

The Relationship between Health Control Behavior and Compliance with Medication in Pulmonary Tuberculosis Patients at the Jember Lung Hospital

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ABSTRACT

Background: Compliance is often a problem in patients with chronic diseases that require lifestyle modification and long-term treatment such as pulmonary tuberculosis. Patient compliance behavior in treatment can be influenced by psychological factors such as memory and health control behavior. Each individual has different behavior regarding the extent of their current health condition and is determined by their own behavior (internal) or by external forces. This states that health control behavior greatly determines the decisions taken by patients regarding health conditions and compliance with treatment

Method: This study used a correlational design which aimed to reveal the relationship between health control behavior and medication adherence in pulmonary tuberculosis patients at the Jember Lung Hospital and used a cross sectional approach. The population in this study were pulmonary tuberculosis patients who underwent treatment at the Pulmonary Tuberculosis Clinic, Jember Lung Hospital with a sample of 82 respondents. The sampling technique uses total sampling.

Result: The results of research using the Spearman Rho Test obtained a p value of 0.001, where if this value is compared with the α value, it shows a p value $< \alpha$, namely $0.001 < 0.05$, which means there is a relationship between health control behavior and adherence to taking medication in pulmonary tuberculosis patients in Jember Lung Hospital with a calculated r of 0.478 in the sufficient correlation category and the direction of the correlation is positive, which means that the better a person's health control behavior, the more compliant a person will be in taking medication.

Conclusion: This research can provide input to nursing services regarding the importance of health control behavior with medication adherence in pulmonary tuberculosis patients. This can be done by nurses to provide motivation by providing education to pulmonary tuberculosis patients so that they have good health control behavior and are compliant in taking medication.

Keywords: Health Control Behavior; Pulmonary Tuberculosis; Medication Adherence

Introduction

Pulmonary tuberculosis (TB) is a disease caused by *Mycobacterium tuberculosis*. Tuberculosis can attack the lungs and can attack all parts of the body that attack the lungs, but can also affect other body organs. *Mycobacterium tuberculosis* enters through the respiratory tract and digestive tract as well as open wounds on the skin. Tuberculosis is one of the ten diseases that cause the largest number of deaths in the world. Globally, an estimated 10 million (range 8.9 - 11 million) people fell ill with tuberculosis in 2019. Eight countries accounting for two-thirds of the global total are India (26%), Indonesia (8.5%), China (8, 4%), Philippines (6.0%), Pakistan (5.7%), Nigeria (4.4%), Bangladesh (3.6%) and South Africa (3.6%). Most cases of tuberculosis are found in low and middle income countries. Half of the population suffering from tuberculosis is donated from eight countries, namely Bangladesh, China, India, Indonesia, Nigeria, Pakistan, the Philippines and South Africa. Indonesia contributes to the tuberculosis morbidity rate of 8.5% of the global morbidity rate of 10 million people. The tuberculosis morbidity rate of 850,000 people places Indonesia in second place for tuberculosis sufferers after India (Pralambang & Setiawan, 2021).

Meanwhile, at the Indonesian provincial level, there are five provinces that contribute more than 50% of notifications of tuberculosis cases, namely West Java, East Java, Central Java, DKI Jakarta and North Sumatra (RI Ministry of Health, 2020). In East Java Province TB cases in 2021 reached 43,247 cases, and will increase in 2022 to 78,799 cases. The city of Surabaya is in first place in East Java Province as the city contributing the most TB cases, up to 10,382 cases. Meanwhile in Jember, TB cases reached 5,244 cases (East Java Health Office, 2023). These cases were recorded in all health services in Jember, one of which was at the Jember Lung Hospital with 586 cases.

Based on a preliminary study that researchers conducted on November 22, 2023, which was obtained through observations and interviews with nurses at the tuberculosis polyclinic at the Jember Lung Hospital, it is known that there were 82 patients undergoing treatment at the Jember Lung Hospital in 2022. The nurse also said that there were patients who had low levels of adherence to taking medication, and some even stopped treatment (dropped out). According to Siswanto (2017) in (Perbadi, 2020) compliance is often a problem in patients with chronic diseases who require lifestyle

modifications and long-term treatment. Patient compliance behavior in treatment can be influenced by psychological factors such as memory and health control behavior. Each individual has different behavior regarding the extent of their current health condition and is determined by their own behavior (internal) or by external forces (Pramesti, 2019). This states that health control behavior greatly determines the decisions made by patients regarding health conditions and compliance with treatment. From the problems above, it can be concluded that health control behavior influences the success of tuberculosis treatment. So further research is needed regarding "The Relationship Between Health Control Behavior and Compliance with Taking Medication in Pulmonary Tuberculosis Patients at the Jember Lung Hospital".

Method

The research design carried out in this study was correlational which aimed to reveal the relationship between health control behavior and medication adherence in pulmonary tuberculosis patients at the Jember Lung Hospital. This research uses a Cross Sectional approach method, namely research that is measured using independent and dependent variable data which is momentary or at one time only and is not followed for a certain period of time (Yunitasari et al., 2020).

The population in this study were pulmonary tuberculosis patients who received treatment at the Pulmonary Tuberculosis Clinic at Jember Lung Hospital, totaling 82 patients. Sampling in this study was carried out using the total sampling method, which means that the entire population was sampled, totaling 82 samples.

This research was carried out at the Pulmonary Tuberculosis Clinic at Jember Lung Hospital, carried out on 13 – 27 May 2024. The tool used to collect data was a questionnaire. This research questionnaire has been tested by previous researchers, namely (Pramesti, 2019) with coefficient results consisting of internal health locus of control, namely 0.655, powerful others health locus of control, namely 0.802, chance locus of control 0.785 and medication adherence questionnaire obtained from (Made et al., 2020) met a Cronbach's alpha value of greater than 0.60 so that the questions in the questionnaire were declared reliable.

Univariate analysis was carried out to analyze the characteristics of the variables studied, both dependent variables and independent variables. Univariate analysis was used to get an overview of the distribution of the independent variable, namely health control behavior and the dependent variable, namely medication adherence. Meanwhile, bivariate analysis in this study uses the Spearman Rho statistical test which tests two variables with an ordinal data scale to

determine the relationship and how big the relationship is. This research has received ethical approval from KEPK, Faculty of Health Sciences, Muhammadiyah University of Jember NO.0021/KEPK/FIKES/XII/2024 and ethical approval from Jember Lung Hospital Number 000.9.6/1864/102.12/2024.

Results

The general data used in this research is demographic information from 82 patients of the Pulmonary Tuberculosis Polyclinic at Jember Lung Hospital which was collected including information about age, gender, education.

Table 1. Frequency Distribution Based on Age of Pulmonary Tuberculosis Patients at the Jember Lung Hospital

Age	Frequency	Percentage
15 – 25 years	16	19,6 %
26 – 35 years	14	17,0 %
36 – 45 years	24	29,3 %
46 – 55 years	16	19,6 %
56 – 65 years	7	8,5 %
> 65 years	5	6,0%
Total	82	100%

Table 1 regarding the characteristics of respondents based on age shows that the majority of respondents were 36 - 45 years old, 24 people (29.3%).

Table 2. Frequency Distribution Based on Gender of Pulmonary Tuberculosis Patients at Jember Lung Hospital

Gender	Frequency	Percentage
Male	51	62,2 %
Female	31	37,8 %
Total	82	100 %

Table 2 regarding the characteristics of respondents based on gender shows that the majority of respondents were male, 51 people (62.2%).

Table 3. Frequency Distribution Based on Education of Pulmonary Tuberculosis Patients at the Jember Lung Hospital

Education	Frequency	Percentage
Elementary School	16	19,6 %
Junior High School	35	42,7 %
Senior High School	29	35,3 %
Higher Education	2	2,4 %
Total	82	100 %

Table 3 regarding the characteristics of respondents based on education shows that the majority of respondents had junior high school education, 35 people (42.7%).

Table 4. Frequency Distribution Based on Occupation of Pulmonary Tuberculosis Patients at the Jember Lung Hospital

Job	Frequency	Percentage
Not Employed	9	11,0 %
Self-employed	24	29,3 %
Trader	12	14,6 %
Farmer	17	20,7 %
Housewife	16	19,6 %
Teacher	2	2,4 %
Security Guard	2	2,4 %
Total	82	100 %

Table 4 regarding the characteristics of respondents based on work shows that the majority of respondents work as entrepreneurs, 24 people (29.3%).

A. Custom Data

Table 1. Frequency Distribution Based on Health Control Behavior of Pulmonary Tuberculosis Patients at the Jember Lung Hospital

Health Control Behavior	Frequency	Percentage
Good	36	44,0 %
Fair	46	56,0 %
Lack	0	0 %
Total	82	100 %

Table 1 on Health control behavior can be seen that the majority of respondents have sufficient health control behavior as many as 46 people (56.0%).

Table 2. Frequency Distribution Based on Compliance with Medication in Pulmonary Tuberculosis Patients at the Jember Lung Hospital

Medication Adherence	Frequency	Percentage
Compliant	21	25,6 %
Adherent Enough	51	62,2 %
Not Compliant	10	12,2 %
Total	82	100 %

Table 2 regarding medication compliance shows that the majority of respondents have moderate medication compliance, 51 people (62.2%).

Health Control Behavior	Medication Adherence			Total	R value	p
	Compliant	Adherent enough	Not Compliant			
Good	13 (16%)	22 (27%)	1 (1%)	36 (44%)	0,478	0,001
Fair	8 (10%)	29 (35%)	9 (11%)	46 (56%)		
Lack	0 (0%)	0 (0%)	0 (0%)	0 (0%)		
Total	21 (26%)	51 (62%)	10 (12%)	82 (100%)		

Based on table 3 above, it can be seen that 46 respondents (56%) of respondents' health control behavior is in the sufficient category. Then of the 46 respondents (56%), compliance with taking medication was also in the moderately compliant category for 29 respondents (35%). Apart from that, there were 8 respondents (10%) in the compliant category and 9 respondents (11%) in the non-compliant category. Of the total of 82 respondents, there were 36 respondents (44%) whose health control behavior was in the good category, but 22 respondents (27%) were not compliant in taking medication, but rather compliant.

The results of the Spearman Rho correlation test obtained a p value of $0.001 < 0.05$, meaning that H1 was accepted, which means there is a relationship between health control behavior and adherence to taking medication in pulmonary tuberculosis patients at the Jember Lung Hospital. With a calculated r of 0.478, it is included in the category of sufficient correlation (0.26 - 0.50). The direction of correlation in the results of this study is positive (+), which means that the better a person's health control behavior, the more compliant a person will be in taking medication.

Discussion

Based on the research results, it is known that the majority of respondents have adequate health control behavior. The results of analysis of general data that possibly support someone having adequate health control behavior is the respondent's job. This research also shows that the majority of pulmonary tuberculosis patients work as entrepreneurs. In line with research (Tambuwun et al., 2021) that employment status is related to health control behavior because it is influenced by the availability of time, someone who works tends not to have free time to come to the available health services.

Based on the research results, it is known that the majority of respondents are quite compliant in taking medication. This is because some pulmonary tuberculosis patients are quite compliant in taking medication because they are still of productive age. In line with research (Khamidah & Susmaneli, 2020) which states that productive people with pulmonary tuberculosis are 3,500 times more likely to be at risk of dropping out of treatment compared to people who are not productive.

Pulmonary tuberculosis sufferers who are categorized as productive age generally have quite high daily activities so that they sometimes forget to come for treatment and take medication regularly.

The analysis carried out using the Spearman rho correlation statistical test obtained a p value of 0.001, where if this value is compared with the α value, namely the result of $p \text{ value} < \alpha$, which shows a statistically significant value, namely $0.001 < 0.05$, so it can be concluded that H1 is accepted, which means There is a relationship between health control behavior and medication adherence in pulmonary tuberculosis patients at the Jember Lung Hospital. With a calculated r of 0.478, it is included in the category of sufficient correlation (0.26-0.50). The direction of correlation in the results of this study is positive (+), which means that the better a person's health control behavior, the more compliant a person will be in taking medication.

Treatment of pulmonary tuberculosis patients requires lifestyle modification because the treatment is long term (6-8 months). This treatment can result in physical and psychosocial changes, which can be minimized if the patient has good health control behavior and is compliant in taking medication. Health control behavior is very important in order to achieve successful treatment so that there is no repetition of treatment and accelerates the healing process as in the results of the analysis carried out by (Restuaji, 2021) that health control behavior is important for individuals who want to undergo treatment, it is hoped that individuals will be responsible for their health condition to improve the quality of health. When individuals have good health control behavior, they will tend to comply with taking medication, making it easier to speed up the healing process.

Conclusion

Based on the results of research on the relationship between health control behavior and compliance with taking medication in pulmonary tuberculosis patients at Jember Lung Hospital on 13 May 2024 - 27 May 2024, the following conclusions can be drawn:

1. The health control behavior of pulmonary tuberculosis patients at the Jember Lung Hospital is mostly in the good category.
2. Compliance with taking medication for pulmonary tuberculosis patients at the Jember Lung Hospital is mostly in the moderately compliant category.

3. Based on correlation analysis with the Spearman Rho test, it was found that there was a relationship between health control behavior and adherence to taking medication in pulmonary tuberculosis patients at the Jember Lung Hospital.

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