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Submission date: 26-Apr-2023 01:19PM (UTC+0700)

Submission ID: 2075897172

File name: Artikel_prosiding_2020.pdf (541.82K)

Word count: 3052

Character count: 16258

The Effectiveness of Health Promotion Method Using Poster in Improving Patients' Behaviour to Prevent Transmission of Pulmonary Tuberculosis Disease

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ABSTRACT

One of the failures that be found in the pulmonary tuberculosis disease control program could be caused by the lack of health promotion that is directly obtained by individuals. The purpose of this study was to determine the effectiveness of the health promotion method using posters in an effort to improve behaviour of pulmonary tuberculosis (TB) patients and their families about prevention of tuberculosis transmission in Tuminting Health Center (Puskesmas), Manado. The study was carried out by observing 30 pulmonary TB patients who came to seek treatment at the Puskesmas Tuminting. Observations were made by conducting pre-test interviews individually related to the TB disease and its prevention. Furthermore, health promotion was carried out using posters obtained from the TB health promotion leaflet ("TOSS TB") made by the Indonesia' Ministry of Health. The interview was conducted once again after counseling. This study revealed that health promotion individually by using poster is very effective in increasing knowledge about TB along with its prevention. The use of poster media is very effective to improve the behaviour of TB patients in terms of prevention of transmission the disease. Media posters can be reproduced by the Health Office to be distributed to the community.

INTRODUCTION

Tuberculosis is still a global health problem today. According to WHO in the WHO Global TB Report in 2018 [1], that TB continues to be a major cause of morbidity and death worldwide. Pulmonary tuberculosis is a disease of the poor and destitute peoples that infects young adults in the productive age. An estimated 75% of pulmonary TB cases occur in the age group of 15-54 years [1]. One pulmonary TB patient can transmit the germ to others by 10-15 people in 1 year, and about 95% of pulmonary TB deaths are in developing countries. The report states that TB continues to be a leading cause of morbidity and death worldwide. In 2017, an estimated 1.3 million deaths due to TB in HIV negative people and 300,000 in HIV positive people [1]. According to data from the North Sulawesi Provincial Health Office, Manado City is the highest reported area compared to other districts / cities in North Sulawesi in 2017 [2] while data obtained from the Manado City Health Office in 2017 showed that there were 888 people with tuberculosis, in which Tuminting Health Centre (Puskesmas Tuminting) was the most health centre treating patients with Lung tuberculosis [3].

According to the results of Riskesdas 2013 (Basic Health Research, 2013), TB prevalence based on diagnosis was 0.4% of the total population. By province, the highest prevalence of pulmonary TB by diagnosis was West Java at 0.7%, DKI Jakarta and Papua each by 0.6%. While the provinces of Riau, Lampung, and Bali were the provinces with the lowest prevalence of pulmonary TB based on a diagnosis of 0.1% each [4]. Incidence and mortality rate of pulmonary TB that increase from year to year, although it has been seriously handled through the program of Millennium Development Goals (MDGs) and through the *Global Fund* in North Sulawesi Province especially Manado Municipality, questions still arise, whether the program to control the transmission of pulmonary TB has been implemented maximum? Could there be other variables or unknown factors that influenced to the increase of incidence of this disease? Is it possible that the patient's behavioural factors also influence the transmission of this disease?

The behaviour of people is very important in controlling tuberculosis. Actually the role of health policy maker, health care workers or even government to change behaviour is very important because of ignorance of the people may determine the transmitted of disease [5]. Behaviour including the knowledge, attitude and actions in ways of preventing transmission of the disease, is playing the role of the transmission pattern of pulmonary TB through the air *droplet infection* where one patient can transmit the disease to 10 new risky cases [1][6].

This study aims to analyse the Effectiveness of Health Promotion with Posters in Efforts to Improve the Behaviour of Patients with Pulmonary Tuberculosis (TB) to prevent transmission of Tuberculosis in Puskesmas Tuminting, Manado City

MATERIAL AND METHODS

Samples were taken using a purposive sampling method, begin with collecting TB patient data at the Puskesmas, followed by finding out the day when most of sufferers visited the Puskesmas to get medicines. Once known, the team visited the Puskesmas and conducted interviews before and after explanation using poster media (pre and post-test interviews). In patients who did not come, a home visit was performed. Observation of the patient's home environment was carried out by team members during interview by the enumerator. Pre and Post-test One group design conducted on TB patients who were carrying out treatment together with their family members. The instruments used in this study were pre and post-test questionnaire sheets as well as posters about pulmonary TB disease and ways to prevent transmission taken from leaflets issued by the Ministry of Health of Indonesia. The contents of the poster are knowledge about tuberculosis and knowledge about tuberculosis prevention through clean and healthy life behaviour [7]. Individual counselling activities are carried out by team involving officers from Puskesmas, TB laboratory officers and some health cadres who were at the Puskesmas by that time. *Pre* and *post tests* were done to the patients and their family members to assess knowledge about TB and ways to prevent. The assess of knowledge include: What is TB; How is TB transmitted; What are the main symptoms and other symptoms of TB; How is TB checked; and How to treat TB. Ways of preventing TB are associated with clean and healthy living behaviours *include*: Eating nutritious foods; Open the window so that the house gets enough sun and fresh air; Drying the bed so that it is not damp; Get BCG vaccine injections for children younger than 5 years; Regular exercise; and don't smoke. After counselling and post-test, each person gets 1 box @ 50 pieces of mask. Figure 1 shows an example of the poster used in this study

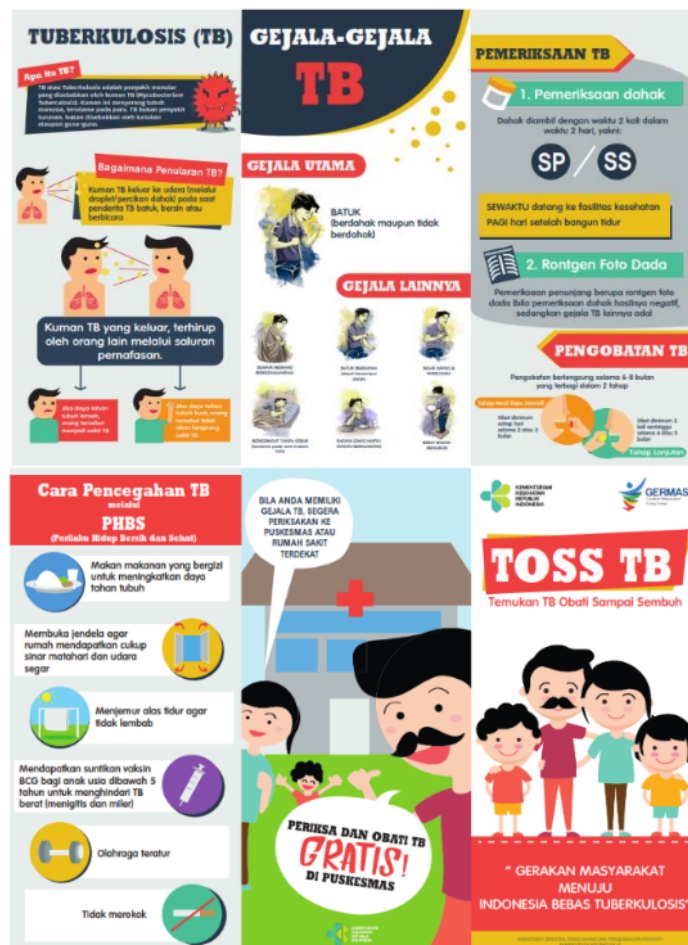


Figure 1. Poster of knowledge about Tuberculosis (up) and Poster of knowledge about prevention of Tb (down)

RESULTS

Of the 30 patients who performed the pre-test, their characteristics as shown in table 1.

Table 1. Target characteristics (n = 30)

Characteristics	number	%
By Month at diagnosed		
May	3	10
June	1	3
July	10	33
August	13	43
September	3	1
Age groups		
11-20	4	13
21-30	4	13
31-40	6	20
41-50	5	17
51-60	7	23
61-70	4	13
Type of Tb Category		
Category 1	25	83
Category 2	5	17
Place of residence (village)		
Sindulang 1	8	27
Kampung Islam	2	7
Mahawu	4	13
Sumompo	5	17
Maasing	4	13
Tuminting	3	10
Tumumpa	2	7
Bitung Karangria	1	3
Bailang	1	3

Tables 2 and 3 show the results before counselling and after counselling be given.

Table 2. Pre-test results on Knowledge about TB and prevention knowledge

Categories	Knowledge of TB disease	Knowledge about prevention
Good	3	0
Sufficient	13	2
Less	14	28
Total	30	30

Of the 30 respondents who were asked before the test (pre-test), knowledge about TB which categorized as less, enough and good categories are 14, 13 and 3, respectively. Likewise, regarding prevention knowledge, of the 30 people interviewed prior to counselling, 28 people had less knowledge, and 2 people had enough knowledge. There were no patients who have good prevention knowledge. Using cross tabulation between knowledge about tuberculosis and knowledge of prevention, it was found that 14 samples (46.7%) have less knowledge about TB and less knowledge about prevention, 11 samples with TB knowledge lack of knowledge and prevention knowledge (11%), and 3 people who have good TB knowledge and less TB knowledge (10%). Likewise, there were 0 samples with less TB knowledge and sufficient prevention knowledge, 2 people with sufficient TB knowledge and adequate prevention knowledge

(6.7%), and 0 cases with good TB knowledge and knowledge about sufficient prevention.

Table 3. Knowledge about Tb Vs Knowledge about prevention cross tabulation

Knowledge about Tuberculosis	Less	Count	Knowledge about prevention		Total
			Less	enough	
Less		Count	14	0	14
		% of Total	46.7%	0.0%	46.7%
	Sufficient	Count	11	2	13
		% of Total	36.7%	6.7%	43.3%
Good	Count	3	0	3	
	% of Total	10.0%	0.0%	10.0%	
Total	Count	28	2	30	
	% of Total	93.3%	6.7%	100.0%	

From the cross tabulation of the pre-test, it shows that less knowledge about Tuberculosis related to less knowledge about disease prevention. Conversely sufficient knowledge has a relationship with knowledge about prevention of disease prevention.

Table 4. Post-test results Knowledge of TB and knowledge about prevention

Category	Knowledge of TB disease	Knowledge of prevention
Good	30	24
Sufficient	0	6
Less	0	20
Total	30	30

Table 4 shows that of thirty people interviewed after counselling, it was found that all (100%) had good knowledge about TB disease. By cross-tabulation it was found that six people (20%) with sufficient TB knowledge and adequate prevention knowledge and 24 (80%) people who had good TB knowledge and had good knowledge about prevention.

Table 5. Knowledge Tb * Knowledge of Prevention Crosstabulation

Knowledge of Tb	Good	Count	Knowledge of prevention		Total
			Sufficient	Good	
Knowledge of Tb	Good	Count	6	24	30
		Expected Count	6.0	24.0	30.0
		% within Knowledge of Tb	20.0%	80.0%	100.0%
		% within Knowledge of prevention	100.0%	100.0%	100.0%
Total	Count	6	24	30	
	Expected Count	6.0	24.0	30.0	
	% within Knowledge of Tb	20.0%	80.0%	100.0%	
	% within Knowledge of prevention	100.0%	100.0%	100.0%	

The relationship between knowledge about TB before being tested and after being tested

To find out the relationship between knowledge before being tested and after being tested, a statistical test was carried out to assess the effectiveness of counselling using poster media. Statistical tests using Wilcoxon's non-parametric statistical test results as shown in the following figure.

	Knowledge of TB (Post-test) - Knowledge of TB (Pre-test)
Z-	3,755 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Figure 2. Results of statistical tests using the Wilcoxon Signed Rank Test for knowledge of TB

Based on the results of the Wilcoxon Signed Rank Test calculation, the Z value obtained is -3,755 with a p value (Asymp. Sig 2 tailed) of 0,000, which means that there is a significant difference between pre-test and post-test groups. Thus, health promotion using poster media to increase TB knowledge can be said to be very effective.

The relationship between knowledge about prevention before being tested and after being tested

To find out the relationship between knowledge about how to prevent Tbt through clean and healthy life behaviour before being tested and after being tested, a statistical test was conducted to assess the effectiveness of counselling using poster media.

Statistical test using non-parametric Wilcoxon statistical test results are as shown in the following figure,

	Knowledge of Prevention (Post-test) - Knowledge of Prevention (Pre-test)
Z-	-5.035 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Figure 2. Results of statistical tests using the Wilcoxon Signed Rank Test for knowledge of Prevention

Based on the results of Wilcoxon Signed Rank Test calculations, the Z value obtained is - 5,035 with p value (Asymp. Sig 2 tailed) of 0,000, which means that there are significant differences between the pre-test and post-test groups. Thus, health promotion using poster media to increase knowledge about TB prevention can be said to be very effective.

DISCUSSIONS

The TB disease control program still faces problems in its implementation. Behaviour which is the biggest factor in the influence on health is an issue in disease control efforts in addition to the problem of belief / culture of society that perceives TB which also slows the completion of the problem. According to Notoatmodjo (2007), people's behaviour in health can be viewed from three aspects, namely knowledge, attitudes, and actions so as to improve the knowledge, attitudes and actions of pulmonary tuberculosis sufferers, methods and health promotion media are needed [8]. This is consistent with Blum's model that behaviour is the second largest factor after environmental factors that affect the health of individuals, groups, and society. One factor that influences attitudes or behaviour is the knowledge a person has. The higher the knowledge will contribute in forming good attitudes and behaviour. Kurniasih and Widianingsih's research shows the strong relationship between knowledge and prevention of pulmonary TB in one hospital in Jakarta [9]

Action is something that is complex as a result of various internal and external aspects, psychological and

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physical. Health action is basically a person's response to a stimulus related to illness and disease, the health care system and the environment [10][6]. This study reinforces the results of previous studies such as those conducted by Ernawaty [11]. She found that with directed education changes to behaviour could be made [6]. This research shows that by carrying out individual health promotion and individual evaluation, the knowledge that will influence that attitude changes. Both knowledge about the disease and knowledge about prevention together occur changes marked by an increase in the number of categories that have less and enough to be good categories, and this is a good thing in the formation of attitudes and behaviour of patients to be able to prevent transmission to people around them, his family in particular and society in general. However, other research showed the relationship between knowledge of Tb such as the how to treat than the symptom [12]. Thus, items in the knowledge of the disease them selves can make influence to prevention behaviour.

Involving health worker to work Other factors that can influence patient behaviour in prevention are not observed, such as cultural influences and beliefs which are also weaknesses in research. Ying li [5] found that government policy factors must also ultimately be considered in efforts to promote health so that they can strengthen each other's control efforts, including strengthening health workers, especially in Health Centre as a research revealed by Engelbrecht MC who study about primary health care practice in South Africa [13]. Behaviour of health workers that make patients will underestimate their disease is also influence the curiosity of patients about their disease hence to prevent transmission of tuberculosis [6].

CONCLUSION

1. There is a difference in knowledge about TB in patients before counseling and after counseling with health promotion individually or in other words, individual health promotion is effective in increasing the patient's knowledge about pulmonary TB.
2. There is a difference in knowledge about how to prevent TB in patients before counseling and after counseling with health promotion individually or in other words, individual health promotion is effective in increasing the patient's knowledge about how to prevent pulmonary TB.

SUGGESTION

The Manado City Health Office can adopt the results of this study by conducting individual counseling using poster media so that the public knows more about Pulmonary Tuberculosis so that they can make efforts to prevent transmission. Also by knowing this disease the public will be more aware to continue to carry out treatment until it is finished, so that the problem of this disease gradually decreases.

Further research needs to be carried out for example by using more variables such as demographic variables so that the results obtained are more convincing. Also more Puskesmas were involved so that the results of the study became wider in scope.

More posters are needed besides the existing media. These posters are distributed to every house so that more people know about this disease and more people know about prevention methods so that more people can avoid disease transmission.

SOURCE OF FUNDING

This study was conducted with funding sourced from the Manado Health Polytechnic year 2018.

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