

Level of Public Knowledge of Tuberculosis in Bumi Laweyan Subdistrict, Surakarta City

Berliansyah Rahmadani Putrianto^{1*} | Purwaningsih² | Raihana Nurul Izzah³

¹. Pharmacy Diploma Program, Indonusa Polytechnic, Surakarta

². Departement of Pharmacy, Indonusa Polytechnic, Surakarta

³. Departement of Pharmacy, Indonusa Polytechnic, Surakarta

* Correspondence: 23.berliansyah.rahmadani@poltekindonusa.ac.id

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ABSTRACT

Introduction: Tuberculosis (TB) is an infectious disease that remains a serious public health problem, both in Indonesia and worldwide. Indonesia ranks second in the world in terms of the number of tuberculosis cases, after India. Given the rising number of TB cases in the Bumi Laweyan neighborhood, a comprehensive understanding of the community's level of knowledge about the disease is needed.

Objective: This study aims to determine the level of public knowledge about tuberculosis in the Bumi Laweyan neighborhood of Surakarta.

Methods: This study employed a quantitative descriptive method with a cross-sectional approach and was conducted in RW 01, RW 02, and RW 04 of Bumi Laweyan Village, Surakarta City. The study population consisted of 1,528 individuals. The sampling technique used in this study was purposive sampling. A sample of 94 respondents who met the inclusion criteria was obtained. Data were collected through the distribution of questionnaires that had been tested for validity and reliability.

Result: This study shows that, among residents of the Bumi Laweyan neighborhood in Surakarta, 69 respondents (73.4%) had a good level of knowledge, 23 respondents (24.47%) had a sufficient level of knowledge, and 2 respondents (2.13%) had an insufficient level of knowledge. In general, the majority of the community understands the definition, transmission, and prevention of TB.

Conclusion: Maintaining health education programs so they continue to run, particularly among communities with limited or insufficient knowledge.

Keywords: Community, Level of Knowledge, Tuberculosis

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Introduction

Tuberculosis (TB) is an infectious disease caused by a bacterium called *Mycobacterium tuberculosis*. Tuberculosis is transmitted through the air, specifically through droplets of saliva or phlegm expelled by people with tuberculosis when they cough, sneeze, or speak (Kementerian Kesehatan, 2025). Pulmonary tuberculosis can affect people of all ages, but the most vulnerable groups include children under 5, older adults over 60, and individuals with weakened immune systems, including those living with HIV/AIDS (Kurniajati & Jannah, 2025).

Tuberculosis is a serious health problem, both in Indonesia and globally. The death rate from tuberculosis remains high, especially in developing countries, due to its rapid transmission (Avy et al., 2024). According to the World Health Organization (2025), Indonesia ranks second in the world with the highest number of tuberculosis cases, after India. According to the Survey Kesehatan Indonesia (2023), Central Java Province recorded a pulmonary tuberculosis prevalence of 0.25%, with a total of 118,184 cases.

The high incidence of tuberculosis is influenced by sociodemographic and behavioral factors, including a lack of public knowledge regarding the transmission and prevention of tuberculosis, inadequate supervision of drug use, and patient non-compliance with antituberculosis treatment (Ina et al., 2025). Among these factors, knowledge plays a key role in shaping individual health behaviors, including adherence to treatment and awareness of how to prevent TB transmission. This is because someone with a good understanding of tuberculosis will be better able to recognize early symptoms, understand how it is transmitted, and take preventive measures (Latifah et al., 2022; Putri et al., 2023). On the

other hand, lack of knowledge, stigma towards TB patients, and misunderstandings about TB treatment are still common and can hinder early detection and successful treatment (Apriana et al., 2024).

Research conducted by Rahmah dan Brata (2023) A study in Penyengat Olak Village, Muaro Jambi Regency, showed that the majority of the community had low knowledge, at 64.8%. The study was conducted in an area where TB cases have been increasing year after year, in contrast to the situation in Bumi Laweyan Village, Surakarta City, which recently experienced a surge in TB cases. This difference in the pattern of increasing cases suggests that the characteristics of the communities in the two areas may differ, so the level of knowledge in areas experiencing a recent surge in cases may not be the same as in areas where cases have been increasing for a long time.

Based on the results of a preliminary study conducted in the Bumi Laweyan Village area, Surakarta City, in 2024 only 1 case of TB was recorded, but in 2025 there were 5 TB cases, tuberculosis cases were found in 3 RW, namely RW 01, RW 02, and RW 04. The increase in cases that occurred in several RWs indicates the possibility of problems in community knowledge about TB, thus making Bumi Laweyan Village the right location for research. In addition, until now there has been no similar research on community knowledge about TB in this area. Based on this description, this study aims to determine the level of community knowledge about tuberculosis in Bumi Laweyan Village, Surakarta City.

Method

The study used a quantitative descriptive method with a cross-sectional approach. The population in this study consisted of 1,528 residents of RW 01, RW 02, and RW 04 in Bumi Laweyan Village, Surakarta City, aged 18–59 years. The sample size was calculated using the Slovin formula, with 94 respondents. Sampling was carried out using a purposive sampling technique where respondents were selected based on inclusion criteria. Data were collected through the distribution of a questionnaire. The questionnaire contained 25 questions. This instrument source was chosen because it had a similar theme and had been tested for validity and reliability by the original researcher Pramesty dan Vonny (2024) the results showed that 21 questions were valid, with an rtable of 0.1449. The reliability test showed a value of 0.605, indicating a value >0.60, thus declaring the questionnaire reliable.

Data analysis in this study was conducted using questionnaires completed by respondents. Each respondent's answer was collected and given a score of 1 for correct answers and 0 for incorrect answers. The scored data was then tabulated and processed using Microsoft Excel software to be presented as a percentage. The percentage of knowledge level scores was calculated using the percentage formula (Sugiyono, 2023).

$$P = \frac{f}{n} \times 100\%$$

P = percentage

f = number of correct answers

n = number of questions

The results of the percentage calculation are then grouped into knowledge level categories: good knowledge if the respondent scores between 76% and 100%, adequate knowledge if the respondent scores between 56% and 75%, and insufficient knowledge if the respondent scores <56%.

Results

This study was conducted in the Bumi Laweyan neighborhood, Surakarta City, over the course of one month, from March to April. The data collection instrument used was a questionnaire developed based on journal articles with topics and themes similar to those of this study. The questionnaire consisted of three main sections: a letter requesting

participation from respondents, an informed consent form, and a knowledge questionnaire containing questions about tuberculosis.

Respondent Characteristics

Table 1 presents the distribution of respondents' characteristics including age, gender, education level, and occupation.

Table 1. Distribution of Respondent Characteristics

Characteristics	Number (n)	Percentage (%)
Age		
18-24	9	9,57
25-31	9	9,57
32-38	14	14,9
39-45	14	14,9
46-52	24	25,5
53-59	24	25,5
Gender		
Male	27	28,7
Female	67	71,3
Level of education		
Elementary School	5	5,32
Junior High School	21	22,3
High School	44	46,8
Higher Education	24	25,5
Employment status		
Students	2	2,13
Merchant	22	23,4
Government employee	2	1,06
Private-sector employee	17	18,1
Other/Hausewives/Other Professions	52	55,3

The study results show that most participants were between the ages of 46 and 59 and were female. The majority had completed high school, and their employment status was listed as "Other," "Housewife," or "Other Occupations."

Knowledge Levels Based on Respondent Characteristics

Table 2 presents Knowledge Levels Based on Respondent Characteristics

Table 2. Level of Knowledge by Respondent Characteristics

Variable	Knowledge Criteria							
	Good		Fair		Poor		Total	
	N	%	N	%	N	%	N	%
Age								
18-24	4	44,44%	5	55,56%	0	0%	9	100%
25-31	8	88,89%	0	0%	1	11,11%	9	100%
32-38	12	85,71%	2	14,29%	0	0%	14	100%
39-45	11	78,57%	3	21,43%	0	0%	14	100%
46-52	16	66,66%	7	29,17%	1	4,17%	24	100%
53-59	18	75%	6	25%	0	0%	24	100%
Gender								
Male	15	55,56%	11	40,74%	1	3,7%	27	100%
Female	54	80,6%	12	17,91%	1	1,49%	67	100%
Level of education								
Elementary School	5	100%	0	0%	0	0%	5	100%
Junior High School	14	66,67%	7	33,33%	0	0%	21	100%
High School	30	68,18%	13	29,55%	1	2,27%	44	100%
Higher Education	20	83,33%	3	12,5%	1	4,17%	24	100%

Employment status								
Students	0	0 %	2	100 %	0	0 %	2	100 %
Merchant	18	81,8 2%	4	18,18 %	0	0 %	22	100 %
Government employee	1	100 %	0	0 %	0	0 %	1	100 %
Private-sector employee	11	64,7 %	4	23,5 %	2	11,8 %	17	100 %
Other/Hausewives/Other Professions	39	75 %	13	25 %	0	0 %	52	100 %
Total							94	100%

Level of Public Knowledge About Tuberculosis

Table 3 presents the Level of Knowledge About Tuberculosis

Table 3. Level of Knowledge About Tuberculosis

Category	Total	Percentage
Good	69	73,40%
Fair	23	24,47%
Poor	2	2,13%
Total	94	100%

Discussion

Level of Knowledge Based on Respondent Characteristics

Based on findings regarding the level of public knowledge by age, the research results indicate that the majority of the population has a good level of knowledge. Good levels of knowledge were found in the 25–31 and 32–38 age groups. Meanwhile, the 18–24 age group had a fair level of knowledge. These findings align with Adilla dan Yuliza (2023), which states that increasing age is accompanied by broader experience, so that the process of understanding information becomes more optimal compared to younger age groups. However, this study is not in line with the findings from Didi et al. (2024), which found a decrease in knowledge about TB in the 51-70 years and above age group, compared to the 41-50 years age group. According to Didi et al. (2024), this decline is likely related to limited access to health information and local characteristics.

Based on gender, the research results show that female respondents were predominantly knowledgeable. This research aligns with research conducted by Pratiwi & Zamra (2022) which suggests that women tend to be more concerned about their own and their families' health, and are more willing to seek information about tuberculosis. Furthermore, women are also more active in social activities, particularly in health education activities, thus having better access to information. This is supported by Amallia et al. (2021) which states that access to health information is significantly related to tuberculosis prevention behavior; advances in information media enable the public to acquire better knowledge about tuberculosis and appropriate prevention methods. However, this finding differs from the results of research conducted by Bakhtiar et al. (2024) in six public health centers in Samarinda. The results of the study showed that the majority of male respondents (63.6%) had better knowledge of cough etiquette than female respondents. According to Bakhtiar et al. (2024), this finding is likely related to the implementation of ongoing health education policies during the intensive phase of TB treatment, which resulted in greater exposure to information on cough etiquette and TB transmission prevention. This difference suggests that gender is not the primary determinant of a person's knowledge, but rather how frequently and effectively people access health information in the area.

Based on education level, the results of the study indicate that a good level of knowledge was found in elementary school education, although the number of respondents was

relatively small compared to other education groups. The high level of good knowledge in elementary school education is also likely to come from the older adult age group, in the older adult age group in this study showed that the good knowledge obtained was quite high. This also shows that someone with a low education does not always guarantee that their knowledge is also low, because a person's knowledge is not only obtained through formal education but can also be obtained through non-formal education, in addition to it can also be obtained through various sources of information, such as health counseling activities and information materials such as brochures and posters available at community health centers (Wulandari et al., 2022). This research is also supported by Amallia et al. (2021) At Manyaran Community Health Center, Semarang, respondents with low education levels showed effective tuberculosis prevention practices because they obtained a lot of information about tuberculosis prevention from the media and the community health center.

Meanwhile, the college-educated group had a good level of knowledge. This finding aligns with research Zhaifah & Ahadi (2023) that individuals with higher levels of education tend to have a good level of knowledge, because educational attainment is one of the factors that can influence understanding of information, knowledge, and attitudes. This study is also in line with research conducted by Pramesty A Dessy & Vonny (2024) in RW 001 Pulogebang, East Jakarta, where respondents with a bachelor's degree accounted for a higher proportion (58.62%) of those with good knowledge compared to those with other levels of education.

Based on employment status, respondents with student/pupil status showed a sufficient level of knowledge. This is likely due to their limited participation in community outreach activities, so that the student/pupil group has fewer opportunities to be exposed to information about TB. This finding is in line with Purba et al. (2024), who reported that students' knowledge of TB was not uniform, with students with non-health educational backgrounds or those rarely exposed to specific health information tending to have more limited knowledge. However, in this group, the number of respondents was relatively small, so the results cannot be generalized and should be interpreted with caution. In the Traders occupational status group, most had good knowledge, and in the Civil Servant occupational status group, they had good knowledge, but this group was only represented by one respondent, so the results cannot be generalized and should be interpreted with caution. The results for the Civil Servant occupational status group are supported by research conducted by Rukmana et al. (2025), which found that respondents with civil servant (PNS/ASN) status and those with professions with high social interaction such as traders and employees tended to demonstrate better TB transmission prevention behaviors compared to respondents who did not work. Meanwhile, the Private Employee group showed varying levels of knowledge, this variation is likely caused by differences in work background and educational level among individuals, resulting in different abilities in accessing information.

Public Knowledge Levels Regarding Tuberculosis

Based on Table 3, the results obtained from 94 respondents regarding the level of community knowledge about tuberculosis in Bumi Laweyan Village, Surakarta City, show that 73.40% of the community had good knowledge, 24.47% had adequate knowledge, and 2.13% had insufficient knowledge. The large number of respondents with good knowledge is likely influenced by their background, the majority of whom were women and had a high school or college education, thus providing more optimal access and absorption of information. Furthermore, it is likely influenced by the effectiveness of information exposure about TB through counseling or outreach from the nearest community health center.

The results of this study are consistent with research conducted by Pramesty A Dessy & Vonny (2024) in RW 001 Pulogebang, East Jakarta, which showed that 180 respondents (51.28%) had good knowledge of the definition, transmission methods, risk factors, prevention, diagnosis, and treatment of TB. This study is also in line with research by Oktaviani (2023) in the Southwest Praya District, Central Lombok Regency, showed that 61.87%

had good knowledge, and was in line with research conducted by Silma et al. (2023) which shows that the majority of Indonesian people have a high level of knowledge and a positive attitude towards TB in line with the government's public health education efforts.

However, there were still respondents with sufficient and insufficient knowledge. This study did not directly measure the causes of this variation, so explanations must be presented carefully. This difference in knowledge is likely influenced by unequal access to information, especially for people who rarely participate in health education activities. This finding is supported by research Lataima et al. (2023) that the level of knowledge is greatly influenced by how often people are exposed to health information.

The high level of TB knowledge of the Bumi Laweyan community has a positive impact on TB control efforts in the community. With good knowledge, people are better able to recognize TB symptoms early. This is in line with studies Muhammad et al. (2024) in Banda Aceh, which found that individuals with good knowledge tended to implement more effective TB prevention measures. However, the presence of both adequate and inadequate knowledge suggests that TB health education needs to be strengthened, particularly through more direct approaches such as face-to-face counseling, to ensure more equitable public understanding.

Conclusion and Suggestion

Based on the research results, the level of community knowledge in Bumi Laweyan Village, Surakarta City, is categorized as good. However, some residents still fall into the adequate and inadequate categories. Therefore, sustainable and equitable TB health education is crucial, especially for groups with suboptimal knowledge. This study has limitations; the sample size is relatively small, so generalizations to the wider population should be made with caution. Therefore, further research can explore the relationship between knowledge levels and TB prevention behavior in more depth, thereby providing a more comprehensive picture of the relationship between knowledge and concrete actions within the community.

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