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THE EFFECT OF HEALTH EDUCATION REGARDING PREVENTION OF PULMONARY TUBERCULOSIS TRANSMISSION TO KNOWLEDGE AND ATTITUDES OF COMMUNITY

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Research Report

A B S T R A C T

Introduction: *Tuberculosis (TB) is an infectious disease that is a major cause of poor health and one of the leading causes of death worldwide. Pulmonary tuberculosis or often referred to as pulmonary TB is an infectious disease that is still endemic in society. The purpose of this study was to determine the knowledge and attitudes of the community regarding preventing the transmission of pulmonary tuberculosis.* ***Methods:*** *This used a quantitative design with a pre-experimental approach, using a convenience sampling technique with a sample size of 40 respondents. The research was conducted at the Community of Nanga Pemubuh Village, Sekadau Regency. This research data collection used a questionnaire measuring instrument. The analysis used was a Paired Sample T-test and Wilcoxon test with a significance level of a<0.05. The variables involved in this research were health education, knowledge, and attitudes.* ***Results:*** *The statistical test results were obtained at knowledge p value = 0.004 and attitude p value = 0.013, meaning that statistically health education had a significant effect on increasing community knowledge and attitudes before and after education about preventing the transmission of tuberculosis in Nanga Pemuhuh Village, Sekadau.* ***Conclusions:*** *Health education regarding preventing the transmission of pulmonary tuberculosis has a significant effect on increasing public knowledge and attitudes. Increasing knowledge and attitudes about preventing the transmission of tuberculosis after outreach is expected to be able to reduce the prevalence rate of tuberculosis.*

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INTRODUCTION

Good knowledge about Pulmonary tuberculosis (TB) and its prevention is very important as a strategy for preventing TB, moreover, this will lead to positive behavior if supported by good and appropriate attitudes, so that it can help the government in controlling the transmission of TB disease optimally (Yanti, 2021).

Pulmonary tuberculosis often called pulmonary TB is an infectious disease that is still endemic in society. TB is caused by the bacillus Mycobacterium tuberculosis, which is spread when people sick with TB expel the bacteria into the air (for example by coughing). Mycobacterium Tuberculosis bacteria are rod-shaped, resistant to acid, and sensitive to heat. Pulmonary TB is chronic and spreads from sufferers to other people. The source of transmission of pulmonary TB is positive acid-fast bacilli TB sufferers (BTA+), when they cough or sneeze, the sufferer spreads germs into the air in the form of droplets or splashes of phlegm (Kemenkes RI, 2015).

In 2021, the World Health Organization (WHO) stated that as many as 1.5 million people died from TB in 2020 (including 214,000 people with HIV) (WHO, 2021) Worldwide, TB is the 13th cause of death and the second most infectious killer after COVID-19 (above HIV/AIDS). An estimated 10 million people fall ill with tuberculosis (TB) worldwide. 5.6 million men, 3.3 million women and 1.1 million children. TB is present in all countries and age groups. But TB can be cured and prevented. As many as 1.1 million children are infected with TB globally. Childhood and adolescent TB is often overlooked by healthcare providers and is difficult to diagnose and treat. A total of 30 countries with a high TB burden accounted for 86% of new TB cases. Eight countries accounted for two-thirds of the total, with India leading the tally, followed by China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa (WHO, 2021).

Globally, TB incidence is falling by around 2% per year and between 2015 and 2020 the cumulative decline was 11%. This is more than halfway to the End TB Strategy milestone of a 20% reduction between 2015 and 2020. An estimated 66 million lives were saved through TB diagnosis and treatment between 2000 and 2020. Globally, almost one in two households affected by TB faces costs that are higher than 20% of their household income, according to the latest national TB patient cost survey data. The world did not reach the milestone of 0% TB patients and their households facing catastrophic costs due to TB disease by 2020. Multidrug-resistant TB (MDR-TB) remains a public health crisis and health security threat. Only around one in three people with drug-resistant TB accessed treatment in 2020 (WHO, 2021).

The number of new TB cases in Indonesia was 420,994 cases in 2017 (data as of 17 May 2018). Based on gender, the number of new TB cases in 2017 in men was 1.4 times greater than in women. In fact, based on the Tuberculosis Prevalence Survey, the prevalence in men is 3 times higher than in women. Likewise, what happens in other countries? This may occur because men are more exposed to TB risk factors such as smoking and lack of compliance with taking medication. This survey found that 68.5% of all male participants smoked and only 3.7% of female participants smoked (Kemenkes RI, 2018).

In 2018 TB cases increased in West Kalimantan province. In 2017 there were 446,732 cases and this increased to 566,623 in 2018. It is known that the Case Detection Rate (CDR), of Tuberculosis cases in 2018 was 67.2% and this figure increased compared to 2017 which was 52.6%. Data on the distribution of new pulmonary TB cases based on districts/cities in West Kalimantan in the last 3 years, shows that in 2017 (5,186 cases) with (65%) men and (35%) women then experienced an increase in 2018 of (7,331 cases) (64%) men and (36%) women and continues to increase until in 2019 it was (7,869 cases) with (65%) men and (35%) women. In this case, men are at greater risk of contracting pulmonary TB compared to women (Dinkes Prov Kalbar, 2018).

Pulmonary TB cases in Sekadau Regency in 2018 were 447 cases per 100,000 population. The highest cases of pulmonary TB were in the Nanga Taman sub-district, the increase in tuberculosis cases was 49 and the suspect data was 166 compared to 2020, there were 32 tuberculosis cases and the suspect data was 210. The third highest case, in 2019 there were 60 suspects and 1 positive person, in 2020 there were 94 suspects, 15 people were positive and in 2021, of the 72 people suspected, 13 people were positive for tuberculosis. The high number of suspected and positive cases of tuberculosis has led to the importance of increasing public knowledge about the prevention and treatment of tuberculosis (Dinkes Sekadau, 2019).

The recently implemented DOTS (Directly Observed Treatment Short Course) strategy has been implemented in various countries as an effort to increase the success of TB treatment, but there are still related problems that have not been resolved because existing intervention methods are considered less effective (Nieuwlaat et al., 2014). PMK No. 67 (2016) also explains that one of the main causes influencing the increase in the burden of TB includes inadequate TB management according to standards in monitoring treatment. Because the length of the treatment program requires patience, tenacity, and will. A phenomenon that occurs in Indonesian society is that there are many pulmonary TB sufferers whose treatment programs are too long, even though there is a DOTS method program, there are still pulmonary TB sufferers who fail their treatment and experience changes in their quality of life (Nisa, 2020).

One of the causes of the lack of public knowledge in efforts to prevent the transmission of tuberculosis is the lack of information and education about tuberculosis carried out by health workers and Posyandu managers, resulting in a lack of public knowledge about tuberculosis (Ningsih et al., 2022).

MATERIALS AND METHODS

This study is quantitative with a Pre-Experimental approach, the planning used is One Group Pre-test and Post-Test. quantitative research methods can be interpreted as research methods used for research on certain populations or samples, data collection using research instruments, and statistical data analysis with the aim of testing predetermined hypotheses (Sugiyono, 2017).

The variables in this study are knowledge and attitudes as well as education about preventing tuberculosis transmission. The time of the research was carried out in June 2023. The research location was carried out in Nanga Pemubuh Village, Sekadau Regency.

The population in this study were all people in Nanga Pemubuh Village, Sekadau Regency. This research uses non-random sampling, namely convenience sampling, namely the sample is determined freely by the researcher (Notoatmodjo, 2018). The samples taken were the people who were present when the counseling was carried out, totaling 40 respondents.

The instrument in this study used a questionnaire that had previously been tested for validity and reliability. The data that has been obtained is tabulated and statistical tests are carried out to analyze the relationship using the Paired Sample T-Test And Wilcoxon Test.

RESULTS

Table 1. Distribution of Respondent Characteristics (n= 40)

Characteristics	Frequency (f)	Percentage (%)
Age		
Early Adulthood (≤35 tahun)	16	40.0
Late Adulthood (>35 tahun)	24	60.0
Sex		
Male	16	40.0
Female	24	60.0

Characteristics	Frequency (f)	Percentage (%)
Education		
Didn't finish elementary school/didn't go to school	7	17.5
Completed elementary school/equivalent	8	20.0
Completed junior high school/equivalent	10	25.0
Completed high school/equivalent	11	27.5
Graduated from College	4	10.0
Tuberculosis Education		
Once	28	70.0
Never	12	30.0
Total	**40**	**100.0**

Source: Primary Data 2023

Table 1 shows that the majority of respondents are aged >35 years, with 60%, based on gender, and the majority of respondents are female, with 60%. Most of the respondents' education had completed high school/equivalent, with 27.5% counseling about tuberculosis. Most respondents stated that they had received counseling, with 70% of respondents.

Table 2. Recapitulation of Bivariate Analysis Results on the Effect of Counseling on the Prevention of Pulmonary Tuberculosis Transmission on the Knowledge and Attitudes of the Community of Nanga Pemubuh Village, Sekadau in 2023 (n=40).

Intesitas Dismenore	n = 40	Mean	SD	P value	Information
Pre Intervention	40	4,60	2,373	0,004	There is influence
Post Intervention	40	6,10	2,394		
Attitude	**n = 40**	**Mean**	**SD**		
Before Counseling	40	32,15	4,844		There is influence
After Counseling	40	34,55	4,224		

Source: Primary Data 2023

Table 2 shows that health education can increase respondents' knowledge by 1.50 with a mean value of 4.60 (before the education was carried out) changing to 6.10 (after the education was carried out). The results of the Paired Sample T-Test obtained p value = 0.004, meaning that statistically health education had a significant effect on increasing mothers' knowledge before and after counseling about preventing the transmission of tuberculosis. Health education can improve respondents' attitudes by 2.40 with a mean value of 32.15 (before the education was carried out) changing to 34.55 (after the education was carried out). The results of the Wilcoxon test obtained p value = 0.013, meaning that statistically health education had a significant effect on increasing positive attitudes of mothers before and after counseling about preventing the transmission of tuberculosis in the community of Nanga Pemubuh village, Sekadau Regency in 2023.

DISCUSSION

The results of the Paired Sample T-Test obtained p value = 0.004, meaning that statistically health education has a significant effect on increasing mothers' knowledge before and after counseling about preventing the transmission of tuberculosis. Knowledge is the result of knowing and this occurs after someone senses an object. Sensing occurs through the five human senses, namely, the senses of hearing, sight, smell, feeling, and touch. Some human knowledge is obtained through the eyes and ears. Knowledge in the cognitive domain according to Notoatmodjo (2018) starts from knowing, understanding, applying, analyzing, synthesizing to evaluating. The better a person's knowledge, the mor e they will understand and be willing to prevent pulmonary tuberculosis (Notoatmodjo, 2018).

Similar research was conducted by Saranani regarding the Effect of Counseling on the Knowledge of Pulmonary Tuberculosis Sufferers at the Regional General Hospital of East Kolaka Regency. The results of this study showed that the average value of knowledge before counseling (pretest) was 5.062, while the average value of knowledge after counseling (posttest) was 5.062. 11.031 with a value of $\rho = 0.001$ which means a value of $\rho < 0.05$ that there is an influence of counseling on the knowledge of pulmonary tuberculosis sufferers at the Regional General Hospital of East Kolaka Regency, Kolaka. Another similar study conducted by Purba (2018) showed that there was an influence of peer group model health education on teenagers' knowledge about pulmonary tuberculosis at YP Singosari Deli Tua High School, Deli Serdang Regency in 2017 with a value of P = 0.000 (P < 0.05) (Purba & Ferabetty, 2018).

Knowledge is the result of knowing, and this occurs after someone senses a particular object. Sensing occurs through the five senses of sight, hearing, smell, taste, and touch. The knowledge gained can be very useful because it can be used to predict future events, and if this is the case then another possibility is that this knowledge is used to control things or events that one might want to avoid (Notoatmodjo, 2018).

Information obtained from both formal and non-formal education can have a short-term impact (immediate impact) resulting in changes or increased knowledge. As technology advances, various types of mass media will become available that can influence people's knowledge about new innovations. It is better if the voice of communication, various forms of mass media such as television, radio, newspapers, magazines, and others have a big influence on the formation of people's opinions and beliefs. Conveying information is the main task. Mass media also carries messages containing suggestions that can direct someone's opinion. The existence of new information about something provides a new cognitive basis for the formation of knowledge about that thing.

The results of the Wilcoxon test obtained p value = 0.013, meaning that statistically health education had a significant effect on increasing the positive attitude of respondents before and after counseling about preventing the transmission of tuberculosis in the community of Nanga Pemubuh village, Sekadau Regency in 2023. Attitude is an expression of a person's feelings that reflects his or her likes or dislikes towards an object. Meanwhile, according to Kotler & Kevin Lane Keller (2009), attitude is the evaluation, feeling, and tendency of a person who consistently likes or dislikes an object or idea. According to Sumarwan, (2014), attitude is an expression of consumer feelings about an object, whether they like it or not, and attitude also describes consumer confidence in the various attributes and benefits of the object.

Based on the results of research on the Effect of Counseling on Preventing the Transmission of Tuberculosis on the Attitudes of the Community of Nanga Pemubuh Village, Sekadau Regency in 2023, it is known that health education can improve respondents' attitudes by 2.40 with a mean value of 32.15 (before the counseling was carried out) changing to 34.55 (after counseling). The results of the Wilcoxon test obtained p value = 0.013, meaning that statistically health education has a significant effect on increasing positive attitudes of mothers before and after counseling about preventing the transmission of tuberculosis in the village community of Sekadau Regency in 2023

Similar research conducted by Purba and Ferabetty (2018) shows that there is an influence of peer group model health education on teenagers' attitudes about pulmonary tuberculosis with a value of P= 0.000 (P< 0.05)(Purba & Ferabetty, 2018). Attitude is also a person's closed response to a particular stimulus or object, which involves the relevant opinion and emotional factors (happy-displeased, agree-disagree, good-bad, and so on)(Notoatmodjo, 2018). According to Suprianto Zainuddin et al., (2020), the more positive aspects of an object that are known, the more positive attitudes towards that object will grow.

Attitude is also a person's closed response to a particular stimulus or object, which already involves the relevant opinion and emotional factors (happy-displeased, agree-disagree, good-bad, and so on) (Notoatmodjo, 2018). This attitude consists of 3 main components, namely trust or belief, ideas, and concepts towards objects. This means, what a person's beliefs opinions, or thoughts are regarding an object. Emotional life or a person's evaluation of objects, meaning how the person evaluates (contains emotional factors) towards the object. The tendency to act (tend to behave), is an attitude that is a component that precedes action or overt behavior. Attitude is a stance to act or behave openly (action).

The results of the research by Rahman et al., (2017) using the chi-square test show that there is a relationship between knowledge (p=0.000) and attitude (p=0.000), it can be concluded that there is a relationship between knowledge and attitude and efforts to prevent tuberculosis. Based on the research results, it can be seen that the majority of people have a poor level of knowledge regarding pulmonary tuberculosis, 54 people (62.1%). The level of efforts to prevent transmission of pulmonary TB disease was low at 46 people (52.9%) and there was a significant relationship between the level of knowledge and efforts to prevent transmission of pulmonary tuberculosis in Tanjung Selamat Village, Darussalam District, Aceh Besar with a P-value of 0.000(Miranda, & Ridwan, 2019).

This is also in line with the results of research Eva Hikmatul Damayanti, (2022) where knowledge of a person's attitudes and behavior is correlated with efforts to prevent the transmission of Tuberculosis.

CONCLUSIONS

The conclusion of this research is that the knowledge and attitudes of the people of Nanga Pemubuh Village, Sekadau in 2023 regarding preventing the transmission of Tuberculosis will increase after health education is carried out.

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