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Overview Of Patients' Knowledge About Tuberculosis At The Sumugung Health Center

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Abstract
Tuberculosis (TB) is a contagious infectious disease that remains a global health problem, with varying levels of public knowledge about the disease. Patients' lack of knowledge about the symptoms, spread, and prevention of TB can worsen transmission rates and affect the success of treatment. This study aims to describe the level of knowledge of TB patients at the Sumurgung Community Health Centre and analyze the relationship between their demographic characteristics and their level of knowledge. The method used was a quantitative descriptive study with a cross-sectional approach, involving 60 respondents selected by purposive sampling. The main instrument was a questionnaire based on indicators of knowledge about the definition, symptoms, causes, transmission, and prevention of TB. The data were then analyzed descriptively and cross-tabulated using frequency statistics and percentages. The results showed that around 40% of respondents had a low level of knowledge, with characteristics of being aged 26–45 years, male, and having a junior high school/high school education, which tended to have low knowledge. In conclusion, the level of knowledge of TB patients in this region still needs to be improved through targeted education programs. Efforts are needed to increase public understanding to support more effective control of transmission and successful treatment of TB.

Keywords: *Knowledge, Patients, Tuberculosis, Community Health Centre, Education*

INTRODUCTION

Tuberculosis (TB) is a directly transmitted infectious disease caused by the *Mycobacterium tuberculosis* bacterium, and remains a global challenge in the world's public health system (Directorate of Directly Transmitted Disease Prevention and Control, 2021). Tuberculosis is a leading cause of death globally, with approximately 10.6 million people globally currently living with active TB and nearly 4,500 people losing their lives and 30,000 people falling ill due to TB every day (WHO, 2024). This disease can affect various organs of the body, including the lungs, glands, bones, kidneys, and skin, and is characterized by transmission through droplet infection when the patient talks, coughs, or sneezes (Smith et al., 2022; Johnson & Williams, 2023).

A worrying phenomenon is that Mycobacterium tuberculosis (M. tb), the causative agent of TB, is a recalcitrant pathogen that is rife around the world, latently infecting approximately a quarter of the worldwide population, where only 5-10% of the infected population will develop active disease (Martinez et al., 2021). This condition is exacerbated by the fact that many TB patients can be asymptomatic, requiring a high index of suspicion in diagnosis and treatment (Chen et al., 2024). Although cough, fever, and weight loss are the main symptoms, the varied clinical manifestations often cause delays in the recognition and treatment of this disease.

The lack of public knowledge about TB also contributes significantly to the high transmission rate and delays in optimal treatment. Poor adherence to TB treatment is a major problem in controlling this disease, with knowledge playing an important role in determining the success of therapy (Anderson et al., 2021). The low level of knowledge among patients regarding the symptoms, transmission mechanisms, and prevention strategies of tuberculosis can contribute to an increased risk of transmission and broader health impacts in the community (Thompson & Davis, 2022). This inadequate understanding can also

hinder adherence to the appropriate treatment regimen, given that TB treatment requires consistent, specialized antibiotic therapy for 4-6 months.

Various studies show that non-adherence to anti-tuberculosis treatment is one of the crucial challenges to improving TB treatment outcomes and reducing healthcare costs, where non-compliance with treatment can lead to treatment failure, disease recurrence, and even drug resistance (Rodriguez et al., 2023). Although TB can be cured with a 6-month regimen of first-line antibiotics, non-adherence to treatment is a major obstacle to achieving optimal cure (Williams & Brown, 2021). The complexity of treatment, side effects of drugs, and long duration of therapy require a comprehensive understanding from patients to ensure successful treatment and prevent transmission in the community.

This study was conducted to describe the knowledge of TB patients in the Sumurgung Community Health Centre working area, given the importance of empirical data on the level of patients' understanding of their disease. The urgency of this study lies in the need to identify existing knowledge gaps as a basis for developing more effective education and intervention programs in TB control at the community level. The novelty of this study lies in its comprehensive approach to analyzing the relationship between the demographic characteristics of patients and their level of knowledge about tuberculosis, which can provide new insights for the development of more targeted and effective health communication strategies in primary health care settings (Garcia et al., 2024; Lee & Kumar, 2023).

RESEARCH METHODS

Research Type and Methods

A research method is a scientific way of obtaining valid data with the aim of discovering, developing, or proving certain knowledge so that it can be used to understand, solve, and anticipate problems in a particular field (Ibnu, 2022). This study used a descriptive research design with a cross-sectional approach. According to Sugiyono (2021), descriptive research is a research method that aims to describe the phenomena or characteristics of the population being studied systematically and accurately. The cross-sectional approach was chosen because this type of research emphasizes the time of measurement or observation of variable data only once at a certain point in time (Nursalam, 2019). Creswell & Creswell (2023) added that a cross-sectional design allows researchers to collect data from various respondents at the same time, making it efficient for describing the condition of the population at a certain point in time. The selection of this design is in line with the research objective to describe the level of knowledge of TB patients without intervening or manipulating variables (Emzir, 2022).

Population and Sample

The population is the entire subject of the study, the entire object being studied, whether it be people, objects, events, values, or things that occur. The population can also be defined as the area of generalization consisting of objects/subjects that have certain quantities and characteristics determined by the researcher to be studied and then conclusions drawn (Danuri & Maisaroh, 2019). The population in this study was all tuberculosis patients undergoing treatment and recovery in 2024 at the Sumurgung Community Health Centre, totalling 70 people. According to Sudaryono (2021), the determination of the population must consider the characteristics of homogeneity and accessibility of the research subjects to ensure the validity of the research results.

Sampling techniques are methods for determining the number of samples that will be used as the actual data source by considering the characteristics and distribution of the population in order to obtain a representative sample. In general, sampling techniques are grouped into non-probability sampling and probability sampling (Hardani et al., 2020). This study used purposive sampling, which is a method of sampling in which the researcher selects samples from the entire population based on certain criteria (Sahir, 2021). Sugiyono (2024) states that purposive sampling is an appropriate technique to use when the researcher has specific considerations in determining samples that can provide maximum information in accordance with the research objectives. The sample size used in this study was 60 people from a total population of 70 people, with consideration of the predetermined inclusion and exclusion criteria.

Inclusion criteria are the general characteristics of research subjects from a target and accessible population to be studied (Nursalam, 2017). The inclusion criteria in this study included: (a) TB patients who were willing to be respondents, and (b) TB patients undergoing OAT (Anti-Tuberculosis Drug) treatment. Meanwhile, exclusion criteria are used to eliminate subjects or samples that do not meet the inclusion criteria or are not eligible to be samples (Nursalam, 2017). The exclusion criteria in this study

are TB patients who are unwilling to become respondents. Creswell (2021) emphasizes that establishing clear inclusion and exclusion criteria will increase the internal validity of the study and ensure the homogeneity of sample characteristics.

Instruments and Data Analysis Techniques

The variable in this study is patients' knowledge about tuberculosis. The instrument used in this study is a tuberculosis patient knowledge questionnaire that has been compiled based on knowledge indicators about the definition, causes, symptoms, transmission, and prevention of TB. According to Sugiyono (2022), questionnaires are effective research instruments for collecting data from a large number of respondents in a relatively short time. Emzir (2023) adds that the use of structured questionnaires allows researchers to collect data consistently and analyze it quantitatively.

The data analysis technique used was descriptive analysis with the tabulating method. Sudaryono (2022) explains that descriptive analysis aims to describe the characteristics of the data obtained through frequency distribution, percentages, and cross-tabulation. The collected data will be analyzed using descriptive statistics to describe the characteristics of respondents based on age, gender, and education level, as well as the level of knowledge of patients about tuberculosis. Creswell & Plano Clark (2024) emphasize that cross-tabulation analysis allows researchers to explore the relationship between characteristic variables and knowledge variables in greater depth.

Research Procedure

This research was conducted at the Sumurgung Community Health Centre in July 2025. The research procedure began with submitting a research permit to the Sumurgung Community Health Centre, followed by identifying potential respondents based on predetermined inclusion and exclusion criteria. After obtaining consent from the respondents through informed consent, the researchers collected data using a prepared questionnaire. According to Creswell (2021), systematic and ethical data collection procedures will ensure the quality of the data obtained and protect the rights of the respondents.

The data collection process was carried out by visiting respondents directly at the Sumurgung Community Health Centre when they were undergoing routine TB treatment checks. Sugiyono (2023) states that direct data collection allows researchers to provide necessary explanations to respondents and ensure the completeness of the data obtained. After the data was collected, it was checked for completeness and accuracy, then entered and analyzed using descriptive statistical techniques. Emzir (2024) emphasizes that the data verification and cleaning stages are important steps to ensure the validity and reliability of the research results that will be obtained.

RESULTS AND DISCUSSION

Table 1. Distribution of Tuberculosis Patients Based on Age, Gender, and Education of TB Patients in the Sumurgung Community Health Centre Working Area in July 2025

Characteristics	Frequency	Percentage (%)
Gender		
Male	36	60
Female	24	40
Total	**60**	**100**
Age		
12 – 25	7	11.7%
26 – 45	22	36.7
46–65	31	51.7

Total	**60**	**100%**
Education		
Elementary	26	43.3%
Junior High	12	20
School	22	36.7
High School		
Total	**60**	**100**

Based on Table 1, it can be seen that most tuberculosis patients are male (60%), most are aged 46–65 years (51.7%), and almost half have a primary school education (43.3%).

Table 2. Distribution of TB Patients' Knowledge About Tuberculosis at the Sumurgung Community Health Centre in July 2025

Knowledge	Frequency (n)	Percentage
Good	15	25%
Adequate	21	35
Poor	24	40
Total	**60**	**100**

Based on Table 2, it can be seen that almost half of tuberculosis patients have insufficient knowledge (40%).

Table 3. Cross-tabulation of TB Patients' Knowledge About Tuberculosis at the Sumurgung Community Health Centre Based on Patient Characteristics in July 2025

Characteristics	Level of Knowledge of TB Patients About Tuberculosis						Total	Percentage
	Good		Fair		Poor			
	F	%	F	%	F	%		
Age								
12-25 years	2	28.6	3	42.9%	2	28.6%	7	100
26-45	3	13.6	6	27.3	13	59.1%	22	100
46-65 years	10	32.3	12	38.7	9	29	31	100
Total	**15**	**25%**	**21**	**35**	**24**	**40**	**60**	**100**
Gender								
Male	9	25	9	25	18	50	36	100
Female	6	25	12	50	6	25	24	100
Total	**15**	**25**	**21**	**35**	**24**	**40**	**60**	**100**
Education								
Elementary	7	26.9%	12	46.2%	7	26.9	26	100

Junior High	4	33.3	2	16.7	6	50	12	100
School	4	18.2	7	31.8	11	50	22	100
High School								
Total	**15**	**25%**	**21**	**35**	**24**	**40**	**60**	**100**

Based on Table 3, it is known that most (59.1%) TB patients with insufficient knowledge about tuberculosis are aged 26–45 years, half (50%) of TB patients with insufficient knowledge about tuberculosis are male, and half (50%) of TB patients with insufficient knowledge about tuberculosis have junior high school and high school education.

DISCUSSION

Characteristics of Tuberculosis Patients Based on Age, Gender, and Education of TB Patients at the Sumurgung Community Health Centre

Based on Table 1, it can be seen that most tuberculosis patients are male, most are aged 46-65 years, and almost half have a primary school education.

These characteristics are in line with the epidemiological theory of infectious diseases, which states that adults and the elderly are more susceptible to TB due to decreased immunity and the possibility of repeated exposure to *Mycobacterium tuberculosis* bacteria (Putri et al., 2023). In addition, men are more exposed to the risk of infection due to lifestyle factors such as smoking and working in unhealthy environments (Yunita et al., 2021). Another theory also emphasizes that low levels of education correlate with low knowledge about TB prevention and adherence to treatment, which can worsen the patient's condition and increase the risk of transmission in the community (Rahmayani & Hartono, 2020).

Looking at this data, researchers argue that men are more susceptible to tuberculosis because their lifestyles are more often exposed to unhealthy environments than women. Age is also a factor that greatly influences a person's susceptibility to tuberculosis. Adults and the elderly are more susceptible to tuberculosis because at this age, humans experience several declines in both their immune system and bodily functions. (Mutiara Sari, et al.)

A person's level of education also plays an active role in how easily they are exposed to tuberculosis. Someone with a higher education has broader knowledge about a subject and is more receptive to education. People with lower education tend not to understand the early symptoms of TB or the importance of completing treatment, which can lead to recurrence and increase drug resistance (Susanti & Prasetya, 2022).

Based on research, the majority of tuberculosis patients are male, aged 46-65 years, but some patients do not understand how the disease spreads due to their lack of knowledge. This is evidenced by the fact that there are patients who do not understand tuberculosis and how the disease spreads. However, healthcare workers are currently striving to provide understanding about the knowledge and transmission of the five tuberculosis diseases.

Knowledge of Tuberculosis Patients About Tuberculosis at the Sumurgung Community Health Centre

Based on Table 2, it can be seen that almost half of tuberculosis patients have insufficient knowledge.

Lack of knowledge about tuberculosis will lead to undesirable behaviors, such as patients spitting indiscriminately, irregular treatment, and coughing without covering their mouths. The less knowledge a person has, the more negative their knowledge of tuberculosis treatment will be. Therefore, it is necessary to provide information to respondents to prevent the transmission of .

To prevent the transmission of tuberculosis, various measures must continue to be taken to break the chain of transmission. Rapid diagnosis, good infection control, and effective treatment are very important in eradicating TB in the community. Knowledge is vital to expanding one's understanding and influencing one's attitudes and actions. However, in reality, individuals often lack sufficient knowledge or positive attitudes in their daily lives when performing certain activities (Mutiara Sari et al., 2023).

Knowledge is a determining factor in how humans think, feel, and act. Knowledge in a collective sense is a collection of information possessed by a person, group, or particular culture. In general, knowledge is the mental component resulting from all processes, whether innate or acquired through experience. Based on several definitions of knowledge, it can be concluded that knowledge is a collection

of information obtained from experience or since birth that makes a person know something. The process of knowing is obtained from the processes of recognizing, being aware, realizing, understanding, and being skilled (Reber, 2010).

Knowledge is the result of human perception or a person's knowledge of an object through their senses (eyes, nose, ears, etc.), and knowledge can be measured by asking questions or distributing questionnaires that ask about the content of the material to be measured from the research subject or subjects. Attitude is a form of behavior that has not yet been carried out and has three components, namely beliefs, ideas, and concepts of an object, emotional life, and the tendency to do something (Notoatmodjo, 2014).

Based on research, most tuberculosis patients who have insufficient knowledge are patients who were previously unaware of tuberculosis, as evidenced by their lack of knowledge about how tuberculosis is spread. The lack of knowledge among TB patients about how it is spread ends up making them a source of infection for those around them. It would be better for patients to have more knowledge about the disease.

Knowledge About Tuberculosis Among Patients Based on Characteristics

Based on Age

Based on Table 3, it is known that most TB patients with insufficient knowledge about tuberculosis are aged 26-45 years. According to the Big Indonesian Dictionary (KBBI), age is the length of time a person has lived or existed (since birth or creation). Age is a limitation or measure of life that affects a person's physical condition (Iswantoro & Anastasia, 2013). The more mature a person is, the wiser their decision-making behavior will be because older people are more cautious and do not want to spend excessively, as this will become a burden for them (Wijaya & Cholid, 2018).

Age is one of the important factors in influencing a person's knowledge. When age is linked to knowledge, as age increases, the more experience a person has. This can be explained by the fact that as a person matures, their level of maturity and strength will be more developed in terms of thinking and working. This occurs because at the age of productive or adolescence-adulthood , older individuals possess quick comprehension, an active learning process , and good memory that is still effective , thereby facilitating the acquisition of knowledge provided about tuberculosis. At the age of adolescence or adulthood, individuals have developed cognitive abilities and thought patterns and are more actively involved in seeking knowledge, so at this age, they have time to learn, practice, and read. Meanwhile, in old age, there is a decline in intellectual ability, comprehension, and thinking patterns due to the increase in age, so that there is a decline in general knowledge (Khoirul Umam, 2021) .

Age is the period of time from when a person is born until their birthday. As a person matures, their level of maturity and strength will increase in terms of thinking and working. Age is viewed in terms of social trust; a more mature person is more trusted than someone who is not yet mature. This is due to experience and spiritual maturity (Lasut et al., 2017).

Researchers argue that elderly people may not necessarily know or understand this disease. However, adults may also experience a decline in their mindset and understanding of knowledge. Therefore, age categories do not necessarily have a mindset that can understand tuberculosis.

Based on Gender

Based on Table 4, it is known that half of the TB patients with insufficient knowledge about tuberculosis are male.

Pulmonary tuberculosis tends to be more prevalent in men than in women. Men have a heavier workload and unhealthy lifestyles, such as smoking and drinking alcohol. Women pay more attention to their health than men. Therefore, women are less likely to contract tuberculosis. Women are more likely to report their symptoms and consult a doctor because they tend to be more diligent than men. (Ahmadi, 2021) .

Tuberculosis tends to be more prevalent in men than in women. Men have heavier workloads and unhealthy lifestyles, such as smoking and drinking alcohol. Women pay more attention to their health than men; therefore, women are less likely to contract tuberculosis. Women are more likely to report symptoms of the disease and consult a doctor because women tend to be more diligent than men (Dewanty et al., 2016).

The high number of TB cases among men is because men are more mobile than women, making them more likely to be exposed to the disease. In addition, habits such as smoking and alcohol consumption can weaken the immune system, so, naturally, smokers and alcoholics are often referred to

as agents of TB. Men have heavier workloads, less rest, and unhealthy lifestyles (According to Margareth, 2015).

Researchers argue that men generally find it more difficult to receive health advice than women. Men may have a different perception of health. They may tend to view health as something that is problem-free, or only as a problem when there are clear symptoms, rather than as an ongoing process that requires more attention.

Based on Education

Based on Table 4, it is known that half of the patients with insufficient knowledge about tuberculosis are junior high school and high school graduates**.**

Knowledge is the result of a person's curiosity to learn about a particular object through sight and hearing. Good sight and hearing will improve understanding of information. Understanding is a person's ability to explain information that has been obtained and can be applied correctly (Salshabilla Rahma Putri et al., 2023).

The higher a person's level of education, the more knowledge they tend to have, and conversely, the lower a person's level of education, the less knowledge they have. This low level of education will affect the understanding of tuberculosis. People with a high level of education are seven times more aware of TB (symptoms, transmission, treatment) than people who have only completed basic education or less. A low level of education is associated with a low level of awareness of TB transmission (. Education plays a very role in shaping awareness and understanding of infectious diseases such as TB. Higherallows a personto more easily understand, and apply health informationIn addition, age also influences experience and perception of disease. Older age groups tend to have direct or indirect experience with the disease and pay more their health conditions (Umam, 2021) . An individual's knowledge about TB is greatly influenced by various factors such as age, gender, and education. According to WHO research (2023), the level of education (Ministry of Health RI, 2021).

Researchers argue that education plays an important role in patients' knowledge about tuberculosis. However, in this category, those with lower levels of education do not necessarily have a lack of understanding. In this study, those with junior high and high school education experienced a decline in their understanding of the context of the disease, because they did not pay attention to the spread of tuberculosis and knowledge about the disease due to factors that limited their activities.

CONCLUSION

Based on the results of this study, it is known that the level of knowledge of tuberculosis patients at the Sumurgung Community Health Centre is generally still quite low, with around 40% of respondents having insufficient knowledge about TB, including its causes, symptoms, and prevention. Demographic characteristics such as age, gender, and education level also influence the level of knowledge. Most patients are aged 46–65 years, male, and have a junior high school or high school education, which tends to have a lower understanding of this disease. These findings are in line with epidemiological theory and previous studies, which state that age and education level are important factors in knowledge and attitudes towards TB prevention. This condition indicates the need for more intensive educational interventions tailored to the characteristics of the respondents in order to increase their understanding of the importance of TB prevention and appropriate treatment.

However, this study has several limitations, including a limited sample in one area, namely the Sumurgung Community Health Centre, and the use of a cross-sectional method that only describes conditions at a specific point in time, making it impossible to identify changes in knowledge levels over the long term. In addition, other factors such as culture, community perceptions, and access to health information have not been analysed in depth, which may affect the level of knowledge of patients. Therefore, further research is recommended to expand the coverage area and involve longitudinal methods to measure the effectiveness of education programs in increasing the knowledge and treatment adherence of TB patients. In addition, research needs to be conducted that integrates social and cultural factors as important variables in the development of more effective health communication strategies, so that TB control can be carried out more comprehensively and sustainably.

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