

Factors Causing Obesity in the Diet of Rural Adolescents in the Regency of South Minahasa

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ABSTRACT

Obesity was a health problem that should be immediately observed because it has become a global epidemic. The problem of obesity was a health problem related to nutritional status, but obesity is often ignored despite the apparent exposure to health problems compared to poor or bad nutritional status. The risk of suffering obesity was generally in urban adolescents caused lifestyle. The studied aims to determine the factors causing obesity in the diet of rural adolescents in South Minahasa regency. This research used this type of research in the form of descriptive research with survey study method that was a research survey which only describes the phenomenon or variable of research studied. Sampling was done by purposive sampling, where sampling was based on certain features that are considered to have a close to the population characteristics that have been known before. The results of this study show that the characteristics of respondents are mostly 16 years old and female sex with Z-score + 2 is the nutritional status of obesity. The results showed that frequencies often consume foods and beverages trigger obesity i.e. food carbohydrate sources, proteins, fats, fast food, snacks, and beverages containing high sugar. Advice for teenage obesity to pay attention to the frequency of food consumption that triggers obesity.

Keywords: obesity, diet, rural adolescents

INTRODUCTION

World Health Organization (WHO), obesity is defined as the accumulation of abnormal or excessive fats that can interfere with health (WHO, 2015). According to the results of basic health research or RISKESDAS 2018, the rate of obesity in adults in Indonesia increased to 21.8 per cent. This prevalence increased from the results RISKESDAS 2013 which mentioned that the number of obesity in Indonesia only reached 14.8 per cent. Obesity itself refers to the condition where the body mass index is above 27. Likewise, with the prevalence of excess weight with a body mass index between 25 and 27, it also increased from 11.5 per cent in 2013 to 13.6 per cent in 2018 (WHO, 2015).

Interestingly, the number of obesity in adults over 18 years according to the results RISKESDAS 2018 highest in North Sulawesi, which is as much as 30.2 per cent. The next highest position was in DKI Jakarta, East Kalimantan, and West Papua. The national prevalence in Indonesia in adolescent age groups amounted to 10.8% (8.3% overweight and 2.5% obesity) due to lack of nutritional knowledge. Obesity is the root of various unctagious diseases such as diabetes, hypertension and cardiovascular disease which is still a major health problem in Indonesia (Ogden, 2010).

Each person requires a certain amount of body fat that has a function of energy, as heat insulation, shock-absorbent and other functions. The average woman has more body fat than men. The normal comparison between body fat and weight is about 25-30% in females and 18-23% in men. Women with more than 30% body fat and men with more than 25% body fat are considered obese (Proverawati, 2010).

In developed countries, obesity has become an epidemic by contributing 35% to the pain figure and contributing 15-20% to death. Recent reports indicate that the prevalence of obesity around the world both in developing countries and emerging economies has increased in alarming numbers. Obesity is one of the leading causes of death in the world that can be prevented (Arundhana, 2010).

The Minahasa ethnic in North Sulawesi province has a unique eating habit with a variety of typical foods, which mostly contain high saturated fatty acids. In addition, the Minahasa ethnic community is also a largely Christian that has a habit of party by presenting the typical Minahasa food derived from animal fats (pigs). From the results of the census of the population in 2017 shows that Maesaan has 1070 population of both men and women. The prevalence of obesity in adolescents in Manado City in 2005 is 9,88%, 7 while the prevalence of adolescent

obesity in the city of Tomohon in 2010 is 35%. Based on this background the authors feel the need and interested to do research on the factors of the causes of obesity in the diet in rural adolescents in South Minahasa regency.

MATERIAL AND METHODS

This type of research in the form of descriptive research with the survey study method is research survey that describes only the phenomenon or variable of research studied. The population in this study was 30 obese teenagers with samples taken as a population of 30 teenagers.

Sampling is a sampling that is based on certain features that are considered to have a close purposive of the population, with the characteristics of the previously known populations.

Primary data collection is taken by weight measurement (BB) by using a valve and height (TB) by using Microtoice and direct interviews to respondents using FFQ questionnaire.

Primary data processing and secondary data i.e. Anthropometry respondent data, filling the questionnaire, and the profile of the village that has been collected is editing which is an activity re-, whether the data is appropriate and data-filled already Complete and clear. Then the coding or coding of the data converts the letter-shaped data into numeric and number-shaped data.

As in BMI/U nutritional status using Z-scores, on each Z-score is classified as follows: Z-score < -3 = Very thin, -3 SD up to a < -2 SD = thin, -2 SD up to 1 SD = Normal, > 1 SD up to 2 SD = fat, Z-score > 2 SD = Obesity. A mother's nutritional knowledge questionnaire.

Encoding is done when the data that has been questioned already answered or already filled by the respondent. After the reduction and encoding of the data already collected, it is then to process the data so that the data that has been enshrined can be analyzed. The last one is cleaning or clearing data which is checking back all the existing data from providing the code until it ensures the data is entered so that when analyzed does not occur error.

Analyzing the results of interviews through questionnaires saw most presentations displayed using tables with the scale category as follows:

- A. Always (> 3 x/day of consumption of groceries)
- B. Frequent (> 2 x/week consumption of foodstuffs)
- C. Sometimes (> 2 x/1 month consumption of groceries)
- D. Infrequently (> 2 x/2-3 month of foodstuffs consumption)
- E. Never (not consume).

4. Data presented in a descriptive way in the form of tables and narratives.

RESULT AND DISCUSSIONS

A. Sample Characteristic Overview

1. Distribution of respondents based on age

According to table 2 shows that obese adolescents in the village aged 12-16 years is 12 years of youth as many as 3 teenagers (10%), 13 years as many as 6 teenagers (20%), 14 years as many as 2 teenagers (7%), 15 years as many as 3 teenagers (10%), 16 years as many as 16 Teenagers (53%).

2. Distribution of respondents by gender

Based on the sample data obtained, obese teenagers in Maesaan subdistrict are 10 teenage boys (33%), and 20 teenage girls (67%).

3. Respondents body mass index

Based on the sample data obtained that obese teenagers in Maesaan sub-district all teenagers as many as 30 teenagers are included in the category of obesity (100%).

B. Frequency of use of groceries

1. Frequency of food consumption carbohydrate sources

- a). Average frequency of rice consumption

Based on data obtained that the frequency of rice consumption in adolescent obesity in Maesaan District all consume rice as much as 30 teenagers consume always (100%).

- b) Average consumption frequency noodles

Based on the data shows that the frequency of noodle screening in 30 obese teenagers in Maesaan district is 2 teenagers consume always (7%), 22 adolescents consume frequently (73%), and 6 adolescents consume occasionally (20%).

- c) Average frequency of potato consumption

The results of potato-consumption frequency Data in 30 obese teenagers in Maesaan subdistrict is 1 teenager consuming always (3%), 9 teenagers consume frequently (30%), 16 adolescents consume occasionally (53%), 4 adolescents consume infrequently (13%).

- d) Average consumption frequency bread
The results of the data showed that the frequency of bread-consumption in 30 obese teenagers in Maesaan district is 3 teenagers consume always (10%), 20 adolescents consume frequently (67%), and 7 adolescents consume occasionally (23%).
 - e) The average consumption frequency of macaroni
Based on data indicating that the frequency of macaroni consumption in 30 obese teenagers in Maesaan subdistrict is 10 adolescents consume occasionally (33%), 11 adolescents consume infrequently (37%), and 9 adolescents consume never (30 %).
 - f) Average consumption frequency of yam
The frequency of yam consumption in 30 obese teenagers in Maesaan subdistrict obtained 3 teenagers consume always (10%), 6 adolescents consume frequently (20%), 15 adolescents consume occasionally (50%), and 6 adolescents consume infrequently (20 %).
2. Food consumption frequency of animal Protein sources
- a) Average frequency of beef consumption
Based on the data shows that the consumption frequency of beef in 30 obese teenagers in Maesaan district is 2 teenagers consume always (7%), 11 adolescents consume occasionally (37%), 16 adolescents consume infrequently (53%), and 1 Teenagers consume never (3%).
 - b) Average frequency of chicken meat consumption
Based on the data indicates that the frequency of chicken meat consumption in 30 obese teenagers in Maesaan District is 17 adolescents consume frequently (57%), and 13 adolescents consume occasionally (43%).
 - c) Average frequency of pork meat consumption
Based on the data obtained that pork consumption frequency in 30 obese teenagers in Maesaan District is 15 adolescents consume often (50%), 11 adolescents consume occasionally (37%), 3 adolescents consume occasionally (37%), and 1 teenagers consume never (3%).
 - d) Average frequency of dog meat consumption
Based on the data shows that the frequency of dog consumption in 30 obese teenagers in Maesaan district is 2 teenagers consume often (7%), 5 adolescents consume occasionally (17%), 11 adolescents consume infrequently (37%), and 12 teenagers chose never (40%).
 - f) Average frequency of consumption of chicken eggs
Based on the data indicating that the frequency of chicken eggs consumption in 30 obese teenagers in Maesaan subdistrict is 19 adolescents consume often (63%), 10 adolescents consume occasionally (34%), 1 adolescents consume never (3%) and the frequency of fresh fish consumption in adolescent obesity in Maesaan district all consume fresh fish as much as 30 teenagers consume always (100%).
3. Food frequency containing fats
- a) In 30 obese teenagers in Maesaan subdistrict is 1 teenager consuming always (3%), 19 adolescents consume often (63%), 9 adolescents consume occasionally (30%), and 1 teenager consumes infrequently (3%) and obtained that the frequency of the consumption of coconut oil in obese adolescents in Maesaan district all consume coconut oil as much as 30 teenagers consume always (100%).
 - b) Average consumption frequency of butter
The frequency of butter consumption in 30 obese teenagers in Maesaan subdistrict is that 8 adolescents consume often (27%), 14 adolescents consume occasionally (47%), 7 adolescents consume infrequently (23%), and 1 adolescents consume never (3%).
 - c) Average consumption frequency of coconut milk
The frequency of milk consumption in 30 obese teenagers in Maesaan district is 4 teenagers consume frequently (13%), 21 adolescents consume occasionally (70%), and 5 adolescents consume infrequently (17%) and frequency of consumption fast food (fast food), i.e. the frequency of fried chicken 4 adolescents consume frequently (13%), 21 adolescents consume occasionally (70%), and 5 adolescents consume infrequently (17%).
4. Frequency of Fast Food consumption
- a) Consumption frequency Pizza
The frequency of pizza consumption in 30 obese teenagers in Maesaan subdistrict is 1 teenager consuming often (3%), 11 adolescents consume occasionally (37%), 14 adolescents consume infrequently (47%), and 4 adolescents consume never (13%).
 - b) Consumption frequency of fries
Data shows that 9 teenagers consume frequently (30%), 16 adolescents consume occasionally (54%), 4 adolescents consume infrequently (13%), and 1 adolescents consume never (3%).
 - c) Donut Consumption frequency

8 average adolescents consume frequently (27%), 15 adolescents consume occasionally (50%), and 7 adolescents consume infrequently (23%).

d) Frequency of ice cream and hamburger consumption

Teenagers often consume ice cream (53%), 9 teenagers consume occasionally (30%), 2 adolescents consume infrequently (7%) And the frequency of hamburger consumption in 30 obese teenagers in Maesaan district is 10 teenagers consume occasionally (33%), and 20 adolescents consume never (64%).

5. Frequency of snack consumption (snacks)

1 teenagers consume always (3%), 26 adolescents consume frequently (87%), and 3 adolescents consume occasionally (10%), and know the content consumes often (53%), 11 adolescents consume occasionally (37%), 11 adolescents consume infrequently (7%), and 1 teenager Consume never (3%).

6. Frequency of consumption of other food ingredients

Table 1. Average frequency of powdered milk consumption

Frequency of Use	Amount	
	n	%
Always	5	17
Often	3	10
Sometimes	3	10
Rarely	13	43
Never	6	20
Total	30	100

According to the table above, it shows that the frequency of milk consumption of powder in 30 obese teenagers in Maesaan district is 5 teenagers consume always (17%), 3 adolescents consume often (10%), 3 adolescents consume occasionally (10%), 13 teenagers consume infrequently (43%), and 6 adolescents consume never (20%).

Table 2. Average frequency of tea consumption

Frequency of Use	Amount	
	n	%
Always	4	13
Often	13	43
Sometimes	3	10
Rarely	2	7
Never	8	27
Total	30	100

According to the table above, it shows that the incidence of powdered milk consumption in 30 obese teenagers in Maesaan district is 4 teenagers consume always (13%), 13 adolescents consume frequently (43%), 3 adolescents consume occasionally (10%), 2 adolescents consume infrequently (7%), and 8 adolescents consume never (27%).

Table 3. Average frequency of coffee consumption

Frequency of Use	Amount	
	n	%
Always	5	17
Often	5	17
Sometimes	4	13
Rarely	8	27
Never	8	27
Total	30	100

According to the table above shows that the frequency of coffee consumption in 30 obese teenagers in Maesaan district is 5 teenagers consume always (17%), 5 adolescents consume frequently (17%), 4 adolescents consume occasionally (13%), 8 Adolescents consume infrequently (27%), and 8 adolescents consume never (27%).

Table 4. Average consumption frequency Soft Drink (cold drink)

Frequency of Use	Amount	
	n	%
Always	5	17
Often	15	50
Sometimes	9	30
Rarely	1	3
Never		
Total	30	100

Based on the table above shows that the frequency of soft drink consumption in 30 obese teenagers in Maesaan district is 5 teenagers consume always (17%), 15 adolescents consume often (50%), 9 adolescents consume occasionally (30%), and 1 teenager consumes infrequently (3%).

DISCUSSION

Based on the results of diet research with the incidence of obesity in teenagers in Maesaan district, the data collected has been processed and will be discussed from the characteristics of the age, gender, and body mass index. The results of this study show that the characteristics of respondents are mostly 16 years old and female sex with Z-score + 2 is the nutritional status of obesity. This is inversely proportional to the results of the study of Kurdanti, et al (2015) which suggests that the incidence of obesity is greater in males than females. Men are meaningless likely to be overweight or obese than women because men tend to spend more time relaxing at the end of the week or leisure time. Similarly, the research result of RAD Sartika (2011) shows that boys have a risk of obesity of 1.4 times compared to girls. It is likely caused by girls to more often restrict eating for appearance reasons. The results of the same research with the results expressed by Malik & Bakir, the proportion of excess weight in girls (5-17 years) is higher than men.

Obesity is a contributing factor to girls ' puberty. The effect for boys is the increase in body mass. The results of analysis between the sexes with energy intake and carbohydrates indicate that the average total energy intake and carbohydrate in males is higher than that of women ($p < 0.05$). The nutritional needs of boys aged 10-12 years greater than girls because of the influence of physical activity and growth spurt of boys is greater, consequently energy needs become more.

Results of this study showed that the frequency of consumption of food sources of oil & fats from the consumption of fast food ie, fried chicken, pizza, fries, donuts, ice cream, and hamburger. The results of this research in line with Arlinda, Sheva and Warsiti (2015) which shows there is a meaningful relationship between the consumption habits of fast food with the incidence of obesity in teenagers. His research concluded that the frequency of consumption of fast food more than 3 times a week has a risk of 6.00 times to suffer obesity compared with those who do not often consume fast food.

Causes of obesity in adolescents are multikifaktorial. Teenagers who often consume food and drink trigger obesity i.e. food carbohydrate sources, proteins, fats, fast food, snacks, and beverages containing high sugar so that there is a buildup of calories and fats in the body of teenagers so Cause obesity in adolescents. Increased consumption of fast food, low physical activity, genetic factors, advertising influence, psychological factors, social economic status, diet program, age, and gender are factors contributing to the change Energy balance and culminate in the incidence of obesity.

The results of the research frequency of food consumption protein source is found in this research that the adolescent obesity in the village of Kasuratan often consume beef, chicken, pork, chicken eggs, salted fish and meatballs, while the ones are never in consumption Teenagers, dog meat and shrimp.

CONCLUSION

The results showed that the frequency of eating patterns in obese adolescents in Maesaan District is that teenagers often consume food and drink triggers obesity i.e. food sources of carbohydrates, proteins, fats, fast food, snacks, And beverages containing high sugar so that there is a buildup of calories and fat in the body of teenagers, resulting in the onset of obesity in adolescents.

SUGGESTION

1. For teens who are obese to pay attention to the frequency of food consumption that triggers obesity such as food sources of carbohydrates, proteins, fats, fast food, snacks, and other foodstuffs
2. Researchers realize that the results of this research are not the result of perfect research so it is necessary to increase from subsequent researchers to obtain more perfect research results
3. For subsequent researchers to take or add dietary variables that have not been studied. Because the author only takes 1 variable of research i.e. the frequency of diet.

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