

The Relationship Environment Conditions with the Risk Event of Pulmonary Tuberculosis at the Sikakap Health Center, Mentawai Islands

Weni Sartiwi^{1*}, Rhona Sandra², Armina Sakelak Asak³

^{1,2,3} High School of Health Sciences Syedza Saintika Padang, West Sumatera, Indonesia

*Corresponding author. Email: wenisartiwi16@gmail.com

ABSTRACT

The management of lung tuberculosis treatment control in mentawai islands regency is very low. the recovery rate of patients with new TB cases in 2016 has not yet approaching of the 84,44 %. Data in 10 health centers is the most data in public health center in mentawai islands district, the highest incidence of lung tuberculosis in sikakap health center is 51 people. The research aims the relationship of house condition with the risk of pulmonary tb at the sikakap public health center, mentawai islands. Research methode is the analysis descriptive with approach cross sectional study method. The population was the patients are all who come to visit to the sikakap health center who were checked by doctors at three month time (january until march 2018). All patient totaled 315 people. Simple random sampling method is how to take the sample. data was collected the consultation and observations using a questionnaire. Univariate and bivariate analysis were used to analyze the data. The reseach found that 59.5% of respondents suffering risk of pulmonary tuberculosis, 64.3% of respondents had poor house condition. There is a significant correlation between house condition with the risk event of pulmonary tuberculosis ($p = 0,024$). expected that the health center will be able to carry out periodic health education in order to increase the recovery rate of TB patients.

Keywords: Pulmonary Tuberculosis, Environment Condition.

1. INTRODUCTION

Pulmonary tuberculosis (TB) is New TB is the third largest cause of disease in the world after cardiovascular disease and respiratory disease and is the number one cause of infectious diseases. In 2014 there were 9.6 million patient in the world afected with TB germs and in 2014, the highest number of pulmonary TB cases was in the African region (37%), the Southeast Asia region (28%), and the East Mediterranean region (17%)^[1]. Pulmonary TB health problems in Indonesia occur in 3 regions namely the Sumatra region (33%), the Java and Bali regions (23%), and the eastern part of Indonesia (44%). Pulmonary tuberculosis is the third leading cause of death after heart and respiratory disease in all age groups and number one for infectious diseases. The death toll from pulmonary TB in Indonesia is estimated at 61,000 deaths each year^[2].

The incidence of pulmonary tuberculosis in West Sumatra continues to increase every year, namely in 2013 as 3660 cases, in 2014 is 3896 cases, in 2015 at 3914 cases, and in 2016 there were found

as 3926 cases spread across 19 districts / cities in Sumatra Province. West including the Mentawai Islands Regency^[3]. Data from the Health Office of the Mentawai Islands Regency in 2017, shows that the achievement of tuberculosis treatment control is still very low, both at the Puskesmas and at the hospital. The discovery of new positive BTA cases in 2017 has not yet reached the target of 67.88% of the target of 70%. Meanwhile, the data shows that out of 10 Public health center in Mentawai Islands, the lofty risk of Tuberculosis paru was found in Puskesmas Sikakap, namely 51 patient^[3].

The success or failure of tuberculosis treatment depends on environmental sanitation and the family economy. There is no effort from yourself or motivation from the family who do not provide support for complete treatment will affect patient adherence to taking the drug. further consequences that will be caused if the patient stops taking the drug there will be TB germs that are resistant to the drug, but if it continues and the germs continue to spread then the control of TB drugs will be increasingly

difficult to implement and the increase in mortality rates continues to increase due to tuberculosis^[4]. Poor housing, environment and workplace sanitation can facilitate transmission of pulmonary tuberculosis^[5].

Pulmonary TB disease is closely related to the sanitation of the home environment, such as lighting conditions, house floors, rooms, ventilation and world density. The sanitation of the home environment greatly affects the presence of the Mycobacterium tuberculosis pathogen, where the Mycobacterium tuberculosis pathogen can live for one until two even longer to weeks depending on the sun^[6]. A healthy home according to Winslow and APHA (America Public Health Association), must meet several requirements, such as ventilation, rooms, lighting, type of house floor and occupant density^[7]. Based on the living environment / place of residence, the house is one of the basic human needs which functions as a place to live or shelter. The house has a function as a place to unwind, a place to foster a sense of kinship, a symbol of social status and a place to put or store valuables^[7]. Density of occupancy and housing conditions ranks second by 70% after economic status which affects the transmission of pulmonary tuberculosis, which is 90%^[8].

The results of previous research conducted by Hidayati and Pramudya (2015) on the sustainability sanitation condition and the risk incidence of TBC in Tawang Sari, Bandar Sari Village, Mojokerto Regency,

showed that 89 respondents owned houses. Preliminary study was conducted in May 2018 by observation at 10 houses with pulmonary tuberculosis, it was found that the conditions of the houses did not meet health requirements, including 4 houses with lighting that did not illuminate the entire room, 2 houses with floor types which were partly ground and partly cement. , 2 houses with spacious rooms that do not meet the requirements, 1 customary house that does not open ventilation to create good air circulation and 1 house with an occupancy density that exceeds the normal limit, which is more than 2 people in 1 room^[9].

2. METHODS

This research is a quantitative research. The research design used a cross sectional study. The place to do this research is at the Sikakap public health service, Mentawai Regency from April until August 2018. The population was all patients is 315 with a sample of 42 patients. The sampling technique in this research was simple random sampling, namely using a lottre. Environmental sanitation variables were carried out through interviews with questionnaires, while data collector for pulmonary TB incidence used medical record data. The types of data analysis used in this study include univariate and bivariate analysis.

3. RESULTS:

Table 1: Characteristics of Respondents at Sikakap Health Center Mentawai Islands Regency.

No.	Karakteristik	f	%
1.	Age		
	20 – 35	13	31,0
	> 35	29	69,0
2.	Gender	f	%
	Male	30	71,4
	Female	12	28,6
3.	Education	f	%
	Primary	16	38,1
	Junior	19	45,2
	Senior	7	16,7
4.	Profesion	f	%
	Housewife	12	28,6
	Farmers	19	45,2
	Fisherman	7	16,7
	Entrepreneur	4	9,5

In table 1, the result of the 42 respondents more than half of 29 people (69.0%) of respondents were > 35 years old, 30 people (71.4%) were male, 19 people

(45.2%) respondents have junior high school education, 19 people (45.2%) respondents work as farmers.

Table 2: Frequency distribution of pulmonary tuberculosis accident

No.	Pulmonary Tuberculosis Accident	f	%
1.	Not pulmonary Tuberculosis accident	17	40,5
2.	Pulmonary Tuberculosis	25	59,5
	Amount	42	100,0

Table 2, the 42 respondents more than half of 25 people (59.5%) of respondents experienced pulmonary tuberculosis.

Table 3 : Frequency distribution of Environment Sanitation

No.	Sanitation condition	f	%
1	Qualify	15	35,7
2	Not Qualify	27	64,3
	Amount	42	100,0

Table 3, about the sanitation condition it that of the 42 respondents, many people (64.3%) had sanitation condition that did not qualify.

Table 4 : Condition Sanitation With The Risk Of Pulmonary Tuberculosis

N o.	Environment Sanitation	Tuberculosis Pulmonary Accident				Total		P value
		Not TB Pulmonary		Tuberculosis Pulmonary		f	%	
		f	%	f	%			
1.	Qualify	10	66,7	5	33,3	15	100,0	0,024
2.	Not Qualify	7	25,9	20	74,1	27	100,0	
	Amount	17	40,5	25	59,5	42	100,0	

Table 4 above, it can be seen that the incidence of pulmonary tuberculosis was more prevalent in respondents who had condition sanitation that did not qualify of 20 people (74.1%) than qualify of 5 people (33.3%). The results is obtained p value = 0.024 (p <0.05), it means that there is a related between sanitation condition and the incidence of pulmonary tuberculosis at the Sikakap Health Center, Mentawai Islands Regency.

4. DISCUSSION

The results of the research, obtained the 42 respondents many respondents had pulmonary tuberculosis (59.5%). This research is the same as previous research by Sayogi (2015) on the related factors with the risk of pulmonary tuberculosis in Boyolali. Pulmonary TB is an infectious disease caused by the Mycobacterium virus. TB is classified as an air borne infection, which can enter the When patient breathe in, or inhale, your diaphragm contracts and moves downward. This increases the space in chest cavity, and lungs expand into it [10]. Then the germs enter from the lungs to other body

systems through the circulatory system, lymphatic, through the bronchi or extend directly other bodies^[6].

Research conducted of pulmonary TB patients, it is found that the number of pulmonary TB patients based on age is the largest age who experiences pulmonary TB disease is > 35 years old. Results of this research, we get that more cases were in productive age. Productive age is the age when active activities outside the home environment so that it is more at risk of spreading pulmonary TB disease, especially in crowded environments. Age affects a people body defenses, the upper the age, the lower the person's defense. The impact of the that's these researchers was pulmonary TB patients who were of productive age were more vulnerable to the risk of contracting pulmonary TB disease because they were more active outside the home environment. Some TB patients who are of productive age, work from morning to midnight which is influenced by weather factors, lack of rest, and lack of nutritious food. Due to the busy activities of pulmonary TB patients, some pulmonary TB patients do not pay attention to their health at least with symptoms of cough > 2 weeks.

Education of the research is more a junior school. The condition is one of the indicators which is often studied in measuring the level of human development of a country. Through knowledge, education contributes to health behavior. Influenced knowledge by education level is one of the factors predisposing factors that play a role in influence a person's decision to behave healthy^[16].

Based on the researcher's assumption of that is more than half the respondents experienced pulmonary TB incidence, this was due to the high spread of pulmonary TB. Based on the observations of researchers in the field, it was found that there were sanitary conditions in the home environment that did not meet the requirements. This is evident from the results of the environmental sanitation questionnaire on questions about the condition of the house floor that is not waterproof or the floor is made of earth (61.9%), questions about natural lighting in the living room that does not enter light (61.9%) and questions Regarding the source of water used for family toilets comes from the river (83.3%).

Research obtained about home condition, of the 42 respondents more than half (64.3%) of respondents had sanitation condition that did qualify. The same as the research submitted by Sayogi (2015) regarding factors associated to the incidence of pulmonary tuberculosis in Boyolali Regency. The results of his research indicate that the sanitary conditions of the home environment are inadequate or inadequate (60.5%). In essence, environmental health is an optimum environmental condition so that it has a positive effect on the realization of an optimal health status which includes: lighting, floor types, rooms, ventilation and occupancy density^[10].

According to Indonesia Law No. 4 of 1992 on Housing and Settlements, a house is a place to live or occupy and a means of fostering a family. Meanwhile, what is meant by health according to WHO (World Health Organization) is a condition that is perfect both physically, mentally, and socially and culturally, not only free from disease and weakness. Based on the above understanding, it can be interpreted that a healthy house is a place of shelter and shelter and a place to rest so as to foster a perfect life both physically, spiritually and socio-culture.

The results of this study indicate that more of the environmental sanitation conditions in this study do not meet the requirements. From the observations of researchers in the field, it can be seen that the most that does not qualify is in the sector of floor conditions, lighting and water sources used for

latrines. This is evident from the results of the environmental sanitation questionnaire on questions, namely the condition of the house floor that is not watertight or the floor is made of earth (61.9%), questions about natural lighting in the living room that does not enter light (61.9%) and questions Regarding the source of water used for family toilets comes from the river (83.3%).

About the incidence of pulmonary tuberculosis was more prevalent in respondents who had sanitation that did not qualify (74.1%) than those to qualify (33.3%). The statistical test (chi-square) is p value = 0.024 ($p < 0.05$), it means that a relationship condition home sanitation and the incidence. Comparable to previous by Nurcahyo (2013) which found a relationship between home lighting conditions and the incidence of pulmonary tuberculosis^[11]. This is consistent with the research by Musadad (2001) who conducted a study on the relationship between home condition factors and the risk of pulmonary TB transmission in households. the house entered into the sun^[12].

Tuberculosis is an important public health problem that can cause ill health for about 10 million people every year^[13]. According to Atmosukarto and Soeswati in Nurhidayah in 2007, *Mycobacterium tuberculosis* can live for years in a cool, humid place without sunlight and *Mycobacterium tuberculosis* can die when exposed to sunlight. Artificial light is using non-natural light sources, such as kerosene lamps, electricity, fire and so on^[14]. For bedrooms, a minimum of 2 people is required. Bedrooms should not be occupied by > 2 people, except for husband and wife and children under two years. If there are family members who suffer from tuberculosis, it is better not to sleep with other family members.

The results of this study obtained from the questionnaire that there are still many densely populated houses, namely 43% of respondents have a building area of less than 8 m² which is inhabited by 2 or more people, this is due to customs where older girls and youngest married girls are not allowed to moving house. Density of greatly affects the transmission of pulmonary tuberculosis, because pulmonary TB germs can be transmitted through air media so that if the house is densely populated these germs are easily transmitted. If the house is not congested, the air circulation becomes smooth so that the patient and other family members can protect the transmission of pulmonary tuberculosis.

In addition, the incidence of pulmonary tuberculosis in the study was also caused by humidity and lighting conditions. According to research by

Fatimah (2008) on environmental health factors related to the incidence of pulmonary tuberculosis, there is a related factors about the incidence of pulmonary tuberculosis and humidity, wall type, ventilation and lighting ^[15]. In theory, environmental sanitation is closely related to residential conditions. Environmental sanitation is an effort to control physical environmental factors that may cause harm to physical development, health and human survival. These control efforts include the provision of good household water, regulation of disposal of feces, garbage, wastewater, regulating healthy homes, eradicating disease vectors such as flies and mosquitoes, monitoring air pollution and radiation from radioactive remains. Family sanitation is measured from three aspects: the physical condition of the house, household facilities and water sources.

5. CONCLUSION

The conclusion was the study found that more than half (59.5%) of respondents suffering tuberculosis. More than half (64.3%) of respondents had house condition sanitation in Sikakap Health. There is a significant correlation between house condition with the risk event of pulmonary tuberculosis ($p = 0,024$). It is expected for health workers through lung TB program holders to catch patients who do not take medication and increase education about efforts to prevent lung TB events.

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