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The Relationship of Family Knowledge and Attitudes Towards Behavior to Prevent the Transmission of Pulmonary Tuberculosis in the Working Area of the UPTD Puskesmas Kota

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ABSTRACT

Tuberculosis (TB) is a contagious infectious disease, caused by Mycobacterium Tuberculosis. TB control is not only in the form of medication. However, it is closely related to changes in family behavior towards TB itself. Objective: This study aims to determine the relationship between knowledge and attitudes of families towards behavior to prevent transmission of pulmonary tuberculosis in the UPTD work area of the City Health Center. Method: This research is a quantitative study with a cross sectional approach. The population in this study was a family member of a patient who tested positive for pulmonary TB in the UPTD City Health Center working area, totaling 30 people. The sampling technique used was total sampling. Univariate and bivariate data analysis using Chi Square testand multivariate analysis with logistic regression testing. Results: The results of the study showed that 46.7% of the majority of respondents had good and sufficient knowledge of behavior to prevent transmission of TB disease, 90% of respondents had a positive attitude towards efforts to prevent TB disease and 80% of respondents had good behavior to prevent transmission of TB disease. According to bivariate analysis, there is a correlation between family views toward behavior to avoid TB illness transmission (p value = 0.003 (<0.05)) and behavior to prevent TB disease transmission (p value = 0.014 (<0.05)). With a sig value of >0.05, attitudes and knowledge had no discernible impact on actions taken to stop the spread of tuberculosis (attitude sig 0,99, knowledge sig 0,164.

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INTRODUCTION

The germs the chronic infectious disease known as tuberculosis, which mostly affects the lungs, is caused by the Mycobacterium tuberculosis. The Indonesian Ministry of Health (2017) states that individuals with sputum-positive pulmonary tuberculosis can transmit the disease to other people.

In 2020, the World Health Organization (WHO) reported that 86% of pulmonary TB cases occur in 30 countries with a high TB burden. Eight nations accounted for two-thirds of these instances, with India being the main contributor. China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa were next in line. According to estimates, 1.4 million individuals would die from tuberculosis in 2021, and 10.6 million people will still be affected. After HIV/AIDS, tuberculosis ranks among the top 20 causes of death globally (WHO, 2022).

After China and India, Indonesia has the third-highest TB burden. According to doctor diagnoses by province, NTT had the 27th-highest number of pulmonary TB cases, according to the 2018 Basic Health Research (Indonesian Ministry of Health, 2018). There were 95 TB cases in 2020, 109 in 2021, and 96 in 2022 among the 23 community health centers in the Manggarai District Health Office (Manggarai P2P Health Office, 2022).

According to information gathered from the Langke Rembong Subdistrict Community Health Center's records, there were 17 individuals in 2022 (UPTD Puskesmas Kota, 2022). 13 individuals with positive TB (BTA +) were found in 12 sub-districts within the Community Health Center's service area between January and June 2023 (UPTD Puskesmas Kota, 2023).

A number of reasons contribute to Indonesia's high TB incidence. A compromised immune system, along with other factors like poor hygiene and an unhealthy lifestyle (Indonesian Ministry of Health, 2018), age, education level, smoking, alcohol use, malnourishment, and close contact with individuals who have active infectious TB (Aria, 2020), can all contribute to pulmonary tuberculosis.

LITERATURE REVIEW

Ministry of Health, Directorate General of Environmental Health and Communicable Disease Control (P2ML), 2019. Patients' and their household members' ignorance is one of the reasons why pulmonary tuberculosis is so common. A person's behaviors (overt conduct) are greatly influenced by their knowledge or cognition. In addition to heart disease and cerebrovascular disease (Indonesian Ministry of Health, 2019), pulmonary tuberculosis is a public health issue that leads to illness, disability, and mortality (Indonesian Ministry of Health, 2016).

The purpose of this study was to determine the relationship between family knowledge and attitudes and preventive behavior against pulmonary tuberculosis transmission in the working area of the Ruteng City Health Center UPTD.

METHODOLOGY

This study was a quantitative study with a cross-sectional approach. The population in this study consisted of one family member of each patient diagnosed with pulmonary TB in the working area of the UPTD Puskesmas Kota, totaling 30 people. The sampling technique used was total sampling.

The research instrument used a knowledge questionnaire (14 statements, with 9 favorable statements and 5 unfavorable statements) and an attitude questionnaire (24 statements, with favorable 11 items and unfavorable 13 items), and behavior (18 items with 9 favorable statements and 9 unfavorable statements). Univariate and bivariate data analysis used the Chi Square test and multivariate analysis used multiple logistic regression testing

Univariate Analysis

1. General Characteristics of Respondents

Table 1. Frequency Distribution of Respondents Based on Age, Gender, Education, Occupation, Knowledge, Attitude, and Behavior in the Working Area of the UPTD Puskesmas Kota (N=30).

Table 1. Respondent Characteristics

Category	Criteria	Frequency (N))	Percentage (%)
Age	17-25	3	10
	26-35	14	46,7
	36-45	4	13,3
	46-55	4	13,3
	56-65	5	16,7
Gender	Male	8	26,7%
	Female	22	73,3
Educatin	SD	6	20
	SMP	6	20
	SMA/SMK	9	30
	AKADEMI/PT	9	30
Work	Farmer	9	30
	Merchant	1	3,3
	PNS	2	6,7
	Private	8	26,7
	Not Working	10	33,3

Knowledge	Good	14	46,7
	Enough	14	46,7
	Less	2	6,7
Attitude	Positive	27	90
	Negative	3	10
Behavior	Good	24	80
	Enough	6	20

Source: Primary Data 2023

The characteristics of the respondents by age are described in Table 1. The largest age range among the 30 responders was 26–35 years old (46.7%), while the smallest was 17–25 years old (10%). Of the 30 responders, women made up the largest percentage (73.3%) while men made up the smallest (26.7%). Of the 30 responders, college or university had the highest level of education (30%), followed by high school (30%), while junior high school (20%) and elementary school (20%) had the lowest.

According to occupation, traders made up the smallest percentage of the 30 respondents (3.3%), while the bulk (33.3%) were unemployed. Of the 30 responders, 46.7% had strong knowledge, 6.7% had sufficient knowledge, and the other respondents had low knowledge. In terms of disposition, of the 30 Behaving well (80%) and behaving adequately (20%).

Bivariate Analysis

1. The Relationship Between Family Knowledge and Preventive Behavior Against Pulmonary Tuberculosis Transmission

Table 2. Cross-tabulation results and statistical tests of the relationship between family knowledge and preventive behavior against pulmonary tuberculosis transmission in the Puskesmas Kota area which means that there is a relationship between family knowledge and preventive behavior against pulmonary TB transmission in the City Health Center's working area.

Table 2. TB Transmission Prevention Behavior

								P value	
Knowledge	Good		Enough		Less		Total	%	
	N	%	N	%	N	%			
Good	14	46,70%	0	0	0	0	14	46,70%	0,014
Enough	8	26,70%	6	20%	0	0	14	46,70%	
Less	2	6,70%	0	0	0	0	2	6,70%	
Total	24	80%	6	20%	0	0	30	100%	

Source: Primary Data 2023

Table 2 shows that 30 respondents who had good knowledge mostly exhibited good behavior, namely 46.7%. Meanwhile, 2 respondents with poor

knowledge exhibited good behavior, namely 6.7%. The Chi-Square test yielded a p-value of 0.014 (<α = 0.05), indicating a significant relationship. Therefore, it can be concluded that the alternative hypothesis (Ha) is accepted.

2. The Relationship Between Family Attitudes and Preventive Behavior Against Pulmonary Tuberculosis Transmission in the City Health Center's Working Area

Table 3 Results of cross tabulation and statistical testing of the relationship between family attitudes and preventive behavior against pulmonary tuberculosis transmission in the Puskesmas Kota area.

Table. 3 TB Transmission Prevention Behavior

Attitude	Good		Enough		Less		Total	%	*p value*
	N	%	N	%	N	%			
Positive	23	76,7%	4	13,33%	0	0	27	90%	0,003
Negative	1	3,3%	2	7%	0	0	3	10%	
Total	24	80%	6	20%	0	0	30	100%	

Source: Primary Data 2023

Table 3 shows that 30 respondents who had a positive attitude mostly exhibited good behavior, namely 76.7%, while among respondents with a negative attitude, 2 respondents exhibited fair behavior, and 1 respondent exhibited good behavior.

The Chi-Square test results obtained a p-value of 0.003 < (α = 0.05), indicating a significant relationship, so it can be concluded that Ha accepted, which means there is a relationship between family attitudes and preventive behavior against pulmonary TB transmission in the Puskesmas Kota area.

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The relationship between family knowledge and attitudes and pulmonary TB prevention behavior in the Puskesmas Kota area.

Table 4. Results of Logistic Regression Tests

Variabel	Value β	*p value*	*Odds Ratio*	*95% C.I*	
			(OR)	Lower Limit	Upper Limit
Knowledge	1,23	0,16	3,422	0,6	19,3
Attitude	22,675	0,99	70381	0	

Source: Primary Data 2023

Table 4. Shows the results of the analysis of the multiple logistic regression test of the knowledge variable with a p-value of 0.16 (p>0.05) does not have a significant effect on behavior, but the OR value of 3.42 at a 95% confidence interval of between 0.6 and 19.3 leads to the conclusion that knowledge Table 4. Shows the results of the analysis of the multiple logistic regression test of the knowledge variable with a p-value of 0.16 (p>0.05) does not have a significant effect on behavior, but the OR value of 3.42 at a 95% confidence interval of between 0.6 and 19.3 leads to the conclusion that knowledge with positive preventive behavior against pulmonary TB transmission and showing a unidirectional relationship, it can theoretically be interpreted that preventive behavior will increase significantly if knowledge is further improved. The Attitude variable with a p-value of 0.99 (p>0.05) did not have a significant effect on behavior, but an OR value of 70381 indicates a 7-fold increase in preventive behavior.

RESULTS AND DISCUSSION

Family Knowledge about the Prevention of Pulmonary Tuberculosis Transmission in the Working Area of the City Health Center

According to the study's findings, respondents who have good and sufficient knowledge (46.7%) and those who have insufficient information (6.7%) have family knowledge regarding the prevention of pulmonary tuberculosis transmission in the City Health Center's working area.

According to the study's findings, the majority of participants know enough about pulmonary tuberculosis. According to Notoatmodjo (2012), knowledge is the outcome of knowing, which happens when an individual senses a certain item. A person's ability to absorb information and their level of understanding increase with their level of education.

Knowledge is influenced by formal education and is closely related to it. It is hoped that with higher education, knowledge will be more extensive. However, people with low education do not necessarily have low knowledge. Increased knowledge is not necessarily obtained from formal education alone.

Family Attitudes Towards the Prevention of Pulmonary Tuberculosis Transmission in the City Health Center Working Area

Based on research conducted on 30 respondents, it was found that respondents who had attitudes positive (90%) and those with a negative attitude (10%). Notoatmodjo (2010) asserts that a person's behavior is determined by a number of elements, including their predisposition, of which attitude is one facet. As a result, one of the element’s influencing behaviors is attitude. The way a person feels about an object can be classified as either biased or supportive, or it might be classified as neither (Irwan, 2017).

The way that people perceive things, interpret them, and act depending on their interpretations is how attitudes are formed. Knowledge is one of the

elements that affects how attitudes are formed; the more knowledgeable a person is, the more they can contribute. In the formation of good attitudes. This is in line with research (Astuti, 2013) which shows that there is a relationship between community attitudes and tuberculosis prevention efforts (p value = 0.003).

Family Behavior Towards the Prevention of Pulmonary Tuberculosis Transmission in the City Health Center Area.

Based on research conducted on 30 respondents, it was found that 80% of respondents exhibited good behavior and 20% exhibited adequate behavior. Behavior is an organism's (living being's) action or activity. Thus, human conduct basically refers to the wide range of acts or activities that people themselves take. Knowledge is one element that affects behavior.

A person's actions (overt conduct) are greatly influenced by their knowledge (Notoatmodjo, 2012). People who are aware of the risks associated with pulmonary tuberculosis may be more inclined to take precautions against its spread. The findings of the study (Kartini, 2023) support this, since 10 respondents (37.0%) had poor preventive behavior and 17 respondents (64.0%) had strong preventive behavior.

The Relationship Between Knowledge and Preventive Behavior Against Pulmonary Tuberculosis Transmission in the Puskesmas Kota Area

The study's findings and the Chi-Square statistical test yielded a p-value of 0.014, which indicates that the null hypothesis (Ho) is rejected and that knowledge and preventive actions against the spread of tuberculosis are related. According to the research findings gathered from 30 respondents, the majority of them had good knowledge, with 14 (46.7%) demonstrating good TB transmission prevention. Additionally, respondents with sufficient knowledge, totaling 14 (46.7%), showed adequate behavior (6 respondents, 20%) and good transmission prevention behavior (8 respondents, 26.7%). Two respondents, or 6.7% of the sample, had inadequate knowledge yet behaved well.

The researcher's assumption is that good and adequate knowledge among respondents may be influenced by several factors, such as the amount of information obtained about pulmonary TB from the community health center, educational background (where most respondents had an academic/university or high school education), and motivation in efforts to prevent pulmonary TB by adopting a healthy lifestyle, eating nutritious food, getting adequate rest, exercising, not smoking, covering their mouths when coughing, and not spitting phlegm anywhere. Based on age, 46.7% of respondents were aged 26-35, which is considered the productive age group.

Individual behaviors that can raise the risk of disease spread, such as failing to recognize the disease's early symptoms, not wearing a mask, not coughing properly, and not adhering to treatment, are also influenced by

ignorance about how to prevent pulmonary tuberculosis transmission. However, despite having adequate knowledge and access to a wealth of information, respondents' behavior has not altered, which may lead to poor preventative behavior.

Theoretically, information and cognition have a significant role in how an individual forms their behaviors (overt conduct) (Nursalam, 2012). It is anticipated that families with adequate knowledge will be able to prevent the spread of tuberculosis in a suitable and effective manner. The results of this study are in line with the research by Jehaman, T. (2021), which states that there is a relationship between knowledge and the prevention of pulmonary TB transmission with a p-value of 0.003.

The Relationship Between Family Attitudes and Behavior in Preventing Pulmonary Tuberculosis Transmission in the Puskesmas Kota Area

The null hypothesis (Ho) is rejected in light of the study's findings and the Chi-Square statistical test, which yielded a p-value of 0.003, indicating that attitudes and behavior do have a role in halting the spread of tuberculosis. According to the results gathered from 30 respondents, most of them exhibited good behavior (23 respondents) and favorable views (27 respondents, 90%).
(76.7%) and 4 respondents (13.3%) had adequate behavior. 76.7% had good tuberculosis transmission prevention behavior, 13.3% had adequate behavior, 3% had a negative attitude, 3.3% had good behavior, and 7% had adequate behavior.

The researchers' assumption was that the more positive the attitude, the more positive the behavior towards tuberculosis transmission prevention efforts, and vice versa. According to the researcher, the more positive one's attitude, the better one's conduct toward efforts to prevent the spread of tuberculosis; conversely, if one's attitude is bad, one's behavior toward such efforts will likewise be negative.

In essence, attitude is one of the elements that affect behavior. A person's attitude has a significant influence on how they behave. Because people are aware of the risks associated with tuberculosis, their attitudes toward the disease can motivate them to take preventative action. The attitude component is to blame for this.

The study's findings on attitudes reveal that the majority of participants had a favorable opinion of measures to prevent tuberculosis, suggesting that respondents' preventative practices are already effective. According to Notoatmodjo (2012), attitudes and behaviors are not the same thing, and actions do not necessarily reflect one's attitudes because attitudes can change over time and lead to actions that are inconsistent with those attitudes. and continuous practice will not have any meaningful impact on life.

Knowledge, attitude, and action are the dimensions of behavior, according to Irwan (2017). According to Roger (1974) in Notoatmodjo (2012), attitudes and behaviors that are not grounded in sufficient knowledge will not endure over the

course of a person's life, and appropriate knowledge alone will not be sufficient to counterbalance attitude if it is not supported by sufficient knowledge.

This study supports a study by Wasis Setyo Bowo (2015) that found that nearly all respondents (91.18%) had a favorable attitude toward preventing the spread of pulmonary tuberculosis. According to pertinent theories and research, it can be inferred from the examination of the relationship between family attitudes and behavior regarding the prevention of pulmonary tuberculosis transmission in the Puskesmas Kota area that respondents who possess high levels of knowledge and positive attitudes demonstrate effective tuberculosis prevention behaviors. This suggests that attitudes and knowledge support healthy behavior (Elfi Cut Mutia, 2022).

The Relationship Between Family Knowledge and Attitudes and Preventive Behavior Against Pulmonary Tuberculosis Transmission in the Puskesmas Kota Area

The study's findings suggest that attitudes and knowledge have no bearing on actions taken to stop the spread of pulmonary tuberculosis. This is because, despite respondents' adequate and good knowledge of preventing pulmonary TB transmission, other factors like family support, inadequate infrastructure and facilities that made it difficult to implement preventive behaviors, the lack of good behavior from community leaders who were supposed to be role models, and the belief that other people's experiences were the most important source of behavior guidance all contributed to the ineffective implementation of preventive behaviors against pulmonary TB transmission.

These findings are consistent with a study (Florida R. Ayurti, Yasinta Betan, 2016) in which the p-value for the chi-square test for There is no correlation between knowledge and attitude about family conduct in preventing the spread of tuberculosis in the Oesapa Community Health Center operating area, as indicated by the knowledge sig value of 0.204 and the attitude sig value of 0.427.

The cultural aspects of Indonesian society, where people typically feel guilty if there is an infectious disease patient in the family and worry that the family will be the target of gossip and social rejection, may be the cause of attitudes that do not substantially affect behavior.

One factor influencing attitude is the environment, including the physical, socio-cultural, and economic environment. Environmental factors are dominant factors that shape an individual's behavior. In socio-economic terms, pulmonary tuberculosis is a disease that is considered shameful due to its consequences.

They are embarrassed to acknowledge it for fear of being discovered and shunned by others. Furthermore, compared to families with low socioeconomic position, those with high socioeconomic status are better equipped to meet their everyday demands. The findings of a study carried out in Wonogiri by Kurniasari et al. (2012) indicate a connection between the incidence of pulmonary

tuberculosis and socioeconomic circumstances. Access to health care and nutritional status are correlated with socioeconomic circumstances.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. Based on the results of the study, it is known that most respondents have good and sufficient knowledge about the prevention of pulmonary tuberculosis transmission, namely 46.7%.
2. Based on the results of the study, it is known that most Respondents had a positive attitude toward preventing the transmission of tuberculosis, at 90%.
3. Based on the results of the study, it is known that most respondents have good tuberculosis transmission prevention behavior at 80%.
4. Based on the results of the study, it is known that there is a relationship between family knowledge and pulmonary tuberculosis transmission prevention behavior in the working area of the UPTD Puskesmas Kota with statistical test results using Chi Square obtaining a p value = 0.014 < (α=0.05).
5. Based on the results of the study, it was found that there is a relationship between family attitudes and tuberculosis prevention behaviors in the working area of the UPTD Puskesmas Kota, with statistical test results using Chi Square yielding a p-value of 0.003 < (α=0.05).
6. Based on the results of the study, it is known that, after conducting statistical tests with multivariate analysis, there are no variables that significantly influence the behavior of preventing the transmission of pulmonary tuberculosis.

Recommendations

1. Fo Families
   Families are expected to have sufficient knowledge and a positive attitude so that they can understand and know about the prevention of the transmission of pulmonary tuberculosis in the family.
2. For Healthcare Workers
   Health promotion regarding tuberculosis and its prevention should be continuously enhanced to increase knowledge and foster positive attitudes toward tuberculosis prevention.
3. For Future Researchers
   It is hoped that future researchers will investigate other factors such as family support, inadequate facilities and infrastructure, community leaders, and the experiences of others

FURTHER STUDY

This study still has limitations, so further research on this topic is needed "The Relationship of Family Knowledge and Attitudes Towards Behavior to Prevent the Transmission of Pulmonary Tuberculosis in the Working Area of the UPTD Puskesmas Kota".

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