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The Relationship Between Knowledge and Attitudes with Tuberculosis Prevention Measures in Adolescents

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ABSTRACT

Introduction: Approximately one-quarter of the global population is estimated to be infected with tuberculosis (TB). TB is an infectious disease caused by Mycobacterium tuberculosis and remains the second leading cause of death from infectious diseases worldwide after COVID-19. Transmission of TB occurs through airborne droplets released from respiratory secretions. Indonesia ranks second globally in terms of the number of TB cases. This study aimed to determine the relationship between knowledge and attitudes with measures to prevent tuberculosis in adolescents.

Methods: This study employed an analytical design using a survey method with a correlational approach. Bivariate analysis was conducted using Kendall's tau, while multivariate analysis was performed using linear regression. The study population consisted of 293 adolescents, with a sample of 75 respondents selected using a quota sampling technique.

Results: The results of the analysis of knowledge and attitudes using kendall tau obtained a p-value = 0.001 and p-value = 0.000 and linear regression obtained a p-value = 0.000.

Conclusion: There is a significant relationship between knowledge and attitudes with tuberculosis prevention practices among adolescents. Suggestions to further improve TB prevention measures, especially regarding covering the mouth when coughing, balanced nutritional intake, and healthy living behavior.

Keywords: Attitude, Knowledge Level, Prevention, Tuberculosis

INTRODUCTION

A quarter of the global population is estimated to be infected with tuberculosis bacteria (TB) (WHO, 2023). TB is an infectious disease caused by the bacteria Mycobacterium tuberculosis (Kaka, 2021). In tuberculosis, the tissue most often attacked is the lungs (Naga., 2015). Apart from affecting the lungs, these bacteria can also affect other parts of the body such as the bones or lymph nodes. Complications from TB can include lung damage leading to chronic breathing problems or even death if left untreated (Bulu et al., 2023). The spread of tuberculosis bacteria occurs in the air through sputum droplets (Pratiwi & Zamra, 2022).

Tuberculosis is the second most infectious killer after COVID-19 in the world. In 2022, it is estimated that 10.6 million people will suffer from tuberculosis worldwide, including 5.8 million men, 3.5 million women and 1.3 million children. Multidrug-resistant TB (MDR-TB) remains a public health crisis and a threat to health security. In 2022, 2 out of 5 TB sufferers will be found to be drug resistant. Global efforts to combat TB have saved an estimated 75 million lives since 2000. Ending the TB epidemic by 2030 is one of the health targets of the Sustainable Development Goals (SDGs) (WHO, 2023).

Indonesia is in second place with the highest number of TB sufferers in the world after India, followed by China, the Philippines, Pakistan, Nigeria, Bangladesh and the Democratic Republic of Congo respectively in 2022. In 2020, Indonesia will be in third place with the highest number of cases. TB cases in Indonesia are estimated at 969,000 TB cases (one person every 33 seconds). This figure is up 17% from 2020, namely 824,000 cases. The incidence of TB cases in Indonesia is 354 per 100,000 population, which means that for every 100,000 people in Indonesia there are 354 people who suffer from TB (WHO, 2022).

Daerah Istimewa Yogyakarta (DIY) is included in 20 provinces in Indonesia with a low treatment success rate, namely 86%. The prevalence of TB disease in DIY is mostly found in Yogyakarta City, namely 63/100,000 population, while the lowest prevalence of TB is found in Kulon Progo Regency, namely 25/100,000 population. Overall, the prevalence of TB in DIY is 43/100,000 population (Kemenkes RI, 2016).

Based on a preliminary study at the City Health Service and Ngampilan Community Health Center, Yogyakarta City, there were 17 cases of TB, 6 new cases of BTA+, and 6 MDR-TB sufferers were found in Ngampilan District, Yogyakarta City in the period 2014-2016 and this is the largest number of cases MDR-TB in the Yogyakarta City area (Profil Kesehatan DIY 2014, 2015).

Since the first TB case was reported in Indonesia, various efforts have been made by the government through the Ministry of Health. These efforts start from the process of capturing suspects, detecting and recording cases, treating patients, and managing Multi Drug Resistence TB (Kemenkes RI, 2016). Directly Observed Treatment Shortcours (DOTS) is a strategy to overcome tuberculosis (Inayah & Wahyono, 2019). Failure of TB treatment is a major challenge for TB management. Patient factors such as drug-related factors, lack of knowledge and information (Endjala et al., 2017).

Factors that can play an important role in tuberculosis control and prevention programs are knowledge, attitudes and behavior. Knowledge of an object contains two aspects, namely positive aspects and negative aspects. These two aspects can show a person's attitude, the greater the positive aspects and known objects, the more positive the attitude will be towards certain objects. Robert Kwick in the book: Theory & Measurement of Knowledge, Attitudes and Human Behavior, states that behavior is the action of a living creature that can be researched and studied. According to him, behavior is different from attitude, attitude is only half of human behavior (Wanma et al., 2020).

The lack of information obtained by the public will affect public knowledge to make efforts to prevent TB transmission (Amalia et al., 2021). If this is left unchecked, it will have a bad impact, namely that transmission will become more widespread and the morbidity rate due to tuberculosis will continue to increase, resulting in the death rate continuing to increase (Mardiatun et al., 2019).

The involvement of adolescents in providing TB prevention education in the community is one potential solution for preventing and controlling TB (Santoso et al., 2023). Adolescence is an age that has unique characteristics and is adaptive to developments in technology and information, so that the role of adolescents is expected to help in alleviating the problem of TB in Indonesia (WHO, 2019). Through activities to increase education about preventive measures among the younger generation who are more likely to be exposed through social interactions in their communities (Gröschel et al., 2019). The aim of this research is to determine the relationship between levels of knowledge and attitudes with TB prevention measures in adolescents.

METHOD

This research is an analytical research with a survey method and a correlation study type which aims to determine the relationship between two variables in a group or situation. This research was conducted in Notoprajan, Ngampilan District, Yogyakarta City. The time approach used is cross sectional, namely research that designs data collection to be carried out at one point in time where the phenomenon studied is during one data collection period (Swarjana, 2015).

The population in this study was all adolescents in Notoprajan, Ngampilan District, Yogyakarta City, totaling 293 adolescents. The inclusion criteria used in this study included:

1. Adolescents who were present during the study.
2. Adolescents who were willing to participate.

The exclusion criteria are adolescents who are sick, have hearing and writing disorders. The sampling method was non-probability sampling, with a quota sampling technique of 75 respondents. The data collection instrument is a questionnaire which is first tested for validity and reliability. This research uses bivariate Kendall Tau analysis and multivariate linear regression analysis.

RESULTS

Table 1 illustrates knowledge adolescents about TB shows that most adolescent have medium knowledge are 32 (42.7%), adolescent with high knowledge are 28

Table 1. Frequency Distribution Knowledge, Attitude, and Prevention Adolescents about TB

Variable	n	(%)
Knowledge		
High	28	37.3
Medium	32	42.7
Low	15	20.0
Attitude		
Positive	44	58.7
Negative	31	41.3
TB Prevention		
Good	28	37.3
Enough	29	38.7
Less	18	24.0

Table 2. Knowledge with Preventive Measures for TB and Attitude with Preventive Measures for TB in Adolescents

Variable	TBC Prevention Measures						Total		P-value	r-value
	Good		Enough		Less					
	n	%	n	%	n	%	n	%		
Knowledge										
High	17	60.7	5	17.2	6	33.3	28	37.3	0.000	0.707
Medium	8	28.6	21	72.4	3	16.7	32	42.7		
Low	3	10.7	3	10.4	9	50	15	20		
Total	28	100	29	100	18	100	75	100		
Attitude										
Positive	26	92.9	15	51.7	3	16.7	44	58.7		
Negative	2	7.1	14	48.3	15	83.3	31	41.3		
Total	28	100	29	100	18	100	75	100		

(37.3%), and adolescent with low knowledge are 15 (20.0%). The adolescent attitudes about tuberculosis are 44 (58.7%) positive and 31 (41.3%) negative. Attitude is a person's closed response to a particular stimulus or object that already involves the opinion and emotion factors involved. The majority of respondents have enough prevention tuberculosis as many as 29 (38.7%), good prevention 28 (37.3%), and less prevention 18 (24.0%).

Table 2 show Based on the results of linear regression analysis p-value = 0.000 and r-value = 0.707 where p value <0.005, so it can be concluded that there is a relationship between knowledge and attitude adolescents with TBC prevention in Notoprajan, Ngampilan, Yogyakarta City.

DISCUSSION

Adolescents' Knowledge about Tuberculosis

Most human knowledge is obtained through the eyes and ears, namely the process of seeing and hearing as well as the process of experience. A person with knowledge and understanding of tuberculosis and preventing transmission

has an important role in the success of efforts to prevent TB transmission (Gero & Sayuna, 2017). The level of knowledge influences attitudes and actions to prevent TB. Someone who has a high level of knowledge about TB will put more effort into taking good preventive measures against TB disease. Knowledge and cognitive are very important domains in shaping a person's actions. If good knowledge is not supported by a positive attitude, it will influence someone to behave (Nizar, 2017).

Knowledge is closely related to efforts to prevent pulmonary tuberculosis because someone who has less knowledge states that efforts to prevent pulmonary tuberculosis are less important, compared to people who have good knowledge tend to understand and comprehend the importance of efforts to prevent pulmonary tuberculosis (Frisilia et al., 2021). It is supported by several studies that there is a relationship between the level of knowledge and efforts to prevent pulmonary tuberculosis. People who have poor knowledge about efforts to prevent pulmonary tuberculosis have a greater chance of contracting tuberculosis than people who have good knowledge about efforts to prevent pulmonary tuberculosis (Huddart et al., 2018).

This is due to the lack of information about tuberculosis from the mass media and community health centers to respondents. So, the worse a person's knowledge about preventing the transmission of tuberculosis, the worse the efforts they make in preventing the transmission of tuberculosis.

Adolescents' Attitudes about Tuberculosis

Attitudes and practices that are not based on adequate knowledge will not last long in a person's life, while adequate knowledge if not balanced by sustainable attitudes and practices will not have meaningful meaning for life. Therefore, knowledge and attitudes are supports in carrying out healthy behavior, one of which is efforts to prevent TB disease (Nizar, 2017).

Respondents with good attitudes have good measures to prevent the transmission of TB. This can be interpreted as that attitude is a support in preventing the transmission of TB. This research is in line with Kaka's (2021), that there is a significant relationship between attitudes and behavior to prevent the transmission of tuberculosis and values (p=0,000, r=0,688) (Kaka, 2021).

Behavior to prevent transmission of pulmonary tuberculosis can be influenced by negative attitudes. This is proven by research results which show that poor behavior in preventing tuberculosis is more often carried out by respondents who have a negative attitude about preventing transmission of pulmonary tuberculosis than respondents who have a positive attitude. This means that attitudes influence individual behavior in healthy behavior in daily activities. A positive attitude towards an object influences an individual's view of the problem (Andika et al., 2017).

Prevention Measures about Tuberculosis

The results of research on prevention measures carried out by adolescents in preventing TB include the majority of 76% balanced nutritional intake by eating regularly and eating balanced foods (rice, vegetables, side dishes). As many as

74.7% separated eating utensils and clothing from TB sufferers. As many as 72% went to health workers to carry out examinations at community health centers/hospitals and collaborated with service providers who had experience with TB.

Adolescents do not do enough is drying their beds during the day. A total of 37 (49.3%) adolescents sunbathed their beds during the day. This is because a bed that is not wet or looks clean indicates that the bed is clean and protected from germs that cause disease.

The role of health workers in involving families, especially adolescents, is expected to be able to achieve functions in a family, namely carrying out health care efforts by providing motivational support, assessment support, instrumental support and information support to TB sufferers in the family. The education provided by adolescents aims to change perceptions regarding the treatment and care of TB sufferers. Information regarding TB treatment and care is passed on by young people to pulmonary TB sufferers using persuasive communication between families (Lisum et al., 2023).

The results of research in China state that family members who supervise treatment, a good relationship between doctors and TB patients as well as providing spiritual support, good knowledge about TB are supporting factors for compliance in TB treatment. The involvement of adolescents as providers of support in the family and also the role of health workers in evaluating the form of support provided and assessing problems in treatment is expected to change the treatment and care of TB sufferers (Wu et al., 2020).

The level of knowledge influences TB prevention measures. Someone who has a high level of knowledge about TB will put more effort into taking good preventive measures against TB disease. The level of knowledge about TB in the good category will increase adolescents' measures in preventing TB. The research results showed that the majority of respondents had moderate knowledge and adequate TB prevention measures. Knowledge is influenced by several factors, such as education, perception, motivation, and experience (Huddart et al., 2018).

Someone who has good knowledge about TB transmission will try to prevent transmission. If good knowledge is not supported by a positive attitude, it will influence someone to behave (Yusanti et al., 2019).

Most adolescents' attitudes towards TB prevention measures were in the positive category, 44 (58.7%) and negative, 31 (41.3%). This research is in line with research Ulfah (2021) which concluded that there was a relationship between the attitudes of female students and the behavior of preventing the transmission of Tuberculosis at the Assalaam Islamic Modern Islamic Boarding School, Surakarta. The probability value obtained is significant, namely 0.020<0.5. The more positive a person's attitude is, the better the preventive measures taken (Ulfah, 2021).

Based on the results of the linear regression analysis in table 5, the p value = 0.000 and r-value = 0.707, where the p value <0.005 means that Ho is rejected and Ha is accepted, so it can be concluded that there is a relationship between knowledge and attitudes and TB prevention measures in adolescents. This research is supported by research Andika et al (2017), that there

is a relationship between knowledge and attitudes and efforts to prevent transmission of pulmonary TB (Andika et al., 2017).

This study concluded that there was a significant increase in knowledge, attitudes, treatment actions and care for pulmonary TB sufferers after providing a model for strengthening adolescent capacity. It requires active involvement and participation from adolescents and health workers in monitoring the care and treatment of TB sufferers to improve the completeness of TB treatment (Lisum et al., 2023).

CONCLUSION

Based on the results of this study, there is a relationship between the level of knowledge and attitudes with TB prevention measures in adolescents. Suggestions to further improve TB prevention measures, especially regarding covering the mouth when coughing, balanced nutritional intake, and healthy living behavior.

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