



# Level Of Knowledge, Stigma, And Community Literacy On TB Disease Prevention Behavior

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**Abstract.** Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*, which can attack various organs, especially the lungs. Indonesia is ranked second highest in the world, so efforts are needed to identify the causes of the high TB cases in Indonesia. This study aimed to analyze the level of knowledge, stigma, and literacy of the community towards TB disease prevention behavior. This study used a cross-sectional approach. Data collection used the interview method with the interview guide instrument installed on the Kobotool box application. The population in this study was the people of the city of Semarang; the sample for this study was taken by accidental sampling method in areas with TB sufferers at 16 Community Health Centers in Semarang City with a sample of 430 respondents. Statistical test using Rank Spearman and Regression test. The results showed that there was a relationship between the level of knowledge (p-value= 0.014; r= 0.085), literacy (p-value= 0.000; r= 0.248), and social stigma (p-value= 0.005; r= - 0.96) on TB prevention behavior. From the results of the three independent variables, the effect test showed an influence between the level of knowledge, literacy, and community stigma on TB disease prevention behavior (p-value = 0.000 with R = 0.316). Of the three independent variables, the most influential is literacy on TB prevention behavior. The community needs to increase knowledge, literacy, and community stigma toward TB disease prevention

**Keywords:** TB, Knowledge, Literacy, Stigma, Behavior.

## 1 Introduction

Tuberculosis is a chronic infectious disease caused by the bacterium *Mycobacterium tuberculosis*, which affects many people of productive age (Kementerian Kesehatan Republik Indonesia, 2019). Based on the Global Tuberculosis Report, al-

most a quarter of the world's population is infected with TB, and Indonesia is ranked second after India (WHO, 2022).

The incidence of tuberculosis can be caused by family history factors. If one family member is positive for TB, the other family members have a high chance of being infected due to direct contact with the TB sufferer (Pralambang and Setiawan, 2021). Apart from that, behavioral factors of TB sufferers can trigger TB transmission. The patient's behavior of throwing phlegm carelessly can infect other people because of the TB bacteria in the patient's phlegm. TB sufferers who do not apply cough etiquette and PBHS can easily infect others. Another factor is smoking habits. Pulmonary TB germs spread to other people through transmission or airflow (sputum droplets from BTA-positive pulmonary TB patients) when the sufferer coughs or sneezes. Pulmonary TB can cause death if you do not take medication regularly for up to 6 months. Apart from having an impact on the individual, it also has an effect on the sufferer's family, namely psychological implications in the form of anxiety, decreased support, and low self-confidence. Home environmental conditions are a factor in the incidence of TB. A house that has poor lighting and no sunlight to enter is a factor that can make TB bacteria survive. Apart from that, places that do not have windows and dirty and overcrowded conditions can make TB bacteria survive (Kristini and Hamidah, 2020).

Good knowledge about TB is vital in encouraging timely treatment behavior, early detection, and treatment adherence (Amallia, Kusumawati and Prabamurti, 2021) (Anni, 2022) (Dwiningrum, Wulandari and Yunitasari, 2021). A study conducted in Ethiopia showed that 61.6% of 138 TB patients had good knowledge about TB; this knowledge included signs of TB transmission, signs and symptoms of TB, and treatment-seeking behavior; however, knowledge of TB patients regarding the causes of TB, prevention of TB and treatment of TB is still lacking, especially in patients who have entered the intensive treatment phase (Badane *et al.*, 2018). TB patients already have good knowledge, but there are still misunderstandings about TB and its treatment (Onyango, Ter Goon and Rala, 2020).

The results of research conducted in Afghanistan by Alsoukhni and Yousef (2022) show that someone who has research that has been conducted states that around 62% of those living in urban areas have moderate to high stigma. This stigma takes the form of avoiding TB sufferers, refusing to eat with TB sufferers, even feeling afraid of TB patients and feeling that TB sufferers must be isolated and not allowed to carry out activities and contact with their environment (Alsoukhni *et al.*, 2023). Previous research states that most Rural people have negative feelings such as shame, surprise, sadness, and hopelessness (Bashorun *et al.*, 2020). Family support for TB sufferers must be balanced with sufficient knowledge, good motivation and communication, and decision-making authority within the family (Suharyo and Mubarakah, 2018). This study aimed to analyze the level of knowledge, stigma, and literacy of the community towards TB disease prevention behavior.

## 2 METHOD

The research design used a cross-sectional approach, which was carried out from May to July 2023. The population in this study was the people of Semarang City, which was divided into 37 health centers, while the research sample was carried out by accidental sampling at 16 health centers, namely Banyumanik, Candisari, Gajahmungkur, Genuk, Gayamsari health centers, Gunungpati, Mijen, Ngaliyan, Pedurungan, West Semarang, South Semarang, Central Semarang, East Semarang, North Semarang, Tembalang, and Tugu. The location where the respondents lived was around 430 TB patients.

Data collection used an interview guide instrument with a house-to-house interview method using the Kobo Toolbox application. The research instrument has been conducted for validity and reliability and has undergone an ethical review with No: 573/EA/KEPK-Fkes-UDINUS/V/2023. The results were processed using SPSS descriptively for frequency data, while bivariate analysis used the Spearman Rank and Regression tests..

## 3 Results and Discussion

### 3.1 Result

The research results show that respondents for this study were taken evenly across all ages; based on gender, there were more women than men. The most data on education level is at the high school level, based on the highest status on married status and related to income around the minimum wage in the city of Semarang. The data can be seen in Table 1.

Table 1. Respondent Characteristics

Characteristic	frequency	Percentage
<b>Age (years)</b>		
<35 ( Early Adulthood)	155	36
35.1-45 ( Late Adulthood)	105	24.4
>45.1 ( Elderly )	170	39.5
Total	430	100.0
<b>Gender</b>		
Male	116	27.0
Female	314	73.0
Total	430	100.0
<b>Educational Level</b>		
None	6	1.4
Not completed in primary school	11	2.6
Elementary school	48	11.2
Junior high school	46	10.7
Senior high school	180	41.9
Diploma	35	8.1
S1	82	19.1

Characteristic	frequency	Percentage
S2/S3	22	5.1
Total	430	100.0
<b>Marital Status</b>		
Married	321	74.7
Single	82	19.1
Widow widower	27	6.3
Total	430	100.0
<b>Family Income in 1 Month</b>		
< Rp 1.000.000	42	9.8
Rp 1.000.000 - Rp 1.999.000	115	26.7
Rp 2.000.000 —Rp 3.999.000	175	40.7
Rp 4.000.000 —6.000.000	54	12.6
>Rp 6.000.000	44	10.2
Total	430	100.0
<b>Job status</b>		
Doesn't work	186	43.3
Work	244	56.7
Total	430	100.0

Based on the results of the frequency distribution for the knowledge level variable, it was found that 90.5% of respondents stated that TB testing was carried out at community health centers. In comparison, 9.5% of respondents indicated that it could not be carried out at all community health centers. 28.6% of respondents said TB testing was expensive, and 71.4% said it was not. Sputum examination to ensure someone has TB is 89.1% while 10.9% of respondents said no. 85.6% thought TB was an inherited disease. 97.9% believe that TB is not caused by witchcraft or black magic. As many as 95.1% of respondents believed that TB could be transmitted to other people; TB transmission, according to respondents, could be transmitted through droplets or saliva splashes as much as 63.5%, through shared eating/drinking utensils 12.1%, through cigarette smoke 1, 4%, through touching the sufferer's skin 1.4%, through the sufferer's food 2.3% of respondents, through the air 10.7%, and 3.5% answered they didn't know. 96.5% of respondents answered that TB could be cured, and 3.5% responded that TB could not. 86.3% of respondents stated that recovered TB sufferers could relapse, 69.1% of respondents said that when family members suffered from TB, they separated eating utensils and used masks, and 30.9% did not take preventive measures.

The frequency distribution results for literacy showed that 58.1% of respondents answered that it was easy to find information about TB. 58.8% responded that finding out how to prevent TB. 63.3% of respondents answered that finding out about TB treatment was relatively easy. 57.7% of respondents said getting information about the risk of smoking for TB was quite easy. 61.6% found it relatively easy to find a place to do TB testing, and 64% understood information about TB. 64.9% found it easy to understand information about TB symptoms from health workers. 61.4% quite easily understand health warning information about the dangers of smoking in the media. 59.3% quite easily understand that TB disease requires complete treatment. 67% were relatively easy to assess how the home/living environment can help you

stay healthy (for example, keeping it from getting damp, allowing sunlight and fresh air to enter, and its cleanliness. 63.7% were relatively easy to assess why immunization needs to be done to prevent TB.

Based on the frequency distribution results for the stigma category, it was found that 41.9% did not want to eat or drink with friends who had TB. 43.5% of respondents felt uncomfortable being around friends with TB, while 17.4% felt comfortable around friends with TB. 24.4% of public members would act differently if someone had TB, while 30.5% did not agree that people with TB should be differentiated. 36% of respondents stated that their children did not want to play with TB sufferers, and 45.1% kept their distance from TB sufferers. 43% of respondents disagree if people think that TB sufferers are disgusting; the rest say the opposite. There are still around 18.4% who are afraid to talk to TB sufferers, 30.7% are worried about TB sufferers, and 25.8% of respondents do not want to touch TB sufferers. 74.0% allow TB sufferers to remain in the community.

The frequency distribution results regarding TB prevention behavior in the community showed that 64.9% of respondents stated that it was easy to assess whether throwing saliva and coughing carelessly could transmit TB. 60.7% found it easy to evaluate the signs or symptoms of TB. If necessary, 64% can easily carry out tests to determine whether they suffer from tuberculosis (TB). 64.4% found it easy to carry out TB treatment if necessary. As many as 38.4% said it was straightforward, and 37.4% decided not to smoke. 45.6% of respondents said it was easy to do sports activities regularly, while 34% found it quite challenging to do sports activities regularly. 64.7% find it easy to eat nutritious food by paying attention to diversity, including eating fruit and vegetables. 65.3% are pretty easy to make efforts to maintain the condition of their residence/house with enough light, enough ventilation, and no dampness. 64.2% is relatively easy to dry the bedding and bedding so it doesn't get damp. Based on the category results for each variable based on the median value, the category results are obtained as in Table 2.

Table 2. Category variables: level of knowledge, literacy, stigma, and TB prevention behavior in Semarang City

Category	Frequency	Percentage
<b>Level of Knowledge</b>		
Not good	235	54.7
Good	195	45.3
Total	430	100.0
<b>Literacy</b>		
Not good	247	57.4
Good	183	42.6
Total	430	100.0
<b>Stigma</b>		
Not good	214	49,8
Good	216	50,2
Total	430	100.0

Category	Frequency	Percentage
<b>TB prevention behavior in the community</b>		
Not good	260	60,5
Good	170	39,5
Total	430	100.0

The bivariate results show that the level of knowledge, literacy, and community stigma are related to TB prevention behavior in the community. If we continue with the regression test to see which variable has the most influence, the literacy variable is the most influential, This can be seen clearly in Table 3.

Table 3. Bivariate analysis of TB prevention behavior in the community

Independent variable	dependent variable	Rank Spearman	Independent variable	dependent variable
Level of knowledge	TB prevention behavior in the community	0.014	0.085	0.672
Literacy		0.000	0.284	0.000
Stigma		0.005	-0.096	0.136

Regression: R= 0.316; Durbin-Watson : 1.845

### 3.2 Discussion

The research results show that public knowledge regarding TB disease has begun to improve. Which is not a hereditary disease; 85.6% of respondents answered correctly, and the majority stated that it was caused by TB germs; this is in line with previous research conducted in Ethiopia, which showed that the level The knowledge of the respondents studied regarding TB disease was good (Badane *et al.*, 2018). This is also confirmed by research by Essar *et al.*, 2022 which states that the level of knowledge regarding TB is good (Essar *et al.*, 2022). However, based on the results, the overall level of public knowledge regarding TB disease still needs to be better at 54.7%. This aligns with research in The Gambia that shows that around 3 out of 10 Gambian residents have poor knowledge about TB (Bashorun *et al.*, 2020).The low level of knowledge regarding TB disease is also experienced by refugees, migrants, and the general public in Jordan (Alsoukhni *et al.*, 2023).

Public literacy regarding TB disease still needs to be improved. This is proven by the fact that there are still many people who have difficulty getting information related to TB disease, there are still people who find it challenging to find ways to prevent TB, people find it difficult to understand data from health workers regarding TB symptoms, and there are still people who Those who don't understand TB treatment must complete it.

Stigma is a social determinant in the health sector and is a significant obstacle in accessing health services, resulting in delays in diagnosis and treatment (Alsoukhni *et al.*, 2023). The research results show that the level of public stigma towards TB sufferers is still not good at 49.8%. These stigmatizing attitudes include not wanting to eat or drink with TB sufferers, being uncomfortable being close to TB sufferers, act-

ing differently, and keeping your distance. According to research in Jordan, the most common cause of high levels of stigmatization is the perception of the risk of transmission from people infected with TB to vulnerable members of society. This research shows that the majority of research participants have a moderate to high level of stigmatizing attitudes towards TB. Discrimination is one of the social determinants in the health sector, where stigmatized individuals experience discrimination and loss of status in society. Discrimination against TB patients is felt to be more assertive in specific sub-populations, including women, refugees, individuals from rural areas, and people with low levels of education (Alsoukhni *et al.*, 2023).

In this study, around 74.0% of respondents had no problem living in the same neighborhood as TB sufferers or letting their children play with TB sufferers. Negative social behavior towards TB patients creates feelings of shame or guilt, which leads to self-isolation when people infected with TB internalize their community's negative assessment of a particular disease. According to research in Jordan, the reported positive attitudes and low levels of discrimination support effective control measures and may be able to overcome emerging barriers to care-seeking and treatment adherence.

The knowledge that patients gain from various sources allows them to determine their behavior in responding to tuberculosis. As many as 64.4% of patients underwent complete examination and treatment for tuberculosis. After knowing the impact of smoking on tuberculosis. As many as 38.4% made the decision not to smoke. Patients also adopt a healthy lifestyle, such as a clean lifestyle and healthy food (Manglapy *et al.*, 2023). Increasing knowledge regarding TB disease needs to be sought to reduce the spread of TB disease and increase awareness regarding TB disease (Du *et al.*, 2022). Based on research on health workers, 98.1% believe there is a need to improve tuberculosis control (Vigenschow *et al.*, 2021).

## 4 Conclusion

The research results prove that the knowledge, stigma, and literacy level are related to tuberculosis prevention behavior in the community. Literacy has a dominant influence compared to the level of knowledge and stigma. Increasing public literacy regarding TB disease, such as information on understanding TB disease, how to transmit it, how to prevent it, and how to complete TB treatment, can be the main program in efforts to deal with TB disease.

### Declaration

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