bacterium has an important role in the formation of dental plaque. Utilization of the decoction is used as an effort to deal with health problems or diseases that attack. One of the efforts to reduce the amount of dental plaque in the community requires an inhibitor that can inhibit Staphylococcus aureus bacteria. One of the natural antibacterials that can be used as medicine is red ginger (Zingiber Officinalle Var Rubrum). Red Ginger (Zingiber Officinalle Var Rubrum).

The results of Riskesdas 2018 show that the proportion of dental and oral problems in Indonesia has increased sharply from 23.2% in 2007 to 57.6% in 2018 with the largest proportion being caries (45.3%) (Kemenkes, 2018). Dental caries is a disease of dental tissue characterized by tissue damage, starting from the tooth surface (niches, fissures, and interproximal areas) extending towards the pulp. Dental caries can be experienced by everyone and can occur on one or more tooth surfaces, and can extend to the deeper parts of the teeth (Tarigan, 2013).

Among this group of bacteria, Staphylococcus aureus is the most common, so it is said that this bacterium has an important role in the formation of dental plaque. Staphylococcus aureus is a cariogenic bacteria that can ferment carbohydrates and produce acids. Usually, the use of red ginger is used as an effort to deal with the problem of dental plaque formation.

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RESEARCH METHODS

This research is an experimental laboratory research conducted from July to August 2022 at the Central Health Laboratory (BBLK). The method in this study was to observe and measure the diameter of the inhibition zone of Staphylococcus aureus bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data were normally distributed, bivariate analysis was performed using the One Way Anova test or the Kruskal-Wallis test if the data were not normally distributed.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1230/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 5.1 The average result of the inhibition zone diameter of red ginger (Zingiber Officinalle Var Rubrum) decoction after 24 hours.

	Inhibition zone diameter of each concentration against Staphylococcus aureus bacteria (mm)

	Red ginger boiled water concentration 40% (mm)	Red ginger boiled water concentration 50% (mm)	Red ginger boiled water concentration 60% (mm)
mean	13.038	14.80	16.77
Std. Deviation	0.49420	0.38730	0.41767

Table 5.1 shows that each concentration was repeated 9 times and each group had a different average, namely red ginger boiled water with a concentration of 40% had an average of 13.03 mm, red ginger boiled water with a concentration of 50% had an average of 15, 48 mm, while red ginger boiled water with a concentration of 60% has an average of 18.92 mm.

This study is in line with the results of Nur Aisyah's research (2020) that the results showed that red ginger extract (Zingiber officinale) was able to inhibit the growth of Staphylococcus aureus bacteria with the lowest inhibition zone being at a concentration of 20%, namely 5 mm, a concentration of 40% which was 7 mm, a concentration of 60 % is 8 mm, 80% concentration is 8 mm and the highest inhibition zone is at 100% concentration, which is 11 mm.

Table 5.2 The results of the normality test of the red ginger cooking water inhibition zone against Staphylococcus aureus bacteria after 24 hours.

Konsentrasi	Shapiro-Wilk		
	Statistic	Df	Sig.
Concentration of red ginger stew 40%	.911	9	.323
Concentration of red ginger stew 50%	.979	9	.959
Concentration of red ginger stew 60%	.937	9	.548

The requirement for the One Way Anova test was previously carried out to test the normality of the data using the Shapiro-Wilk test, in which all data must be normally distributed. The test criteria are based on sig 0.05. If the value of sig > 0.05 then the data is normally distributed. Table 5.2 is the result of the data which shows that when viewed from the sig column, each group has a significance value > 0.05 which indicates that the data is

normally distributed. So, if the data is normally distributed, then the data can then be tested for One Way Anova.

Table 5.3 The results of the One Way Anova test in the inhibition zone of red ginger cooking water against Staphylococcus aureus bacteria after 24 hours.

Treatment Group	N	Mean	*p Value*
Concentration of red ginger stew 40%	9	13.03	
Concentration of red ginger stew 50%	9	15.48	.000
Concentration of red ginger stew 60%	9	18.92	

Table 5.3 shows that in the One Way Anova test, the p value has a value of < 0.000. The data showed that p value < 0.05, meaning that there was a significant difference between the inhibition of red ginger boiled water at concentrations of 40%, 50% and 60% on the growth of Staphylococcus aureus.

According to Nuralifa (2019), there are several factors that can affect the difference in the size of the inhibition zone formed at each concentration, which can be caused by differences in the size of the concentration or the minimum amount of antibacterial active substances. contained therein, as well as the rate of diffusion of the antibacterial agent into the cell. agar medium. Other factors that were also considered to influence the formation of the inhibition zone were the sensitivity of the antibacterial growth, the reaction between the active ingredient and the medium, temperature and incubation time.

CONCLUSION AND RECOMMENDATION

Based on the results of research that has been carried out, it shows that boiled water from red ginger (Zingiber Officinalle Var Rubrum) at concentrations of 40%, 50%, and 60% can inhibit the growth of Staphylococcus aureus so that people can use boiled red ginger as an alternative to inhibit the growth of Staphylococcus aureus bacteria.

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Test the inhibition squeeze water of flesh fruit pineapple on the growth of streptococcus mutans

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ABSTRACT

Background: Dental and oral health problems are still a major problem for Indonesian people. The most common dental and oral disease is dental caries. Currently, it is found that dental caries is an infectious disease with multifactorial causes. Streptococcus mutans is the main cause of dental caries. One of the efforts that can be used to reduce dental caries is antibacterial which can kill Streptococcus mutans bacteria. One of the natural antibacterials that can be utilized and obtained by the community is pineapple (Ananas comosus). The health benefits of pineapple are related to the bromelain content in pineapple (Ananas Comosus) because it has anti-inflammatory activity, fibrinolytic activity, and can prevent platelet aggregation.

Objective: The purpose of this study was to determine the inhibition squeeze water of flesh fruit pineapple the growth of Streptococcus mutans bacteria.

Method: This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory, Faculty of Dentistry, Airlangga University, Surabaya, which is located at Jl. Mayor General. Prof. Dr. Moestopo 47 Surabaya 60132. The method in this study was to observe and measure the diameter of the zone of inhibition of Streptococcus Mutans bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. After the data were normally distributed, bivariate analysis was carried out using the One Way Anova test.

Result: based on the results of statistical tests using the One-way Anova test, p-value = 0.000 was obtained so that p-value <0.05, which means that the concentration squeeze water of flesh fruit pineapple tested has an effect on the growth of Streptococcus mutans bacteria (p-value <0.05) showed that squeeze water of flesh fruit pineapple concentrations of 25%, 50%, 75% and 100% were effective in inhibiting Streptococcus mutans bacteria.

Conclusion: Based on the results of the research that has been done, it can be it was concluded that there were differences in the inhibition squeeze water of flesh fruit pineapple at concentrations of 25%, 50%, 75%, and 100%.

Keywords: inhibition test; squeeze water of flesh fruit pineapple;Streptococcus mutans

BACKGROUND

Dental and oral health problems are still a major problem for Indonesian people. The most common dental and oral disease is dental caries. Based on the National Basic Health Research (Riskesdas) in 2018, the prevalence of dental caries in Indonesia was 88.8%, the prevalence of dental caries tends to be high (above 70%) in all age groups.The process of the occurrence of caries continues to the deeper part of the tooth so that it forms a hole. In this

process demineralization occurs which is caused by the interaction of germs, carbohydrates that are suitable on the surface of the teeth and mouth (Margareta, 2012).

Dental caries can be experienced by everyone and can arise on one or more tooth surfaces, and can extend to the deeper parts of the teeth (Tarigan, 2013)

Dental caries can be experienced by everyone and can occur on one or more tooth surfaces, and can extend to the deeper parts of the teeth (Tarigan, 2013). It is currently understood that dental caries is an infectious disease with multifactorial causes. Streptococcus mutans is the main cause of dental caries. This bacterium is a pathogenic bacteria in the mouth which is the main causative agent of caries (Andries et al., 2014).

In Indonesia, there is a tradition of treatment based on natural ingredients available in the environment. One of the efforts that can be used to reduce dental caries is an antibacterial that can kill the Streptococcus mutans bacteria. One of the natural antibacterials that can be used and obtained by the community is pineapple (Ananas comosus). The health benefits of pineapple are related to the bromelain content in pineapple (Ananas Comosus). Bromelain has anti-inflammatory activity, fibrinolytic activity, and can prevent platelet aggregation (Gunawan et al., 2019).

Pineapple (Ananas Comosus) contains minerals, both micro and macro, organic substances, water, and vitamins. The presence of several ingredients in pineapple (Ananas Comosus) such as Chlorine, Iodine, Phenol, Flavonoids and Bromealin Enzymes can be used for oral antiseptics, so that the mouth is protected from bacterial growth (Thanish Ahamed et al., 2016).

RESEARCH METHODS

This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory of the Faculty of Dentistry, Airlangga University, Surabaya, which is located on Jl. Major General. Prof. Dr. Moestopo 47 Surabaya 60132. The method in this study is to observe and measure the diameter of the inhibition zone of Streptococcus Mutans bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data is normally distributed, bivariate analysis is performed using the One Way Anova test or the Kruskal-Wallis test if the data is not normally distributed.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1225/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1. the results of the average diameter of the inhibition zone of the squeeze water of flesh fruit pineapple group against Streptococcus mutans bacteria After 24 hours

	Inhibition zone diameter of each concentration against Streptococcus mutans bacteria (mm)

No	squeeze water of flesh fruit pineapple concentration 25% (mm)	squeeze water of flesh fruit pineapple concentration 50 % (mm)	squeeze water of flesh fruit pineapple concentration 75% (mm)	squeeze water of flesh fruit pineapple concentration 100 % (mm)
1	13.20	15.40	17.20	20.20
2	12.60	15.00	17.15	21.40
3	12.80	15.60	17.80	20.60
4	13.35	15.40	17.40	20.80
5	12.75	15.55	17.60	20.35
6	12.80	15.60	17.55	20.75
mean	12.92	15.43	17.45	20.68
Std. Deviation	0.290975	0.227486	0.248998	0.420317

Table 1. shows that each concentration was repeated 6 times and each group had a different average, namely squeeze water of flesh fruit pineapple with a concentration of 25% had an average of 12.92 mm, squeeze water of flesh fruit pineapple with a concentration of 50 % has an average of 15.43 mm, squeeze water of flesh fruit pineapple with a concentration of 75% has an average of 17.45 mm, while squeeze water of flesh fruit pineapple with a concentration of 100% has an average of 20.68 mm.

Table 2. normality test results of the inhibition zone of squeeze water of flesh fruit pineapple group against Streptococcus Mutans bacteria After 24 hours

Konsentrasi	Shapiro-Wilk		
	Statistic	Df	Sig.
squeeze water of flesh fruit pineapple concentration 25%	.875	6	.246
squeeze water of flesh fruit pineapple concentration 50%	.801	6	.060
squeeze water of flesh fruit pineapple concentration 75%	.953	6	.726

	.940	6	.657
squeeze water of flesh fruit pineapple concentration 100%			

The requirement for the One Way Anova test was previously carried out to test the normality of the data using the Shapiro-Wilk test, in which all data must be normally distributed. The test criteria are based on sig 0.05. If the value of sig > 0.05 then the data is normally distributed. Table 2. is the result of the data which shows that when viewed from the sig column, each group has a significance value > 0.05 which indicates that the data is normally distributed. So, if the data is normally distributed, then the data can then be tested for One Way Anova.

Table 3. Results of the One Way Anova test in the inhibition zone of squeeze water of flesh fruit pineapple against Streptococcus Mutans bacteria after 24 hours

Kelompok perlakuan	N	Mean	*p Value*
squeeze water of flesh fruit pineapple concentration 25%	6	12,92	
squeeze water of flesh fruit pineapple concentration 50%	6	15,43	
squeeze water of flesh fruit pineapple concentration 75%	6	17,45	.000
squeeze water of flesh fruit pineapple concentration 100%	6	20,68	

In this study, statistical tests were carried out using the *One Way Anova* test and obtained a significance value of 0.00, which means ($p < 0.05$). which means that there is a difference between each concentration of squeeze water of flesh fruit pineapple on the growth inhibition of Streptococcus mutans.

The results of this study are in line with research conducted by Gunawan et al., (2019) regarding the antibacterial test squeeze water of flesh fruit pineapple (Ananas Comosus) with concentrations of 25%, 50%, 75% and 100% can inhibit Staphylococcus aureus bacteria, where the concentration of 100 % is the best concentration in inhibiting the growth of Staphylococcus aureus bacteria. Sebab, Nanas (Ananas Comosus) memiliki kandungan

Enzim Bromelin yang dapat digunakan untuk antiseptik oral, sehingga mulut terlindungi dari pertumbuhan bakteri (Thanish Ahamed et al., 2016).

According to Silaban & Rahmanisa (2017), Pineapple has been used as a medicinal plant in several indigenous cultures and the efficacy of pineapple is attributed to bromelain. Bromelain enzyme plays an important role in overcoming oral problems. Bromelain enzymes can be found in all pineapple plant tissues. The main function of the bromelain enzyme is to break down or break down proteins and antibacterial agents. Bromelain enzyme is a protease enzyme that can hydrolyze peptide bonds into amino acids (Nurnaningsih & Laela, 2022).

According to Nuralifa (2019), there are several factors that can affect the difference in the size of the inhibition zone formed at each concentration, which can be caused by differences in the size of the concentration or the amount of at least the antibacterial active substance. Other factors that are also considered to influence the formation of the inhibition zone are the sensitivity of antibacterial growth, the reaction between the active ingredient and the medium, incubation temperature and time.

The results of laboratory studies that have been carried out state that the greater the concentration of pineapple juice, the greater the zone of inhibition against the growth of Streptococcus mutans bacteria, as well as the smaller the concentration of pineapple juice, the smaller the zone of inhibition against Streptococcus mutans bacteria.

CONCLUSION AND RECOMMENDATION

based on the results of research that has been done shows that squeeze water of flesh fruit pineapple (Ananas comosus (left) Merr Var. Queen) on concentrations of 25%, 50%, 70%, and 100% have inhibition of the growth of Streptococcus mutans. so that people can use squeeze water of flesh fruit pineapple as an alternative to inhibit the growth of streptococcus mutans bacteria

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Relationship Of Parent Knowledge With The Event Of Permanent First Molar Caries (study on first and second graders at Mojo VIII Elementary School Gubeng, Surabaya)

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ABSTRACT
Dental caries is the most common disease in humans. Caries can happen to anyone, although it often appears in children or young adults. The first permanent teeth to erupt in the oral cavity at the age of 6-7 years are the first permanent molars. The first permanent molars are often affected by caries because of the large number of pits and fissures in the permanent molars. The purpose of this study was to knowing the relationship between parents' knowledge and the incidence of permanent one molar caries in class I and II children at SDN Mojo VIII Gubeng, Surabaya. The research method used was cross-sectional to analyze the relationship between parents' knowledge and the incidence of permanent one molar caries in class I and II children at SDN Mojo VIII Gubeng, Surabaya with 47 respondents. The research instrument used for parents' knowledge is a questionnaire sheet and to collect data on molar caries is a checklist sheet. The data analysis technique is the relationship between parents' knowledge and the incidence of permanent one molar caries in class I and II children at SDN Mojo VIII Gubeng, Surabaya by using the SPSS data processing application, with data analysis using the Chi-Square test with a significant degree of = 0.05. The results of this research found that there is a relationship between parents' knowledge and the incidence of permanent one molar caries in class I and II children at SDN Mojo VIII Gubeng, Surabaya.
Keywords: Knowledge, Parents, Caries, First Molar

BACKGROUND
Dental caries is the most common disease in humans. Caries can happen to anyone, although it often appears in children or young adults. This disease is the main cause of tooth loss at a young age. Caries is one of the evidence that the condition of the teeth and mouth of the Indonesian people is not maintained (Reca, 2017).

Based on the results of the Main Basic Health Research of the Ministry of Health, the prevalence of caries in children aged 5-9 years is 93%, which means that only about 7% of Indonesian children are free from dental caries. School-age children are one of the groups that are vulnerable to caries because they generally still have less knowledge and behavior on dental caries. At this time children begin to learn to pay attention to the behavior of life in the surrounding environment, begin to interact with many friends, and recognize and imitate what they see, the impact can be beneficial or detrimental to dental health (Prasetyowati *et al.*, 2020).

The first permanent teeth to erupt in the oral cavity at the age of 6-7 years are the first permanent molars. The first permanent molars are often affected by caries because of the large number of pits and fissures in the permanent molars so that food debris easily

accumulates in this area and causes caries in the permanent first molars (Agung & Dewi, 2019).

The influence of parents is very strong on children, parents are the closest people to children who have an influence, on both attitudes and behavior regarding the maintenance of oral health. Parental knowledge is very important in underpinning the formation of behaviors that support children's dental and oral hygiene. Parental misunderstanding on mixed dentition states that permanent first molars still have a replacement after extraction which causes a lack of attention to caries in children's permanent first molars. The permanent first molars erupt before the primary teeth fall out and are the teeth that do not replace the primary teeth (Srinai et al., 2017).

Based on data on dental and oral health examinations conducted on first graders at Mojo VIII Elementary School, which amounted to 20 children, the data obtained were 13 children with permanent first molar caries, while only 7 children did not experience caries in their permanent first molars. These results indicate that the prevalence of caries in the permanent first molars is 65%. This is not in accordance with the 2014 short-term target in the UKGS guidelines, namely the prevalence of caries-free in M1 is 50% (Kemenkes RI, 2012)

Based on the data above, the problem in this study is the high number of permanent first molar caries at SDN Mojo VIII Gubeng, Surabaya.

RESEARCH METHODS

This research has been approved by the Health Research Ethics Commission of the Polytechnic of Health Surabaya No.EA/1239/KEPK-Poltekkes_Sby/V/2022.

This study is an analytic study with a cross-sectional design to analyze the relationship between parental knowledge and the incidence of permanent first molar caries in first and second graders at SDN Mojo VIII Gubeng, Surabaya. The population in this study were parents of children in grades I and II of SDN Mojo VIII Gubeng, Surabaya, amounting to 54 people.

Obtained a large sample of 47 people. Sampling was taken using purposive sampling.

There are inclusion and exclusion criteria in this study. Inclusion criteria are criteria where research subjects represent the research sample and qualify as samples.

1. Class I and II students at SDN Mojo VIII Gubeng, Surabaya whose permanent first molars have erupted.
2. Parents of grade I and II students at SDN Mojo VIII Gubeng, Surabaya who are willing to participate in the research and are willing to provide informed consent.

Exclusion criteria are criteria where the research subject cannot represent the sample because it does not meet the requirements of a research sample, so it is not possible to conduct research.

1. Class I and II students at SDN Mojo VIII Gubeng, Surabaya whose permanent first molars have not erupted.
2. Parents of grade I and II students at SDN Mojo VIII Gubeng, Surabaya who are not willing to participate in the research and are not willing to provide informed consent.

The method of collecting parental knowledge data is using a questionnaire sheet. While the permanent first molar caries data by examining the oral cavity.

Analyzing the relationship between parental knowledge and the incidence of caries on permanent first molars in children using statistical tests, with data analysis using the Chi-Square test with a significant degree of = 0.05.

RESULTS AND DISCUSSION

Results of Measurement of Parental Knowledge with the Incidence of Permanent One Molar Caries (Study in grades I and II at SDN Mojo VIII Gubeng, Surabaya)

Knowledge Criteria	Frequency	Percentage
Good	18	38,3%
Medium	24	51,1%
Low	5	10,6%
Total	**47**	**100%**

Based on table, it is found that the greatest frequency of parental knowledge of the incidence of caries in the first permanent molar is in the moderate category with a frequency of 24 people with a percentage of 51.1%.

Based on the results of data analysis, it is known that most of the parents' knowledge about permanent first molar caries has a moderate level of knowledge. It is known that in the results of filling out the questionnaire there are three question indicators, namely parental knowledge about dental caries, parental knowledge about how to distinguish primary and permanent teeth, and parental knowledge about permanent first molars. The question indicator with the lowest frequency is found in the question indicator about parents' knowledge about permanent first molars. This is in line with research conducted by (Wahyuni, 2019) which explains that there are some parents who still think that the permanent first molars are still undergoing replacement, so they do not pay much attention to it and the impact is caries.

According to the results of the study, most parents do not know that mixed teeth are the type of teeth that grow in the oral cavity of children at the age of 6-7 years. This is in line with research conducted by (Jumriani dan Hadi, 2021) which explains that parents' knowledge about the period of tooth growth is in the poor category. This could be due to a lack of parental information regarding the importance of the child's tooth turnover period, even though parental knowledge about dental health is an important factor in efforts to maintain and prevent dental disease in children.

Table Measurement Results of Permanent One Molar Caries in Class I and II Children at SDN Mojo VIII Gubeng, Surabaya

Assessment Criteria	Frequency	Percentage
Karies	28	59,6%
Tidak Karies	19	40,4%
Total	**47**	**100%**

Based on table shows that most of the respondents experienced caries in their permanent first molars with a frequency of 28 children with a percentage of 59.6%.

Based on the results of the study, it was shown that more than half the number of children in grades I and II at SDN Mojo VIII Gubeng, Surabaya experienced caries in their permanent first molars. This is in a bad category according to (Kemenkes RI, 2012) which explains that the prevalence of caries-free in M1 is 50% with the criteria for assessing the caries rate of M1 teeth having caries >50% in the bad category.

Table Results of Parental Knowledge Analysis with the Occurrence of Permanent One Molar Caries (Study in grades I and II at SDN Mojo VIII Gubeng, Surabaya)

Parents' Knowledge	Permanent First Molar Caries		Total	P *Value*
	Caries	No Caries		
Good	0	18	18	
Medium	23	1	24	0,000
Low	5	0	5	
Total	28	19	47	

Based on table the results of SPSS calculations using Chi-Square data analysis techniques obtained the value of. Value 0.000 which means it is smaller than the significant value (α) which is set at 0.05 (0.000 < 0.05), so H0 is rejected and H1 is accepted, it can be concluded that there is a relationship between parental knowledge and the incidence of permanent first molar caries in children. class I and II at SDN Mojo VIII Gubeng, Surabaya.

Based on the results of data analysis of the relationship between parental knowledge and the incidence of permanent first molar caries in grade I and II children at SDN Mojo VIII Gubeng, Surabaya, it can be seen that there is a relationship between parental knowledge and the incidence of permanent first molar caries in grade I and II children at SDN Mojo. VIII Gubeng, Surabaya. This is in line with research conducted by (Srinai *et al*., 2017) which explains that parental knowledge of dental and oral health maintenance is a factor that can affect the occurrence of dental caries in children.

CONCLUSION AND RECOMMENDATION

Based on the results of research on the relationship between parental knowledge and the incidence of permanent first molar caries in grade I and II children at SDN Mojo VIII Gubeng, Surabaya, it can be concluded that:

1. Most of the parents' knowledge about permanent first molar caries has a moderate level of knowledge at SDN Mojo VIII Gubeng, Surabaya.
2. More than half the number of children in grades I and II at SDN Mojo VIII Gubeng, Surabaya experienced caries in the permanent first molars.
3. There is a relationship between parental knowledge and the incidence of permanent first molar caries in grade I and II children at SDN Mojo VIII Gubeng, Surabaya.

Based on the results of the research and the conclusions above, the following suggestions can be given:

1. For Parents of Class I and II Children at SDN Mojo VIII Gubeng, Surabaya
   Parents are expected to increase their knowledge about permanent first molar caries in children. This can be done by multiplying information from various sources and bringing children for dental and oral examinations to health facilities, not only when there are complaints in order to improve the degree of dental and oral health in children.
2. For Health Workers
   Local dental health workers are expected to provide dental and oral health education, especially about caries in the permanent first molars. The role of health workers is very important considering that one of the sources of information for parents is health workers in order to improve the degree of dental and oral health in children.

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THE 5th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA (ICOHPS)
2nd International Conference of Dental and Oral Health **(ICoDOH)**

LEVEL OF KNOWLEDGE WITH THE BEHAVIOR OF DENTAL AND MOUTH HEALTH OF PREGNANT MOTHERS IN THE RSPAL CONTENT CLINIC Dr RAMELAN IN 2022

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ABSTRACT

The results of the study stated that the bad behavior of pregnant women towards dental and oral health maintenance was caused by low knowledge. Inappropriate behavior of pregnant women can cause dental and oral health to be disturbed. Lack of knowledge about dental health and ignorance of the dangers of dental disease, resulted in a person or community not taking advantage of existing dental health services. The result is caries, gingivitis and periodontitis. This affects the health of pregnant women, and can affect the growth and development of the fetus. **Problem:** the low dental and oral health behavior of pregnant women at the Gynecology Clinic, RSPAL dr. Ramelan 2022. **Objective:** to determine the relationship between the level of knowledge with dental and oral health behavior of pregnant women at the Gynecology Clinic, RSPAL dr. Ramelan in 2022. **Type of research**: cross sectional analytic study with 36 pregnant women as respondents. The sampling technique of this study used a simple random sampling method, namely the taking of samples selected at random. **Results:** the results of the study showed that the knowledge of pregnant women in the poor category was 16 people (44%) and the behavior of pregnant women in the moderate category was 19 people (53%). Chi-Square data analysis obtained the value of . Value 0.046, which means it is smaller than the significant value (α) which is set at 0.05 (0.046 < 0.05). **Conclusion:** there is a relationship between knowledge and oral health behavior of pregnant women at the Gynecology Clinic, RSPAL dr. Ramelan in 2022. **Suggestion:** Every pregnant woman can maintain her dental health by: Check the control every 6 months, if there are complaints, seek treatment immediately and don't wait for the tooth to hurt first.
Keywords: Level of knowledge, pregnant women, behavior of pregnant women

BACKGROUND
The level of behavior of pregnant women in maintaining dental health is in the less category. Inappropriate behavior of pregnant women can lead to dental and oral health problems, such as caries, gingivitis to periodontitis. Dental and oral health problems will affect the health of pregnant women, thereby disrupting the growth and development of the fetus. Prevention of dental and oral problems during pregnancy can be done if pregnant women have good knowledge and behavior in carrying out dental and oral care. Based on the existing results, the problem raised in this study is the low oral health behavior of pregnant women in the clinic. Contents of RSPAL dr. Ramelan in 2022. So it is necessary to change the behavior of pregnant women who were originally wrong to turn right

RESEARCH METHODS

The sample in this study were 36 pregnant women at the Gynecology Clinic RSPAL dr. Ramelan. The sampling method used in this research is simple random sampling. The location of the research was carried out at the Gynecology Clinic, RSPAL dr. Ramelan. Methods of collecting data for pregnant women using a questionnaire

Collecting data from respondents carried out the following steps:

1. Coordinate with Bangdiklat RSPAL dr Ramelan to carry out official permission to conduct research at the Gynecology Clinic.
2. Make a permit from the Department of Dental Health, Poltekkes Surabaya to RSPAL dr Ramelan.
3. Submit a research permit to RSPAL dr Ramelan
4. Obtained research permit approval from RSPAL dr Ramelan.
5. Coordinate with the Gynecology Clinic of RSPAL dr Ramelan to carry out data collection from respondents.
6. Visiting pregnant women at the obstetrics clinic.
7. Distribute questionnaire sheets and provide explanations in filling out questionnaire sheets
8. Collecting the results and recaping the results of the questionnaire.

Analyzing the relationship between the level of knowledge and the dental and oral health behavior of pregnant women using the SPSS data processing application, with data analysis using the Chi-Square test with a significance degree of $= 0.05$. Furthermore, the results of the calculations are presented in tabular form.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1264/KEPK-Poltekkes_Sby/V/2022

RESULTS AND DISCUSSION

Age	Frequency	Percentage
20 - 25	6	16.7 %
26 - 30	12	33.3 %
31 - 35	9	25 %
36 - 41	9	25 %
Amount	36	100 %

This study was conducted on 36 pregnant women at the Obstetrics Clinic of the RSPAL dr Ramelan. Based on age characteristics, the majority of respondents were aged 26-30 years as much as 33.3%, followed by the age of 31-35 years 25%, the age of 36-41 years 25%, and the age of 20-25 years 16.7%

Education	Frequency	Percentage
Basic Education (SMP)	1	02.8 %

Secondary Education (SMA)	11	30.5 %
Higher Education (Dipoma, Bachelor)	24	66.7 %
Amount	36	100 %

Based on the latest education, most of the respondents had the highest education at 66.7%, followed by high school at 30.5%, and junior high school at 02.8%.

Gestational Age	Frequency	Percentage
Semester 1 (01-13)	4	11.1 %
Semester 2 (14-26)	9	25 %
Semester 3 (27-40)	23	63.9 %
Amount	36	100 %

Based on gestational age, the majority of respondents were in the third trimester of pregnancy, as many as 63.9%, followed by the second trimester by 25%, and the first trimester by 11.1%.

Pengetahuan * Perilaku Crosstabulation					
Count					
			Perilaku		
		Baik	Cukup	Kurang	Total
Pengetahuan	Baik	3	3	1	7
	Cukup	0	8	5	13
	Kurang	1	8	7	16
Total		4	19	13	36

The highest frequency of knowledge of pregnant women was found in the less category with a frequency of 16 people (44%). Then the largest frequency of behavior of pregnant women in the medium category with a frequency of 19 people (53%)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.679[a]	4	.046
Likelihood Ratio	8.754	4	.068
Linear-by-Linear Association	3.781	1	.052
N of Valid Cases	36		
a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is .78.			

SPSS calculation results using Chi-Square data analysis techniques obtained the value of . Value 0.046, which means it is smaller than the significant value (α) which is set at 0.05 (0.046 < 0.05), so it can be concluded that there is a relationship between knowledge and oral

health behavior of pregnant women at the Gynecological Clinic RSPAL dr. The forecast for 2022.

CONCLUSION AND RECOMMENDATION
Every pregnant woman can maintain her dental health by: Check the control every 6 months, if there are complaints, seek treatment immediately and don't wait for the tooth to hurt first.

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Anti-Bacterial Activity Testing Of lemongrass stalks (Cymbogopon Citratus) Against Streptococcus Mutans Bacteria

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ABSTRACT

Background: Dental and oral health is part of body health that cannot be separated from each other because dental and oral health can affect the overall health of the body. The risk posed by poor dental and oral hygiene conditions can increase the occurrence of caries. Streptococcus mutans bacteria are the most commonly found bacteria, so it is said that these bacteria have an important role in the occurrence of dental caries. One of the efforts to reduce the caries rate in the community requires an antibacterial that can kill Streptococcus mutans bacteria. One of the natural antibacterials that can be used as medicine is lemongrass (Cymbogopon Citratus).

Objective: The purpose of this study was to determine the antibacterial activity test of Stew of Lemongrass (Cymbopogon Citratus) Against Streptococcus Mutans Bacteria.

Method: This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory of the Faculty of Dentistry, Airlangga University, Surabaya. The method in this study is to observe and measure the diameter of the inhibition zone of Streptococcus Mutans bacteria using the paper disc diffusion method. Analysis of the data used is the One Way Anova test by analyzing boiled water of kitchen lemongrass stems with concentrations of 5%, 10% and 15% against Streptococcus mutans bacteria.

Result: based on the results of statistical tests using the One-way Anova test, p-value = 0.000 was obtained so that p-value <0.05, which means that the concentration of cooking water from the tested lemongrass stems has an effect on the growth of Streptococcus mutans (p-value <0.05) indicating that the cooking water of lemongrass stems at concentrations of 5%, 10% and 15% were effective in inhibiting Streptococcus mutans bacteria.

Conclusion: Based on the results of the research that has been done, it can be concluded that there is a test of antibacterial activity of lemongrass (Cymbogopon Citratus) boiled water at concentrations of 5%, 10% and 15%.

Keywords: inhibition test; lemongrass stem stew; Streptococcus Mutans

BACKGROUND

Dental and oral health is a part of body health that cannot be separated from each other because dental and oral health can affect the overall health of the body (Putra et al., 2017). To maintain healthy teeth and mouth, it is necessary to keep the oral cavity clean. The risk posed by poor dental and oral hygiene conditions can increase the occurrence of caries and periodontal disease (Motto et al., 2017).

The results of Riskesdas 2018 show that the proportion of dental and oral problems in Indonesia has increased sharply from 23.2% in 2007 to 57.6% in 2018 with the largest proportion being caries (45.3%) (Kemenkes, 2018). Dental caries is a disease of dental tissue

characterized by tissue damage, starting from the tooth surface (niches, fissures, and interproximal areas) extending towards the pulp. Dental caries can be experienced by everyone and can occur on one or more tooth surfaces, and can extend to the deeper parts of the teeth (Tarigan, 2013).

Among this group of bacteria, Streptococcus mutans is the most frequently found, so it is said that this bacterium has an important role in dental caries disease (Kawengian et al., 2017). Streptococcus Mutans is a cariogenic bacteria that can ferment carbohydrates and produce acid (Buchari, 2018). Usually, the use of the fruit is used as an effort to deal with health problems or diseases that attack (Buchari, 2018).

One of the efforts to reduce the number of caries in the community requires an antibacterial that can kill Streptococcus mutans bacteria. One of the natural antibacterials that can be used as medicine is lemongrass (Cymbogopon Citratus). Lemongrass (Cymbopogon Citratus) is a species of the genus Cymbopogon that produces essential oils with a distinctive fragrance.

RESEARCH METHODS

This research is an experimental laboratory research conducted from July to August 2022 at the Microbiology Research Center Laboratory of the Faculty of Dentistry, Airlangga University, Surabaya, which is located on Jl. Major General. Prof. Dr. Moestopo 47 Surabaya 60132. The method in this study is to observe and measure the diameter of the inhibition zone of Streptococcus Mutans bacteria using the paper disc diffusion method. From the calculated data, the Shapiro-Wilk normality test was carried out, because based on the number of samples less than 50 samples. If the data is normally distributed, bivariate analysis is performed using the One Way Anova test or the Kruskal-Wallis test if the data is not normally distributed.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1229/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION
Table 5.1 The results of the average diameter of the inhibition zone of lemongrass stem decoction against Streptococcus Mutans bacteria After 24 hours

No	Inhibition zone diameter of each concentration against Streptococcus mutans bacteria (mm)		
	lemongrass stem boiled water concentration 5% (mm)	lemongrass stem boiled water concentration 10% (mm)	lemongrass stem boiled water concentration 15% (mm)
1	12.20	15.40	19.20
2	12.80	15.20	18.60
3	13.40	15.60	18.95
4	12.40	15.35	19.05
5	12.75	15.55	18.80
6	13.55	15.70	18.60
7	13.70	15.40	18.55
8	12.35	15.35	19.40
9	12.60	15.80	19.15
mean	12.86	15.48	18.92

Std. Deviation	0.55496	0.19203	0.30322

Table 5.1 shows that each concentration was repeated 9 times and each group had a different average, namely lemongrass stem boiled water with a concentration of 5% had an average of 12.87 mm, lemongrass stem boiled water with a concentration of 10% had an average 15.48 mm, while the lemongrass stem boiled water with a concentration of 15% has an average of 18,92 mm,

This study is in line with the results of research by Fahdi et al., (2022) that a mouthwash formulation of lemongrass extract with concentrations of 5%, 10% and 15% can inhibit the growth of Streptococcus Mutans bacteria with a strong bacterial inhibition found at a concentration of 15%, namely the value of an average of 25.05 mm.

Table 5.2 The results of the normality test of the inhibition zone of boiled water from the lemongrass stems group against Streptococcus Mutans bacteria After 24 hours

Concentration	Shapiro-Wilk		
	Statistic	Df	Sig.
lemongrass stem stew concentration 5%	.900	9	.253
lemongrass stem stew concentration 10%	.954	9	.734
lemongrass stem stew concentration 15%	.931	9	.495

The requirement for the One Way Anova test was previously carried out to test the normality of the data using the Shapiro-Wilk test, in which all data must be normally distributed. The test criteria are based on sig 0.05. If the value of sig > 0.05 then the data is normally distributed. Table 5.2 is the result of the data which shows that when viewed from the sig column, each group has a significance value > 0.05 which indicates that the data is normally distributed. So, if the data is normally distributed, then the data can then be tested for One Way Anova.

Table 5.3 Results of One Way Anova test on the inhibition zone of cooking lemongrass stem water against Streptococcus Mutans bacteria after 24 hours

Treatment Group	N	Mean	*p Value*
lemongrass stem stew concentration 5%	9	12.86	
lemongrass stem stew concentration 10%	9	15.48	**.000**
lemongrass stem stew concentration 15%	9	18.92	

Table 5.3 shows that the One Way Anova test obtained p value has a value of < 0.000. The data showed that p value <0.05, meaning that there was a significant difference between the inhibition of cooking water from lemongrass stems at concentrations of 15%, 10% and 15% on the growth of Streptococcus mutans.

According to Nuralifa (2019), there are several factors that can affect the difference in the size of the inhibition zone formed at each concentration, which can be caused by differences in the size of the concentration or the amount of at least the antibacterial active substance contained in it, as well as the speed of diffusion of antibacterial materials into the

cell. agar medium. Other factors that are also considered to influence the formation of the inhibition zone are the sensitivity of antibacterial growth, the reaction between the active ingredient and the medium, incubation temperature and time.

CONCLUSION AND RECOMMENDATION

Based on the results of research that has been carried out, it shows that boiled water from the stems of lemongrass (Cymbogopon Citratus) at concentrations of 5%, 10%, and 15% inhibits the growth of Streptococcus mutans. So that people can use lemongrass plants as an alternative to inhibit the growth of Streptococcus mutans bacteria

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Parent's Knowledge Of Children With Special Needs And Social Support Towards Willing To Do Dental Care
(Study at Special School B-C Optimal in 2022)

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ABSTRACT

Background: Children with special needs have a very high risk of dental and oral hygiene problems because they have limitations in themselves. Parents as educators must have knowledge especially about dental and oral health, so that parents are able to provide information to children about the importance of maintaining dental and oral hygiene. So that it can make individuals feel able to face obstacles or difficulties in carrying out something.

Objective: To determine the effect of parental knowledge of children with special needs about dental health and social support on the willingness to take care of their children's teeth

Method: The type of research used in this study is an analytical survey by using a cross sectional approach. The target in this study were 70 people who were taken using a simple random technique. The instrument for collecting data on parental knowledge and social support used a questionnaire and to measure the willingness of parents to use a question sheet. To determine the effect of parental knowledge of children with special needs about dental health and social support on the willingness to take care of their children's teeth using logistic regression test with a significance value (α) = 0.05.

Result: the knowledge of parents who are not willing to do the most treatment on the criteria is lacking while social support on the good criteria is willing to take care of their children's teeth. The results of statistical tests are known to have an influence between the knowledge of parents of children with special needs and social support on the willingness to do dental treatment (p <0.05)

Conclusion: there is an influence between the knowledge of parents of children with special needs and social support on the willingness to do dental treatment.

Keywords: knowledge of parents of children with special needs; social support; willingness to perform dental care.

BACKGROUND

children with special needs have a very high risk of dental and oral hygiene problems because they have limitations in themselves. so they need help and cooperation with other people to get and maintain their health, including in maintaining their oral health. The condition of the oral cavity is strongly influenced by age factors (especially very young children), the severity of the disorder/abnormality, as well as environmental conditions where children are highly dependent on their parents, siblings, or caregivers in caring for their oral cavity (Octiara et al., 2018).

Parents as educators must have knowledge in particular about dental and oral health, so that parents are able to provide information to children about the importance of

maintaining dental and oral hygiene and be able to teach how to take care of dental and oral health. In addition to knowledge, parents also need to have skills in caring for children's teeth and mouth (Sekarlawu et al., 2021). Knowledge is a very important domain for the formation of one's actions. The knowledge possessed by parents will make whether or not the action is appropriate in terms of maintaining the cleanliness of the teeth and mouth of their children, because the parents practice in terms of maintaining dental and oral hygiene in accordance with the knowledge possessed by parents (Qomariyah et al., 2020).

Social support is support or assistance that comes from people who have close social relationships with individuals who receive assistance. This form of support can be in the form of information, certain behaviors, or materials that can make individuals who receive assistance feel loved, cared for and valued. Social support can make a person feel comfortable, supported, loved and develop feelings of self-worth and worth. So that it can make individuals feel able to face obstacles or difficulties in carrying out something (Saputri & Sugiharto, 2020).

RESEARCH METHODS

The type of research used in this study is an analytical survey using a cross sectional approach. This research was conducted at SLB BC Optimal with 70 parents of children with special needs as subjects taken by random sampling technique. The data collection instrument in this study used questions to determine the willingness of parents to treat their children's teeth and used a questionnaire to measure parental knowledge and social support. Logistic regression test was used to analyze the effect of parental knowledge of children with special needs and social support on the willingness to perform dental treatment with a significant value (α) = 0.05.

Ethical approval for this study was obtained from the Ethics Committee of the Surabaya Health Polytechnic, with the approval number: No. EA/1224/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1. Parent's willingness of children with special needs at Special School B-C Optimal for dental treatment treated his teeth.

Parental Willingness	Total	Percentage (%)
Not Willing	37	53%
Willing	33	47%
Total	130	100%

Based on table 1 it is known that parents of children with special needs in SLB BC Optimal who are not willing to bring their own children to the nearest health center for dental treatment as many as 37 people with a percentage of 5% while there are 33 parents with a percentage of 47% willing to bring their own children to the nearest health service for dental treatment.

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Table 2. The level of parent's knowledge about dental health on the parent's willingness of children with special needs at Special School B-C Optimal to have their teeth treated.

Knowledge	Willing		Not Willing		Total	
	N	%	N	%	N	%
Less	8	22,9%	27	77,1%	35	100%
Enough	14	63,6%	8	36,4%	22	100%
Good	11	84,6%	2	15,4%	13	100%
Total	33	47,1%	37	52,9%	70	100%

Based on table 2 it is known that the knowledge of parents about dental health who are willing to take their children to the nearest health care unit for dental treatment is at most 14 people with sufficient criteria. the percentage of 20% while the knowledge of parents about dental health who are not willing to bring their own children to the nearest health service for dental treatment is at most 27 people with less criteria with a percentage of 38.5%, this is in line with research by Putri Abadi & Suparno, (2019) which states that parents' perceptions and knowledge of children's dental health affect the attitudes and actions of parents in maintaining children's dental health and determining the status of children's dental health.

Table 3. The level of social support on the parent's willingness to of children with special needs at Special School B-C Optimal for dental treatment.

Social Support	Willing		Not Willing		Total	
	N	%	N	%	N	%
Less	1	6,7%	14	93,3%	15	100%
Enough	11	47,8%	12	52,2%	23	100%
Good	21	65,6%	11	34,4%	32	100%
Total	33	47,1%	37	52,9%	70	100%

Based on table 3 it is known that the social support variable who is willing to bring their own child to the nearest health care facility for dental treatment is at most 21 people with good criteria with a percentage 30% while those who are not willing to bring their own children to the nearest health care unit for dental treatment are at most 14 people with less criteria with a percentage of 20%.

Receiving social support from trusted people will feel themselves cared for, appreciated, and felt loved. Individuals who receive social support will feel happy, feel given the help of others based on formal or informal relationships (Rif'ati et al., 2018). So that social support can provide more positive health outcomes (Yaslina et al., 2019)

Table 4. The influence of parent's knowledge of children with special needs and social support on the willingness to perform dental care.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Parent Knowledge	1.449	.459	9.947	1	.002	4.257	1.730	10.472
Social Support	1.109	.414	7.196	1	.007	3.033	1.348	6.821
Constant	-5.028	1.262	15.862	1	.000	.007		

Based on table 4 stated that the knowledge of parents showed a sig value of 0.002, which means it was smaller than the significant value (α) set at 0.05, while social support showed a sig value of 0.007 this value was also smaller than 0.05 (0.007 <0.05). So it can be concluded that H0 is rejected and H1 is accepted, that is, there is an influence of knowledge of parents of children with special needs and social support on the willingness to take care of their children's teeth.

Knowledge is a very important domain for the formation of one's actions. The knowledge possessed by parents will make whether or not the action is appropriate in terms of maintaining the cleanliness of the teeth and mouth of their children, because the parents practice in terms of maintaining dental and oral hygiene in accordance with the knowledge possessed by parents (Qomariyah et al., 2020).

Social support has a strong influence on a person's survival. Social support can be obtained from various sources such as friends, family, friends, teachers, neighbors or people closest to them (Rif'ati et al., 2018). Social support will greatly help individuals to make positive adjustments or behavior as well as personal development and can serve as a barrier to prevent disruptive psychological impacts (M Syarah, 2018).

CONCLUSION AND RECOMMENDATION

There is an influence of knowledge of parents of children with special needs and social support on the willingness to take care of their children's teeth studied at SLB BC Optimal. For the community, especially parents of children with special needs, it is recommended to check their children's teeth every 6 months. Health workers are expected to be able to improve dental and oral health services and provide socialization regarding the maintenance of dental and oral health for children with special needs.

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The Role of Mothers in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

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ABSTRACT

Introduction : Preschool is a golden age period which is very important for determaining the quality of life in the future. The oral health of preschoolers is important to be care, because they do not care yet about their oral health. The oral hygiene behavior in preschoolers is very dependent on the parent's behavior, especially mother as their closest figures. The data results showed that the prevalence of Early Childhood Caries of preschoolers in the SPS Kelurahan Banjar Melati Kota Kediri was high (98,5%). **Aim :** This study aimed to describe the role of mothers in maintaining the dental health of prescholers at SPS Kelurahan Banjar Melati Kota Kediri. **Method :** This type of study is descriptive with the number of population 67 mothers of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri. The data collection technique was done by filling out a questionnaire sheet. The results of data collection were analyzed by calculating the average in percentage form and presented in tabular form. **Result :** This study shows that the role of the mother in maintaining the dental health of preschoolers at SPS Kelurahan Banjar Melati Kota Kediri is included in the poor category. **Conclusion :** The role of mothers in maintaining the dental health of preschoolers at SPS Kelurahan Banjar Melati Kota Kediri is included in the poor category.

Keywords: Role of Mothers, Dental Health, Preschoolers

BACKGROUND

Preschoolers according to DeLaune and Ladner (2011) in Mansur (2019) are those who have an age range between 3-6 years. At this age, children are in the golden age where growth and development occur rapidly so it is very important for children because it can determine the quality of life of children in the future (Indanah & Yulisetyaningrum, 2019).

The dental and oral health of a preschoolers is important to be aware. At preschool age, children are in the period of primary teeth so that the structure of the enamel is thinner and not yet fully arranged. In addition, at this age children still do not care about their dental and oral health. This causes preschoolers to be more susceptible to the occurrence of dental and oral health problems (Mutiara et al., 2021). Dental and oral health problem that often occur at preschool age is dental caries (Mansur, 2019).

Based on data from the World Health Organization (WHO) in 2017 to 2018, the percentage of children aged 5-6 years who have an incidence of dental caries is more than 70% (World Health Organization, 2019). Report from the Riskesdas in 2018 also stated that the prevalence of caries in the children aged 3-4 year was 81.5%. While the prevalence of caries in the children aged 5-9 years is 92.6% (Kementerian Kesehatan RI, 2018).

Caries in primary teeth is known as Early Childhood Caries (ECC). According to the American Academy of Pediatric Dentistry (AAPD) Early Childhood Caries is a disease

characterized by caries lesions, missing/extracted teeth (caused by caries), or teeth that have been filled in the primary teeth of children under 71 months of age (American Academy of Pediatric Dentistry, 2021). The characteristics of ECC are the presence of white spot which is indicated as the initial process of caries formation, white to yellowish cavities, soft caries tissue which often cause pain and occur in teeth that have a low risk of caries (Anil & Anand, 2017).

According to Yosa and Simbolon (2019), inappropriate frequency and intensity of providing nutrition using a feeding bottle before sleep can lead formation of dental caries in children (Yosa & Simbolon, 2019). Giving milk or sugary drinks using a feeding bottle until the child falls asleep can cause puddles in the oral cavity. The puddles of milk or sugary drinks will become a substrate fermented by bacteria to become acid that reduce the plaque pH, which can cause dental caries (Mutiara et al., 2021).

The impact of dental caries problems in children not only affects children's dental and oral health, both in the period of primary and permanent teeth, but also affects quality of life of children. Children who experience Early Childhood Caries will suck on their food more often due to the pain that arises. It will disturb the mastication and digestion which causes a lack of nutritional fulfillment in children. In addition, children will tend to be more difficult to pay attention and lose focus which can have a negative impact on their school life (World Health Organization, 2019).

Mothers have an important role in cultivating and developing positive behavior of children in maintaining dental and oral health. Mother's knowledge, attitude, and behavior will affect children behavior (Banowati et al., 2021). Mothers have the role as a caregiver, an educator, a motivator, a supervisor, and a facilitator of children in maintaining their dental and oral health correctly so that dental health problems can be avoided (Lestari & Mujiyati, 2019).

Study by Keumala and Mardelita in TK Satu Atap Kabupaten Aceh Besar (2019) concluded that there is relationship between maternal roles and incidence of dental caries in children of TK Satu Atap Kabupaten Aceh Besar. In this study, it was found that 88.6% of children experienced Early Childhood Caries, supported by 62,9% poor maternal roles in maintaining dental and oral health of children (Keumala & Mardelita, 2020).

Based on a survey at SPS Kelurahan Banjar Melati Kota Kediri, it was found that all students had a history of drinking bottled milk and the prevalence of dental caries was 98.5%. It can be concluded that the prevalence of dental caries in preschoolers at SPS Kelurahan Banjar Melati Kota Kediri is relatively high. Dental and oral care of Preschoolers still depend on parents, so the activeness of parents, especially mothers as the closest figures is very necessary (Jahirim & Guntur, 2020). This study aimed to describe the role of mothers in maintaining the dental health of prescholers at SPS Kelurahan Banjar Melati Kota Kediri.

RESEARCH METHODS

The type of study is descriptive. The location of study is at SPS Kelurahan Banjar Melati Kota Kediri which located on Jalan Kyai Haji Hasyim Asy'ari, Kelurahan Banjar Melati, Kota Kediri. This study was conducted in December 2021-March 2022. The population of study are 67 preschoolers and mothers of preschoolers at SPS Kelurahan Banjar Melati Kota Kediri. The aspect studied is the role of mother in maintaining the dental health of preschoolers at SPS Kelurahan Banjar Melati Kota Kediri. The method of data collection is by filling out a questionnaire sheet by the mother of preschoolers at SPS Kelurahan Banjar Melati Kota Kediri. The data collection procedure is by visiting the preschooler's house, explaining the purpose of distributing questionnaire sheets along with instructions for filling out questionnaire sheets, distributing questionnaire sheets to mothers of preschoolers,

accompanying the process of filling out the questionnaire sheet, and taking back the completed questionnaire sheet. The data analysis of the study is calculating the average in the form of percentages and presented in tabular form.

RESULTS AND DISCUSSION

Data collection based on research on the Role of Mothers in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri, obtained the following results:

1. Characteristics of Respondents

Table 1. Characteristics According to Gender and Age of Preschoolers in SPS Kelurahan Banjar Melati Kota Kediri

Gender	f	%
Male	40	59,7
Female	27	40,3
Age	**f**	**%**
4 years old	3	4
5 years old	20	30
6 years old	44	66

Based on Table 1 it is known that most children are male (59.7%) and by age most children are 6 years old (66%).

Table 2. Characteristics According to Age, Education, and Occupation of a Preschooler's Mother at SPS Kelurahan Banjar Melati Kota Kediri

Age	f	%
20-25 years old	1	1
26-30 years old	15	22
31-35 years old	24	36
36-40 years old	22	33
41-45 years old	5	7
Education	**f**	**%**
Elementary School	4	6
Middle School	11	16
High School	27	40
Vocational High School	18	27
Associate Degree	3	4
Bachelor Degree	4	6
Occupation	**f**	**%**
Housewives	49	73
Entrepreneur	8	12
Private Sector Employees	10	15

Based on Table 2, it is known that most of the mothers aged 31-35 years are 24 people (36%). Most of the mothers have the last education level of high school, which is 27 people (40%) and the mother's occupation are mostly as housewives, which is 49 people (73%).

2. Mother's Role as A Caregivers in Maintaining Dental Health of Preschoolers

Table 3. Distribution of The Questionnaire Results on the Mother's Role as A Caregivers in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
I checked my child's toothbrush to see if there was any damage to the toothbrush	0	0	0	0	19	28	**48**	**72**	86	32,6	1. Very Poor (VP) : 20% 2. Poor (B) : 40% 3. Fair (F) : 60%
I accompany my child when brushing his teeth at least 2x a day	2	3	2	3	23	34	**40**	**60**	100	37,9	4. Good (G) : 80% 5. Excellent (E) : 100%
I give an example to my child in brushing his teeth	0	0	4	6	16	24	**47**	**70**	91	34,5	(Ridwan 2011 dalam Abdillah., dkk 2021)
*I don't help my child if they find it difficult to brush their teeth	**36**	**54**	22	33	7	10	2	3	109	41,3	
I check the condition of my child's teeth to see if there is any problem with his teeth	0	0	0	0	**39**	**58**	28	42	106	40,2	
Total									**492**	**186,5**	

		Average						98,4	37	
		Category						Poor		

Based on Table 3, it is known that the role of mothers as caregivers in maintaining the dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri is included in the poor category. Mothers never checked the condition of their children's toothbrush. Most of the mothers also never accompany their children to brush their teeth 2x a day and never give an example in brushing their teeth. Mothers also do not help their children in case of difficulty brushing their teeth. And also, the condition of the children's teeth is only sometimes checked by the mothers.

3. Mother's Role as An Educator in Maintaining Dental Health of Preschoolers

Table 4. Distribution of The Questionnaire Results on the Mother's Role as An Educator in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
I teach my child ways to maintain healthy teeth	0	0	6	9	**43**	**64**	18	27	122	46	1. Very Poor (VP) : 20%
I teach my child to brush his teeth with the right technique	0	0	4	6	**32**	**48**	31	46	107	40	2. Poor (B) : 40%
I teach my child to brush his teeth at the right time	0	0	0	0	1	1	**66**	**99**	68	25	3. Fair (F) : 60% 4. Good (G) : 80%
*I let my child brush his teeth as he pleases	**30**	**45**	29	43	8	12	0	0	112	42	5. Excellent (E) : 100% (Ridwan 2011 dalam Abdillah., dkk 2021)
I make my child to get used to rinse his mouth after eating sweet and sticky snacks	0	0	0	0	0	0	**67**	**100**	67	25	
		Total							476	178	
		Average							95.2	36	

	Category								Poor		

Based on Table 4, it is known that the role of the mother as an educator in maintaining dental health of preschoolers is in the poor category. Most of mothers have never do their role as educators in maintaining the dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri. Most of mothers do sometimes teach children how to maintain dental health. However, in brushing teeth, mothers only sometimes teach how to brush their teeth properly and correctly but never teach the correct time to brush their teeth. In addition, mothers also always allow children to brush their teeth as they please and never make children get used to rinse their mouth after eating sweet and sticky snacks.

4. Mother's Role as A Motivator in Maintaining Dental Health of Preschoolers

Table 5. Distribution of The Questionnaire Results on the Mother's Role as A Motivator in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
I give my child an understanding of the importance of maintaining their dental health	2	3	6	9	**39**	**58**	20	30	124	46	1. Very Poor (VP) : 20%
I give praise to my child if he wants to maintain their dental health	4	6	5	7	**38**	**57**	20	30	127	47	2. Poor (B) : 40% 3. Fair (F) : 60%
I get my child used to visiting dental health services	0	0	0	0	4	6	**63**	**94**	71	26	4. Good (G) : 80% 5. Excellent (E) : 100%
I accompany my child to have their teeth checked every 6 months at the dental health services	0	0	0	0	2	3	**65**	**97**	69	26	(Ridwan 2011 dalam Abdillah., dkk 2021)

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
*I take my child to the dental health services only when my child's teeth hurts	**64**	**96**	2	3	1	1	0	0	71	26	
Total									**462**	**172**	
Average									**92.4**	**34**	
Category									**Poor**		

Based on Table 5, it is known that the role of the mother as a motivator in maintaining dental health of preschoolers is included in poor category. Most of mothers have never do their role as a motivator in maintaining dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri. Mothers only sometimes give their children an understanding of the importance of maintaining dental health. They also never get their children used to visiting dental health services. Most of Mothers never accompany their children for dental check-ups every 6 month. Visiting dental health services is also carried out by most of mothers only when their children's teeth hurt.

5. Mother's Role as A Supervisor in Maintaining Dental Health of Preschoolers

Table 6. Distribution of The Questionnaire Results on the Mother's Role as A Supervisor in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
I supervise my child when they brush their teeth at least 2x a day	1	1	1	1	6	9	**59**	**88**	78	29	1. Very Poor (VP) : 20%
*I allow my child to eat sweet and sticky snacks as he pleases	**40**	**60**	25	37	2	3	0	0	96	36	2. Poor (B) : 40%
*I give my child, milk in a feeding bottle until he falls asleep	**67**	**100**	0	0	0	0	0	0	67	25	3. Fair (F) : 60% 4. Good (G) : 80%
*I let my child drink milk using a feeding bottle to this day	25	37	10	15	6	9	**26**	**39**	167	62	5. Excellent (E) : 100% (Ridwan 2011 dalam Abdillah., dkk 2021)

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*I do not limit the amount of milk consumption by using a feeding bottle per day	**56**	**84**	10	15	1	1	0	0	79	29
			Total						487	182
			Average						97.4	36
			Category						**Poor**	

Based on Table 6, it is known that the role of mothers as supervisor in maintaining dental health of preschoolers in SPS Kelurahan Banjar Melati Kota kediri is included in the poor category. The majority of mothers always let their children eat sweet and sticky snacks as he pleases and never supervise their children when brushing their teeth 2x a day. At this time, the majority of mothers do not use feeding bottle for children to drink milk. However, mothers have a history of always giving milk using a feeding bottle to their children without consumption limits per day and using it until their children fall asleep.

6. Mother's Role as A Facilitator in Maintaining Dental Health of Preschoolers

Table 7. Distribution of The Questionnaire Results on the Mother's Role as A Facilitator in Maintaining Dental Health of Preschoolers at SPS Kelurahan Banjar Melati Kota Kediri

Statement	SL	%	SR	%	KK	%	TP	%	Final Score	%	Category
I provide a different toothbrush for each family member	**28**	**42**	0	0	22	33	17	25	173	65	1. Very Poor (VP) : 20%
I bought a toothbrush for my child according to his age	24	36	8	12	**28**	**42**	7	10	183	68	2. Poor (B) : 40%
I provide a new toothbrush for my child if his toothbrush damaged	2	3	1	1	21	31	**43**	**64**	96	36	3. Fair (F) : 60% 4. Good (G) : 80% 5. Excellen

*I do not give toothpaste to my child to brush their teeth	1	1	**26**	**39**	22	33	18	27	191	71	t (E) : 100% (Ridwan 2011 dalam Abdillah., dkk 2021)
I bought a toothpaste that contains fluoride for my child	19	28	0	0	21	31	**27**	**40**	145	54	
Total									**788**	**294**	
Average									**157.6**	**59**	
Category									**Fair**		

Based on Table 7, it is known that the role of mothers as facilitator in maintaining dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri is included in fair category. Most of mothers only occasionally do their role as facilitator in maintaining dental health of preschoolers. Mothers always provides a different toothbrush for her each family member. Most of mothers also sometimes buy a toothbrush that is suitable for their children's age. The majority of mothers still never buy a new toothbrush even if their children's toothbrush is damaged. And mothers also never give toothpaste that contain fluoride when their children brush their teeth.

7. The Role of Mother in Maintaining Dental Health of Preschoolers in SPS Kelurahan Banjar Melati Kota Kediri

Table 8. The Average Value of Mother's Role in Maintaining Dental Health of Preshoolers in SPS Kelurahan Banjar Melati Kota Kediri

The Role of Mother	Average Questionnaire Score	%	Category
Mother's Role as A Caregiver in Maintaining Dental Health of Preschoolers	98,4	37	Poor
Mother's Role as An Educator in Maintaining Dental Health of Preschoolers	95,2	36	Poor
Mother's Role as A Motivator in Maintaining Dental Health of Preschoolers	92,4	34	Poor
Mother's Role as A Supervisor in Maintaining Dental Health of Preschoolers	97,4	36	Poor
Mother's Role as A Facilitator in Maintaining Dental Health of Preschoolers	157,6	59	Fair
Total	**541**	**202**	

Average		108,2	40
Category		**Poor**	

Based on Table 8, it is known that the role of mother in maintaining dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri is included in the poor category. The role of mother in maintaining dental health of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri, which is not implemented optimally, is probably due to the lack of mother's education about dental health.

There are many parents who think that the problem that occurs in primary teeth is not a big problem because primary teeth will be replaced with permanent teeth (Banowati et al., 2021). Many mothers still do not know the right way and the correct time to brush their teeth, how to choose a toothbrush that is suitable for their child's age, and the right time to visit dental health services (Sholekhah, 2021).

Based on education level of preschooler's mothers in SPS Kelurahan Banjar Melati Kota Kediri, it is known that the majority of mothers have high school and vocational education levels. However, a small percentage of mothers are in middle education level (Junior High School) and primary education level (Elementary School). According to Santoso et al (2020), the level of education can affect the ability to capture and understand in processing information / knowledge. This is what probably underlies the lack of mother's education about dental health (Santoso et al., 2020).

Aligns with research conducted on 44 parents of grade 1 MI Salafiyatul Huda 2 Larangan Selatan Hajarmukti Kota Cirebon, stated that there is an influence between health education and the role of parents in maintaining dental health. There was an increase in the role of parents who were initially poor to be good after receiving an intervention of dental health education (Banowati et al., 2021).

The Precede-Proceed theory proposed by Lawrence Green and M. Kreuter (2005) in Notoatmodjo (2012) stated that the role of the mother which is a reinforcing factor in the maintaining dental health of children is influenced by health education and organizational regulatory policies (Notoadmodjo, 2012). Health education is an effort made to increase knowledge in the hope of changing a person's attitudes and behavior in the long term (Banowati et al., 2021). The lack of proper dental health promotive programs that held by dental health workers, can be one of the leading causes of the lack of mother's education about dental health.

The Precede-Proceed theory also explains that the role of mother in maintaining dental health of children will affect children's behavior and habits and the environment. The role of mother in maintaining dental health is to provide facilities in the form of a good environment in maintaining dental health. If the mother does not carry out her role properly, it will affect the family environment where the child lives. Mothers must play an active role in maintaining dental health so that they can be a role models to their children in maintaining their dental health (Santoso et al., 2020).

Research conducted by Sutomo et al (2020), stated that there is a relationship between the role of parents on children's behavior in dental care in Dusun Paok Odang Desa Sisik Kecamatan Pringgarata Kabupaten Lombok Tengah (Sutomo et al., 2020). It can be concluded that the worse the role of parents in guiding children to maintain dental health, the worse the behavior of children in maintaining their dental health will be. On the other hand, the better the role of parents in guiding children to maintain dental health, the better the behavior of children in maintaining their dental health.

Supported by a study of 107 children aged 3-5 years in Posyandu Kelurahan Gunung Pangilun and Posyandu Kelurahan Piai Tanah Sirah Kota Padang by Nasution et al (2020), which found that there was a relationship between oral hygiene habits and the incidence of Early Childhood Caries (Nasution et al., 2020). Research conducted by Astuti and Rochmawati (2018), stated that only 6 from 30 preschool-age children in Dusun Wanasari Kecamatan Denpasar Utara were not affected by Early Childhood Caries (Astuti & Rochmawati, 2018). Aligns with the data obtained during the examination of preschoolers in SPS Kelurahan Banjar Melati Kota Kediri, that out of the 67 preschoolers, only 1 child was not affected by Early Childhood Caries.

The problem of dental caries will affect the quality of life of children. Preschoolers who experience Early Childhood Caries (ECC) will more often suck on their food due to the pain that arises, it will disturb the mastication and digestion which causes a lack of nutritional fulfillment in children. In addition, children will tend to be more difficult to pay attention and lose focus which can have a negative impact on their school life (World Health Organization, 2019).

The behavior of preschoolers in maintaining dental health still depends on the behavior of parents, especially mother as their closest figure. At the age of preschool children are especially susceptible to the occurrence of problems with dental health. It is because the age of preschoolers is the period of primary teeth where the tooth structure is still not perfectly arranged and the enamel layer is thinner (Mutiara et al., 2021). Therefore, mothers are expected to play an active role in maintaining the dental health of preschoolers so that they can avoid the occurrence of problems in dental and oral health.

CONCLUSION AND RECOMMENDATION

Based on the results of research on the role of mothers in maintaining the dental health of preschoolers in SPS Kelurahan Banjar Melati Kota kediri, it was concluded that the role of mothers as a caregiver in maintaining dental health of preschoolers is in poor category. The role of the mother as an educator in maintaining dental health of preschoolers falls into the poor category. The role of the mother as a motivator in maintaining dental health of preschoolers is included into the poor category. The role of the mother as a supervisor in maintaining dental health of preschoolers is also included in the poor category. The role of the mother as a facilitator in maintaining the dental health of preschoolers falls into the quite good category. So, it can be concluded that the role of mother in maintaining the dental health of preschoolers in SPS Kelurahan Banjar Melati Kota kediri is included in the poor category.

The role of mother in maintaining the dental health of Preschoolers in SPS Kelurahan Banjar Melati Kota Kediri needs to be improved. Therefore, researchers recommended dental health workers to held a counseling more often related to the maintenance of dental health of Preschoolers to parents, especially mothers. The purpose of counseling is for mothers to know how to maintain the dental health of a preschoolers. Suggestions are also given to teachers to hold activities related to the maintenance of dental health in schools more often so that preschoolers can know how to take care of their teeth and be more accustomed to doing dental health maintenance. For further researchers, it is also recommended to conduct further research on the role of mother in maintaining dental health of preschoolers.

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Effect of Consumption of Antihypertensive Drugs Type Of Calcium Channel Blockers As A Factor Causing Xerostomia On Quality Of Life In The Elderly

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ABSTRACT

Background: In general, diseases experienced by the elderly are non-communicable diseases, degenerative such as hypertension. The consumption of antihypertensive drugs cannot be ignored by sufferers, but the side effects of taking hypertension drugs cannot be avoided, one of which exerts the influence of xerostomia in old age. Complaints that arise due to this xerostomia can affect the health of the teeth and oral cavity which will affect the level of quality of life in the elderly.

Objective: to know the influence of the consumption of antihypertensive drugs of the type of calcium antagonists as a causative factor of xerostomia on the quality of life in the elderly.

Method: this study is a cross-sectional which was carried out in July 2022 at the Flamboyant Elderly Posyandu Surabaya. The subjects were 35 elderly people who met the criteria taken by purposive sampling technique. The data collection instrument used questions to determine the consumption of calcium antagonist-type antihypertensive drugs, stopwatches and glass tubes for measuring xerostomia by spitting method, and OHIP-14 questionnaires to measure the level of quality of life. Wilcoxon test to analyze the effect of consumption of calcium antagonist-type antihypertensive drugs as a causative factor of xerostomia on the quality of life in the elderly with a degree of meaningfulness (α) = 0.05.

Result: The elderly who took calcium antagonist-type antihypertensive drugs mostly experienced xerostomia with low criteria and quality of life levels in xerostomia elderly who consumed calcium antagonist-type antihypertensive drugs in the category of low quality of life level. The results of statistical tests are known to have an influence on the consumption of antihypertensive drugs type of calcium antagonists as a factor causing xerostomia on the quality of life in the elderly ($p < 0.05$).

Conclusion: the presence of the influence of the consumption of antihypertensive drugs of the antagonist type of calcium as a causative factor of xerostomia on the quality of life in the elderly.

Keywords: elderly; antihypertensive drugs; xerostomia; quality of life.

BACKGROUND

As health facilities and services improve, controlled birth rates, increasing life expectancy, and declining mortality rates, the number and proportion of the elderly population continues to increase. Globally according to the UN there were 727 million people aged 65 years or older in 2020. The number is projected to double to 1.5 billion by 2050 (Girsang *et al*., 2021).

The well-being of the elderly can be reflected through their state of health. According to the World Health Organization, health is a state of well-being of the body, soul, and social that allows everyone to live a socially productive, and economically life. In general, diseases experienced by the elderly are diseases that are not contagious, degenerative, or caused by age factors. This is in line with the results of Basic Health Research (Riskesdas) in 2007, 2013, and 2018 which showed a tendency to increase the prevalence of NCDs such as hypertension, diabetes, stroke, and joint diseases or rheumatism (Kementerian Kesehatan RI, 2021). Hypertension is a non-communicable disease that is one of the leading causes of death in the world. The World Health Organization (WHO) estimates that the current prevalence of hypertension globally is 22% of the total world population (Kemenkes RI, 2019).

The consumption of antihypertensive drugs is a treatment for hypertension that has proven to be very effective and successful in controlling people with hypertension so as to reduce morbidity and mortality due to hypertension. The consumption of antihypertensive drugs cannot be ignored by sufferers, but some side effects due to the consumption of hypertension drugs cannot be avoided, that is, they can have the influence of dry mouth (xerostomia) in old age. These drugs have anticholinergic properties that will decrease saliva production so that the acid level in the mouth increases, with a small amount and a viscous consistency, saliva will lose its function as a natural cleanser of the oral cavity. Complaints of dry mouth (xerostomia) in the elderly are caused because there are changes and deteriorations in the function of the salivary glands, where the parenchymal glands are lost and will be replaced by connective tissue and fat. This circumstance results in a reduction in the amount of salivary flow. Atrophic changes that occur in the submandibule glands according to age increase will also decrease salivary production and change its composition. This reduced salivary secretion can result in painful discomfort on the surface of the mouth, dry throat, difficulty chewing, swallowing and difficulty speaking. The complaints that arise due to xerostomia can affect the health of the teeth and oral cavity which will later affect the level of quality of life in the elderly (Rahayu & Kurniawati, 2018).

RESEARCH METHODS

This research is a cross-sectional research conducted in July 2022 at the Flamboyan Elderly Posyandu, Manyar Sabrangan Village, Mulyorejo District, Surabaya. The subjects of the study were 35 elderly people who met the inclusion and exclusion criteria taken using purposive sampling techniques. The data collection instruments in this study used questions to determine the consumption of calcium antagonist-type antihypertensive drugs, used stopwatches and glass tubes to measure xerostomia by spitting method, and used the OHIP-14 questionnaire to measure the level of quality of life related to dental and oral health. The Wilcoxon test was used to analyze the effect of consumption of calcium antagonist-type antihypertensive drugs as a contributing factor to xerostomia on the quality of life in the elderly with a meaningfulness level (α) = 0.05.

Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1201/KEPK-Poltekkes_Sby/V/2022.

RESULTS AND DISCUSSION

Table 1. Xerostomia in the elderly who take antihypertensive drugs of the type of calcium antagonists.

Research Subjects	Xerostomia Diagnosis						Total
	Very Low		Low		Normal		
	n	%	n	%	n	%	
n=35	12	34	23	66	0	0	100%

In this study, according to table 1, it is known that the elderly who consumed calcium antagonist-type antihypertensive drugs at the Flamboyant Elderly Posyandu, Manyar Sabrangan Village, Mulyorejo District, Surabaya, mostly experienced xerostomia with a low criterion of 23 people with a percentage of 66%. This is in accordance with the results of a study conducted by Wotulo et al, (2018) which states that the saliva flow rate in users of calcium antagonist-type antihypertensive drugs, namely Amlodipine, the most is classified as very low, namely 28 people with a percentage of 93.3%. Overall, from the results of research that has been carried out by Wotulo et al, (2018) it can be stated that the use of amlodipine-type antihypertensive drugs can have an impact on the oral cavity in the form of a decrease in the flow rate of saliva directly or indirectly which can cause xerostomia. This is in line with the results of a study conducted by Tambuwun et al, (2015) which was obtained by almost most respondents who used antihypertensive drugs experienced dry mouth, namely 24 people with a percentage of 80%.

Table 2. The level of quality of life of the elderly based on the results of the OHIP-14 questionnaire.

Research Subjects	Quality of Life Level				Total
	Low		High		
	n	%	n	%	
n=35	29	82,8	6	17,1	100%

Based on table 2, it is known that most of the elderly in this study have a low level of quality of life, namely as many as 29 elderly people with a percentage of 82.8%, this is in line with the results of a study conducted by Arsad & Syamson (2019) showing that the quality of life related to dental and oral health of the elderly group with xerostomia tends to be lower compared to the elderly group without xerostomia it is characterized by an OHIP-14 score in the elderly age group with higher xerostomia compared to the OHIP-14 score in the elderly group without xerostomia.

Table 3. Distribution and frequency of quality of life levels in the elderly who have xerostomia who take antihypertensive drugs of the calcium antagonist type.

Xerostomia Diagnosis	Low Quality of Life		High Quality of Life		Total
	n	%	n	%	

Very Low	12	34	0	0	12
Low	17	49	6	17	23
Normal	0	0	0	0	0
	Total				35

It is known that the level of quality of life in the elderly who experience xerostomia who consume antihypertensive drugs type of calcium antagonists at the Flamboyan Elderly Posyandu, Manyar Sabrangan Village, Mulyorejo District, Surabaya, mostly experience xerostomia with low criteria and with a low quality of life level of 17 people with a percentage of 49%. This shows that the elderly with low criteria xerostomia have a low level of quality of life as well.

Table 4. The influence of the consumption of antihypertensive drugs of the type of calcium antagonists as a causative factor of xerostomia on the quality of life in the elderly.

Research Subjects (Elderly Who Take Calcium Antagonist Type Antihypertensive Drugs)	Xerostomia Diagnosis	Quality of Life		Total	P Value
		Low	High		
	Very Low	12	0	12	
n=35	**Low**	17	6	23	0,000
	Normal	0	0	0	
	Total	29	6	35	

Based on table 4 of statistical test results using wilcoxon test data analysis technique obtained a P Value value of 0.000 which means it is smaller than the significant value (α) set, namely 0.05 (0.000<0.05) so that H0 is rejected and H1 is accepted, it can be concluded that there is an influence of consumption of antihypertensive drugs type of calcium antagonists as a factor causing xerostomia on the quality of life in the elderly at the Flamboyan Elderly Posyandu, Manyar Sabrangan Village, Mulyorejo District, Surabaya.

The mechanism of action of antihypertensive drugs so that they can cause xerostomia is by affecting saliva flow directly and indirectly. If it will directly affect the flow of saliva by imitating the action of the autonomic nervous system, namely through the parasympathetic nerve which then has the same neurohumoral displacement pattern as the sympathetic nerve which results in the intervention of the work of the salivary glands to drain saliva so that saliva is reduced. While indirectly it will affect saliva by changing the balance of fluid and electrolytes or by affecting blood flow to the glands. Amlodipin is a class of CCB antihypertensive drugs that work by inhibiting calcium influcination in vascular smooth muscles and myocardial. Calcium is an organic element of saliva. If calcium influcinations in the blood vessel muscles are inhibited, it will indirectly affect saliva by changing the balance of fluids and electrolytes or by affecting blood flow to the glands (Eva et al., 2021).

CONCLUSION AND RECOMMENDATION

There is an influence of the consumption of antihypertensive drugs type of calcium antagonists as a factor causing xerostomia on the quality of life in the elderly at the Flamboyan Elderly Posyandu, Manyar Sabrangan Village, Mulyorejo District, Surabaya. For the community, especially for the elderly with hypertension who take antihypertensive drugs type of calcium antagonists, it is recommended to maintain the humidity of the oral cavity to overcome xerostomia so that it can improve their quality of life. For health workers, it is hoped that they can improve dental and oral health services and provide socialization about the side effects of using antihypertensive drugs and their treatment related to dental and oral health.

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THE EFFECT OF DENTAL AND MOUTH HEALTH EDUCATION USING POWTOON MEDIA ON THE KNOWLEDGE AND PRACTICE OF DENTAL BRUSHING IN CLASS V SDN JAYA NUGRAHA, TASIKMALAYA REGENCY

2nd International Conference of Dental and Oral Health (ICoDOH)

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ABSTRACT

Background: According to the Data and Information Center of the Ministry of Health of the Republic of Indonesia in 2018, children are vulnerable to dental and oral health problems. Tooth brushing behavior in children aged 10-14 years has a percentage of the correct brushing time of 2.1%. Efforts to improve good and correct tooth brushing behavior can be done with dental health counseling using multimedia applications. During the COVID-19 pandemic, multimedia applications were the right choice to facilitate counseling due to circumstances that did not allow face-to-face meetings and had to keep a distance, one of the multimedia applications that could be used ispowtoon. **Research objectives**: To determine the effect of counseling using powtoon on increasing knowledge and practice of brushing teeth at SDN Jaya NugrahaTasikmalaya. **The results**: it was found that the knowledge of students before being given counseling had moderate criteria with a percentage of 56.6% while after being given counseling increased to good criteria with a percentage of 85.3% and the practice of brushing teeth before being given counseling had sufficient criteria with a percentage of 61.1% while after being given counseling increased to very good criteria with a percentage of 92.5%. The results of data analysis using the Wilcoxon test with p-value: 0.000 <0.005 which means Ho is rejected and there are significant results. **Conclusion**: Based on the results of the study, it can be concluded that there is an effect of counseling using powtoon on knowledge of oral health and tooth brushing practices.
Keywords: Powtoon Media, Knowledge, Practice of brushing teeth.

BACKGROUND (Uppercase Bold, 12 pts)

Health is a state of physical, mental, emotional and social well-being that enables everyone to lead a socially and economically productive life (Rahminingrum, 2018). Dental and oral health is a condition that occurs in the oral cavity, both in terms of hygiene, health, as well as disturbances and abnormalities that occur in the oral cavity (Asep, 2013). Maintaining good dental and oral hygiene is one of the best ways to improve one's health. The mouth is not only a place to eat and drink, but has many other benefits, and some people do not realize how important the mouth is for one's health and well-being (Ratih & Yudita, 2019).

Some people neglect dental and oral health in general. Dental and oral care are not considered important even though there are many benefits that support health and appearance (Ratih & Yudita, 2019). According to Health Research Results in 2018, it was found that 57.6% of the Indonesian population experienced dental and oral health problems and who received medical services only 10.2%. Data shows that 22.8% of the Indonesian population does not brush their teeth, 77.2% brushes their teeth, and 8.1% brushes their teeth properly and correctly. The prevalence of cavities in early childhood is very high at 93% and only 7% are free from cavities(Riskesdes kemenkes RI, 2018).

One of the efforts to improve the behavior of brushing teeth is good and right, one of which is promotive action in the form of counseling. To attract people to remember 90% of what they see, read, hear, say, and create can use Interactive Multimedia. Interactive Multimedia consists of graphics or elements of text, video, animation simultaneously, and audio (Majid 2020).

As a multimedia application that can be used as a learning medium, powtoon has several advantages, including hand-drawn animation, very interesting animation features such as animated cartoons and transition effects, and easy timeline settings. This application can be accessed online at www. powtoon.com, so kids don't need to install powtoon on computer or mobile, www. powtoon.com is available online, but the results are available offline in the form of a presentation (Sulkipani, et al., 2018).

SDN Jaya Nugraha is located in Tasikmalaya Regency and previously there has never been any counseling on how to maintain oral health using powtoon media. In this study, powtoon media was used to convey material about dental and oral health and practicum on how to brush teeth properly and correctly.

Based on the results of a pre-research that was conducted at SDN Jaya Nugraha, Tasikmalaya Regency in January 2021 through interviews with SDN Jaya Nugraha, Tasikmalaya Regency, it was found that counseling on dental and oral health using powtoon media had never been done. The counseling that has been carried out by the puskesmas uses conventional media, namely using the panthom model media.

RESEARCH METHODS

This study uses a descriptive type of research by means of observations and observations carried out simultaneously at the same time. The design in this study used a pre-test and post-test design in one group which was carried out on 8,19, and 29 April 2021 at Madrasah Al-Maqbul, Tasikmalaya Regency (adjacent to SDN Jaya Nugraha). The research sample was 26 students with the determination of the sample by means of total sampling.

The study was conducted by means of pretest and posttest to see the description of knowledge and practice of brushing teeth before and after being given counseling using powtoon media. Researchers recorded pretest data on April 8, 2021 in the form of filling out a questionnaire on knowledge of dental and oral health for approximately 20 minutes and observing the practice of brushing teeth. Then an intervention was given in the form of counseling using Powtoon media through the Whats App application. The second week on April 19, 2021 only provided dental and oral health counseling using the Whats App media, then on April 29, 2021 gave a posttest to students in the form of a questionnaire that was given a processing time of approximately 20 minutes and practiced brushing teeth to see the level of knowledge and practice of brushing. students' teeth after being given counseling using Powtoon media.

The data obtained were then analyzed using observations and observations to describe the knowledge and practice of brushing teeth before and after being given counseling using powtoon media in Class V Elementary School Students Jaya Nugraha, Tasikmalaya Regency.

After the data was processed, it was found that the knowledge of students before being given counseling had moderate criteria with a percentage of 56.6% while after being given counseling increased to good criteria with a percentage of 85.3% and the practice of brushing teeth before being given counseling had sufficient criteria with a percentage of 61.1% while after being given counseling increased to very good criteria with a percentage of 92.5%.

RESULTS AND DISCUSSION
A. Result

Table 1 Distribution of Research Sample Frequency by Gender

	Gender	∑N	Persentage
1	Male	11	42%
2	Female	15	58%
	Total	26	100%

Table 1 shows that there are 15 women (58%) and 11 men (42%).

Table 2 Distribution of Frequency Before Giving Counseling Using Powtoon Media Based on the Criteria for Knowledge of Dental and Oral Health in Class V Students at SDN Jaya Nugraha, Tasikmalaya Regency

No	Knowledge Criteria	∑N	Persentage
1	Good	5	19%
2	Moderate	19	73%
3	Bad	2	8%
	Total	26	100%

Table 2 shows that the criteria for knowledge of dental and oral health for fifth grade students at SDN Jaya Nugraha before being given counseling using Powtoon media were mostly moderate criteria, totaling 19 students (73%).

Table 3 Distribution of Frequency After being Given Counseling Using Powtoon Media Based on the Criteria for Knowledge of Dental and Oral Health in Class V Students at SDN Jaya Nugraha, Tasikmalaya Regency

No	Knowledge Criteria	∑N	Persentage
1	Good	25	96%
2	Moderate	1	4%
3	Bad	0	0%
	Total	26	100%

Table 3 shows that the criteria for knowledge of dental and oral health for fifth grade students at SDN Jaya Nugraha after being given counseling using Powtoon media are mostly good criteria, totaling 25 students (96%).

Table 4 Distribution of Frequency After being Given Counseling Using Powtoon Media Based on the Criteria for Brushing Tooth Practice in Class V Students at SDN Jaya Nugraha, Tasikmalaya Regency

No	Knowledge Criteria	∑N	Persentage
1	Very good	0	0%
2	Good	10	38%
3	Enough	15	58%
4	Less	1	4%
	Total	26	100%

Table 4 shows that the criteria for brushing the teeth of fifth grade students at SDN Jaya Nugraha before being given counseling using powtoon media were mostly sufficient criteria, amounting to 15 students (58%).

Table 5 Frequency distribution after being given counseling using Powtoon media based on the criteria for brushing teeth in fifth grade students at SDN Jaya Nugraha, Tasikmalaya Regency

No	Knowledge Criteria	∑N	Persentage
1	Very good	23	88%
2	Good	3	12%
3	Enough	0	0%
4	Less	0	0%
	Total	26	100%

Table 5 shows that the criteria for brushing teeth for fifth grade students at SDN Jaya Nugraha after being given counseling using powtoon media are mostly very good criteria, totaling 23 students (88%).

Table 6 Statistical Test Results Wilcoxon Signed Ranks Test The Effect of Dental and Oral Health Counseling Using Powtoon Media on Knowledge and Toothbrushing Practices of Class V Students at SDN Jaya Nugraha, Tasikmalaya Regency

Test Statistics[a]

	Post Test - Pre Test
Z	-4,473[b]
Asymp. Sig. (2-tailed)	,000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 6 shows the results of statistical tests using the Wilcoxon test the effect of dental and oral health counseling using powtoon media on knowledge and practice of brushing teeth

obtained p-value: 0.000 <0.005 which means Ho is rejected and there are significant results, then there is an effect of dental and oral health counseling using powtoon media on the knowledge and practice of brushing teeth in fifth grade students at SDN Jaya Nugraha, Tasikmalaya Regency.

B. Discussion

The research was carried out for 21 days and was conducted for 3 meetings at Madrasah Almakbul (adjacent to SDN Jaya Nugraha, Tasikmalaya Regency) on 8,19, and 29 April 2021. This study was conducted to see the description of counseling using powtoon media on dental and oral health knowledge. and the practice of brushing the teeth of grade 5 students at SDN Jaya Nugraha, Tasikmalaya Regency, in this study using 26 samples taken from fifth grade students at SDN Jaya Nugraha. Dental and oral health counseling with powtoon media can be done through the Whatsapp application.

The first week of April 8, 2021, which is to give students a pretest in the form of a questionnaire sheet which is given a processing time of approximately 20 minutes and to practice brushing teeth to see the level of knowledge and practice of brushing students' teeth before being given dental and oral health counseling using powtoon media, then providing counseling first using the powtoon media through the Whatsapp application. The second week on April 19, 2021 only provided dental and oral health counseling to grade 5 students with powtoon media through the Whatsapp application, and the third week on April 29, 2021 gave a posttest to students in the form of a questionnaire that was given a processing time of approximately 20 minutes and carried out brushing practices. teeth to see the level of knowledge and practice of brushing students' teeth after being given counseling with powtoon media.

The type of research used is descriptive research where observations and observations are carried out simultaneously (simultaneously) with the aim of seeing an overview of dental and oral health knowledge and tooth brushing practices before and after counseling using powtoon, for the design in this study using one group pretest-posttest. This design also does not have a comparison group (control), but at least the first observation (pretest) can be done to test the changes that occur after the experiment (program) (Notoatmodjo 2018) The independent variable is counseling with powtoon media while the dependent variable is knowledge of dental and oral health and the practice of brushing teeth.

The research sample was taken by total sampling, total sampling was the object under study and considered to represent the entire population (Notoatmodjo 2018b). In this study, 26 samples were taken from the fifthgrade students of SDN Jaya Nugraha, Tasikmalaya Regency.

The knowledge of grade 5 students at SDN Jaya Nugraha, Tasikmalaya Regency before being given counseling using the Powtoon media, which is mentioned in table 2. The results obtained are good, there are 5 students (73%), while there are 19 students (30%) and less than 2 students (8%), while after being given counseling using powtoon media, which is mentioned in table 3. the results obtained are 25 students (96%), and only 1 student (4%). The average knowledge of grade 5 students at SDN Jaya Nugraha, Tasikmalaya Regency, showed that before being given counseling with powtoon media, the category was moderate with a percentage of 56.6%, and after being given counseling with powtoon media, the criteria was good with a percentage of 85.3%. The average difference obtained before and after being given counseling using powtoon media is quite large, namely 28.7%.

The results of this study are in line with research (Majid, 2020) research on the Utilization of Interactive Multimedia-Based Dental and Oral Health Counseling. to remember

90% of what they hear, see, read, say, and create can use Interactive Multimedia. According to (Sulkipani 2018) in his research, the development of learning media based on the Powtoon application in Citizenship Lessons in this study was carried out by presenting audiovisual material with attractive templates and images that aimed to motivate students. This is reinforced in the research of Hamalik (2010) when the use of learning media in the teaching and learning process can cause motivation and stimulation for learning activities and even affect student psychology.

In table 4. it is stated that the criteria for brushing the teeth of grade 5 students at SDN Jaya Nugraha, Tasikmalaya Regency before being given counseling using powtoon media, namely 10 students (38%), only 15 students (58%) and less than 1 student (4%)), while after being given counseling using powtoon media in table 4.5. obtained very good results totaling 23 students (88%), and good amounting to 3 students (12%). The average criteria for brushing the teeth of grade 5 students at SDN Jaya Nugraha, TasikmalayaRegency, showed that before being given counseling using powtoon media was 14.6 (61.1%) with sufficient criteria, while after being given counseling using powtoon media it was 22.2 (92 .5%) with very good criteria. The average difference in students' tooth brushing practice criteria before and after being given counseling using powtoon media was 7.6 (31.4%).

Based on the data above, the results of this study obtained an overview of counseling using powtoon media on knowledge of dental and oral health as well as the practice of brushing teeth for fifth graders at SDN Jaya Nugraha, Tasikmalaya Regency. Researchers conducted a study to determine the level of knowledge of dental and oral health as well as the practice of brushing teeth using powtoon media to make it more interesting. Counseling is given for a long time and repeatedly for 3 meetings in a span of 3 weeks so that students can understand and remember the counseling material provided, this can increase the enthusiasm for learning and be able to increase students' knowledge, especially knowledge about dental and oral health. The level of knowledge of students before being given counseling using powtoon media with moderate criteria while after being given counseling increased to good, and the level of student brushing practice before being given counseling on powtoon media with sufficient criteria, while after being given counseling increased to very good.

Students' knowledge increased after being given counseling with powtoon media which was given 3 times for 3 weeks, 5th grade students at SDN Jaya Nugraha began to apply the information they got from counseling in their daily lives, for example by brushing their teeth regularly 2 times a day with the same technique and frequency. appropriate, reduce the consumption of foods that damage teeth and eat fruits and vegetables that can nourish teeth.

CONCLUSION AND RECOMMENDATION
A. CONCLUSION
Based on the results of the research that has been done, it can be concluded that counseling using powtoon media has an effect on knowledge of dental and oral health and the practice of brushing teeth for fifth graders at SDN Jaya Nugraha, Tasikmalaya Regency.

B. RECOMMENDATION
1. For fifth grade students at SDN Jaya Nugraha

   It is recommended to brush your teeth twice a day in the morning after breakfast and at night before going to bed for 2 minutes and check your teeth every 6 months to the dentist.

2. For SDN Jaya Nugraha

It is hoped that they can carry out mass toothbrushing activities in schools in collaboration with the Taraju District Health Center.

3. For Dental Nursing Department
   Hopefully the results of this study can add to the source of literature and information in the field of dental health education.

4. For further researchers
   Hopefully the results of this study can be used as a reference for conducting further research in order to improve the previous researchers.

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The Effects of Chewing Jicama Fruit and Cucumber Fruit on Saliva pH in Smokers in a Banjarbaru City Boys' Dormitory

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ABSTRACT

Salivary pH is one of the factors that contributes to the incidence of dental caries. pH of smokers' saliva is acidic, so there must be an effort to increase the pH of smokers' saliva, one of which is chewing juicy and fibrous fruits such as jicama and cucumber.

This study aims to determine the difference between chewing jicama and cucumber on pH of smokers in ten male student dormitories in Banjarbaru City. This study used a quasi-experimental research design. The total sample in this study was 60 students smokers who were recuited from ten Male Student Dormitory, then divided into two group the first group chewed jicama and second group chewed cucumber fruit. The sampling technique used a purposive sampling. Data analysis was performed by using the Mann-Whitney U Test.

Based on the results of the study, it was found that the significance or value of = 0.002 this indicates that there is a difference in the increase pH between chewing jicama fruit and chewing cucumber fruit, where the average pH of saliva chewing jicama fruit is higher than chewing cucumber fruit by 0.5.

The conclusion of this study is that there is a difference between chewing jicama and cucumber on pH of smokers in ten male student dormitories in Banjarbaru City. It is recommended for smokers to maintain dental and oral health by consuming juicy and fibrous fruits and vegetables such as jicama and cucumber to reduce the risk of dental and oral disease.

Keywords   : pH saliva, Smoker, Jicama Fruit, Cucumber

BACKGROUND

Dental and oral health is an integral part of body health, this means that a healthy body cannot be separated from having healthy teeth and mouth. Disturbances in dental and oral health will have a negative impact on quality of life, including general decline in health, lower self-confidence, and disrupt attendance at school or work (Pusdatin Kemenkes, 2019). The results of the 2018 Basic Health Research (Riskesdas) stated that the largest proportion of dental problems in Indonesia were damaged/cavities/sick teeth, which was 45.3%. In 2018, the average DMF-index for permanent teeth in Indonesia was 7.1, while for the 12-year-old group it was 1.9. This figure still does not meet the target of the National Plan for Dental and Oral Health Services in 2020, namely the DMF-T index 4.1 at all ages and the DMF-T index 1.26 in the 12-year age group (Pusdatin Kemenkes, 2019).

Dental caries is caused by the demineralization process in the hard tooth tissue. Saliva is one of the factors that play a role in the development of caries. The role of saliva in the caries

process is related to the demineralization and remineralization of the hard tooth tissue (email). The components contained in saliva can cause the dissolution of the hard tooth surface (demineralization) (Adhani, 2018). Saliva affects the process of caries because saliva always wets the teeth so that it affects the environment in the oral cavity. The degree of acidity (pH) of saliva is one of the important factors that play a role in dental caries, periodontal disorders, and other diseases in the oral cavity The normal level of acidity (pH) of saliva in the mouth is 7 da n if the pH value of saliva is 5.5, it means that the situation is very critical (Suratri, 2017). The oral cavity with a low salivary pH has a 4 times greater risk of developing caries than children with a high pH (Utami, 2018).

The prevalence of smoking in Indonesia has reached an alarming level. Indonesia has the highest smoking prevalence rate in the world and has the potential to increase in the future. Every year, more than 240,000 deaths due to smoking in Indonesia or in other words every day there are 660 deaths (Mirnawati et al., 2018). According to WHO (2022) more than 7 million people per year die from tobacco. There are 1.1 billion smokers in the world, 80% of which come from less developed to developing countries, one of which includes Indonesia. Over the last 10 years there has been a significant increase in the number of adult smokers as many as 8.8 million people, namely from 60.3 million in 2011 to 69.1 million smokers in 2021 (WHO, 2022). Based on Riskesdas (2018), male smokers aged over 15 years were 62.9% and this is the highest prevalence of male smokers in the world. Based on the Central Statistics Agency, the percentage of smoking in the population aged 15 years and over increased from 2017 which was 29.25% to 32. 20% (BPS, 2018).

According to research conducted by Qalbi MZ et al., (2018) there is a significant difference between pH of smokers and pH of non-smokers where the pH smokers' saliva is lower than of nonsmokers' saliva (Qalbi et al., 2018). Research also conducted by Unita RL and Agnes T (2018) showed the average pH of smokers' saliva was 5.93 while the average pH of non-smokers' saliva was 6.86. Based on this, the pH of the saliva of smokers is lower than the pH of the saliva of non-smokers (Unita and Agnes, 2018). Smoker's saliva has a lower ability to neutralize acidity than non-smoker's saliva, thereby increasing the risk of dental caries (Lestari, 2022). Saputri's research (2018) shows that the pH of active smokers' saliva is acidic. This can adversely affect dental and oral health such as caries due to an increase in acidogenic microorganisms, faster plaque accumulation due to decreased salivary function, and if this situation continues, it will cause various other diseases such as periodontal disease in the form of gingivitis, periodontitis, and tooth loss. .

One way to increase the pH of saliva is to adjust the diet by consuming more fibrous and juicy fruit which physiologically when consumed can stimulate the secretion of saliva (saliva) and can increase the rate of saliva (Ulliana, 2022). Fruit Jicama is beneficial for dental and oral health because it contains a lot of water and fiber that can help stimulate the gums, increase the flow of saliva in the mouth, prevent plaque buildup and reduce the level of bacteria in the mouth and can protect teeth from porous and gum disease (Nurasiki and Amiruddin, 2010). 2017). Based on research by Ulliana (2022) it was found that there was an increase pH salivary become more alkaline after consuming jicama fruit. Cucumber fruit is also beneficial for dental and oral health, which can increase saliva and function to neutralize acids and bases in the oral cavity (Lestari, 2018). Research conducted by Molek (2021) found a significant effect between pH salivary before and after chewing cucumber (Molek (2021). Based on previous research, the average pH of smokers' saliva is acidic, so there must be an effort to increase the pH of smokers' saliva, one of which is chewing juicy and fibrous fruits. Based on this background, the authors are interested in knowing the effectiveness of chewing jicama and cucumber on saliva pH in smokers in ten male student dormitories in Banjarbaru City.

RESEARCH METHOD

This study was conducted to determine the difference between chewing jicama and cucumber on saliva pH in smokers in ten male student dormitories in Banjarbaru City. The research design was a quasi-experimental (quasi-experimental) by using one group pretest posttest. The study was conducted at the Male Student Dormitory of Banjarbaru City. The technique sampling purposive sampling, where the sample was selected according to the researcher's criteria, namely smokers, totaling 60 people who were divided into two groups. Data was collected by means of observation and examination. Directly on the research subject. The first group is a group of student smokers who chew jicama and the second group of smokers who chew cucumber.

Salivary pH measurement is done by storing saliva in a plastic pot of approximately 1 ml. Subjects are asked to collect saliva on the floor of the mouth for 1 minute and remove it into a saliva collection glass. Furthermore, it was measured with universal indicators and the results were written on the pH before chewing jicama and cucumber. Then the first sample group was instructed to chew 50 grams of jicama fruit and the second sample group instructed of cucumber which had been provided by the researcher with both jaws for 1 minute. 5 minutes after chewing jicama or cucumber fruit as much as 50 grams, the subject was asked to spit out saliva using the spitting, namely the subject collected saliva on the floor of the mouth for 1 minute then spit it out in the saliva collection glass provided, then measured saliva with universal indicators and written on the form. Examination pH after chewing jicama and cucumber. Salivary measurement done with universal indicators with pH 0-14 by comparing the color of the indicator exposed to saliva with the standard color.

The pH saliva before chewing jicama and cucumber (pretest) and after chewing jicama and cucumber (posttest) as well as secondary data that has been obtained will be entered and presented in tabular form, then processed in the form of univariate data and analyzed using a computer using the Mann-Whitney U Test.

Subject data will not be disseminated and only the researcher knows because it is confidential by presenting the result data in the form of anonymity/code. All data in this study will be kept confidential and will only be used for research purposes.

RESULTS

Table 1 Average Difference of Saliva pH Before and After Chewing Jicama Fruit and Cucumber Fruit

Chewing	Average Fruit (Before)	Average (After)	Average Difference in Saliva pH of
Jicama	5.97	7.27	1.30
Cucumber	6 ,20	7.00	0.80

Based on table 1 the results of the average difference pH salivary before and after chewing jicama fruit by 1.30 from the acquisition of the average pH value salivary before chewing jicama fruit 5.97 and after 7.27 and the results of the average difference pH salivary before and after chewing cucumber fruit by 0.80 which the average pH of saliva before chewing cucumber 6.20 and after chewing cucumber 7.00. The difference in the average pH

of saliva from chewing jicama and cucumber fruit by 0.5 where the difference in the average pH saliva chewing jicama fruit is higher than chewing cucumber fruit.

Table 2 Mann-Whitney U Test Differences pH Before and After Chewing Jicama and Cucumber Fruit

	pH Saliva
Mann-Whitney U	267.000
Wilcoxon W	732.000
Z	-3.122
Asymp. Sig. (2-tailed)	.002

Based on the results of the Mann-Whitney U Test, it is known that the Sig or P Value 0.002 <0.05. If P Value <critical limit of 0.05 then there is a significant difference between the two groups or which means Ho is rejected and Ha is accepted, it means that there is a difference between chewing jicama and cucumber on pH salivary on smokers in ten male student dormitories in Banjarbaru City.

DISCUSSION

From this study it can be seen that the average pH salivary from smokers less than pH Saliva normal which means it tends to be acidic. The results of this study are in accordance with Saputri's research (2018) where the results obtained are: acidic saliva in smokers. This happens because saliva experiencing a decrease in the concentration of bicarbonate and bacteria will easily multiply quickly and produce an acidic atmosphere in the subject of smokers, causing a lower pH of the saliva of smokers so that efforts are needed to increase the pH of saliva smokers (Fatimah et al, 2018).

Based on the results from table 1, it can be seen that the number of smokers who chewed jicama fruit was 30 people with pH of salivary before chewing jicama fruit obtained an average value of 5.97 and pH salivary after chewing jicama fruit with an average value of 7.27. In this study chewing jicama fruit can increase the average pH saliva of 1.30. This is in accordance with a study conducted by Ulliana (2022) which stated that there was an increase pH salivary become more alkaline after consuming jicama fruit. 50 grams of jicama contains 35.74 grams of water, 0.21 grams of fiber and 8.4 mg of vitamin C. The content of water, fiber and vitamin C is very beneficial for dental and oral health which can help increase the flow of saliva in the mouth so that it can affect the pH of saliva (Nurasiki and Amiruddin, 2017).

Meanwhile, based on the results from table 1, it can be seen that the number of smokers who chewed cucumber was 30 people with pH of salivary before chewing the cucumber, the average value was 6.20 and the average value of pH salivary after chewing the cucumber for 7.00. In this study chewing cucumber can increase the average pH saliva of 0.80. This is in accordance with research conducted by Molek (2021) that there is a significant effect pH between before and after chewing cucumber. Research also conducted by Ramadhani S et al., (2019) stated that chewing cucumber fruit can increase the flow rate saliva and salivary pH . 50 grams of cucumber contains 33.63 grams of water, 0.17 grams of fiber and 2.8 mg of vitamin C. The high content of water, fiber and vitamin C can help clean teeth and mouth because it can stimulate salivary secretion, and cucumber has a taste that can stimulate the

salivary center to secrete more saliva and make the viscosity of saliva lower so that it can affect the pH of saliva (Ulliana, 2022).

Judging from the data above, chewing jicama and cucumber both can increase pH of smokers, but chewing jicama has increased more than chewing cucumber. The purpose of this study was to determine the difference between chewing jicama and cucumber on pH salivary test is used Man Whitney, in table 2 the results of the Sig or P Value of 0.002 which means that there is a significant difference between chewing jicama and cucumber on pH salivary, which can be seen from the P Value (0.002) < (0,05).

Fruits are believed to be foods that are rich in fiber and contain various vitamins. In addition to good for the health of the body is also good for the health of teeth and mouth. The fiber in fruit is a natural cleanser on the tooth surface. The process of chewing fibrous food will stimulate and increase the production of saliva, fruits that contain lots of water, fiber and vitamins are very good for consumption because they can provide health benefits, especially dental and oral health (Syauqy, 2022). The results of the research of Ramadhani S et al., (2019) showed that chewing fruits that contain high water and fiber such as jicama and cucumber can affect the pH of saliva, in line with the results of this study which showed that there was a difference between chewing jicama and cucumber on pH salivary on smokers in ten male student dormitories in Banjarbaru City.

Chewing fruits has the potential to prevent dental and oral diseases such as caries by increasing saliva production (Ramadhani S et al., 2019). Fruits that contain water when eaten and chewed can help clean the teeth and mouth which is known as the self-cleansing effect because it can stimulate salivary secretion which affects the pH saliva (Ulliana, 2022). Research conducted by Haqiqi (2021) states that the degree of acidity of saliva changes with the presence of mechanical stimuli such as chewing fruits that contain fiber and water so that they can stimulate salivary secretion can cause the salivary flow rate to increase chewing jicama and cucumber can provide a self-cleaning effect from the oral cavity because they contain fiber that can clean the remnants of food particles that are tucked between the teeth and the oral cavity. Chewing will cause the chewing muscles to contract and stimulate the secretion of the salivary glands to secrete more saliva. The more saliva secretion, the more salivary pH will increase, if the salivary pH increases then pathogenic microorganisms cannot develop and the formation of dental plaque can be inhibited so that it does not develop into dental caries (Fitrianti, et al., 2017).

CONCLUSION AND RECOMENDATION

Chewing jicama and cucumber can increase the salivary pH of smokers, but chewing jicama fruit increases more than chewing cucumber. It is expected that smokers can maintain dental and oral health by consuming more juicy and fibrous fruits and vegetables such as jicama and cucumber to reduce the risk of dental and oral disease. For further researchers, to be able to conduct research by comparing other fibrous and juicy fruits that have more content in them which are useful for reducing the risk of dental and oral diseases.

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