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SURVEY OF THE EXISTENCE OF TUBERCULOSIS RISK FACTORS AND THEIR REASONS IN SUFFERERS IN MEDAN CITY

Afra Nabila Ansar[1]*, Mateus Sakundarno Adi[2], Henry Setyawan[3], Ari Udijono[4]
[1,2,3,4] Department of Epidemiology and Tropical Diseases, Faculty of Public Health, Universitas Diponegoro
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afranabila09@mail.com

Abstract

The development of tuberculosis disease is one of the forms that must be increased attention to health. This fact from the still high number of tuberculosis cases in Medan City is evidence that the health value is still low. Specifically, this is evidenced by the still high number of tuberculosis cases at the Sentosa Baru Health Center. Therefore, it is necessary to know the risk factors for tuberculosis and its causes in patients in the Sentosa Baru Health Center work area. This type of research is a descriptive observational study with a cross-sectional approach. The sample in this study was 64 respondents who were tuberculosis patients in the Sentosa Baru Health Center work area. The research results show that the majority are of productive age with a high school education level and good (50%) or less (50%) knowledge. Smoking habits were primarily found in the moderate category (31.3%), and the habit of wearing masks was minimal (65.5%). Most had the habit of opening windows (67.2%) but had never removed phlegm in a particular container (40.6%). Observation results showed that the majority already had floors (87.5%) and walls (78.1%) that met the requirements, but only (15.6%) had glass tiles in their homes. Based on the results of cross-tab research, a comparison was made between the level of knowledge, age, level of education, and risk factors. It was concluded that age, level of education, level of knowledge, type of floor, type of wall, availability of glass tiles, smoking habits, habits of wearing masks, habits of opening windows, and habits of expelling phlegm were the reasons that influenced this.

Keywords: *Existence Survey, Tuberculosis Risk, Sufferers, Sentosa Baru Health Center*

✉ Corresponding author :
Address : Universitas Diponegoro, Indonesia
Email : afranabila09@mail.com

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by the bacteria Mycobacterium Tuberculosis and is contagious. When someone is infected with Tuberculosis, the main symptoms often experienced by tuberculosis sufferers are prolonged coughing with phlegm, coughing up blood or phlegm mixed with blood, shortness of breath, chest pain, fatigue, body weakness, decreased appetite, sweating at night (Rahmaniati & Apriyani, 2018; Lambey, 2021; Fardiansyah, 2023; Simbolon, 2007). Before a diagnosis of tuberculosis is carried out, it is necessary to conduct an evaluation, which includes examining the signs and symptoms that occur in tuberculosis sufferers (Diantara et al., 2022; Abimulyani et al., 2023; Laban, 2012). Another physical impact is that sufferers experience coughing and shortness of breath accompanied by chest pain, resulting in weight loss (Mahpudin & Mahkota, 2007; Kurniasari & Cahyo, 2012). This weakens the sufferer; mentally, the sufferer will feel fear within himself (Apriliasari et al., 2018; Panggayuh et al., 2019; Zahrotun & Puspita, 2011).

Pulmonary Tuberculosis is a disease that most often attacks the productive age group, namely 15 - 49 years, and is one of the diseases that often occurs in developing countries, including Indonesia (Laban, 2012; Putri et al., 2018; Kristini & Hamidah, 2020). Tuberculosis is an airborne disease that can be carried in the air and takes the form of droplet nuclei particles. Droplet nuclei have aerodynamic properties (Dheda et al., 2017; Pasaribu, 2021). The occurrence of tuberculosis is influenced by several factors, including sociodemographic factors consisting of knowledge, smoking habits, house humidity, age, gender, education, and others (Dias Agustian et al., 2022; Prayitno et al., 2025). According to the information obtained, there are still many who have not been able to prevent transmission properly, such as sufferers who do not wear masks or do not wash their hands after interacting with tuberculosis sufferers. Sentosa Baru Health Center is one of the health centers with the most Tuberculosis cases in Medan City (Sentosa Baru Health Center, 2022). Based on the results obtained from the Sentosa Baru Community Health Center, in 2022, there were 233 cases of tuberculosis, and in 2023 until September, there were 148 cases of tuberculosis (New Sentosa Community Health Center, 2022).

Data shows that there are still many sufferers who have not implemented efforts to prevent the transmission of tuberculosis properly after being given education about preventing tuberculosis. Many tuberculosis sufferers do not know the basics of tuberculosis. Patients still need to improve their habits, such as not wearing masks when interacting with other people, not opening windows in the morning, and not distinguishing between eating utensils. Some sufferers already know that wearing a mask can break the chain of transmission of pulmonary tuberculosis, but there are still those who do not wear a mask. This is caused by inconsistencies in the actions taken and the lack of understanding of sufferers regarding the factors that influence the incidence of tuberculosis (Among et al., 2022; Rohman, 2019).

Tuberculosis sufferers were found at the Sentosa Baru Community Health Center who did not implement proper prevention. The obstacle to health centers in reducing the number of Tuberculosis cases is the lack of understanding of tuberculosis sufferers (Rohman, 2018; Manyullei et al., 2023). Human resources are also an obstacle to carrying out prevention and control as people have a high risk of transmitting tuberculosis. Even though counseling has been provided to Tuberculosis sufferers, some problems are proven by the increasing number of Tuberculosis cases at the Sentosa Baru Health Center in Medan City. Based on the description above, the author is interested in researching the Survey of the Existence of Tuberculosis Risk Factors and the Reasons for Sufferers in the Sentosa Baru Health Center, Medan City, work area.

METHODS

This research is a mixed methods study with a cross-sectional study approach. The research uses mixed methods because it requires data testing and an in-depth interview process with informants (Sweetma et al., 2010). The population in this study was all Tuberculosis sufferers recorded at the Sentosa Baru Community Health Center, namely 148 sufferers. The inclusion criteria in this study were tuberculosis sufferers who were recorded as residing in the work area of the Sentosa Baru Health Center, Medan City. The sample size was 64 respondents using a systematic random sampling technique. Data collection was carried out through questionnaire interviews and

observations. The independent variables in this study are age, education level, knowledge, type of floor, type of wall, availability of glass tiles, smoking habits, the habit of wearing masks, the habit of opening windows, the habit of expelling phlegm. Research data will be analyzed to determine the frequency of each variable and compare the variables of level of knowledge, age, and level of education. Apart from that, in-depth interviews will also be carried out to find out the reasons for each risk factor.

RESULTS AND DISCUSSION

This study calculated the frequency of each variable asked for each interview and observation. In Table 1, it is known that there were 64 respondents in this study. The majority of respondents who were tuberculosis sufferers were still in their productive age (93.8%), and the education level of the majority was high school (57.8%). Respondents' knowledge level is divided into two, namely poor and good. This research showed that respondents had a good level of knowledge (50%) and those in the poor category (50%). Most respondents smoked (62.5%), and the remainder did not.

Based on Table 1 below, the majority of respondents have moderate smoking habits (31.3%) and continue with the heavy category (18.8%). However, based on calculations, it was found that most respondents did not wear masks properly (65.6), and most respondents had the habit of opening windows every day (67.2%). Most respondents have bad habits of removing phlegm (40.6%). Most respondents already have floor types (87.5%) and wall types (78.1%) that meet the requirements, but not the availability of glass tiles (15.6%) who have glass tiles.

Table 1. Research Frequency Distribution

Variable	Frequency	Percentage (%)
Age		
Productive	60	93,8
Not productive	4	6,2
Level of education		
No school	0	0
elementary school	6	9,4
Junior High School	15	23,4
Senior High School	37	57,8
College	6	9,4
Knowledge level		
Not enough	32	50
Good	32	50
Smoking habit		
Do not smoke	24	37,5
Light Smoker	8	12,5
Moderate Smoker	20	31,3
Heavy Smoker	12	18,8
Habit of Wearing Masks		
Not enough	42	65,6
Good	22	34,4
Habit of Opening Windows		
Not Opening the Window	21	32,8
Opening a Window	43	67,2
Habit of Getting Rid of Phlegm		
Never	26	40,6
Sometimes	17	26,6
Always	21	32,8
Floor Type		
Not eligible	8	12,5
Qualify	56	87,5
Wall Type		
Not eligible	14	21,9

Qualify	50	78,1
Availability of Glass Roof Tiles		
Not available	54	84,4
Available	10	15,6

Table 1 shows that most tuberculosis sufferers are still of productive age and have at least a high school (SMA) education.

Bivariate analysis in the research is to look at the comparison (cross-tab) between the level of knowledge, age, and level of education with risk factors, namely as follows:

Table 2. Cross-Tab Level of Knowledge with Risk Factors

Variable	Knowledge level				Amount	
	Not enough		Good			
	f	%	f	%	F	%
Smoking habit						
Do not smoke	14	58,3	10	41,7	24	100
Light Smoker	5	62,5	3	37,5	8	100
Moderate Smoker	8	40	12	60	20	100
Heavy Smoker	5	41,7	7	58,3	12	100
Habit of Wearing						
Masks	21	50	21	50	42	100
Not good	11	50	11	50	22	100
Habit of Opening Windows						
Not Opening the Window	12	57,1	9	42,9	21	100
Opening a Window	20	46,5	23	53,5	43	100
Habit of Getting Rid of Phlegm						
Never	15	57,7	11	42,3	26	100
Sometimes	6	35,3	11	64,7	17	100
Always	11	52,4	10	47,6	21	100
Floor Type						
Not eligible	3	37,5	5	62,5	8	100
Qualify	29	51,8	27	48,2	56	100
Wall Type						
Not eligible	6	42,9	8	57,1	14	100
Qualify	26	52	24	48	50	100
Availability of Glass Roof Tiles						
Not available	29	53,7	25	46,3	54	100
Available	3	30	7	70	10	100

Based on Table 2, it is known that the majority of respondents who have good knowledge are found in the moderate smoker category, 12 respondents (60%). Respondents with good knowledge about tuberculosis had good habits in opening windows, namely 23 respondents (53.5%). Most respondents with less knowledge were found to be respondents who had never expelled phlegm in a particular container.

As many as 15 respondents (57.7%) who had less knowledge were found in respondents who had floor types that met the requirements, as many as 29 respondents (51, 8%) and the type of wall that meets the requirements but as many as 26 respondents (52%). The majority of respondents with less knowledge were

found in respondents who did not have glass roof tiles, namely 29 respondents (53.7%). The following is a cross-tab test between age and risk factors :

Table 3. Cross-Tab Age with Risk Factors

Variable	Age				Amount	
	Productive		Not productive			
	F	%	F	%	f	%
Smoking habit						
Do not smoke	24	100	0	0	24	100
Light Smoker	8	100	0	0	8	100
Moderate Smoker	19	95	1	5	20	100
Heavy Smoker	9	75	3	25	12	100
Habit of Wearing Masks						
Not enough	40	95,2	2	4,8	42	100
Good	20	90,9	2	9,1	22	100
Habit of Opening Windows						100
Not Opening the Window	20	95,2	1	4,8	21	
Opening a Window	40	93	3	7	43	100
Habit of Getting Rid of Phlegm						
Never						
Sometimes	24	92,3	2	7,7	26	100
Always	17	100	0	0	17	100
	19	90,5	2	9,5	21	100
Floor Type						
Not eligible						
Qualify	8	100	0	0	8	100
Wall Type	52	92,9	4	7,1	56	100
Not eligible						
Qualify	13	92,9	1	7,1	14	100
Availability of Glass Roof Tiles	47	7,1	3	6	50	100
Not available						
Available	50	92,5	4	7,4	54	100
	10	100	0	0	10	100

Based on Table 3, the majority of respondents who are of productive age are included in the moderate smoker category, namely 19 respondents (95%), 40 respondents (95.2%) of productive age have bad habits of wearing masks, as many as 20 respondents (95.2%) of productive age do not have the habit of opening windows. In the category of never expelling phlegm in a particular container, the majority of respondents have the habit of never expelling phlegm in a particular container. Still, as many as 19 respondents (90.5%), as many as 52 respondents (92.9%) of productive age have a type of floor that meets the requirements and 47 respondents (94%) of productive age have wall types that meet the requirements and 50 respondents (92.5%) are productive and do not have glass tiles and those of unproductive age consist of 4 respondents (7.4%). The following is a cross-tab test between education level and risk factors:

Table 4. Cross-tab Education Level with Risk Factors

Variable	Level of education								Amount	
	Elementary School		Junior High School		Senior High School		College			
	f	%	f	%	f	%	F	%	f	%
Smoking habit										
Do not smoke	1	4,2	4	16,7	15	62,5	4	16,7	24	100
Light Smoker	0	0	1	12,5	6	75	1	12,5	8	100
Moderate Smoker	2	10	7	35	10	50	1	5	20	100
Heavy Smoker	3	25	3	25	6	50	0	0	12	100
Habit of Wearing										
Masks	5	11,9	11	26,2	25	59,5	1	2,4	42	100
Not good	1	4,5	4	18,2	12	54,5	5	22,7	22	100
Habit of Opening Windows										
Not Opening the Window	1	4,8	5	23,8	14	66,7	1	4,81	21	100
Opening a Window	5	11,6	10	23,3	23	53,5	5	1,6	43	100
Habit of Getting Rid of Phlegm										
Never	3	11,5	8	30,8	13	50	2	7,7	26	100
Sometimes	1	5,9	4	23,5	10	58,8	2	11,8	17	100
Always	2	9,5	3	14,3	14	66,7	2’	9,5	21	100
Floor Type										
Not eligible	2	25	3	37,5	2	25	1	12,5	8	100
Qualify	4	7,1	12	21,4	35	62,5	5	8,9	56	100
Wall Type										
Not eligible	1	7,1	3	21,4	10	71,4	0	0	14	100
Qualify	5	10	12	24	27	54	6	12	50	100
Availability of Glass Roof Tiles										
Not available	4	7,4	12	22,2	33	61,1	5	9,3	54	100
Available	2	20	3	30	4	40	1	10	10	100

Based on Table 4, 10 respondents (50%) whose last level of education was Senior High School (SMA) and had smoking habits in the moderate category. Based on education level, high school (SMA) was the most frequently found, namely 25 respondents (59.5%), with the highest education being high school, who had a poor habit of using masks. With a university education, it was found that 5 respondents (11.6%) had the habit of opening windows. The majority of their final education was High School (SMA); 14 respondents (66.7%) always dispose of phlegm in special containers, 35 respondents (62.5%) have floors that meet the requirements, and 27 respondents (54%) have walls. Who meets the requirements? Meanwhile, the majority of 33 respondents (61.1%) who had completed high school (SMA) did not use glass roof tiles.

Description of the Proportion of Smoking Habit Variables in Tuberculosis Sufferers and the Reasons

By smoking or being exposed to cigarette smoke, there is a risk of causing tuberculosis and increasing the severity of the sufferer's condition if they continue to smoke. Smoking is the leading cause of chronic and obstructive lung disease. It is known that the number of respondents who have a light smoking habit is less than those in the moderate and heavy categories. Only 8

respondents (12.5%) had a light smoking habit. The majority of respondents had a moderate smoking habit; 20 respondents (31.3%) and the remaining 12 respondents (18.8%) had a heavy smoking habit.

The research results showed that the average respondent had a moderate smoking habit with an estimated duration of smoking of 12 - 25 years, which was supported by the number of cigarettes smoked being 1 - 2 packs per day. The longer a person has a history of smoking, the more it will affect the respondent's health. In line with research conducted by Hilda Kakuhes (2020), it is stated that tuberculosis sufferers are caused mainly by cigarettes, with estimates that smoking has been around for a long time, such as 15 – 40 years (Kakuhes et al., 2020). Research conducted in the United States stated that smokers who had smoked for 20 years or more suffered from tuberculosis 2.6 times more often than non-smokers and increased mortality by 2.8 times. This figure is a high figure when compared with the mortality rate for heart disease and cerebrovascular disease.

The results of research conducted with respondents suffering from tuberculosis revealed that the majority of respondents who had moderate smoking habits were found in the productive age group, 19 respondents (95%) and 1 respondent (5%) from the non-productive age group. In line with the results of Basic Health Research in 2018, it was stated that the smoking habit of the majority of the Indonesian population was over 15 years old, with a percentage of 33.8% (Umari et al., 2020). The results of interviews conducted with respondents revealed several reasons why respondents had the habit of smoking. The peer social environment was the reason that was caused mainly by respondents, namely 24 respondents (37.5%) when asked about their initial reasons for smoking. During adolescence, they will think that smoking is something essential. So if one's circle of friends has a smoking habit, it will increase the curiosity of other people to try it, too, because they don't want to be considered foreign even though they don't want to smoke (Lasari et al., 2022). This is related to the theory of group solidarity, wherein a group of teenagers who have carried out smoking activities, other individuals must also do so; in other words, it can be said to be united and loyal friends between individuals in that group. A total of 3 respondents (4.7%) had reasons for trying when they first smoked.

Productive age is one of the reasons why respondents started smoking. At this age, 5 respondents (7.8%) were already working and could buy cigarettes from their income. The role of family members is one of the keys to preventing smoking when respondents try smoking. A total of 2 respondents (3.1%) believed that there was no prohibition from parents when they found out that the respondent smoked. So, it is known that the role of parents is essential for their children, whether they smoke or not. Many respondents did not start smoking when they were teenagers. The reason given by respondents was that their initial smoking was caused by stress caused by family factors or outside family factors. A total of 8 respondents (12.5%) thought that stress was one of the reasons why respondents were still smoking after being confirmed as suffering from tuberculosis. Not all respondents have a smoking habit; as many as 22 respondents (34.4%) have not smoked since the beginning or have stopped smoking after being confirmed as having tuberculosis.

Description of Variable Proportions in the Habit of Wearing Masks in Tuberculosis Sufferers and the Reasons

Wearing a mask is not just a health protocol; it's a crucial preventive measure. The awareness of tuberculosis sufferers about this importance significantly impacts the transmission of the disease in the community and within families (Hayati et al., 2020; Indriyani et al., 2016). The National Institute for Occupational Safety and Health (NIOSH) underscores this, stating that masks can protect individuals from contracting tuberculosis (Natalia et al., 2022; Syahrezki, 2015). This research assessed the habit of wearing masks by asking respondents about their mask usage. The results, categorized into poor and good habits, reveal the potential consequences of not wearing masks.

The research findings are significant, revealing that the majority of respondents, less than 42 of the total, had poor habits of wearing masks. This underscores the crucial point that good knowledge sometimes leads to good habits. Natalia (2022) also found that good knowledge without obedience is ineffective. The obstacles to wearing masks, such as knowledge, economic level, and self-awareness, further emphasize the issue's complexity. The fear of infecting family members, a common reason for wearing masks,

adds a personal and emotional dimension to the findings.

The air is currently having problems due to large-scale road construction in Medan, namely, 6 respondents (9.4%) making respondents wear masks properly. However, for this reason, the excellent use of masks is not due to the respondents' understanding of the preventive efforts to prevent tuberculosis transmission. So, it was found that respondents only knew that tuberculosis was caused by a lack of nutrition in the respondent's body. Most respondents stated that they did not use a mask when leaving the house and interacting with other people because of the stuffiness or chest pain that respondents felt when using a mask 25 respondents (39.1%).

The economy is also one of the reasons respondents cannot use masks properly. Respondents said their daily income was more than needed to buy masks. As many as 5 respondents (7.8%) used masks repeatedly and did not replace them when they were no longer suitable for use, such as being dirty or torn. Most respondents interact with many people, such as pedicab drivers, traders, builders, and bone fracture massagers. This resulted in respondents socializing a lot with many people. Thus, the role of masks for respondents is vital in preventing transmission. The home environment to the work environment should be the most comfortable place for respondents, but in several interview results, respondents found that there was still discrimination between neighbors when they knew the reason for using masks continuously, namely 2 respondents (3.1%) had the reason because the work environment was not supported and 4 respondents (6.2%) had reasons from the home environment.

Description of the Proportion of Habit Variables that Open a Window on Tuberculosis Sufferers and the Reasons

Having windows in every room is included in the category of healthy home ownership. According to the Regulation of the Minister of Health of the Republic of Indonesia Number: 1077/Menkes/Per/V/2011, having windows or increasing the width of windows is a health effort that can be done at home (Ministry of Health, 2011). The sun will enter the house through the window. The habit of opening windows is an activity by house residents to exchange air and allow light outside the house to enter and illuminate the house (Halim & Budi, 2017).

Some respondents needed to be fully aware of the daily purpose of opening the window. Based on the results of interviews conducted with respondents, it was found that respondents had a habit of opening windows and not opening windows. One of the reasons respondents have the habit of opening windows is because there is air circulation entering the respondent's house, so there is air exchange, and it is smooth. Thirty four respondents (53.1%) had the habit of opening windows to ensure air circulation in the house. Respondents thought they would feel stuffy in the room if they didn't open the window. It is known that tuberculosis bacteria can live and develop in dark and damp rooms. A total of 13 respondents (20.3%) said that opening the window was a routine that the respondent had done every morning, so the respondent had a good habit of opening the window.

Not only that, but work is one of the obstacles respondents face when they open windows daily. A total of 5 respondents (7.8%) said that work started at night and went home the next day during the day. Respondents said that some respondents lived alone without family at home because they worked in the city. When the respondent returned home, he only focused on resting and gathering energy to work in the evening. The majority of respondents do not have the habit of opening windows because they need access to them. A total of 12 respondents (18.8%) did not have access to a window in their house and only relied on the house door for air circulation. The lack of space for respondents to open windows meant that respondents could not open the windows correctly. The respondent said that opening the window would interfere with access to the drying area of the neighbor next to the respondent's house. Also, 1 respondent was found who did not have windows but used an air conditioner (AC) in his house.

Description of the Proportion of Variables in the Habit of Discarding Sputum in Tuberculosis Sufferers and the Reasons

A good habit of getting rid of phlegm is to prepare a special container to hold the patient's phlegm and throw it in a problematic place for others to reach (Balaputra, 2021). Sputum from tuberculosis sufferers that is disposed of carelessly can cause the spread of tuberculosis germs and result in disease transmission, so the

phlegm must be disposed of in a special container so that the germs will not spread. Knowledge plays a vital role in determining habits because knowledge will form beliefs, which in turn will perceive reality, provide a basis for decision-making, and determine behavior so that it can influence a person's habits (Balaputra, 2021). Judging from the age of the respondents, the majority were of productive age; 24 respondents (92.3%) were in the category of never removing phlegm in a special container, and 2 other respondents (7.7%) were of unproductive age. In line with respondents who always dispose of phlegm in special containers, the majority are also of productive age, 19 respondents (90.5%), and the remaining 2 are of unproductive age (9.5%).

If we look at respondents whose last level of education was Junior High School, it was found that more respondents had never expelled phlegm in a particular container, totaling 8 respondents (30.8%). Research conducted by Pangkey (2022) states that factors such as age and education will influence a person's habits in responding to events that the respondent experiences. 21 Based on the results of interviews conducted with respondents who are tuberculosis sufferers, it is known that there are still several reasons why respondents have the habit of throwing away phlegm in a particular container. There were 39 respondents (60.9%) who already had the habit of expelling phlegm in a particular container, such as having prepared a bucket or can filled with soil when they were going to expel phlegm. Respondents said that using special phlegm containers was only done at home, and when outside the house, respondents would dispose of phlegm carelessly, such as throwing phlegm on the road or in the gutter.

A total of 8 respondents (12.5%) were still throwing phlegm carelessly because they could not see the phlegm collected first before throwing it away. Respondents thought throwing phlegm into a container would interfere with the viewer's vision. Another reason why respondents did not dispose of their phlegm in a particular container was that 1 respondent (1.6%) did not dispose of their phlegm in a particular container because the respondent's behavior was lazy in providing a particular container when coughing. Not only that, the influence of the respondent's place of residence is one of the reasons why respondents never dispose of phlegm in a particular container; in other words, respondents are afraid of using a container when expelling phlegm, namely, 1 respondent (1.6%). Also, 1 respondent (1.6%) said they only had to stay at home alone, so if they littered, it would not infect the family. This statement relates to the respondent's knowledge of adequately eliminating phlegm. Respondents thought the phlegm expelled by tuberculosis sufferers was the same as other phlegm, so 14 respondents (21.8%) were reluctant to provide a container when expelling phlegm.

Description of the Proportion of Variable Floor Types in Tuberculosis Sufferers and the Reasons

Republic of Indonesia Minister of Health Decree No. 829/Menkes/SK/VII/1999 states that the health requirements for housing with the components and room arrangement of a healthy house are said to be able to meet health requirements, floors that can meet health requirements are floors that are easy to clean and watertight. Floors made of planks or soil can increase the humidity in the house, which causes disease in the house's occupants. Water-permeable floor conditions will cause the room to become damp, thus contributing to the formation of tuberculosis.

The results of observations with respondents who are tuberculosis sufferers show that most respondents already have a type of floor that meets the requirements, namely watertight, easy to clean, and made of ceramic or cement. Some respondents already understand the importance of having a type of floor that meets the requirements so that it is easy to clean and avoids too much dust in the house. The results of interviews conducted with respondents showed that as many as 57 respondents (89%) already had floors made of cement, ceramics, tiles, and others that were waterproof. The respondent said that the house the respondent lived in had long-used floors made of cement. According to respondents, dirt floors will worsen the house's cleanliness.

Not all respondents already have the type of floor that meets the requirements. It is known that this house's default reason is one of many reasons respondents have a floor type that meets or does not meet the requirements. Human resources are one of the reasons respondents still need to replace the earthen floors. The respondent said the floor of the respondent's house was still partly dirt. Work is one of the reasons respondents have not replaced the floor of their house; there is no one to repair the floor, which is still dirt;

namely, 2 respondents (3.2%) have yet to be able to replace the floor of their house. After all, there was no expert person to replace the floor, which was initially still dirt. This reason is related to unfavorable economic factors. A total of 5 respondents (7.8%) said that the daily income earned every day was only enough for basic needs.

Description of the Proportion of Variable Wall Types in Tuberculosis Sufferers and the Reasons

The wall protects the room so it remains strong and no animals enter, thus helping air circulation. One of the requirements for a healthy home is that it meets the physiological requirements or physical quality of the home. One of the physical qualities consists of walls that meet the requirements. Walls are divided into 2 categories: meeting and not meeting the requirements. Walls that do not meet the requirements are made of bamboo or planks, which can increase humidity in the house. Better quality walls are made from solid and permanent materials, are watertight, and easy to clean. Based on the observations made in the respondents' homes, it is known that most respondents already have walls that meet the requirements, namely made of brickwork and plastered. The results of interviews with respondents revealed several reasons why respondents needed walls that met the requirements. However, the majority of respondents, namely 47 respondents (73.4%), already have walls that meet the requirements because they have always used walls when building houses. Respondents said it would not look good if the walls only used wood or plywood.

The source of income influences respondents to repair walls that previously did not meet the requirements. However, it was also found that some walls needed to meet the requirements due to the economy. This is related to economic reasons; as many as 13 respondents (20.3%) have not been able to replace walls with walls because the income they earn daily is insufficient if they have to replace walls. Insufficient daily expenses resulting from inadequate income made the primary informants prioritize basic needs over other needs, such as house repairs (Pramudaningsin et al., 2023; Maulana, 2020). Lack of human resources is one of the reasons respondents still need to renovate their houses. A total of 4 respondents (6.3%) said there needed to be more human resources to pay attention when repairs were carried out in the respondent's house. The respondent said he had been working since morning, and only his grandchildren were home. So there is no family to supervise when repairs are carried out.

Description of the Variable Proportion of Availability of Glass Roof Tiles in Tuberculosis Sufferers and the Reasons

Sunlight can prevent pulmonary tuberculosis by bringing morning sunlight into the house (Notoadmojo, 2011; Hikmat et al., 2024). Natural light can also be entered through glass roof tiles. Natural lighting in a room comes from sunlight, namely, all ways that allow natural sunlight to enter, such as through glass roof tiles. A healthy house is a house that has adequate lighting. In one of the studies conducted by Mushidah (2022), one factor that influences the lack of lighting in a house is the lack of vents or ventilation and the lack of glass roof tiles. Dark and damp room conditions will be a suitable medium for the growth of germs (Monintja et al., 2020; Mushidah, 2022). The variable for the availability of glass roof tiles assessed in this research is whether or not glass roof tiles are found in the respondent's house, which is a medium for light entering the house.

Based on the results of observations carried out in the respondent's house as well as interviews conducted with the respondent, it is clear that there is still minimal or insufficient lighting in the respondent's house, which is caused by a lack of ventilation and windows in the respondent's house. One of the things that the respondent can do is use glass roof tiles as a medium for natural light to enter the house (Aima & Erwandi, 2024; Pawestri & Novitasari, 2024). Respondents said that there needed to be education given to respondents regarding the use of glass roof tiles, which is one of the efforts that can be made to ensure light can enter the house. A total of 24 respondents (37.5%) said that using glass tiles is suitable as a medium for light to enter the house because not all houses have adequate ventilation to allow sunlight to enter the house.

Respondents thought using glass roof tiles would only increase costs because their function is the same as that of windows. Respondents said that installing glass tiles would make the house no longer look beautiful. A total of 7 respondents (10.9%) thought that the house they had occupied

for several years already had a ceiling roof where if glass tiles were installed, there would be no light coming in because the ceiling covered it. Some respondents could not install glass roof tiles because costs constrained them so they could not install glass roof tiles, namely 14 respondents (21.9%).

However, not all respondents have problems installing glass roof tiles in their homes. The influence of the surrounding environment, which also suffers from tuberculosis, made respondents buy glass roof tiles because of the invitation to prevent infection in the house. One of the reasons respondents already have glass tiles is because of support from the home environment; namely, 5 respondents (7.8%) said that the head of the local environment had reminded them to use glass tiles so that light could enter the house ideally. However, after being reminded to buy glass roof tiles, respondents needed more human resources to install glass roof tiles. A total of 8 respondents (12.5%) said that no one installed glass roof tiles and some respondents said they could not use a craftsman's services to install glass roof tiles. The jobs occupied by respondents varied from traders, pedicab drivers, massage therapists, and furniture workers to private employees. According to 2 respondents (3.1%), there was no time to install glass roof tiles. Some respondents lived alone and worked from night to day the next day, so respondents ignored installing glass roof tiles even though they had been reminded by the head of the neighborhood where they lived. Glass roof tiles will be practical if the prevention efforts made by sufferers and the surrounding environment are reasonable.

CONCLUSION

There are several conclusions in this research, including :

1. Most respondents were of productive age (93.8%) and more were male (67.2%). Most of the respondents included those who had a high school education level, namely (57.8%),
2. Respondents who have poor and sound knowledge are known to be (50%) in each category, and several reasons influence the level of respondents' knowledge, namely age, access to information, and lack of information obtained,
3. More respondents have a smoking habit than those who do not smoke. As many as (62.5%) have the majority smoking habit, and as many as (31.3%) are moderate smokers. There are several reasons that influence respondents' smoking habits, namely the social environment of peers, work influences, stress, and family members who smoke,
4. Respondents who habitually wore masks more were categorized as less (65.6%). There are several reasons that influence respondents' habit of wearing masks, namely ensuring that there is no infection, air pollution, economic influences, living environment and workplace environment,
5. More respondents who have the habit of opening windows have good habits, namely (67.2%). Several reasons influence the respondent's habit of opening windows: air circulation, daily routine, work, and lack of window access.
6. Respondents who habitually expel phlegm in special containers are more likely to be categorized as never expelling phlegm in special containers. As many as (40.6%) never dispose of phlegm in a particular container. Several reasons influence the habit of respondents to dispose of phlegm in special containers, namely the influence of the environment where they live, the influence of knowledge, and the inability to see the phlegm and economic influences.
7. More respondents had floor types that met the requirements than those with floors that did not. As many as (87.5%) have floors that meet the requirements. Several reasons influence the type of floor in the respondent's house, namely, economic influence, the built-in nature of the house, and human resources,
8. More respondents were found to have wall types that met the requirements (78.1%). Several reasons influence the type of walls in the respondent's house, namely, economic influence, the built-in nature of the house, and human resources,
9. Only 15.6% of respondents had glass roof tiles in their house, and the majority (84.4%) did not have glass roof tiles, a medium for light entering the house. Several reasons influence the availability of glass roof tiles in respondents' homes: knowledge, work influence, human resources, family support, and living conditions.

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