AISCH 2022
The 3rd Al Insyirah International Scientific Conference on Health

FACTORS AFFECTING THE EVENT OF REPEAT LUNG TB IN THE WORK AREA OF UPTD PUSKESMAS POLAK BANANA AND UPTD PUSKESMAS PERANAP, INDRAGIRI HULU REGENCY

[1]Destria Efliani , [2]Mersi Eka Putri, [3]Deti Widiyati

[1,2,3] Nursing Science Study Program, STIKes Al Insyirah Pekanbaru
Email: efliani85@gmail.com

ABSTRACT

Pulmonary tuberculosis (pulmonary TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis which spreads through the air. This disease is a big problem for developing countries, because it is estimated that 95% of patients with pulmonary TB are in developing countries, and 75% of people with pulmonary TB are in the productive age group (15-50 years). The purpose of the study was to determine the factors that influence the incidence of recurrent pulmonary TB in the UPTD of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency.The sampling technique in this study used a non-probability sampling technique with a total sampling type of 65 respondents.Bivariate analysis was carried out with Chi Square statistical testing. Univariate analysis results showed that 75.4% of respondents did not smoke, 80% occupancy density was not crowded, and lighting was good 73.8%. The results of the study showed that there was a relationship between smoking and recurrent pulmonary TB with a p value of 0.003, based on the Spearman correlation test, a value of 0.809 was obtained, which means that there is a very strong relationship between smoking habits and the incidence of pulmonary TB. There is a relationship between Occupancy Density and the incidence of recurrent pulmonary TB with a p value of 0.035. Based on the Spearman correlation test, a value of 0.787 is obtained, which means that there is a very strong relationship between residential density and the incidence of pulmonary TB. There is a relationship between residential lighting and recurrent pulmonary TB with a p value of 0.000, based on the Spearman correlation test, a value of 0.785 is obtained, which means that there is a very strong relationship between residential lighting and the incidence of pulmonary TB. It is recommended that respondents understand more about the importance of knowing the factors that influence the incidence of pulmonary TB, so that respondents want to practice this knowledge at home.

Keywords : Occupancy Density, Smoking, Occupancy Lighting, Pulmonary TB

INTRODUCTION

Pulmonary tuberculosis (pulmonary TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis which spreads through the air. These bacteria generally attack the lungs and some can attack outside the lungs such as lymph nodes, skin, intestines or digestive tract, lining of the brain, and so on. This disease is a big problem for developing countries, because it is estimated that 95% of pulmonary TB patients are in developing countries, and 75% of those pulmonary TB patients are in the productive age group (15-50 years) (Sanga, A. 2014).

In 2015, the number of tuberculosis cases in Indonesia was 330,729 cases. This number increased from 2016 which amounted to 351,893 cases. The highest number of reported cases was in the provinces with the largest population, namely West Java, East Java, and Central

Java. Tuberculosis cases in the three provinces accounted for 44% of the number of new tuberculosis cases in Indonesia. The proportion of tuberculosis cases by age group in 2016 found the most cases in the 25-34 year age group at 18.07%, followed by the 45-54 year age group at 17.25%, and in the 35-44 year age group at 16, 81% (Ministry of Health RI, 2017).

The Republic of Indonesia Health Health Office (2018) states that most of the cases of male sufferers are 1.5 times higher than women. In each province throughout Indonesia more cases occur in men than women. According to gender, the incidence of pulmonary TB mostly occurs in men because they have a higher smoking habit than women (Sanga, 2014). On the characteristics of education, the prevalence is getting lower in line with the high level of education. The prevalence based on the type of work that the population who does not work turns out to have the highest prevalence. An interesting fact is that the economic level shows a significant difference only in the top group, with the lowest prevalence of 0.2 (Kemenkes RI, 2018).

Riau province in 2018 ranked 12th in Indonesia in the discovery of AFB TB (+) new cases. The new discovery rate of AFB (+) is 24,126 patients or the case detection rate (CDR) is 56%. The set CDR target is a minimum of 70%. In 2019, there were 48,542 treated TB cases from an estimated 112,318 cases. The CDR for TB in Riau is 41% with this, Riau Province has reached the minimum target set by the Ministry of Health of the Republic of Indonesia of 38%. The success rate of treatment for patients with smear TB (+) new cases in Riau Province is 92.37% (Riau Provincial Health Office, 2019).

The new cases of pulmonary TB in Indragiri Hulu Regency in 2019 were 364 cases, the 10 health centers with the highest incidence of pulmonary TB in Indragiri Hulu Regency were the Seberida Health Center (45 cases), Sipayung Health Center (39 cases), Air Molek Health Center (38 cases), Pekan Heran Public Health Center (37 cases), Peranap Public Health Center (35 cases), Pangkalan Kasai Health Center (25 cases), Kambesko Health Center (22 cases), Polak Pisang Health Center (19 cases),Lyrics Health Center (13 cases), and Sungai Parit Community Health Center (12 cases) for UPTD Puskesmas (Dinkes Indragiri Hulu, 2019). The cure rate for pulmonary TB AFB (+) is 70.43%, with a treatment success rate of 79.21%. For UPTD Puskesmas (Dinkes Indragiri Hulu, 2019). This is in line with the number of patients with smear TB (+) who have treatment cure rates that have exceeded the national cure percentage (Indragiri Hulu District Health Office, 2019). Positive patients with pulmonary TB in 2020 were 65 patients (Medical Records of UPTD Polak Pisang Health Center and UPTD Peranap Health Center, 2020).

Research conducted by Fitriani (2012) states that there is a relationship between the patient's age, family income level, home environmental conditions, behavior and history of contact with patients with pulmonary tuberculosis. Narasimhan et al (2013) stated that the development of pulmonary TB from exposure to disease influenced by host characteristics and environmental and social factors. The host characteristics are duration of exposure to the causative agent, age, sex, immune status, malnutrition (nutritional status) and diabetes. Meanwhile, environmental and social factors include the level of environmental crowds, poor air ventilation, alcohol, smoking and workers.

Based on the description of the background above, it is important to conduct a study entitled "Factors Affecting the Incidence of Recurrent Pulmonary TB in the Working Area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragiri Hulu Regency".

RESEARCH METHODS

This study uses descriptive analytic method, with a cross-sectional approach. The sample in this study were patients with pulmonary TB whose results were positive with a sampling technique using total sampling, namelysampling technique where the entire population is sampled. Data processing is carried out in the stages of editing, coding, processing, cleaning, and tabulating. Data analysis was done by univariate, bivariate with chi square test.

RESEARCH RESULT

Table 1 Frequency Distribution of Smoking Factors in the working area of the UPTD of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency (n=65)

Smoking Category	F	%
Do not smoke	49	75.4
Smoke	16	24.6
Total	65	100

Based on Table 1, it can be seen that most of the respondents in the non-smoking category were 49 respondents (75.4%)

Table 2 Frequency Distribution of Occupancy Density Factors in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragiri Hulu Regency (n=65)

Occupancy Density Category	F	%
Not solid	52	80
Congested	13	20
Total	65	100

Based on Table 2, it can be seen that most of the respondents in the non-crowded category were 52 respondents (80%).

Table 3 Frequency Distribution of Residential Lighting Factors in the working area of UPTD Polak Pisang Health Center and UPTD Peranap Health Center Indragiri Hulu Regency (n=65)

Residential Lighting Category	F	%
Well	48	73.8
Not good	17	26.2
Total	65	100

Based on Table 3, it can be seen that most of the respondents in the good residential lighting category were 48 respondents (73.8%).

Table 4 Distribution of the Frequency of Pulmonary TB in the Working Areas of the UPTD of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency (n=65)

Category of Pulmonary TB Kejadian	F	%
New	48	73.8
Repeat	17	26.2
Total	65	100

Based on Table 4, it can be seen that most of the respondents in the category of new pulmonary TB were 48 respondents (73.8%).

Table 5 Relationship of Smoking Habits with the Incidence of Pulmonary TB in the Working Area of the UPTD of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency

Smoke	Incidence of pulmonary TB				Amount	%	*p value*	Spearman's Correlation
	New TB	%	TB Recurring	%				
Do not smoke	45	91.8	4	8.2	49	100		
Smoke	9	56.3	7	43.8	16	100	0.003	0.809
Total	54	83.1	11	16.9	65	100		

Based on table 5, it can be seen that the relationship between smoking and the incidence of pulmonary TB in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragiri Hulu Regency has a relationship with p value of 0.003. Based on the Spearman correlation test, a value of 0.809 was obtained, which means that there is a very strong relationship between smoking habits and the incidence of pulmonary TB.

Table 6 Relationship between Occupancy Density and Incidence of Pulmonary TB in the Working Area of the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragiri Hulu Regency

Occupancy Density	Incidence of pulmonary TB				Amount	%	*p value*	Spearman's Correlation
	New TB	%	TB Recurring	%				
Not solid	46	88.5	6	11.5	52	100		
Congested	8	61.5	5	38.5	13	100	0.035	0.787
Total	54	83.1	11	16.9	65	100		

Based on table 6 , it can be seen that the relationship between occupancy density and the incidence of pulmonary TB in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragiri Hulu Regency has a relationship with p value 0.035. Based on the Spearman correlation test, a value of 0.787 was obtained, which means that there is a very strong relationship between residential density and the incidence of pulmonary TB.

Table 7 Relationship of Residential Lighting with Pulmonary TB Incidence in the Work Area of the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragiri Hulu Regency

Residential Lighting	Incidence of pulmonary TB				Amount	%	*p value*	Spearman's Correlation
	New TB	%	TB Recurring	%				
Well	46	95.8	2	4.2	48	100	0.000	0.785
Not good	3	17.6	14	82.4	17	100		
Total	49	75.4	16	24.6	65	100		

Based on table 4.3, it can be seen that the relationship between residential lighting and the incidence of pulmonary TB in the UPTD of Polak Pisang Health Center and UPTD of the Peranap Health Center of Indragiri Hulu Regency has a relationship with a p value of 0.000. Based on the Spearman correlation test, a value of 0.785 was obtained, which means that there is a very strong relationship between residential lighting and the incidence of pulmonary TB.

DISCUSSION

The Relationship between Smoking and the Incidence of Recurrent Pulmonary Tuberculosis in the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragiri Hulu Regency

Based on the research, it was found that the relationship between smoking and recurrent pulmonary TB in the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragiri Hulu Regency had a relationship with p value of 0.003. From the results of research that has been carried out in line with the results of research by Nurliza Rahayu et al (2016), people who smoke have a 1.33 times greater risk of developing pulmonary TB than people who do not smoke with a proportion of 52.5%. While the results of the study obtained by Fakhmi Murfikin et al that smoking habits have a relationship with the incidence of pulmonary TB.
The results of this study are in line with the research conducted by Setyawan, et al (2011) where there is a significant effect between exposure to smoking both passive and active smokers on the incidence of pulmonary TB with p value = 0.002. Results from Setyawan, et al (2011) This is in line with interviews conducted on several respondents, where respondents were infected with pulmonary TB not because of smoking but respondents lived at home with household members with (+) pulmonary TB and were smokers. The results of research conducted by Murfikin, et al (2014) where there is a significant relationship between smoking habits and the incidence of pulmonary tuberculosis in the working area of the Sidomulyo Health Center with p value = 0.004.

This study is in line with the research conducted by Manalu (2010) regarding the factors that influence the incidence of pulmonary TB and efforts to overcome it, with the results of the study that one of the factors causing pulmonary TB is smoking at home with a p value = 0.005. The same research was carried out by Dewi, et al (2012) with the results of the study that there was a significant influence between smoking habits.

The results of this study are in line with Narasimhan et al, (2013) which states that smokingmeincrease the risk of pulmonary TB because it interferes with the clearance of mucosal secretions, decreases the phagocytic ability of alveolar macrophages and decreases

the immune response and/or CD4+ lymphophenia due to the nicotine content in cigarettes.The longer a person smokes, the more it causes more dangerous consequences. This is because the toxins contained in cigarettes will accumulate in the body. Smoking with tuberculosis is a double problem because it helps in the spread of infection, changes latent tuberculosis in an active stage, and worsens the severity of tuberculosis (Haris, 2014).

The research assumption is that Tuberculosis (TBC) occurs, but if this smoking factor can be reduced or even stopped, the number of patients with pulmonary TB will also decrease.
Relationship between Occupancy Density and Recurrent Pulmonary TB Incidence in the Working Area of the UPTD of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency

Based on the results of the study that there is a relationship between Occupancy Density with Repeated Pulmonary TB Incidence in the Working Area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap Indragiri Hulu Regency has a relationship with p value 0.035. The results of this study are in line with Ziti Nur Azyyati's research (2016) which concluded that there is a significant relationship between residential density and the incidence of pulmonary TB as well as the results of Mawardi's research (2014) with the proportion of densely populated housing as much as 82.6% and less dense housing as much as 17.4%. . There is a significant relationship between housing density and the incidence of pulmonary TB because residential density is the initial trigger in the disease transmission process and 75.9% of respondents' houses have a residential density of less than 8 m² per person.

According to the 2018 Ministry of Health, residential density has an effect on the process of disease transmission, the denser the movement of infectious diseases, especially those through the air, the easier and faster it will be. If the number of occupants increases in the room, it will increase the humidity of the room because of water vapor from both breathing and sweat that comes out of the body. The room occupancy density is in accordance with a healthy house, namely a minimum room area of 8 m2 / person, not occupied by >2 people, except for children under 5 years. And if there are family members who suffer from pulmonary tuberculosis, you should sleep separately with other family members.

The results of this study are in line with the results of the Prime research (2018) entitled The Relationship of Physical Home Environmental Factors to the Incidence of Pulmonary TB where in the case group the density of housing that does not meet health requirements is greater, namely 64% compared to the control group at 14%. The obtained value of P = 0.000 which means that there is a relationship between residential density and the incidence of pulmonary TB with an OR value of 10.92 which indicates that respondents who have a residential density that does not meet health requirements are at risk of 10.92 times greater than respondents who have a residential density that meets the requirements. health.

The research assumption of the results of the Oktavia study (2018) in the working area of the Kertapati Palembang Health Center stated that there was a relationship between occupancy density and the incidence of pulmonary tuberculosis (P = 0.002). Similarly, Tempone's research (2016) in the working area of the Tikala Baru Health Center in Manado City stated that there was a relationship.

The Relationship of Occupancy Lighting with the Incidence of Recurrent Pulmonary TB in the Working Areas of the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragiri Hulu Regency

Based on the research, it was found that there was a relationship between residential lighting and the incidence of recurrent pulmonary TB in the UPTD working area of the Polak Pisang Health Center and the UPTD of the Peranap Health Center, Indragiri Hulu Regency with a p value of 0.000. The results of this study are in line with Mawardi's research (2014) which states that there is a relationship between lighting and the incidence of pulmonary TB and the results of Susanti's (2016) research that most of the respondents' homes have lighting that does not meet the requirements, which is 71.43%. Lighting conditions are a significant factor, this can be seen from the results of the research above, This study is in line with research conducted by Mariana and Chairani (2014) who found that there was a significant relationship between lighting and the incidence of pulmonary TB in the work area of the Binanga Health Center, Mamuju Regency, West Sulawesi (p-value: 0.016).

Research assumptions with research conducted by Mawardi & Indah (2014) which states that there is a significant relationship between lighting and the incidence of pulmonary TB in the working area of UPT Puskesmas Dadahup, Dadahup District, Kapuas Regency. People who have non-qualified room lighting have a 5.2 times greater risk than people who have qualified room lighting.

CONCLUSION

Based on the results of the study, several conclusions can be drawn as follows.There are more than half of 48 (73.8%) respondents experiencing new pulmonary TB in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap Indragir Hulu Regency. There are more than half of 49 (75.4%) respondents who do not smoke in the working area of the UPTD of Polak Pisang Health Center and UPTD of Peranap Health Center, Indragir Hulu Regency. There are the majority of respondents 52 (80%) respondents with occupancy density in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap Indragir Hulu Regency. There are more than half of the 48 (73.8%) respondents with good residential lighting in the working area of the UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragir Hulu Regency. There is an influence of smoking habits on the incidence of recurrent pulmonary TB in the working area of the UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap Indragiri Hulu Regency with a P Value of 0.003. There is an influence of occupancy density factor with the incidence of recurrent pulmonary TB in the working area of UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap Indragiri Hulu Regency with a P Value of 0.035. There is an influence of residential lighting factors with the incidence of recurrent pulmonary TB in the working area of the UPTD Puskesmas Polak Pisang and UPTD Puskesmas Peranap, Indragiri Hulu Regency with a P Value of 0.000

REFERENCES

Azyyati SN, et al. (2016). Factors Affecting the Incidence of Pulmonary TB in RW 09, Jembatan Besi Village, Tambora District, West Jakarta. Jakarta : University of Indonesia.

Riau Provincial Health Office. (2019). Riau Province Health Profile 2019. Pekanbaru.

Indragiri Hulu District Health Office. (2019). Health Profile of Indragiri Hulu Regency in 2019. Rengat

Fitriani, E. (2012). Risk Factors Associated with the Incidence of Pulmonary Tuberculosis. Semarang State University. Unnes Journal of Public Health.

Harris. (2014). The relationship between smoking and the incidence of pulmonary TB in the city of Tasikmalata. Jakarta. University of Indonesia.

Kemenkes RI. (2018). Indonesia Health Profile 2017. Jakarta.
Kemenkes RI. (2019). Indonesia Health Profile 2018. Jakarta.
Manalu. (2010). Factors that influence the incidence of pulmonary TB in Binjai City. Medan. USU.
Mariana and Chairani .(2014). The relationship between lighting and the incidence of pulmonary TB in the working area of the Binanga Health Center, Mamuju Regency, West Sulawesi. Makassar. Hasanuddin University.
Mawardi. (2016). The Relationship between Physical Conditions of Houses and Occupancy Density with Pulmonary TB in the Work Area of UPT Puskesmas DADAHUP, DADAHUP District, Kapuas Regency. sebelas Maret University.
Murfikin, Fakhmi. (2014). Factors influencing the incidence of pulmonary TB at the Sidomulyo Public Health Center Pekanbaru. Pekanbaru. Riau University.
Narasimhan et al. (2013). The relationship between smoking and the incidence of pulmonary TB in Malang City. Surabaya. Airlangga University.
Nurliza Rahayu et al, (2016). Risk factors of smokers to the incidence of pulmonary TB in the city of Padang. field. Andalas University.
Oktaviyana F, et al. (2016). The Relationship between the Work Environment of Pulmonary TB Patients and Pulmonary TB Disease. University of Indonesia.
Sano. A. (2014). Factors Associated with the Incidence of Pulmonary TB at Productive Age at the Makassar Pulmonary Center. Makassar: Makassar College of Health Sciences (STIK).
Loyalin MA and Hermawati E, (2013). Analysis of the Physical Environment of a Home with the Incidence of Pulmonary TB in Cengkereng District, West Jakarta Administration, 2013. Environmental Health FKM UI.
Susanti LI. (2016). The Relationship between Physical Home Conditions and Behavior with the Incidence of Pulmonary Tuberculosis in the Work Area of the Sangkrah Health Center Surakarta City in 2016. University of Indonesia.
Setyawan, et al (2011). Effect of exposure to smoking both passive and active smokers on the incidence of pulmonary TB. Jakarta. UMJ