

Characteristics, Knowledge, Attitudes, and Practices for Pulmonary Tuberculosis Prevention

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ABSTRACT

Tuberculosis (TB) is an infectious disease that most often attacks the lungs and is caused by bacteria. Indonesia itself 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. Study. The existence of societal stigma that creates feelings of shame and fear of being diagnosed with pulmonary TB causes some pulmonary TB sufferers to try several other methods of treatment, such as buying medicine at a shop or consulting with traditional medicine before finally going to the health center if they are not cured. Research in the context of mapping the characteristics, knowledge, attitudes, and practices of preventing pulmonary tuberculosis in high school students was conducted at a private school in Bekasi, West Java. This type of research is descriptive with a survey method with a sample size of 72 people who meet the inclusion and exclusion criteria. Data analysis uses univariate analysis. From the research results it was found that: the highest age group of high school students was 16-17 years old, namely 59.7%; The gender of high school students is almost equal between men and women, where the percentage of men is 44.4% and women is 55.6%; in terms of knowledge, 58.3% of high school students had insufficient knowledge regarding efforts to

prevent pulmonary tuberculosis; 80.5% of high school students have a negative attitude towards efforts to prevent pulmonary tuberculosis; 62.5% of high school students practice adequate efforts to prevent pulmonary tuberculosis. The conclusion obtained from the results of this research is that there is still a lack of knowledge among students regarding tuberculosis prevention and there is still a high level of negative attitudes towards preventing tuberculosis. Thus, providing more intensive outreach and education about Tuberculosis and the importance of preventative practices is still deemed necessary.

Keywords: tuberculosis, pulmonary tuberculosis, knowledge, attitude, prevention

INTRODUCTION

According to the Global TB Report 2022, Indonesia is the country with the second highest cases of Pulmonary Tuberculosis (Pulmonary TB) in the world, after India. The number of pulmonary TB cases in Indonesia is estimated to reach 969,000 people in 2021, an increase from 824,000 people in 2020. Indonesia is the country with the highest burden of pulmonary TB cases in Southeast Asia. In 2021, it is estimated that there will be around 969,000 cases of pulmonary TB in Indonesia. Of this number, around 171,000 people died due to TB.¹

There are several findings that some people have good knowledge about the signs of pulmonary TB disease. However, some people still believe that this disease is caused by supernatural factors or hereditary factors. Some people have the perception that pulmonary TB is not a serious disease but just an ordinary cough. This causes them to be less concerned about the impacts that this disease can cause.^{1,2}

The existence of societal stigma that creates feelings of shame and fear of being diagnosed with pulmonary TB causes some pulmonary TB sufferers to try several other methods of treatment, such as buying medicine at a shop or consulting with traditional medicine before finally going to the health center if they are not cured. This behavior can become an obstacle in efforts to effectively prevent and control pulmonary TB.

The community has problems that are difficult to overcome, such as throwing saliva carelessly, not using masks, poor house ventilation, unhealthy sanitation at home, poor floor cleanliness, and family members who do not support patients with tuberculosis. Apart from that, the increasing incidence of tuberculosis may be caused by low public awareness of the symptoms of this disease.²

Tuberculosis is spread through coughing or sneezing and people inhaling droplets released by sufferers. Although TB spreads in the same way as flu, it is not easily transmitted. TB infection usually spreads between family members who live in the same house. Inhalation of Mycobacterium tuberculosis causes one of four possible outcomes, namely clearance of the organism, latent infection, onset of active disease (primary disease), and active disease years later (disease reactivation).¹

Community attitudes and practices greatly influence efforts to prevent transmission of pulmonary TB in families with close contacts. One of the factors that forms a person's attitude is the level of knowledge that society has. The better the level of knowledge, the better the attitude they will

have. Practices also influence efforts to prevent transmission of pulmonary TB, such as covering your mouth when coughing and sneezing, not spitting carelessly, drying pillows and mattresses in the morning, and providing house ventilation. 3 Research conducted by Kartini et al in Karang Agung Village, regarding attitudes, knowledge, and good behavior in preventing tuberculosis succeeded in preventing TB transmission by 63%. Examples of behavior carried out include cleaning and drying bedding once a week, which is behavior to minimize and prevent the proliferation and survival of tuberculosis bacteria in the patient's home. Based on this background, researchers want to know what the characteristics, knowledge, attitudes, and practices of preventing pulmonary tuberculosis of students at Pancar Bakti High School in Karang Tengah Village, Bogor Regency will be in 2024.^{3,4}

MATERIALS & METHODS

Research Design

The research method used by researchers is descriptive research with a survey method. The descriptive survey research method is a research method carried out to see a picture of a phenomenon that occurs in a certain population, a research method that goes through the process of taking samples from a population by collecting data using questionnaires.

Place and Time

The research was conducted at Pancar Bakti High School, Karang Tengah Village, Gunung Pancar, Bogor Regency, Indonesia. This research was conducted from January to February 2024.

Population

Target Population

The population in this study were students from Pancar Bakti High School, Karang Tengah Village, Bogor Regency who were still active.

Reachable Population

The population in this study was the total number of 90 active students from Pancar Bakti High School, Karang Tengah Village, Bogor Regency who agreed to fill out the questionnaire that would be distributed.

Sample

Sample Size

The sample size was calculated using the Slovin formula, namely 72 people who met the inclusion and exclusion criteria

Inclusion Criteria

- a. Students in grades 10-12 of SMA Pancar Bakti who come from Karang Tengah Village, Bogor Regency, West Java
- b. Students who are willing to provide informed consent to take part in the research.

Exclusion Criteria

- a. High school students who do not come from Pancar Bakti High School, Karang Tengah Village, Bogor Regency.
- b. Students who are not willing to become respondents.

Types and Techniques of Data Collection

The method of collecting data is obtained through primary data. Primary data is data taken directly from research subjects by researchers. Primary data collection uses a questionnaire. The questionnaire that has been created is tested for reliability and validity before being distributed to test the suitability of the questionnaire so that it can be used to achieve the expected research objectives. The reliability test in this study used Cronbach's alpha, which the questionnaire was declared reliable, namely having $\alpha > 0.6$. To carry out a reliability test, the questionnaire was distributed to 20 people in the same population who were not the intended respondents. Reliability testing was then carried out using the SPSS (Statistical Package of Social Science) computer application program. After being declared reliable (Cronbach's alpha = 0.724 and 0.785) the questionnaire was then

distributed to actual respondents and then analyzed using the SPSS for Windows 24.0 statistical software program.

Data Management and Analysis

The collected questionnaire data will be processed by editing, coding and processing using the Statistical Product and Service Solution (SPSS) program.

The data that has been obtained from the data collection process will be converted into tabular form, then the data is processed using the SPSS for Windows 24.0 statistical software program on the computer, then, the data processing process consists of several steps, namely:

- a. Editing, data editing includes checking the completeness of answers to questionnaires that meet the inclusion criteria. Data that does not meet the provisions will be dropped out.
- b. Coding, to convert data collected during research into symbols suitable for analysis purposes.
- c. Scoring, in assessing the description of knowledge regarding antibiotic resistance.
- d. Data entry, entering data into a computer.
- e. Verification, entering inspection data visually against data that has been entered into the computer.
- f. Computer output, results that have been analyzed by the computer and then printed.

One variable analysis (Univariate). Univariate analysis aims to explain or describe the characteristics of each variable in the research which produces a frequency and percentage distribution for each variable

RESULT

Description of the Characteristics of Research Respondents

The respondents in this research were students from Pancar Bakti High School, Karang Tengah Village, Bogor Regency. The total number of respondents was 72 people who agreed to informed consent to fill out the research questionnaire.

1. Age Characteristics

Table 1. Age Frequency Distribution of Respondents at Pancar Bakti High School, Karang Tengah Village, Bogor Regency

Age	Number (People)	Percentage (%)
14-15 year	5	6.9
16-17 year	43	59.7
18-19 year	24	33.3
Total	72	100

Based on table 1, the results show that the majority of respondents were 15-18 years old, namely 63 people according to Senior High School (SMA) age. The youngest age is 15 years and the oldest is 19 years.

2. Gender

Table 2 Gender frequency distribution of respondents at Pancar Bakti High School, Karang Tengah Village, Bogor Regency

Gender	Number (People)	Percentage (%)
Male	32	44.4
Female	40	55.6
Total	72	100

Table 2 shows the characteristics of respondents based on gender. The largest gender is female, namely 40 people with a percentage of 55.6%. There were 32 men with a percentage of 44.4%. Insufficient protein intake and insufficient energy are still often found in women in Indonesia, which can reduce immunity which plays a role in fighting pulmonary tuberculosis infection. The high level of women's awareness about health means that more and more women are having their health checked at health facilities, resulting in an earlier diagnosis of pulmonary tuberculosis.

Table 5. Distribution of respondents according to practices for preventing pulmonary tuberculosis among Pancar Bakti High School students

practice of efforts to prevent pulmonary tuberculosis	Number (People)	Percentage (%)
Less Practice	19	26,4
Practice Enough	45	62,5
Good Practices	8	11,1
Total	72	100

3. Description of Pancar Bakti High School Students' Knowledge of Efforts to Prevent Pulmonary Tuberculosis

Table 3. Distribution of respondents according to knowledge of efforts to prevent pulmonary tuberculosis among Pancar Bakti High School students

Knowledge Level	Frequency	Percentage (%)
Lack of Knowledge	42	58,3
Sufficient Knowledge	21	29,1
Good Knowledge	9	12,5
Total	72	100

Table 3 shows the results of knowledge regarding efforts to prevent pulmonary tuberculosis in Pancar Bakti High School students. All respondents, namely 42 people (58.3%) had insufficient knowledge regarding the prevention of pulmonary tuberculosis. 21 people (29.1%) had sufficient knowledge, and 9 people (12.5%) had good knowledge.

4. Description of the Attitudes of Pancar Bakti High School Students towards Efforts to Prevent Pulmonary Tuberculosis

Table 4. Distribution of respondents according to attitudes toward efforts to prevent pulmonary tuberculosis among Pancar Bakti High School students

Attitudes	Number (People)	Percentage (%)
Positive	14	19,4
Negative	58	80,5
Total	72	100

Table 4. Results of research regarding attitudes toward preventing tuberculosis, 58 people (80.5%) had a negative response and 14 people (19.4%) had a positive response

5. Overview of Practices for Preventing Pulmonary Tuberculosis

From the data in table 5 above, it can be seen that as many as 45 people practiced enough to prevent pulmonary tuberculosis, 19 people (26.4%) did not practice enough, and 8 people (11.1%) did good preventive practices. Disease prevention is an important component of health services. Efforts to prevent pulmonary tuberculosis are carried out to reduce the mortality and morbidity rates caused by tuberculosis. Practices for preventing pulmonary tuberculosis such as using masks and washing hands are carried out by students quite routinely at school due to the COVID-19 pandemic which has made the habit of using masks and washing hands quite well.

DISCUSSION

The discussion will explain the meaning of the results of research conducted on the characteristics, knowledge, attitudes and behavior of Pancar Bakti High School students regarding efforts to prevent pulmonary tuberculosis.

Characteristics of Pancar Bakti High School Students

Pancar High School students are at high risk of transmission of pulmonary tuberculosis due to the high mobility of this age group. Elderly people and children have greater risk factors for developing pulmonary tuberculosis. From the results of previous research by Singh et al, in Indonesia those most affected by pulmonary tuberculosis are aged 15 to 64 years. Therefore, it is important to increase knowledge, attitudes and practices in high school students so that they do not become a source of transmission of pulmonary tuberculosis. The female and male gender at Pancar Bakti High School have almost the same numbers. Women are more diligent in seeking information about health and are more aware of the importance of preventing disease. According to Gultom FL (2021), women are also more active in checking themselves at health facilities if they receive complaints such as symptoms of pulmonary tuberculosis.

Overview of knowledge about efforts to prevent pulmonary tuberculosis

Knowledge is the result of years and this occurs after someone senses a particular object. Most human knowledge is acquired through the eyes and ears. Knowledge is needed as support in generating self-confidence as well as daily attitudes and behavior so it can be said that knowledge is a very important domain in the formation of a person's actions. The knowledge in this research is that respondents can know about pulmonary tuberculosis and efforts to prevent it. Notoadmojo explained that if information is obtained from various sources, a person tends to have extensive knowledge. The knowledge obtained by respondents about tuberculosis and efforts to prevent it came from various sources such as books, mass media, counseling, or education from schools. The results of research on 72 respondents showed that the level of knowledge of respondents about pulmonary tuberculosis and inadequate prevention efforts was 58.3%, 29.1% had sufficient knowledge, and 12.5% had good knowledge. The results of this study showed that the majority of respondents had insufficient knowledge of tuberculosis and its prevention. Insufficient knowledge in this study means that respondents have a poor understanding of tuberculosis such as its meaning, complications, risk factors, transmission, and prevention. This research is in line with Putra (2011) where a low level of knowledge about pulmonary tuberculosis causes the transmission of tuberculosis to increase.²⁰ The higher the education, the greater the possibility of someone getting information about pulmonary tuberculosis. The level of education influences a person's perception to more easily accept new knowledge and the higher a person's education, the better their knowledge.

Description of students' attitudes regarding efforts to prevent pulmonary tuberculosis

Attitude is a person's readiness to react to objects in a certain environment as an

appreciation of the object. Attitudes are formed through a process due to stimuli such as public knowledge about preventing pulmonary tuberculosis. Negative attitudes have the highest frequency, namely 58 people. This negative attitude consists of respondents who do not support several prevention efforts and risk factors for causing pulmonary tuberculosis. This is caused by respondents who lack information about pulmonary tuberculosis and have less experience with prevention efforts. Positive attitudes in this study consisted of respondents who supported efforts to prevent pulmonary tuberculosis, methods of transmission, and risk factors that cause pulmonary tuberculosis. The results of this research are in line with research by Fibriana (2011) which found that respondents had a negative attitude about preventing pulmonary tuberculosis. This is caused by several factors, namely personal experience, emotions, family support, and age.²² One of the factors that influences a person's attitude is the knowledge they have. The higher the knowledge you have, the more it will contribute to the formation of good attitudes. Attitude formation is related to influencing factors such as personal experience, other people's cultures that are considered important, mass media, and individual emotional factors.

Overview of Tuberculosis prevention practices

Disease prevention is an important component of health services. Efforts to prevent pulmonary tuberculosis are carried out to reduce the mortality and morbidity rates caused by tuberculosis. Practices for preventing pulmonary tuberculosis such as using masks and washing hands are carried out by students quite regularly at school due to the COVID-19 pandemic which has made the habit of using masks and washing hands quite well. The practice of preventing pulmonary tuberculosis was carried out to reduce the prevention of pulmonary tuberculosis in this research, which was the

action that had been taken by respondents to prevent tuberculosis.

The results of this research on 72 respondents showed that 62.5% of the respondents had sufficient efforts to prevent pulmonary tuberculosis, and 26.4% had insufficient efforts to prevent tuberculosis. This is caused by factors of knowledge and attitudes held by respondents. The results of research on knowledge found that most respondents had insufficient knowledge, while the results of research on attitudes showed that most respondents had a negative attitude towards efforts to prevent pulmonary tuberculosis so that preventive practices were still sufficient and lacking. Sufficient preventive practices are carried out by Pancar Bakti High School students, such as using masks when talking when coughing, consuming nutritious food, protecting the environment, sufficient ventilation and sunlight are needed by Pancar Bakti High School so that it does not become a place for pulmonary tuberculosis to develop.

The results of this study are not in line with research by Djanah (2009) which showed that 54.1% of respondents had high motivation to make efforts to prevent tuberculosis. 21 The results of this study are also in line with Putra (2011) where the results of the level of measures to prevent pulmonary tuberculosis in general were obtained. classified as low with a value of 81.8%.²⁰

CONCLUSION

From the results of research on 72 Pancar Bakti High School student respondents, it was concluded that:

1. The largest age range at Pancar Bakti High School is 16-17 years old, namely 59.7%
2. The gender of Pancar Bakti High School students is close to equal between males 44.4% and females 55.6%
3. 58.3% of Pancar Bakti High School students have insufficient knowledge of efforts to prevent pulmonary tuberculosis

4. 80.5% of Pancar Bakti High School students have a negative attitude towards efforts to prevent pulmonary tuberculosis
5. 62.5% of Pancar Bakti High School students practice adequate efforts to prevent pulmonary tuberculosis

Declaration by Authors

Ethical Approval: Approved

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