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The Relationship of the Level of Community Knowledge in the Family Environment with Tuberculosis Prevention Efforts

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Abstract: Tuberculosis is a disease that is transmitted very quickly. One way of transmitting Tuberculosis is through droplet nuclei when a patient coughs or sneezes, especially to those closest to the patient, namely the family who lives in the same house as the patient. Poor family and community knowledge about Tuberculosis have a greater risk of increasing Tuberculosis cases, while families and communities who have good knowledge about Tuberculosis can reduce the incidence of Tuberculosis cases. To determine the relationship between the level of community knowledge and efforts to prevent tuberculosis in the Pariaman Community Health Center work area in 2022. This research is correlational with a cross-sectional study approach. that of the 48 respondents, the majority of 37 (77.10%) people had a high level of public knowledge about preventing tuberculosis. more than 35 (72.90%) people experienced good Tuberculosis Prevention Efforts. It is known that tuberculosis prevention efforts are greater among respondents who have high knowledge than respondents who have low knowledge (68.80% and 4.20%) people. Based on statistical tests using chi-square, the p-value = 0.00 (p-value < α 0.05) means there is a significant relationship between the level of community knowledge and efforts to prevent tuberculosis. According to the researchers' analysis, knowledge and prevention efforts must be in sync because efforts to prevent lack of knowledge do not occur well, so knowledge and prevention efforts must work well and reduce the number of TB diseases that occur. Most of the community's level of knowledge regarding tuberculosis prevention efforts. Most efforts to prevent tuberculosis are good. There is a significant relationship between the level of community knowledge and efforts to prevent tuberculosis in the Pariaman Community Health Center working area in 2022.

Keywords: Community knowledge level; Efforts to prevent tuberculosis; Family environment

Introduction

Tuberculosis is a lower respiratory tract infection that attacks lung tissue or lung parenchyma by Mycobacterium tuberculosis bacilli. Tuberculosis spreads through the air when someone with an active TB infection coughs, sneezes or spreads droplets of their saliva through the air. Tuberculosis is a disease that is transmitted very quickly. One of the transmissions of tuberculosis is through droplet nuclei when a patient coughs or sneezes, especially to those closest to the patient, namely the family who lives in the same house as the patient (Azura Putri et al., 2022). Tuberculosis (TB) is a direct infectious disease caused by Mycobacterium tuberculosis. This disease is the second cause of death after HIV. TB disease is also the number 5 cause of death after cardiovascular disease and respiratory disease in all age groups and number 1 among infectious diseases (Romanowski et al., 2019). Indonesian TB data in 2020, the number of TB cases increased to 845.00 and the number of deaths was more than 98.00 people. Tuberculosis (TB) is an infectious disease caused by the *mycobacterium tuberculosis* germ (Susilawati et al., 2019). Tuberculosis remains the 10th leading cause of death in the world, causing the deaths of around 1.30 million patients (Behr et al., 2019). In

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Indonesia, in 2019 the number of tuberculosis cases found was 543.87 cases, a decrease compared to all tuberculosis cases found in 2018 which amounted to 566.62 cases (Tosepu et al., 2022).

TB disease is also a problem for people in West Sumatra Province. From the results of the 2020 Riskesdas in West Sumatra Province, it is known that the prevalence of TB based on the recognition of respondents diagnosed by health workers is 0.37%. Furthermore, from the Health Profile of West Sumatra Province, it is known that the number of positive BTA cases in West Sumatra in 2020 was 3.69 people. This number has increased compared to data from 2018, namely 3.08 people and 3.41 people in 2019. According to (Ahmadi et al., 2019; Lolo et al., 2019), the Relationship between Family Knowledge and Behavior to Prevent the Transmission of Tuberculosis in the Working Area of the Martapura II Health Center. This research shows that 86.70% of family members have good knowledge about preventing the transmission of Pulmonary TB and 13.3% of families have sufficient knowledge. Knowledge with good criteria obtained by most respondents can be influenced by the information received, both formally and informally, and can also be influenced by the respondent's education and age (Lischewski et al., 2020; Georgescu et al., 2020; Curran et al., 2019; Tisza et al., 2020).

Research conducted by Anaam et al. (2023), stated that from the results of the chi-square statistical test analysis, the research stated that there was a relationship between knowledge and efforts to prevent tuberculosis. Respondents who lacked understanding about tuberculosis and prevention efforts such as understanding, complications, risk factors, and several prevention efforts (Khoza et al., 2023). This is due to the lack of information about tuberculosis from the mass media and community health centers to respondents. So, the worse a person's knowledge about preventing the transmission of tuberculosis, the worse the efforts made to prevent the transmission of tuberculosis.

From data from the Pariaman City Health Service from 2019-2020, TB data is always increasing. From 2021 health service data, TB data in 2021 from 7 community health centers in Pariaman are Kurai Taji Community Health Center with 1 person, Marunggi Community Health Center with 7 people, Pariaman Community Health Center with 90 people, Air Santok Community Health Center with 5 people, Kampung Baru Padusunan Community Health Center with 5 people. 2 people, the Naras Health Center has 12 people and the Ilmuak Health Center has 8 people. From data from 7 Community Health Centers in the city of Pariaman, the Pariaman Community Health Center has the largest number, namely 90 people.

Table 1. Tuberculosis Data in 2021 for All Pariaman Community Health Centers

Public health center	Amount
Kurai Taji Community Health Center	1
Marunggi Health Center	7
Pariaman Community Health Center	90
Air Santok Health Center	5
Kampung Baru Padusunan Community Health Center	2
Naras Health Center	12
Sitakak Community Health Center	8

Source: Pariaman Health Service

Method

This research is correlational with a cross-sectional study approach, namely research to study the dynamics of correlation between factors and effects, approaches, observations, or data collection at one time (point time approach), research is only observed once, and measurements are carried out on subject variables on examination. The research will be carried out in the working area of the Pariaman Community Health Center. The research was carried out on 27 June to 27 August 2022. The population is all research subjects who have certain quantities and characteristics determined by the researcher to be studied and conclusions drawn (Vasileiou et al., 2018). With a sample using the Slovin formula, there were 48 respondents.

Result and Discussion

Univariate

Level of Public Knowledge about Tuberculosis Prevention.

Table 2. Frequency Distribution of Community Knowledge Level in the Family Environment regarding Tuberculosis Prevention in the Pariaman Community Health Center Work Area in 2022

Level of Community Knowledge in the environment regarding Tuberculosis prevention	f	%
Low	11	22.90
Tall	37	77.10
Amount	48	100.00

Based on Table 2, it can be seen that of the 48 respondents, the majority of 37 people (77.10%) have a high level of public knowledge about preventing tuberculosis.

Tuberculosis Prevention Efforts

Based on Table 3, it can be seen that of the 48 respondents, more than 35 (72.90%) people experienced good Tuberculosis Prevention Efforts.

Table 3. Frequency Distribution of Tuberculosis Prevention Efforts in the Pariaman Community Health Center Work Area in 2022

Tuberculosis Prevention Efforts	f	%
Good	35	72.90
Not enough	13	27.10
Total	48	100.00

Bivariate

The bivariate analysis in this research was carried out to prove the hypothesis that was made previously so that the relationship between the level of public knowledge and efforts to prevent tuberculosis in the Pariaman Community Health Center work area in 2022 can be seen. The complete results of the bivariate analysis can be seen in Table 4.

Based on Table 4, it can be seen that of the 48 respondents, it is known that efforts to prevent tuberculosis are greater among respondents who have high knowledge than respondents who have low knowledge (68.80% and 4.20%). Based on statistical tests using chi-square, the p-value = 0.00 (p-value < α 0.05) means there is a significant relationship between the level of community knowledge and efforts to prevent tuberculosis.

Table 4. Relationship Between the Level of Community Knowledge in the Family Environment and Efforts to Prevent Tuberculosis in the Work Area of the Pariaman Community Health Center in 2022

Level of Public Knowledge about efforts to prevent tuberculosis	Tuberculosis Prevention Efforts				Total	P Value
	Good		Not enough			
	F	%	f	%	f	0.00
Tall	33	68.80	4	8.30	37	
Low	2	4.20	9	18.20	11	
Amount	35	72.90	13	27.10	48	

Description of the Level of Community Knowledge in the Family Environment Regarding Tuberculosis Prevention Efforts

Based on the research, it can be seen that of the 48 respondents, the majority of 37 (77.10%) people have a high level of public knowledge about preventing tuberculosis. Subsequent research showed that the results of the chi-square statistical test analysis showed that there was a relationship between the level of knowledge and efforts to prevent tuberculosis. Because of the 70 respondents who had good knowledge, 56 respondents had good prevention efforts, and 14 respondents had poor prevention efforts, compared to 15 respondents who had good levels of knowledge. not good related to pulmonary tuberculosis. One of the causes of the low level of knowledge about tuberculosis is the lack of formal and informal socialization regarding the transmission of pulmonary tuberculosis (Dewi et al., 2016).

In research conducted by Lusiana (2019), it was stated that the results of the analysis from the chi-square test showed that there was a relationship between the level of knowledge and efforts to prevent pulmonary tuberculosis in the community in the Aceh Besar region. In his research, it was stated that 54 people had insufficient knowledge, and 39 people had prevention efforts are low. High knowledge has better prevention measures for pulmonary tuberculosis compared to respondents with low knowledge (Yermi et al., 2018; Kasa et al., 2019; Kaaffah et al., 2023). This is supported by the fourth study conducted by Muzakkir et al. (2021), stating that the results of the analysis from the chi-square test It was found that there was a relationship between family knowledge and prevention of transmission of pulmonary tuberculosis. The knowledge obtained by the majority of respondents with good criteria can be influenced by the information received, both formally and informally, and can be influenced by the respondent's education and age (Boldureanu et al., 2020).

According to the researchers' analysis, the lack of knowledge obtained by the community will influence the community's knowledge to make efforts to prevent the transmission of tuberculosis (Tolossa et al., 2014). If it is not paid attention to, it will have a bad impact, namely that the transmission of tuberculosis (TB) will become more widespread and the morbidity rate due to tuberculosis will continue to increase, resulting in the death rate continuing to increase. Knowledge about TB must exist from sufferers, families of sufferers, and neighbors of TB sufferers to prevent the transmission of TB. There should be information about TB in the surrounding environment to prevent transmission from increased knowledge.

Overview of Tuberculosis Prevention Efforts

Based on research, it can be seen that of the 48 respondents, more than 35 (72.90%) people experienced good Tuberculosis Prevention Efforts. Research conducted by Siregar et al. (2022), stated that from the

results of the chi-square statistical test analysis, the research stated that there was a relationship between knowledge and efforts to prevent pulmonary tuberculosis. Respondents who lacked understanding about tuberculosis and prevention efforts such as understanding, complications, risk factors, and several prevention efforts. Lack of information about tuberculosis from the mass media and community health centers to respondents. So, the worse a person's knowledge about preventing the transmission of tuberculosis, the worse the efforts they make to prevent the transmission of tuberculosis.

Tuberculosis (TB) is a directly infectious disease caused by Mycobacterium tuberculosis. This disease is the second cause of death after HIV. TB disease is also the number 5 cause of death after cardiovascular disease and respiratory disease in all age groups and number 1 among infectious diseases. According to the researchers' analysis, prevention of tuberculosis can be done by providing good nutrition, adequate sanitation, housing that is not too crowded, and fresh air are effective measures in preventing TB. In efforts to prevent TB, there must be enthusiasm from the family so that the sufferer remains positive about the disease and that prevention efforts are carried out well.

Bivariate Results

Based on the research, it can be seen that of the 48 respondents, it is known that efforts to prevent tuberculosis are greater among respondents who have high knowledge than respondents who have low knowledge (68.8% and 4.2%) people. Based on statistical tests using chi-square, the p-value = 0.000 (p-value < α 0.05), meaning there is a significant relationship between the level of community knowledge and efforts to prevent tuberculosis.

Research conducted by Boldureanu et al. (2020), stated that from the results of the chi-square statistical test analysis, the research stated that there was a relationship between knowledge and efforts to prevent pulmonary tuberculosis. Respondents who lacked understanding about tuberculosis and prevention efforts such as understanding, complications, risk factors, and several prevention efforts. This is due to the lack of information about tuberculosis from the mass media and community health centers to respondents. So, the worse a person's knowledge about preventing the transmission of tuberculosis, the worse the efforts they make to prevent the transmission of tuberculosis.

Subsequent research showed that the results of the chi-square statistical test analysis showed that there was a relationship between the level of knowledge and efforts to prevent tuberculosis. Because of the 70 respondents who had good knowledge, 56 respondents had good prevention efforts, and 14 respondents had poor prevention efforts, compared to 15 respondents who had good levels of knowledge. not good related to pulmonary tuberculosis. One of the causes of the low level of knowledge about tuberculosis is the lack of formal and informal socialization regarding the transmission of pulmonary tuberculosis.

The analysis from the chi-square test showed that there was a relationship between the level of knowledge and efforts to prevent pulmonary tuberculosis in the community in the Aceh Besar region. In his research, it was stated that 54 people had insufficient knowledge, and 39 people had prevention efforts are low. High knowledge has better prevention measures for pulmonary tuberculosis compared to respondents with low knowledge (Mahmud et al., 2022). This is supported by the fourth study conducted by Azzahrain et al. (2023), stating that the results of the analysis from the chi-square test It was found that there was a relationship between family knowledge and prevention of transmission of tuberculosis. The knowledge obtained by the majority of respondents with good criteria can be influenced by the information received, both formally and informally, and can be influenced by the respondent's education and age (Chao, 2019).

Tuberculosis (TB) is a lower respiratory tract infection that attacks lung tissue or lung parenchyma by Mycobacterium tuberculosis bacilli. Tuberculosis spreads through the air when someone with an active TB infection coughs, sneezes or spreads droplets of their saliva through the air (Turner & Bothamley, 2015). Pulmonary TB is a disease that is transmitted very quickly. One of the transmissions of pulmonary TB is through droplet nuclei when a patient coughs or sneezes, especially to those closest to the patient, namely the family who lives in the same house as the patient (Argyropoulos et al., 2023). Tuberculosis (TB) is a direct infectious disease caused by Mycobacterium tuberculosis (Long et al., 2022). This disease is the second cause of death after HIV. TB disease is also the number 5 cause of death after cardiovascular disease and respiratory disease in all age groups and number 1 among infectious diseases (Byrne et al., 2015). Knowledge and prevention efforts must be in sync because efforts to prevent lack of knowledge do not occur well, so knowledge and prevention efforts must work well and reduce the number of TB diseases that occur.

Conclusion

Most of the community's level of knowledge regarding efforts to prevent tuberculosis, the majority of efforts to prevent tuberculosis are good. There is a significant relationship between the level of community knowledge and efforts to prevent tuberculosis in the working area of the Pariaman Community Health Center in 2022.

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Author Contribution
Conceptualization, A.; methodology, L. M; validation, S. N.; formal analysis, B. L.; investigation, R.; resources, S. N and B. L; data curation, A.: writing—original draft preparation., L. M.; writing—review and editing, S. N.: visualization, B. L. All authors have read and approved the published version of the manuscript.

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Conflicts of Interest
The authors declare no conflict of interest.

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