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Behavioral Determinants Of Internal Pulmonary Tb Patients Prevention Of Transmission To Families In Work Area PB Selayang II Medan Puskesmas 2022

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Keywords

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Abstract. Tuberculosis is a direct infectious disease caused by TB germs (Mycobacterium tuberculosis) which is still a large family of the genus Mycobacterium. The most important source of infection is the sputum of smear-positive pulmonary TB patients. Transmission occurs through sputum splashes (droplet infection) when the patient coughs, speaks or spits. Factors that cause the incidence of tuberculosis include age, education, occupation, gender, knowledge, nutritional status, occupancy density and the role of health workers. Behavior is an activity or activity of the organism concerned. Behavior is a person's response or reaction to a stimulus (external stimulus). So, it can be concluded that behavior is the activity and reaction of living things to external stimuli. The type of research used is an analytic study with a cross-sectional study design. In this study, the determinants of the behavior of pulmonary TB patients in preventing transmission to the family were examined using instruments in the form of questionnaires and medical records. This research was conducted in the work area of the PB Selayang II Health Center in Medan City with the reason for choosing the research location because there were pulmonary TB sufferers in the family. The sample used in this study was a total sample of 80 people. The results show that age is associated with a P-value of 0.002, gender is associated with a P-value of 0.000, education is associated with a P-value of 0.004, employment is associated with a P-value of 0.000, nutritional status is associated with a P-value -value of 0.000, Knowledge is associated with a P-value of 0.000, occupancy density is associated with a Pvalueof 0.003, the role of health workers is associated with a P-value of 0.010 and the most dominant factor related is gender with xp (B)106,648.

1. INTRODUCTION

Pulmonary tuberculosis (TB), hereinafter referred to as TB, is a disease lower respiratory tract infections. This disease is caused by mycobaceterium tuberculosis which is transmitted through inhalation of saliva droplets, from one individual to another individual and colonizes the bronchioles or alveoli. A patient's infectious power is determined by the number of germs they have excreted by the lungs. Every patient with pulmonary TB disease can infect on average 15-20 other people. Transmission of pulmonary TB disease occurs in association with less preventative behavior for pulmonary TB sufferers, such as taking medication regularly, check with a doctor, throw away sputum/phlegm, cover your mouth when coughing, etc. Others[1].

WHO reports that the estimated number of people diagnosed with TB per year 2021 globally there were 10.6 million cases or an increase of around 600,000 cases from In 2020, it is estimated that there will be 10 million TB cases. Of these 10.6 million cases, There are 6.4 million (60.3%) people who have been reported and are undergoing treatment and 4.2 million (39.7%) other people have not been found/diagnosed and reported TB can be suffered by anyone, from a total of 10.6 million cases in 2021, there are at least 6 million cases in adult men, then 3.4 million cases are adult women and other TB cases are children, namely as many as 1.2 million cases. Deaths due to TB as a whole are also quite high high, at least 1.6 million people died from TB, this figure has increased from year to year Previously, it was around 1.3 million people. There are also 187,000 people who die from TB and HIV Several countries have succeeded in reducing the TB burden from year to year (>20%), including Bangladesh (2020), Lesotho (2020 and2021), Myanmar (2020 and 2021), Mongolia (2021) and Vietnam. (Report Global and Indonesian Tuberculosis (TB) Cases, 2022). Indonesia itself is in second place (2nd) in terms of the number of sufferers The most TB in the world after India, followed by China, the Philippines, Pakistan, Nigeria, Bangladesh and the Democratic Republic of Congo

respectively. In the year of 2020, Indonesia is in third place with the highest number of cases, so 2021 is clearly no better. TB cases in Indonesia are estimated as many as 969,000 TB cases (one person every 33 seconds). This figure rose 17% from 2020, namely 824,000 cases. The incidence of TB cases in Indonesia is 354 per 100,000 population, which means that for every 100,000 people in Indonesia, 354 people suffer from TB. Disruption due to the pandemic Covid-19 since 2020 is predicted to cause a setback in achievements up to 5-8 years. The death rate due to TB in Indonesia has reached 150,000 cases (one person every 4 minutes), up 60% from 2020 which was as many as 93,000 cases of death due to TB. With a death rate of 55 per 100,000 inhabitants. Findings of TB Cases in Indonesia From a total of 969,000 estimates of TB cases in Indonesia, the cases found were only 443,235 (45.7%) cases only, while there were 525,765(54.3%) other cases not yet discovered and reported. In 2020, the number of cases that have not been discovered was 430,667 cases. This means that there is an increase in the number of cases has not been found significantly. Meanwhile, the achievement of case discovery an increase from 2020 which was 393,323 cases. (Case Report Tuberculosis (TBC) Global and Indonesia, 2022.

Pulmonary TB is an infectious disease caused by bacterial infection Mycobacterium Tuberculosae. This disease can spread through people's droplets who have been infected with TB bacilli. Along with Malaria and HIV/AIDS, TB is one of the diseases whose control is a global commitment MDGs. According to the 2018 Riskesdas results, the prevalence of pulmonary TB is based on diagnosis amounting to 0.4% of the population. According to Province, the prevalence of pulmonary TB The highest based on diagnosis is West Java at 0.7%, DKI Jakarta and Papua is 0.6% each, while for North Sumatra itself there are 0.2% of diagnosed TB cases. The majority are predisposed to pulmonary TB increases with increasing age (65-74 years, namely 0.8%) with male gender (0.4%), with low education level (0.5%) and no working (11.7%). Population diagnosed with TB by health workers 0.4% treated with program drugs[2]. Pulmonary TB is a disease that is transmitted very quickly. One of the ways Pulmonary TB is transmitted through droplet nuclei during the patient coughs or sneezes, especially on people closest to the patient, namely the family live at home with the patient. This is supported by research [3], who stated that as many as 12 people (100% of 12 respondents) showed the presence of symptoms of pulmonary TB in families living in the same house as TB patients lungs. This is because families tend to have intensity and frequency of making direct contact or interacting with patients. Apart from that, it is also difficult for families to avoid direct contact because of this responsibility to care for or simply visit patients.

Family behavior in prevention plays a very important role in reduces the risk of transmission of pulmonary TB. The increasing number of pulmonary TB patients in Indonesia is caused by unhealthy behavior. For example, a family that still using utensils to eat or drink at the same time, lack of lighting in the house, patients who are still spitting carelessly. Besides Therefore, there are myths related to pulmonary TB transmission that are still found in Indonesia public. For example, the public opinion is that pulmonary TB is not spread due to direct contact with TB patients (infectious) but more so smoking habits, alcoholism, eating fried foods, sleeping on the floor and sleeping late evening[4]. TB transmission is related to the behavior of sufferers, their families and community in preventing the transmission of TB disease. Behavior in prevention Transmission of TB disease includes covering your mouth when coughing and sneezing, spit in certain places that have been given disinfectant, BCG immunization on baby, avoid cold air, try to let sunlight enter the place sleep, and eating foods that are high in carbohydrates and high in protein [5].

Based on the recapitulation report on the number of pulmonary TB sufferers in the city of Medan in 2022 there will be 18,962 sufferers. One of the indicators used in TB control is CaseDetection Rate (CDR), namely proportion of new BTA positive patients discovered and treated the number of new positive BTA patients estimated in the region [6]. Survey results at PB Selayang II Community Health Center, Medan City, in 2021 There are a number of smear positive pulmonary TB sufferers who are currently taking medication There were 71 DOTs, with details of 56 men and 15 women people, of which 57 people aged 15 – 56 years, > 60 years 6 0 people and Age < 14 years as many as 8 people. [7] Meanwhile, in 2022 there will be 80 pulmonary TB sufferers with details of 61 men and 19 women, including age 15-56 years as many as 68 people, > 60 years as many as 5 people

and < 4 years old as many as 7 people. From the data above that from 2021 to 2022 there will be an increase in smear positive pulmonary TB cases by 9 cases or an increase of 13.75% from the previous year. As well as There are several behavioral surveys in the work area of the PB Selayang II Community Health Center people who have bad behavior, where when the sufferer working without wearing a mask or not covering your cough or sneeze mouth. Apart from that, pulmonary TB sufferers often or always expel phlegm in any place and many still share a room with members families who do not suffer from pulmonary TB disease. [8].

2. METHOD

In this research, the type of research used is an analytical study with a cross-sectional study design by observing the independent and dependent variables at the same time. In this research it is seen determining the behavior of pulmonary TB sufferers in preventing transmission in the family using instruments in the form of questionnaires and medical records. The population in this study were all patients diagnosed with pulmonary TB based on positive BTA examination results and receiving DOTs therapy obtained from medical record data at the PB Selayang II Community Health Center, Medan City at the time of the study, namely 80 people. The sample used in this study was the total sample. or Total Sampling of 80 people. The data that has been collected is processed using manual calculations and using a computerized system and analyzed using Univariate Analysis and Bivariate Analysis.

3. RESULTS AND DISCUSSION

Univariate Analysis Results

In this study, the age of the respondents was divided into two groups, namely productive age 15-58 years and non-productive age <15 years > 58 years in accordance with Republic of Indonesia government regulations Number 21 of the Year 2014.

Table 1 Frequency Distribution of Respondents Based on Age in PB Selayang II Community Health Center Working Area, Medan City, 2022.

Respondent's Age	Amount	
	N	%
15-58 years old	41	51,3
<15 years >58 years	39	48,7
Amount	**80**	**100**

Based on table 1, it shows that of the 80 respondents, the majority of respondents were aged 15-58 years as much as 51.3% and age <15 years >58 years as much as 48.7%.

Table 2 Frequency Distribution of Respondents Based on Level Education in the Working Area of the PB Selayang II Community Health Center, Medan City Year 2022.

Level of education Respondents	Amount	
	N	%
High (high school, PT)	15	18,8
Low (Kindergarten, Elementary, Middle School)	65	81,3
Amount	**80**	**100**

Based on table 2, it shows that the majority have education respondents were low educated at 81.3% and Education high is 18.8%

Table 3 Frequency Distribution of Respondents Based on Occupation in PB Selayang II Community Health Center Working Area, Medan City in 2022.

Respondent's Occupation	Amount	
	N	%
Work	48	60,0
Doesn't work	32	40,0
Amount	**80**	**100**

Based on table 3, it shows that the majority of respondents 60.0% of respondents worked and 40.0% of respondents who did not work.

Table 4 Frequency Distribution of Respondents Based on Gender in the PB Selayang II Community Health Center Working Area, Medan City in 2022.

Gender Respondents	Amount	
	N	%
Man	48	60,0
Woman	32	40,0
Amount	**80**	**100**

Based on table 4, it shows that the majority of respondents suffering from pulmonary TB are 60.00% men and 40.00% women.

Table 5 Frequency Distribution of Respondents Based on Nutritional Status in PB Selayang II Community Health Center Working Area, Medan City in 2022.

Nutritional status	Amount	
	N	%
Obesity (BMI >27%)	9	11,2
Fat (BMI >25-27%)	15	18,8
Normal (BMI 18-25%)	11	13,8
Thin (BMI<18.5% %)	45	56,2
Amount	**80**	**100**

Based on table 5, it shows that the majority of respondents thin nutritional status is 56.2%, obesity is 11.2%, fat as much as 18.8%, and normal nutritional status as much as 13.8%.

Table 6 Frequency Distribution of Respondents Based on Knowledge in the PB Selayang II Community Health Center Working Area, Medan City in 2022.

Knowledge Respondents	Amount	
	N	%
Good	48	60,0
Bad	32	40,0
Amount	**80**	**100**

Based on table 6, it shows that respondents suffer from TB The majority of lungs have less knowledge, 77.5% and respondents with good knowledge as much as 22.5%

Table 7 Frequency Distribution of Respondents Based on Density Residential area in the PB Selayang II Community Health Center, Medan City Year 2022.

Residential Density Respondents	Amount	
	N	%
Not solid	48	60,0
Congested	32	40,0
Amount	**80**	**100**

Based on table 7, it shows that respondents suffer from TB The majority of lungs have a dense residential density of 66.2% and are not dense 33.8%.

Table 8 Frequency Distribution of Respondents Based on the Role of Health Officers in the Working Area of PB Selayang II Health Center, Medan City Year 2022.

Role of Respondent Health Officers	Amount	
	N	%
There is	41	51.2
There isn't any	39	48.8
Amount	**80**	**100**

Based on table 8, it shows that respondents suffer from TB Existing lungs receive guidance from the majority of health workers as many as 51.2% and who did not receive guidance from officers health 48.8%.

Bivariate Analysis

The topics that will be discussed in the physics science learning application of straight motion kinematics include Motion, Distance and Displacement, Speed and Velocity, Acceleration and Progress, Regular Straight Motion, Regular Changing Straight Motion, and Free Fall Motion. The relationship between respondent age in preventing transmission of pulmonary TB sufferers can be seen in table 9.

Table. 9 Age Relationship Based on Prevention of Pulmonary TB Transmission in PB Selayang II Community Health Center Working Area, Medan City in 2022.

Age	Prevention of Pulmonary TB Transmission						Value
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Productive	23	28.8%	18	22.5%	41	51.2	0.002
Non-productive	9	11.3%	30	37.5%	39	48.8	

From the research results in table 4.9, the majority of respondents are aged non-productive indicates poor prevention of pulmonary TB transmission as much as 37.5% and the majority of respondents were of productive age good prevention of pulmonary TB transmission by 28.8%. Based on the results analysis showed that the proportion coefficient (p) was 0.002 smaller than that with the error level used at the α= 0.05 level, it can be obtained It was concluded that there was a relationship between age and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB in the family.

Table. 10 Relationship between Education Distribution and Prevention of Transmission Pulmonary TB in the Working Area of PB Selayang II Health Center, Medan City, Year 2022.

Age	Prevention of Pulmonary TB Transmission						Value
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Productive	23	28.8%	18	22.5%	41	51.2	0.002
Non-productive	9	11.3%	30	37.5%	39	48.8	

From the research results in table 10, the majority of respondents are Having higher education indicates prevention of pulmonary TB transmission both 13.8% and the majority of respondents had low education with poor prevention of pulmonary TB transmission by 55.0%. Based on the results of the analysis, the proportion coefficient (p) was more than 0.004 small compared to the error level used at the α= 0.05 level So it can be concluded that there is a relationship between education and behavior pulmonary TB sufferers in preventing transmission of pulmonary TB in the family.

Table 11 The Relationship between Work and Prevention of Pulmonary TB Transmission in PB Selayang II Community Health Center Working Area, Medan City in 2022.

Work	Prevention of Pulmonary TB Transmission						Pvalue
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Work	32	32.5	6	7.5	32	40.0	0.002
Doesn't work	6	7.5	42	52.5	48	60.0	

From the research results in table 11, the majority of respondents are work shows good prevention of pulmonary TB transmission as much as 32.5% and the majority of respondents do not

work with preventing TB transmission bad lungs as much as 52.5%. Based on the analysis results obtained the proportion coefficient (p) of 0.001 is smaller than the level The error used is at the α= 0.05 level so it can be concluded that There is a relationship between work and the behavior of pulmonary TB sufferers in prevention transmission of pulmonary TB in the family.

Table. 12 Relationship between gender and prevention of TB transmission Lungs in the Working Area of the PB Selayang II Community Health Center, Medan City in 2022.

Gender	Prevention of Pulmonary TB Transmission						Pvalue
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Man	25	31.3	7	8.8	32	40.0	0.002
Woman	7	8.8	41	51.3	48	60.0	

From the research results in table 4.12, the majority of respondents are of the type female sex shows good prevention of pulmonary TB transmission as many as 31.3% and the majority of respondents were male with prevention of transmission Unfavorable pulmonary TB was 51.3%. Based on the analysis results obtained The proportion coefficient (p) of 0.000 is smaller than the level The error used is at the α= 0.05 level so it can be concluded that There is a relationship between gender and the behavior of pulmonary TB sufferers in prevention transmission of pulmonary TB in the family.

Table. 13 Relationship between nutritional status and prevention of infection in patients Pulmonary TB in the Working Area of PB Selayang II Health Center, Medan City, Year 2022.

Nutritional status	Prevention of Pulmonary TB Transmission						Pvalue
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Obesity (BMI >27%)	7	8.8	2	2.5	9	11.2	0.002
Fat (BMI >25-27%)	13	16.3	2	2.5	15	18.8	
Normal (BMI 18-25%)	8	10	3	3.8	15	13.8	
Thin (BMI<18.5% %)	4	5.0	41	51.3	45	56.2	

From the research results in table 13, the majority of respondents are having a thin nutritional status indicates poor prevention of pulmonary TB transmission as much as 51.3% and the majority of respondents who have a poor nutritional status obese with poor prevention of pulmonary TB transmission as much as 16.3%. Based on the results of the analysis, the proportion coefficient (p) was more than 0.000 small compared to the error level used at the α= 0.05 level So it can be concluded that there is a relationship between nutritional status and behavior pulmonary TB sufferers in preventing transmission of pulmonary TB in the family.

Table. 14 Relationship between Knowledge and Prevention of Transmission Pulmonary TB sufferers in the PB Selayang II Community Health Center Working Area, Medan City Year 2022.

Knowledge	Prevention of BTA Pulmonary TB Transmission						Pvalue
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Good	15	18.8	3	3.7	29	22.5	0.000
Not enough	17	21.3	45	56.3	39	77.5	

From the research results in table 14, the majority of respondents are Having good knowledge shows the prevention of pulmonary TB transmission both 18.8% and the majority of respondents who have knowledge less with poor prevention of pulmonary TB transmission as much as 56.3%. Based on the results of the analysis, the proportion coefficient (p) was more than 0.000 small compared to the error level used at the α= 0.05 level So it can be concluded that there is a relationship between

knowledge and behavior pulmonary TB sufferers in preventing transmission of pulmonary TB in the family.

Table. 15 Relationship between Residential Density and Prevention of Transmission Pulmonary TB sufferers in the PB Selayang II Community Health Center Working Area, Medan City Year 2022.

Residential Density	Prevention of Pulmonary TB Transmission						P value
	Good		Not Good		Mount		
	N	%	N	%	N	%	
Not solid	17	21.2	10	12.5	27	33.7	0.002
Congested	15	18.8	38	47.5	53	66.3	

From the research results in table 15, the majority of respondents are Having non-crowded housing indicates prevention of pulmonary TB transmission both 21.2% and respondents who have dense housing with prevention of bad transmission of pulmonary TB by 47.5%. Based on The results of the analysis showed that the proportion coefficient (p) was 0.003 smaller compared to the error level used at the α= 0.05 level, then It can be concluded that there is a relationship between residential density and behavior pulmonary TB sufferers in preventing transmission of pulmonary TB in the family.

Table.16 Relationship between the Role of Health Workers and Prevention Transmission of Pulmonary TB Patients in the Working Area of PB Selayang II Health Center Medan City in 2022.

Officer's Role Health	Prevention of Pulmonary TB Transmission						Pvalue
	Good		Not Good		Mount		
	N	%	N	%	N	%	
There is	22	27.5	19	23.6	41	51.3	0.002
There isn't any	10	12.5	29	36.3	39	48.7	

From the research results in table 16, the majority of respondents The role of health workers in preventing transmission of pulmonary TB was good at 27.5% and the majority of respondents who did not have a role for health workers in preventing transmission of pulmonary TB were 36.3%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.010 was smaller than the error level used at the α= 0.05 level, so it can be It was concluded that there was a relationship between the role of health workers and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to the family.

Multivariate Analysis

In this research, multivariate analysis is an analysis for find out the relationship between independent variables, namely: age, education, occupation, type gender, nutritional status, knowledge, residential density, role of health workers, and knowing the most dominant independent variable. Based on the Chi-Square test, it is known that 8 (eight) variables are age, education, employment, gender, nutritional status, knowledge, residential density, the role of health workers in the work area of the PB Selayang II Community Health Center, Medan City. These variables can be included in the multivariate analysis because of the value at p the value is <0.25. Next, a multivariate analysis was carried out with a logistic regression test double gradually. The results of the multiple logistic regression analysis can be seen from the following table:

Table 17. Bivariate Test Results Included in Regression Analysis Multiple Logistics

Variabel	B	p.value	Exp(B)
Age	0.364	0.671	1.458
Education	-2.255	0.004	0.105
Work	3.222	0.001	25.000
Gender	4.670	0.001	106.648
Nutritional status	1.333	0.002	3.793
Knowledge	1.270	0.212	3.560

Residential density	2.392	0.000	10.934
Role of health workers	1.241	0,190	3.459
Constant	**-20.356**	**.000**	**,000**

Based on table 17, the results of the multiple logistic regression test analysis above It is known that the variables age, education, occupation, gender, nutritional status, knowledge, residential density, the role of health workers are related significant in preventing transmission of pulmonary TB in families in work areas PB Selayang II Community Health Center, Medan City and is the most dominantly connected is gender with Exp (B) 106,648.

Discussion

Age Relationship Based on Infection Prevention Behavior Pulmonary TB

Active pulmonary TB infection increases significantly with age, the highest incidence of pulmonary TB usually affects young adults. In Indonesia, it is estimated that 75% of pulmonary TB sufferers are in the productive age group, namely 15-50 years [9].From the research results, it was found that out of 80 respondents, it was found that those of non-productive age showed poor prevention of pulmonary TB transmission as much as 37.5% and the majority of respondents of productive age showed good prevention of pulmonary TB transmission as much as 28.8%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.002 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between age and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB in the family. This can happen because age is a predisposing factor for changes in behavior that are associated with the physical and psychological maturity of pulmonary TB sufferers. Meanwhile, based on age, it appears to be moving towards non-productive age due to resignation to the illness suffered [10].

The Relationship between Education and Behavior to Prevent Pulmonary TB Transmission

From the research results, it can be seen that a person's level of knowledge will influence him in preventing transmission of pulmonary TB. This can be shown by the higher the level of education of family members regarding preventing transmission of pulmonary TB, the more the respondent will be aware and understand the importance of preventing transmission. So respondents with a high level of education have an influence in preventing transmission of pulmonary TB. Level of education very influential in thinking patterns. A person's level of education will influence a person's knowledge, including regarding housing that meets health requirements and knowledge of pulmonary TB disease so that with sufficient knowledge, a person will try to have a clean and healthy lifestyle. Apart from that, a person's level of education will influence the type of work. The better the level of formal education in society will indirectly reduce morbidity and mortality rates because a good level of education is able to absorb information and increase people's awareness to live healthier lives and actively participate in maintaining their health [11].

Relationship between work and infection prevention behavior in pulmonary TB sufferers

From the research results, it was found that out of 80 respondents, it was found that the majority of respondents who had higher education showed good prevention of pulmonary TB transmission at 13.1% and the majority of respondents who had low education showed poor prevention of pulmonary TB transmission at 55.0%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.004 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between education and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB in the family. Based on multiple logistic regression statistical tests, it is known that education is significantly related to behavior to prevent transmission of pulmonary TB. This can be explained even though education describes a person's behavior to prevent transmission of pulmonary TB as not being a dominant factor in a person's behavior. The more The lower the level of education, the less knowledge in the health sector. Both

directly and indirectly it can influence the physical, biological and social environment which is detrimental to health [12].

Relationship between Gender and Behavior to Prevent Pulmonary TB Transmission

The type of work determines the risk factors that each individual must face. If workers work in a dusty environment. Exposure to dust particles will cause problems with the respiratory tract. Chronic exposure to polluted air can increase morbidity, especially the occurrence of respiratory tract diseases and especially pulmonary TB. From the research results, it was found that of the 80 respondents, it was found that the majority of respondents who worked showed good prevention of pulmonary TB transmission at 32.5% and the majority of respondents who did not work showed poor prevention of pulmonary TB transmission at 52.5%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.001 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationshipwork with the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to the family.This is in accordance with research proposed by Jaiz Pribadi (2009), namely that respondents who have good preventive behavior are mostly respondents who have jobs compared to those who do not work and research conducted by Zuliana (2009) which suggests that work will influence the use of health services, in addition to A person's work will reflect more or less the amount of information received, including information about health services.

Relationship between nutritional status and behavior to prevent pulmonary TB transmission

Gender is a term that refers to a person's biological status. Consisting of the physical appearance that differentiates between women and men, a person's exposure to TB infection is influenced by several factors, including: social status, economic status, nutritional status, age, gender and other social factors. The gender of pulmonary TB patients tends to be higher in men than women [13].From the research results, it was found that of the 80 respondents, it was found that the majority of female respondents showed good prevention of pulmonary TB transmission at 31.3% and the majority of male respondents showed poor prevention of pulmonary TB transmission at 51.3%. This happened because men have a level of consciousness lower than women in terms of maintaining health, especially in terms of preventing transmission of pulmonary TB disease. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.000 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between gender and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB in the family. This is in line with research by Julia, Katharina, Hans (2017) [14] which states that the general tendency for women to be more aware of health and engage in preventive behavior is seen in most subgroups.

According to research by Gustafon (2004), men have a 2.58 times risk of suffering from tuberculosis compared to women [15]. This is also supported by a report from WHO which explains that in Africa, TB disease mostly attacks men, where the number of pulmonary TB sufferers is almost double that of men. The number of pulmonary TB in women is 42.34% in men and 28.92% in women. According to WHO 2013, the incidence of pulmonary TB is higher in men, possibly due to several things, including: differences in epidemiology or exposure, the risk of infection and the development of infectious diseases, this is associated with consuming cigarettes and alcohol which can reduce the body's immunity so that very vulnerable to the incidence of TB [16].

Relationship between Knowledge and Behavior to Prevent Pulmonary TB Transmission

From the research results, it was found that out of 80 respondents, it was found that the majority of respondents who had good knowledge showed good prevention of pulmonary TB transmission at 18.8% and the majority of respondents who had moderate knowledge showed poor prevention of pulmonary TB transmission at 56.3%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.000 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between knowledge and the behavior of pulmonary

TB sufferers in preventing transmission of pulmonary TB in the family. This is because knowledge is the basic capital for someone to behave. People who have a good understanding of TB disease will become a reference for them to try to prevent the disease. Because we understand the dangers and transmission of pulmonary TB. The respondent's lack of knowledge and lack of behavior is the final stage of behavior, so that the good or bad actions taken by the respondent are influenced from the start, namely the respondent's knowledge. Insufficient action is a risk factor for transmission of pulmonary TB, such as not using a mask covering the nose and mouth, preparing a container for the patient's phlegm, separating eating utensils from the patient and other family members and providing good lighting in the room. With knowledge, pulmonary TB sufferers can know about the dangers of transmission posed by splashes of phlegm they expel. Lack of motivation in TB patients due to low education and knowledge, so that pulmonary TB sufferers can act to determine their actions in carrying out examinations. The motivation for pulmonary TB sufferers to undergo examination is an urge that arises from within themselves to carry out treatment for the pulmonary TB disease they suffer from. Knowledge is the basic capital for someone to behave. People who have a good understanding of disease TB, then this will be a reference for him to try to prevent this disease, because he already understands the dangers and transmission of pulmonary TB.

The Relationship between Residential Density and Prevention of Pulmonary TB Transmission

Occupant density is the floor area of a healthy house that must be sufficient for the occupants inside, meaning that the floor area of the building must be adjusted to the number of occupants. The density of residents in a house will have an impact on the residents. The size of the house is not proportional to the number of occupants. From the results of the research it was found that of the 80 respondents it was found that the majority of respondents who had non-dense housing showed good prevention of pulmonary TB transmission as much as 21.2% and respondents who had dense housing had good prevention of transmission.Bad pulmonary TB was 47.5%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.003 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between residential density and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families, where the more If the dwelling in a house is narrow, the density of occupants will increase. This means that the floor area of a healthy house must be sufficient for the occupants inside, meaning that the floor area of the building must be adjusted to the number of occupants. Density Residents in one house will have an influence on the residents. The size of the house is not proportional to the number The occupants. From the research results, it was found that out of 80 respondents, it was found that the majority of respondents who had non-crowded housing showed good prevention of pulmonary TB transmission at 21.2% and respondents who had dense housing showed poor prevention of pulmonary TB transmission at 47.5%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.003 was smaller than the error level used at the α= 0.05 level, so it can be It was concluded that there is a relationship between residential density and the behavior of pulmonary TB sufferers in preventing the transmission of pulmonary TB in families, where the more dwellings in a narrow house, the more dominant the physical contact between residents in one house, making it difficult to maintain distance, and TB disease prevention behavior. lung is difficult. The results of this study are in line with research conducted by Rusnoto, showing that there is a significant relationship between housing density and the incidence of pulmonary tuberculosis.

The Relationship between the Role of Health Workers and Prevention Pulmonary TB Transmission

The role of health workers in serving pulmonary TB patients is expected to be able to build good relationships with patients. Element The performance of health workers has an influence on the quality of health services, including health services, including health services for Pulmonary Tuberculosis patients which will directly or indirectly influence the regularity of patient treatment which ultimately also determines the results of treatment. From the research results, it was found that of the 80 respondents, it was found that the majority of respondents who had a good role for health

workers in preventing transmission of pulmonary TB were 27.5% and the majority of respondents who did not have a role for health workers in preventing transmission of pulmonary TB was 36.3%. Based on the results of the analysis, it was found that the proportion coefficient (p) of 0.010 was smaller than the error level used at the α= 0.05 level, so it can be concluded that there is a relationship between the role of health workers and the behavior of pulmonary TB sufferers in preventing the transmission of pulmonary TB in the family. The results of this study are in line with research conducted by Perdana (2008) which stated that the role of health workers in providing services is related to compliance with treatment for pulmonary TB sufferers [17]. A mutually supportive relationship between health services is an important factor for sufferers to complete their treatment [18]. The role of Health officers is the activity of officers when communicating directly, communicating verbally and with signs. Providing health information about the prevention, treatment and dangers of pulmonary TB disease through health education activities not only by using outreach media in the form of distributing leaflets or brochures but also by outreach media in the form of short videos about pulmonary TB disease to pulmonary TB sufferers so that sufferers really understand about pulmonary TB disease and can minimize transmission to other people and pulmonary TB sufferers can easily understand and health information is conveyed to pulmonary TB sufferers.

4. CONCLUSION

Based on the research results, it can be concluded The relationship between age and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.002. The relationship between gender and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB in families in the PB Selayang II work area is related to a P-value of 0.000. The relationship between education and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.004. The relationship between work and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.000. The relationship between nutritional status and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.000. The relationship between knowledge and behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.000. preventing transmission of pulmonary TB to families in the PB Selayang II work area is associated with a P-value of 0.003. The relationship between the role of health workers and the behavior of pulmonary TB sufferers in preventing transmission of pulmonary TB to families in the PB Selayang II work area is related to a P-value of 0.010. The most dominant factor related is gender with Exp (B) 106,648 in preventing transmission of pulmonary TB in families in the PB Selayang II work area.

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