



## THE RELATIONSHIP BETWEEN SELF-CARE AGENCY AND MEDICATION ADHERENCE IN TUBERCULOSIS PATIENTS

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### ABSTRACT

**Introduction:** Adherence to tuberculosis (TB) medication is a critical factor in curing patients. Incomplete or improper treatment can lead to drug resistance or the recurrence of infection. Self-care agency plays a vital role in helping individuals remain compliant and consistent with their treatment. High medication adherence can also enhance an individual's self-care agency. This study aims to determine the relationship between self-care agency and medication adherence in TB patients at Lamongan Health Center. **Methods:** This study utilized a quantitative correlational design with a cross-sectional approach. The study was conducted in March 2023. The study population consisted of 65 TB patients, with a sample size of 56 respondents selected through simple random sampling. The independent and dependent variables were self-care agency and medication adherence, respectively. Data on self-care agency were collected using the ASA Scale questionnaire, and medication adherence was assessed using the MMAS-8 questionnaire. Data analysis was performed using the Spearman rank correlation test. **Results:** The study found a strong positive relationship between self-care agency and medication adherence in TB patients at Lamongan Health Center, with a significance level of 0.001 ( $p < 0.05$ ) and a correlation coefficient of 0.635. TB patients with high self-care agency were more likely to adhere to their medication regimen compared to those with lower self-care agency. **Conclusions:** The findings of this study suggest that improving self-care agency can enhance medication adherence among TB patients. These results can serve as a reference for strategies aimed at increasing medication adherence by strengthening patients' self-care agency.

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### INTRODUCTION

Adherence is a form of behavior that results from the interaction between health workers and clients, allowing the client to understand the plan, its consequences, agree to it, and then implement it (Kemenkes, 2018). Compliance is crucial in healthy living behaviors, such as adhering to anti-tuberculosis drug regimens. Adherence to anti-tuberculosis medication involves taking the prescribed medications at the right time and dosage. Treatment will only be effective if the patient follows the prescribed medication regimen consistently (Sinaga et al., 2020). The success of tuberculosis (TB) treatment requires the active participation of both health workers and TB patients. Medication compliance is a key factor in TB recovery, and the level of compliance remains a critical parameter for assessing the success of TB treatment (Abubakar et al., 2022).

Tuberculosis (TB) is a significant health issue affecting millions of people worldwide. The success

rate of TB treatment in Indonesia is relatively low, as evidenced by the high prevalence of TB cases in the country. Tuberculosis is an infectious disease, and controlling it is a global health goal under the Sustainable Development Goals (SDGs). The SDGs set TB as a health sector goal in the effort to end the AIDS epidemic and reduce tuberculosis (Andri et al., 2020).

TB can spread through the air or via droplets when an infected person coughs. A patient with active tuberculosis can transmit the disease to five to fifteen others in a year through close contact and respiratory droplets (Absor et al., 2020). According to the World Health Organization (WHO), 10 million people were affected by tuberculosis in 2019, with 1.4 million deaths. Indonesia has the second-highest number of TB patients in the world, following India, with 969,000 cases reported annually in 2022. The largest number of TB cases occurs among adults aged 40-55 years. However,



TB treatment adherence is still low, with treatment coverage at only 57%, well below the 90% target (Nailius & Anshari, 2020). Approximately 10.06% of TB patients discontinued treatment because they felt cured.

In Indonesia, particularly in the East Java region, the Lamongan Health Office (2021) reported that the cure rate for tuberculosis (TB) was 64.7%, with a treatment completion rate of 48.2%. In 2021, the success rate in Lamongan Regency increased to over 91%, surpassing the 90% target for TB treatment completion. However, more than 50% of people with TB who do not adhere to their medication regimen risk death (Kemenkes RI, 2022). According to data from the Central Statistics Agency (BPS) of Lamongan Regency (2022), the number of TB cases in 2021 was still high, with 1,632 cases, compared to 1,492 cases in 2020 (Kemenkes RI, 2022). Of these cases, 175 patients were from Lamongan District, 76 from Turi District, 70 from Mantup District, 67 from Brondong District, and 67 from Paciran District (Kemenkes RI, 2022).

Medication adherence is influenced by three main factors: predisposition factors, supporting factors, and reinforcing factors. Predisposing factors include age, gender, education level, and employment status. Supporting factors encompass side effects of anti-tuberculosis drugs (OAT), patient type, and access to health services. Reinforcing factors include the role of health workers and family support. Factors that contribute to non-compliance include the treatment duration of two to six months, which many patients find too complex, leading to burnout (Suryana & Nurhayati, 2021).

Previous research titled *"The Relationship between Drug Medication Compliance and Recovery of BTA-Positive Pulmonary Tuberculosis Patients at the Delanggu Health Center, Klaten Regency"* revealed that the majority of TB patients at the Delanggu Health Center adhered to their treatment, with 25 respondents (65.8%) in the compliance category, while 13 respondents (34.2%) were non-compliant with their medication (Mambaul, 2016). Another study, *"The Relationship between Coping Stress and Compliance with Taking Anti-TB Drugs (OAT) in Pulmonary TB Patients at Dr. Soegiri Lamongan Hospital"*, concluded that 47% of patients exhibited a high level of medication adherence, while 20% demonstrated low compliance (Mawadah, 2022). In the study *"Adherence to Taking Medication in Pulmonary Tuberculosis Patients"*, the research found that attitude is a significant factor affecting drug adherence in pulmonary tuberculosis

patients, with a p-value of 0.000 ( $<0.05$ ) (Fitri, L.D, 2018).

Self-care agency allows individuals to engage in behaviors related to health promotion and disease prevention. However, when an individual faces limitations in achieving self-care, they often need assistance from others, including health workers. Self-care agency is closely related to adherence to anti-tuberculosis drugs, emphasizing individual responsibility in managing their health and making informed decisions regarding treatment (Alligood & Tomey, 2006).

Self-care agency was assessed across five dimensions: medication adherence, diet, physical activity, blood sugar monitoring, and foot care, in a study involving 118 elderly men in Banda Aceh City. The study concluded that most respondents had poor self-care agency, with the majority adhering to taking medication for only three days in the past week, following a diet for three days, engaging in physical activity for three days, monitoring blood sugar twice a week, and performing foot care for three days a week (Fajarina & Vivi Yanti, 2022).

During the treatment period, TB patients may experience burnout, which impacts their medication adherence. This must be addressed promptly to prevent the development of Multi-Drug Resistant Tuberculosis (MDR-TB), which can significantly hinder recovery (Putri et al., 2021). Efforts to improve self-care agency through education, knowledge, motivation, and medication management skills are expected to help reduce the prevalence of TB and improve patient outcomes (Nursalam, 2014). Patients with strong self-care agency are better able to recognize their needs and independently manage their treatment actions (Nursalam, 2014; Rababah & Al-Hammouri, 2022). Supervision of medication adherence through programs like Directly Observed Therapy (PMO) can help ensure treatment regularity, thus encouraging patients to adhere to their medication regimen (Suryana & Nurhayati, 2021). Therefore, this study aims to explore the relationship between self-care agency and medication adherence in TB patients at the Lamongan Health Center.

## MATERIALS AND METHODS

This study is a correlational quantitative research design with a cross-sectional approach. The research was conducted at the Lamongan Health Center, Lamongan Regency, in March 2023. The population for this study comprised 65 TB patients at the Lamongan Health Center in March 2023. The sampling method used was simple random sampling, and the sample size was 56 out of the 65 individuals in the population.

The variables in this study are divided into two categories: the independent variable, which is self-care agency, and the dependent variable, which is medication adherence. The inclusion criteria for this study are as follows: participants must be willing to participate as respondents, be diagnosed with tuberculosis, be at least 15 years old, be in the treatment phase at the Lamongan Health Center, and reside within the working area of the Lamongan Health Center.

Data on self-care agency were collected using the ASA Scale questionnaire, while medication adherence was assessed using the MMAS-8 questionnaire. Data analysis was conducted using the Spearman rank correlation test. Ethical clearance for this study was granted by the Health Research Ethics Commission (KEPK) of the Surabaya Ministry of Health Polytechnic, with ethical approval number EA/1798/KEPK-Potekkes\_Sby/V/2023.

## RESULTS

**Table 1.** Characteristics of Respondents based on Age, Gender, Education, Occupation, and Duration of TBC at Lamongan Health Center, Lamongan Regency, March 2023.

Age (years)	Frequency (F)	Percentage (%)
15-25	7	12.5
26-35	9	16.1
36-45	12	21.4
46-55	14	25.0
56-65	10	17.9
>65	4	7.1
Gender	Frequency (F)	Percentage (%)
Male	32	57.1
Female	24	42.9
Education	Frequency (F)	Percentage (%)
No School	3	5.4
Primary School	9	16.1
Junior High School	8	14.2
Senior High School	27	48.2
High School	9	16.1
Occupation	Frequency (F)	Percentage (%)
Not Working	19	33.9
Private	24	42.9
PNS	8	14.3
Farmers	5	8.9
Duration of TBC	Frequency (F)	Percentage (%)
<1 Years	42	75
1-5 Years	14	25
>5 Years	0	0
<b>Total</b>	<b>56</b>	<b>100</b>

Based on Table 1, the characteristics of the respondents indicate that a small portion of the respondents are in the 46-55 years age range, with 14 people (25%), and in the >65 years age range, with 4 people (7.1%). The majority of respondents are male, totaling 32 people (57.1%). Regarding education level, nearly half of the respondents have a high school education, totaling 27 people (48.2%), while a smaller portion has a junior high school education, totaling 8 people (14.2%). Regarding occupation, almost half of the respondents work in the private sector, totaling 24 people (42.9%), while a smaller portion are farmers, totaling 5 people (8.9%). The majority of respondents have been living with tuberculosis (TB) for less than one year, totaling 42 people (72%), while a smaller portion has been living with TB for 1-5 years, totaling 14 people (25%).

**Table 2.** Characteristics of Respondents based on self-care agency at Lamongan Health Center, March 2023.

Self-care Agency	Frequency (F)	Percentage (%)
Poor	3	5.4
Enough	7	12.5
Good	46	82.1
<b>Total</b>	<b>56</b>	<b>100</b>

Based on Table 2, the distribution of respondents based on self-care agency (SCA) level shows that the majority of respondents have a good SCA level, with 46 people (82.1%), while a smaller portion have a less satisfactory SCA, with 3 people (5.4%).

**Table 3.** Characteristics of Respondents based on Medication Compliance at Lamongan Health Center, March 2023.

Medication compliance	Frequency (F)	Percentage (%)
Low	5	8.9
Medium	20	35.7
High	31	55.4
<b>Total</b>	<b>56</b>	<b>100</b>

Based on Table 3, the characteristics of respondents based on medication adherence show that the majority have high adherence, totaling 31 people (55.4%), while a smaller portion have low adherence, totaling 5 people (8.9%).

**Table 4.** Characteristics of Respondents based on relationship between self-care agency and medication adherence at Lamongan Health Center, March 2023.

Self-care agency	Medication Compliance						Total		Sig.	Correlation Coefficient
	Low		Medium		High					
	N	%	n	%	N	%	n	%		
Poor	3	5.3	0	0	0	0	3	100	0,001	0.635
Enough	2	3.5	5	8.8	0	0	7	100		
Good	0	0	15	26.7	31	55.3	46	100		
Total	5	8.8	20	35.5	31	55.3	56	100		

Based on Table 4, it shows that the majority of respondents, 31 people (55%), have a good self-care agency and exhibit high medication adherence. A small number of respondents, 3 people (5.3%), have low self-care agency and low medication adherence. The results of the Spearman rank test, conducted using SPSS 29, yielded a significance value of 0.001 ( $p < 0.05$ ), indicating that there is a relationship between self-care agency and medication adherence among TB patients at Lamongan Health Center. The correlation coefficient between the two variables was 0.635, suggesting a strong positive relationship. This positive correlation indicates a one-way relationship, meaning that a good self-care agency is associated with higher medication adherence, and vice versa.

## DISCUSSION

The results of the study showed that most respondents (25.0%) were aged 46-55 years. This age range is considered adult, a stage where individuals typically have extensive knowledge and experience in dealing with various problems. Almost half of the respondents (48.2%) had a high school education. With sufficiently high education, it is expected that they will be able to comply with their medication regimen. The majority of respondents (55.4%) demonstrated high compliance in taking tuberculosis (TB) medication. Adherence to medication is crucial for effective treatment and significantly contributes to the recovery process.

Based on the study results, Table 4 shows a relationship between self-care agency and medication adherence in TB patients at the Lamongan Health Center, Lamongan Regency. The table indicates that most respondents with good self-care agency also had high medication adherence (55.3%). A strong self-care agency can positively affect medication adherence. In TB patients, lifestyle control is essential to prevent complications, one of which is adherence to medication. Patients with a good level of independence can adhere to both medication and dietary guidelines, helping to control their

condition. Knowledge and a strong self-care agency are closely related to adherence to anti-tuberculosis medication in TB patients (Maulida, et al., n.d.).

A good self-care agency contributes significantly to patient compliance with taking anti-tuberculosis medications at the Lamongan Health Center. The ability of an individual to recognize their health needs, manage disease symptoms and medication side effects, understand the importance of treatment, and make informed decisions in self-care plays a key role in medication adherence. Patients with a strong self-care agency are more likely to take responsibility for their health, recognizing the importance of medication, which increases their likelihood of following the prescribed regimen and improving adherence to treatment.

Having a strong self-care agency is proven to enhance patient compliance in taking medication. TB patients with a good self-care agency tend to feel more responsible for their health and are better equipped to understand the importance of medication. As a result, they are more likely to adhere to their medication schedule, which improves treatment outcomes. Therefore, enhancing self-care agency in TB patients can help

improve adherence to medication and contribute to better treatment outcomes.

## CONCLUSIONS

The results showed that most respondents had a good self-care agency and high medication adherence. A significant relationship exists between self-care agency and medication adherence in TB patients at the Lamongan Health Center, Lamongan Regency.

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## AUTHORS' CONTRIBUTIONS

Iswatun and Joko contributed substantially to the design, drafting of the manuscript, and data analysis. Endah, Khotibul, and Rindayati interpreted the results and worked on the manuscript. All authors discussed the results and provided feedback on the manuscript.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest related to this study.

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