ANALYSIS OF RISK FACTORS FOR PULMONARY TUBERCULOSIS INCIDENCE IN PEOPLE OF PRODUCTIVE AGE IN THE WORKING AREA OF THE PLAJU PUBLIC HEALTH CENTER OF PALEMBANG CITY IN 2023

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ABSTRACT

Indonesia is the third country with the number of patients with pulmonary TB disease. The incidence of pulmonary tuberculosis can be caused by several risk factors, including predisposing factors (knowledge, attitudes and actions), supporting factors (house ventilation, lighting, occupancy density, type of house floor and type of house wall) and driving factors (role of health workers and role of health workers). family). The purpose of this study was to examine the relationship between knowledge, attitudes, house ventilation, occupancy density, and the role of health workers with the incidence of pulmonary tuberculosis in productive age communities in the Plaju City Health Center of Palembang in 2023. This study was an analytical observational design with a cross sectional study. The population in this study is the productive age community (15-49 years) in 2023 in the Work Area of the Plaju Public Health Center in Palembang City with a total sample of 100 people. The sampling technique in this study is purposive sampling. The results of the study found that there was a relationship between knowledge and the role of health workers with the incidence of pulmonary tuberculosis in people of productive age in the working area of the Plaju City Health Center in Palembang in 2023. At the end of this study, it is hoped that the results of this study can be an illustration for the puskesmas to be able to further improve health services. especially in the incidence of pulmonary TB.

Keywords: Risk Factors, Productive Age, Tuberculosis

1. INTRODUCTION

Tuberculosis (TB) is a curable and preventable disease, it continues to pose a major global health problem as infectious disease following HIV/AIDS(1). Tuberculosis (TB) is the leading cause of death from an infectious agent in the world. Most tuberculosis cases are concentrated in low- and middle-income countries (2,3). Every year, around 2 million people in the world die from TB, and 9 million become infected with TB. Indonesia is located in position third after India and China (4). TB is the number one cause of death from infectious diseases among Indonesians of productive age (15-54 years in 2021, and it is estimated that only 47.1 % of TB cases will be treated and reported (5,6,7).

In 2019, there were 270 people suffering from pulmonary tuberculosis, of which 173 were men (64%) and 97 women (36%), while in 2020 there were 548 cases of pulmonary tuberculosis, of which 321 were men (58.6%). %) and women were 227 people (41.4%) and in 2021 there were 626 people, of which there were 389 men (62.1%) and 237 women (37.9%). Coverage of cured pulmonary TB in 2021 is 560 (89.4%).Based on secondary data from the Plaju Public Health Center, Palembang City, the number of new cases of histologically confirmed pulmonary TB that received outpatient care was ranked 6th in the top 10 diseases. In 2019 the number of new cases of pulmonary TB was 36 cases and in 2020 there were 42 cases and in 2021 there were 49 cases consisting of 23 cases in Silaberanti sub-district, 11 cases in 8 Ulu sub-district and 15 cases in 9/10 Ulu sub-district. The cure rate for treatment has not yet reached the Minimum Service Standard, which is only

84.24%. This is because there are sufferers who do not comply with treatment, so they experience failure in treatment.

The incidence of pulmonary tuberculosis can be caused by several risk factors, including predisposing factors (knowledge, attitudes and actions), supporting factors (house ventilation, lighting, residential density, type of house floor and type of house walls) and driving factors (the role of health workers and the role of family) (8,9).

2. METHOD

Quantitative research with observational analytical methods through distributing questionnaires and interviews. This research design is a cross sectional study approach. This research was conducted in July-August 2023. The research location was carried out in the Plaju Health Center Working Area, Palembang City. Questionnaires were distributed to each sub-district of the Plaju Health Center Working Area, Palembang City, which consists of 3 sub-districts, namely Silaberanti, 8 Ulu and 9/10 Ulu sub-districts. The sampling technique in this research was purposive sampling. The sample size in this study was 100 people. This analysis is used to determine the relationship between the independent variable and the dependent variable. The statistical test used in this research is the Chi Square Test. The significance limit used in this research is an α value of 0.05.

3. RESULTS

Respondents who were positive for pulmonary TB were 36 (36%), poor knowledge amounted to 59 respondents (59%), unfavorable attitudes amounted to 58 respondents (58%), ventilation that did not meet requirements amounted to 71 respondents (71%), low housing density. those who did not meet the requirements amounted to 45 respondents (45%), the role of good officers amounted to 57 respondents (57%) (Table 1).

Respondents who were positive for pulmonary TB were 29 (49.2%) with good knowledge with positive pulmonary TB being 7 (17.1%), P-value = 0.007 and the Odds Ratio value was 4.048. Positive for pulmonary TB was 19 (32.8%) with a good attitude and positive for pulmonary TB was 17 (40.5%), P-value = 1.000 and the Odds Ratio value was 1.937. Positive for pulmonary TB was 18 (40%) with a residential density that met the requirements with positive pulmonary TB at 18 (32.7%), P-value = 0.611 and the Odds Ratio value was 1.370. Positive for pulmonary TB was 29 (40.8%) with ventilation that met the requirements with positive pulmonary TB as many as 7 (24.1%), P-value = 0.681 and the Odds Ratio value was 1.398. Positive for pulmonary TB was 24 (55.8%) with a good role of officers with positive pulmonary TB as many as 12 (21.1%), P-value = 0.004 and the Odds Ratio value was 3.947 (Table 2).

Table 1. Frequency Distribution Based on Variables

Variabels	N	(%)
Pulmonary Tuberculosis		
Positif	36	36
Negatif	64	64
Knowledge		
Bad	59	59
Good	41	41
Attitudes		
Bad	58	58
Good	42	42

Residential Density		
Not eligible	71	71
Eligible	29	29
Ventilation		
Not eligible	45	45
Eligible	55	55
Role of Health Workers		
Bad	45	45
Good	55	55

Table 2. Relationship Based on Variables

Knowledge	Pulmonary Tuberculosis						p-value	OR 95% CI
	Yes		No		Total			
	n	%	n	%	N	%	0,007	4,048
Bad	29	49,2	30	50,8	59	100		(1,532-
Good	7	17,1	34	82,9	41	100		10,692)
Attitudes								
Bad	19	32,8	39	67,2	58	100	1,000	1,937
Good	17	40,5	25	59,5	42	100		(0,394-
								2,227)
Residential Density								
Not eligible	18	40	27	60	45	100	0,611	1,370
Eligible	18	32,7	37	67,3	55	100		(0,584-
								3,213)
Ventilation								
Not eligible	29	40,8	42	59,2	71	100	0,681	1,398
Eligible	7	24,1	22	75,9	29	100		(0,514-
								3,798)
Role of Health Workers								
Bad	24	55,8	19	30,2	43	100	0,004	3,947
Good	12	21,1	45	78,9	57	100		(1,614-
								9,654)

4. DISCUSSION

Regarding knowledge, more than half of respondents know how this disease is transmitted (10), there is concern that 59.0% of respondents do not know the correct way of transmission because they should have been given clear information about various aspects of TB at the start of treatment (11). Coughing and sneezing by TB patients and sharing cups with patients are common modes of transmission (12). This study highlights several gaps in knowledge, especially with regard to the causes of this disease and methods of transmission that should be considered when establishing TB awareness dissemination (13).

The majority of research participants knew methods for preventing

and treating pulmonary tuberculosis, which was almost similar to research conducted in Indonesia by Konda., et al (2016), Cover the mouth and nose when pulmonary tuberculosis sufferers cough or sneeze, use a separate room, avoid using glasses and eating utensils at the same time, and ventilate the house well (14).

Poor knowledge about TB was significantly associated with young age groups, low education, and low income. Study participants with secondary education had significantly higher scores on general knowledge about pulmonary tuberculosis. This shows that age is an important determinant of general knowledge about pulmonary tuberculosis. These findings confirm previous research in Ethiopia (16), Madagascar (17), Brazil (18). Therefore, young respondents, low-educated groups, and poor communities should be targeted for pulmonary tuberculosis awareness programs to increase knowledge. To reach these groups, educational strategies must be focused and tailored. Unfavorable attitudes and practices regarding pulmonary tuberculosis were significantly associated with low knowledge.

Lack of public awareness to take advantage of the availability of free and effective TB treatment services. Nearly half of the study participants said that pulmonary tuberculosis in general was a very serious disease. When study participants were asked how they would feel if they found out they had it, most of them said they would feel afraid, sad, or hopeless (19). The perception of pulmonary tuberculosis as a very serious disease that causes fear may be caused by several factors such as the length of treatment for pulmonary tuberculosis, the complications that accompany it, the high mortality rate, loss of daily wages, and the social stigma attached to the disease. In this study, almost half of the research participants said that pulmonary tuberculosis sufferers were mostly supported and assisted by the community.

This is in line with many other studies (20).

Residential density is estimated to be 7.563 times more at risk of developing pulmonary tuberculosis compared to those who are not densely populated. Another thing that proves that residential density is not the only risk factor that contributes to the incidence of pulmonary tuberculosis is that Gedongtengen and Danurejan Districts have relatively high population densities. However, the increase in the number of pulmonary tuberculosis incidents was not followed by an increase. Regarding residential density, there is a statistically significant relationship between residential density and the incidence of pulmonary tuberculosis in Yogyakarta City in 2017-2018 (p-value < 0.05). Spatial analysis shows that the distribution of TB incidence in Yogyakarta City tends to be inversely proportional to the distribution of housing density. Umbulharjo District has low housing density but high pulmonary tuberculosis. The results of research in Wonosobo, Central Java, show the same results as this research: there is a significant relationship between housing density and the incidence of TB. Pratiwi, Pramono and Junaedi stated that someone who lives in an area with high housing density has a 5 times higher risk of contracting TB than those who live in an area with low density. This shows that residential density influences the incidence of TB because dense environments may also have poor sanitation, slum areas, lots of rubbish, and poorly maintained land, especially in developing countries (21).

The research results showed that there was no significant relationship, however, the majority of respondents had ventilation that did not meet the requirements, Ventilation area > 20% of floor area home, it can cause pulmonary tuberculosis to grow more quickly and spread. Research in Tiga Panah Karo District The district in 2021 found a relationship between ventilation area and lung prevalence of tuberculosis cases (22).

Transmission to the source of pulmonary tuberculosis cases in indoor environments with CO2 >1000 ppm is a significant risk factor for contacts to become new infectious cases of pulmonary tuberculosis (P <0.001). After adjusting for the effects of contact investigation and treatment of pulmonary tuberculosis infection, increasing ventilation rates to CO2 levels <1000 ppm was independently associated with a 97% (95% CI: 50%-99.9%) reduction in the incidence of pulmonary tuberculosis among contacts (23,24). House ventilation functions to remove polluted air (bacteria, CO2) in the house and replace it with fresh and clean air or for air circulation where ultra violet light enters (25-27).

Ventilation has a significant relationship with the incidence of pulmonary TB, people who live in houses with ventilation that does not meet the requirements have a 6.43 times greater risk of developing pulmonary TB compared to people who live in houses with ventilation that meets the requirements. One of the functions of ventilation is to provide good air circulation, thereby allowing the concentration of CO2, toxic substances and germs including droplets of Mycobacterium Tuberculosis contained in the air in the house to be reduced. In addition, through ventilation, sunlight can enter the house where sunlight, which is ultraviolet light, has been proven to reduce the concentration of Mycobacterium Tuberculosis bacteria in the air (28-30).

The long duration of treatment for pulmonary tuberculosis causes many sufferers to not comply with taking medication because they are bored and feel they are healthy. Non-compliance with treatment will result in a high rate of treatment failure and cause resistance of tuberculosis germs to pulmonary anti-tuberculosis drugs. The role of health workers in monitoring medication taking is very important to prevent drop outs and increase patient compliance with treatment (31-33). The role of health workers as educators and motivators regarding the level of compliance with taking medication in pulmonary TB sufferers. Treatment compliance in adhering to advice and instructions recommended by health workers such as doctors, nurses and pharmacists must be carried out in order to achieve the goals of treatment, one of which is compliance with taking medication which is the main condition for successful treatment (34).

Role nurses as educators with Tuberculosis patient compliance is very good important. Therefore, the better educator given by the nurse to patients and health services given, the higher the desire patient for a speedy recoveryand the higher the quality of service health in society's view. The role of health workers has a role important in improving quality maximum health services to society, then very helps towards process improvement healing in pulmonary tuberculosis sufferers especially compliance in drinking Pulmonary tuberculosis medicine. Education and teaching are something interpersonal relationship processes for help patients learn behavior health, one of which is the role nurses as internal educators provide motivational support for recovery to patients, interpersonal relationships between nurses and patients can be done through communication when providing education health (35). The communication link carried out by the nurse, when giving health education to patients aware of providing support motivation for healing for patients (36). im a nurse educator has important role in matters. perfection of education. Nurse Educators are formed from a team has been mutually agreed in accordance with Hospital needs where nurses has competence and special skills (37). Nurse educators must have the ability combines affective abilities (attitudes and behavior), psychomotor (skills) and cognitive (knowledge), so it is expected able to manifest a professional attitude in conducting education (38).

5. CONCLUSIONS

The pulmonary tuberculosis control program in the city of Palembang can be said to be very good, as can be seen from the presence of doctors and public health workers who focus on pulmonary tuberculosis services at the Community Health Center. However, with the low attitude of compliance and prevention of control of pulmonary tuberculosis, it is necessary to increase the role of doctors and health workers in providing regular community service outreach, especially to patients and families regarding pulmonary tuberculosis, thereby improving attitudes and behavior towards treatment.

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