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Factors Related to Compliance in Taking Medication among Pulmonary Tuberculosis (TB) Patients

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Abstract:
In the treatment of pulmonary tuberculosis (TB) requires a long period of time so that consistency of patient compliance in taking medication is needed. Patient compliance in taking medication is very important, this aims to control the number of TB cases. Compliance in taking medication needs to be supported by increasing knowledge, motivation and family support. This study aims to determine the factors related to compliance in taking medication in pulmonary tuberculosis (TB) patients at the Cikedal Health Center, Cikedal District, Pandeglang Regency. This type of research is quantitative with a descriptive analytical research design and uses a cross-sectional approach. The number of samples in this study was 30 with a sampling technique using total sampling, the data collection tool used was a questionnaire with bivariate analysis using the Chi-Square test. The results of the study showed that factors related to compliance in taking medication were education level p value = 0.009, knowledge level p value = 0.001, attitude p value = 0.004, family support p value = 0.004, and access to treatment p value = 0.001. There needs to be increased socialization regarding TB disease so that the community can be more compliant with the treatment being carried out.

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INTRODUCTION

Pulmonary tuberculosis (TB) is an infectious disease caused by the Mycobacterium tuberculosis bacteria. There are several species of Mycobacterium, including M. tuberculosis, M. africanum, M. Bovis, M. leprae, etc. Which are also known as Acid-Fast Bacteria (AFB). The group of Mycobacterium bacteria other than Mycobacterium tuberculosis that can cause respiratory tract disorders is known as MOTT (Mycobacterium Other Than Tuberculosis), which can sometimes interfere with the diagnosis and treatment of TB (Permenkes RI, 2016; Kurniyawan et al., 2022).

In the WHO Global Tuberculosis Report in 2018, it is explained that every year, millions of people in the world continue to experience illness caused by pulmonary tuberculosis. Globally, in 2017, an estimated 10 million people were infected with pulmonary tuberculosis, with details of 5.8 million cases in men, 3.2 million women, and 1 million cases in children. (World Health Organization, 2018).

Pulmonary Tuberculosis (TB) is a public health problem in the world, even though tuberculosis (TB) control has been implemented in many countries since 1995. According to the 2021 Global Tuberculosis Report, Indonesia has the third highest number of tuberculosis (TB) cases in the world after India and China. In all countries, 90% are adults aged ≥15 years, 9% of whom are people living with HIV and two-thirds of the cases occur in eight countries, namely India

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(27%), China (9%), Indonesia (8%), Philippines (6%), Pakistan (5%), Nigeria (4%), Bangladesh (4%) and South Africa (3%), and 22 other countries included in the WHO list (World Health Organization, 2021).

Indonesia's commitment to overcoming pulmonary tuberculosis (TB) is proven by improving the detection and reporting system so that the highest case notification in history was achieved in 2022 and 2023. More than 724,000 new TB cases in Indonesia were found in 2022, which increased to 809,000 cases in 2023. This number is much higher when compared to cases before the pandemic, which averaged less than 600,000 per year (Kemenkes RI, 2023).

Then, based on data from reports of tuberculosis sufferers in the working area of the Cikedal District Public Health Center in 2023, there were 84 cases of pulmonary tuberculosis sufferers, while in 2024, in the January-June period, there were 34 sufferers of various ages between 1-73 years. Tuberculosis sufferers undergo a treatment program of at least 4 drugs/day in the initial stage of treatment or the intensive phase and 2 drugs/day in the next stage of treatment with a treatment duration of 6 months. Treatment over a long period of time allows for non-compliance in taking medication. Patients with pulmonary tuberculosis (TB) who do not comply with treatment or do not routinely take medication will be at risk of treatment failure, which can result in a higher risk of transmission to others. So, the low level of drug compliance will be an obstacle to controlling pulmonary tuberculosis (Hadifah, 2019).

Compliance is very important in healthy living behavior. Compliance in taking anti-tuberculosis (TB) drugs is taking drugs according to the prescription and as determined by the doctor. Treatment will be effective if the patient is compliant in taking it. One of the causes of failure to cure pulmonary TB patients is patient compliance in taking treatment. In addition to non-compliance, another problem with pulmonary tuberculosis (TB) treatment is the long time, which is 6-8 months. Therefore, if the patient does not take the medicine properly or stops taking treatment, it will result in the TB germs becoming immune to anti-tuberculosis drugs. Ultimately, treatment costs a lot, is expensive, and takes a relatively long time (Samory et al., 2022; Pratiwi et al., 2021).

Compliance with taking medication in TB patients is an effort to increase the cure rate in TB patients and reduce the increase in the number of MDR TB cases (TB with Multi-Drug Resistance) (Rizqiya, 2021; Kurniyawan et al., 2023). Several factors that can influence the level of compliance with taking medication in TB patients are the level of knowledge, self-efficacy, self-stigma, and family support. In addition to factors from the patient (knowledge, self-stigma, and self-efficacy), external factors are also needed to help patients undergo TB treatment (Wulandari et al., 2020). External factors include family support. Family supports that family members can provide include emotional support, instrumental support (facilities), information support, and appreciation support (Fitriani et al., 2019; Dewi et al., 2023).

METHOD

The type of research conducted for this study is quantitative research with a Cross-Sectional study design. This method is used to determine the factors related to medication adherence in pulmonary tuberculosis (TB) patients at the Cikedal Health Center in 2024. The sample comprises a portion of the population that can be used as a research subject (Sugiyono, 2020). The sampling technique uses total sampling, in which all population members are used as samples. The sample in this study were pulmonary tuberculosis (TB) patients undergoing treatment at the Cikedal Health Center in 2024. The sample in this study amounted to 30 samples. The data collection tool was a questionnaire with bivariate analysis using the Chi-Square test.

RESULT

Table 1. Frequency Distribution of Pulmonary Tuberculosis (TB) Patients Based on Medication Compliance at Cikedal Health Center, Cikedal District, Pandeglang Regency in 2024

Variable	Frequency	Percentage
Medication Compliance		
Compliant	13	43.3%
Non-Compliant	17	56.7%
Age		
15-59 years	28	93.3%
≥ 60 years	55	6.7%
Gender		
Male	19	63.3%
Female	11	36.7%
Education level		
>High school graduate	20	66.6%
<High school graduate	10	33.3%
Employment Status		
Working	10	33.3%
Not Working	20	66.6%
Knowledge Level		
High	14	46.7%
Low	16	53.3%
Attitude		
Good	14	46.7%
Not Good	16	53.3%
Family support		
Less supportive	11	36.7%
Supportive	19	63.3%
Drug side effects		
No side effects	15	50.0%
There are side effects	15	50.0%
Distance access		
Easy to reach	12	40.0%
Difficult to reach	18	60.0%

Table 2. Factors Related to Compliance in Taking Medication among Pulmonary Tuberculosis (TB) Patients

Variable	Compliance in Taking Medication				Total		p-value	OR
	Yes		No					
	f	%	f	%	n	%		
Gender								
Male	8	42.1	11	57.9	19	100	0.858	1.146
Female	5	45.5	6	54.5	11	100		
Education level								
>High school graduate	12	60.0	8	40.0	20	100	0.009	0.074
<High school graduate	1	10.0	9	90.0	10	100		
Employment Status								
Working	7	70	3	30	10	100	0.037	5.444
Not Working	6	30	14	70	20	100		
Knowledge Level								
High	11	78.6	3	21.4	14	100	0.001	25.667
Low	2	12.5	14	87.5	16	100		
Attitude								
Good	10	71.4	4	28.6	14	100	0.004	10.833

Variable	Compliance in Taking Medication				Total		p-value	OR
	Yes		No					
	f	%	f	%	n	%		
Not Good	3	18.7	13	81.2	16	100		
Family support								
Less supportive	1	9.1	10	90.9	11	100	0.004	17.143
Supportive	12	63.2	7	36.8	19	100		
Drug side effects								
No side effects	7	46.7	8	53.3	15	100	0.065	0.762
There are side effects	6	40.0	9	60.0	15	100		
Distance access								
Easy to reach	11	91.7	1	8.3	12	100	0.001	88.000
Difficult to reach	2	11.1	16	88.9	18	100		
Total	13	43.3	17	56.7	30	100		

Based on the table above, the distribution of respondent characteristics based on medication adherence shows that out of 30 respondents, 17 respondents (56.7%) still had non-compliance in taking medication, and 13 respondents (43.3%) already had compliance in taking medication. The results of the frequency distribution of respondent characteristics based on age, it is known that out of 30 respondents, most of the respondents were aged 15-59 years, namely 28 respondents (93.3%), while respondents aged ≥ 60 years were 2 respondents (6.7%).

The results of the frequency distribution of respondent characteristics based on gender were found in 30 respondents; 19 respondents (63.3%) were male, and 11 respondents (36.7%) were female. The distribution of respondent characteristics based on education level was found in 30 respondents: 20 respondents (66.6%) were high school graduates or above, and 10 respondents (33.3%) were junior high school graduates or below. The results of the distribution of respondent characteristics based on employment status were found in 30 respondents, where 10 (33.3%) respondents were working, and 20 (66.7%) respondents were not working.

The results of the distribution of respondent characteristics based on the level of knowledge from 30 respondents found that most respondents, 14 respondents (46.7%), had high knowledge, and 16 respondents (53.3%) still had a low level of knowledge. The results of the distribution of respondent characteristics based on the respondent's attitude, from 30 respondents, it was found that 14 respondents (46.7%) had a good attitude towards the treatment of pulmonary tuberculosis, and 16 respondents (53.3%) had a less good attitude towards the treatment of pulmonary tuberculosis.

The distribution of respondent characteristics based on family support showed that out of 30 respondents, 11 (36.7%) received less family support, and 19 (63.3%) received support from their families. The results of the distribution of respondent characteristics based on drug side effects show that out of 30 respondents, 15 respondents (50.0%) did not experience side effects from the drug, and 15 respondents (50.0%) experienced side effects from the drug. The results of the distribution of respondent characteristics based on distance/access to treatment showed that out of 30 respondents, 12 respondents (40.0%) distance/access to treatment was easy to reach, and 18 respondents (60.0%) distance/access to treatment were still challenging to reach.

DISCUSSION

The results showed that (1) There is no relationship between age and compliance with taking medication in patients with pulmonary tuberculosis (TB), (2) There is no relationship between gender and compliance with taking medication in patients with pulmonary tuberculosis (TB), (3) There is a relationship between education level and compliance with taking medication in patients

with pulmonary tuberculosis (TB), (4) There is no relationship between employment status and compliance with taking medication in patients with pulmonary tuberculosis (TB), (5) There is a relationship between level of knowledge and compliance with taking medication in patients with pulmonary tuberculosis (TB), (6) There is a relationship between attitude and compliance with taking medication in patients with pulmonary tuberculosis (TB), (7) There is a relationship between family support and compliance with taking medication in patients with pulmonary tuberculosis (TB), (8) There is no relationship between drug side effects and compliance with taking medication in patients with pulmonary tuberculosis (TB), (9) There is a relationship between distance or access to treatment and compliance with taking medication in patients with pulmonary tuberculosis (TB).

CONCLUSION

The study results showed that factors related to compliance in taking medication were education level p-value = 0.009, knowledge level p-value = 0.001, attitude p-value = 0.004, family support p-value = 0.004, and access to treatment p-value = 0.001. There needs to be increased socialization regarding TB disease so the community can comply more with the treatment.

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