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## Patients' Perceptions of Compliance with Tuberculosis Medication in Lamongan

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<sup>K</sup> Devi Ristian Octavia <sup>1</sup>, Primanitha Ria Utami <sup>2</sup>

<sup>1,2</sup> Prodi Farmasi, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Lamongan

Email Penulis Korespondensi (<sup>K</sup>): [devioctavia1987@gmail.com](mailto:devioctavia1987@gmail.com)

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### ABSTRACT

Treatment non-adherence in tuberculosis (TB) patients is a challenge in TB treatment. This research was an observational analysis study with a cross-sectional design. The population of this study were all tuberculosis patients at Karanggeneng Community Health Center, Lamongan from January to September 2018 who were still undergoing treatment process. Total sampling technique was utilized which obtained 40 patients. The data were collected through a closed questionnaire sheet of the method applied by the MMAS (Morisky Medication Adherence Scale). Then, the data were analyzed by editing, coding, scoring and tabulating. The results showed that 92% of patients adhered to Tuberculosis treatment and their influential perceptions included patients' belief, family support, and motivation from health personnel. Treatment supporter is very influential on the success of Tuberculosis therapy.

**Keywords:** Adherence; Treatment Supporter; Perception; Tuberculosis

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## INTRODUCTION

Indonesia is a tropical climate country where it is more susceptible to contracting infectious diseases compared to temperate countries. In the tropical country, environmental conditions tend to have high humidity which affects high biological growth as a support for biodiversity including pathogens, hosts and vectors. In addition, low public awareness results in poor control of infectious and tropical diseases. One of the tropical diseases is Tuberculosis (TBC) <sup>1</sup>.

Pulmonary tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* infection in the lower respiratory tract. Pulmonary tuberculosis is still a current issue of community health besides being a global health issue in foreign countries. The World Health Organization (WHO) reported that there were 22 countries included in high burden categories for Tuberculosis (high Burden of TBC Number). A total of 8.9 million TB patients with a percentage of 80% in 22 developing countries had 3 million deaths per year and one person could be infected by Tuberculosis per second. Indonesia is currently ranked among the fifth countries with the highest TB burden in the world <sup>2</sup>. Globally, TB is the leading cause of infectious diseases death for more than 1.5 million people in Indonesia <sup>3</sup>.

Treatment non-adherence in tuberculosis (TB) patients is a challenge in TB treatment. Directly observed treatment (DOT) or direct medication surveillance to monitor and ensure adherence still has several limitations in countries with high incidence of tuberculosis. Most digital technology compliance emphasizes the medication reminder function; however, two-way communication platforms should provide face-to-face meeting between health workers and patients and focus on improving treatment adherence. Ensuring adherence to treatment is a critical activity for ending TB epidemic. Although directly observed treatment (DOT) is considered the most effective strategy to ensure medication adherence, it still has limitations of poor implementation including expensive travel costs, time consumption, invasion privacy and disruption of patient lifestyle <sup>3</sup>.

Bishara, et al., (2014) stated that because the incidence of TB had decreased in developed countries, the diagnosis and treatment of latent TB infection (LTBI) had become increasingly important. It is estimated that 5-10% of people with LTBI continue to spread the TB virus; therefore, the important role of LTBI treatment in eliminating TB must be addressed. However, it was found that the level of adherence of LTBI was low and non-adherence was a major barrier in achieving the full benefit of LTBI treatment.

A survey that was conducted at one of the community health centers (Puskesmas) in the Lamongan from January to September 2018 had found 54 tuberculosis patients. Thirty-seven (37) out of 54 patients or 68.5% of the patients routinely sought treatment, 2 patients (3.7%) failed in the treatment, 14 patients (25.92%) succeeded in the treatment, and 1 patient (1.85%) exposed to Multy Drugs Resistance (MDR). Based on the preliminary survey, it was found that some patients had failed in the treatment. To increase patient adherence in taking medication regularly, the role of treatment supporters is very important. This is because they support TB patients to seek regular medication until

it has finished. A treatment supporter has to support TB patients for at least 6 months. Thus, it is better if a treatment supporter is one of the patients’ family members who are truly trustworthy in accompanying patients during treatment therapy. Puskesmas in Lamongan Regency always improves socialization and outreach to family members who are appointed as treatment supporters to be carry out their roles and duties properly and optimally.

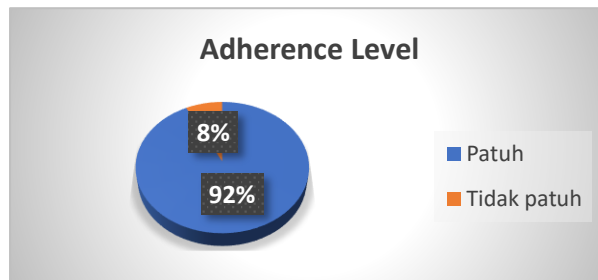


Figure 1. Adherence Level of Tuberculosis Treatment in Karanggeneng Community Health Center, Lamongan

### METHOD

This study was an observational analysis study with a cross-sectional design. The population of this study was all tuberculosis patients at Karanggeneng Community Health Center from January to September 2018 who were still in the treatment process. Total sampling technique was applied to obtain 40 patients as the samples. The data were collected through a closed questionnaire sheet of the method applied by the MMAS (Morisky Medication Adherence Scale). The data obtained were then analyzed by editing, coding, scoring and tabulating.

### RESULTS

The results of the research exposed the characteristics of respondents as shown in table 1.

Table 1. Respondents Characteristics

Characteristics	Total	Percentage (%)
Age (year)		
< 20	3	7,5
20-39	12	30
40-59	19	47,5
>60	6	15
Gender		
Male	27	67,5
Female	13	32,5

Table 1 showed that more than half of the respondents were male (67.5%). Treatment adherence to tuberculosis patients is shown in Figure 1 illustrating that the majority of respondents (92%) were adherent in carrying out TB treatment.

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## DISCUSSION

Table 1 showed that more than half of the respondents were male (67.5%). Budi et al., (2018) revealed that there was a relationship between gender and the incidence of tuberculosis, in which men had a 1.8 times risk of contracting tuberculosis than women with a 64% probability. Men have higher mobility than women so that they are more likely to be exposed to the disease. Another factor is a poor lifestyle such as smoking and consuming alcohol which makes it easier for them to be infected with pulmonary tuberculosis <sup>6</sup>. Characteristics of respondents based on age indicated that the majority of patients (85%) were at productive age, 20-59 years. Productive age is very vulnerable to the transmission because people tend to interact with others. They also have high mobility which enables them to transmit their disease to other people as well as the surrounding environment <sup>7</sup>. Risk factors which affect infection of tuberculosis in Indonesia were education, ownership index, cooking fuel, room conditions and smoking behavior <sup>8</sup>.

Treatment adherence to tuberculosis patients is shown in Figure 1 illustrating that the majority of respondents (92%) were adherent in carrying out TB treatment. Treatment adherence was an important part of chronic disease management <sup>9</sup>. Excellent treatment adherence contributed to a reduction in morbidity and mortality <sup>10</sup>. Poor drug adherence increased resistance to TB treatment <sup>11</sup>.

Yap et al., (2016) categorized five factors affecting patient treatment: patient factors, treatment factors, doctor factors, system-based factors and other factors that affect treatment adherence in the elderly. Figure 2 showed that patients' perceptions of the treatment were affected by patients' knowledge of the treatment, support from the family, and patient's belief in the therapy.

The role of the family in tuberculosis medication, as stated in questionnaire point 1, had the potential for patient adherence in undergoing treatment. World Health Organization (WHO) has developed a new strategy called DOTS (Directly Observed Treatment Shortcourse), a short-term, direct-observed treatment to optimize Tuberculosis therapy. Treatment supporter is one of the keys to the success of the DOTS strategy considering that the treatment takes a relatively long time. Wartonah et al., (2019) stated that Tuberculosis patients were more than 2.6 times taking medication regularly if the treatment supporter reminded them to take medication. The role of the family or supporter in taking medication by encouraging and motivating patients during the therapy process.

Treatment non-adherence in patients is mainly due to lack of access or forgetfulness. Non-adherence can often be a choice that is deliberately made by the patient. Other factors that affected patient compliance were belief, communication, and empathy which are not easily measured by current administrative databases <sup>13</sup>. Non-adherent patients (8%) stated that they did not have a supporter to remind them to take the medicine according to the time. Besides, they were the lack of motivation from the family especially in carrying out routine control to the doctor when the therapy period needed to be renewed.

Adherence to treatment depends on a variety of factors, including individual characteristics and interactions with healthcare providers. Non-adherence in treatment led to failure of therapeutic goals<sup>14</sup>. Completion of anti-tuberculosis treatment is very important for TB patients, as well as an effort to control Tuberculosis globally. However, there was no standard measure to monitor adherence to tuberculosis treatment<sup>15</sup>.

Knowledge, social support, side effects and long treatment duration are factors that hinder treatment adherence. Distance to health facilities, good communication and attitudes from health service providers are factors of good medication adherence. Comprehensive education from health workers would increase patient enthusiasm for treatment<sup>16</sup>.

The most commonly used standard chemotherapy regimen for TB treatment consists of first-line drugs such as isoniazid (INH), rifampin (RIF), pyrazinamide (PZA) and ethambutol (EMB) for the initial 2-month phase followed by a follow-up phase namely INH and RIF for 4 months. The lack of effective treatment has made TB a devastating disease worldwide. TB treatment is a difficult task requiring the administration of many antibiotics over a long period of time. Antibiotic resistance is an emerging problem in drug-resistant TB (MDR-TB) infection. Various attempts have also been made to manage MDR and XDR-TB using a combination of clinical, radiographic, microbiological, histopathological features with appropriate multidrug therapy<sup>17</sup>.

The results of the research on patient perceptions in undergoing tuberculosis therapy as stated in the questionnaire point 2 indicated that all patients had never reduced the dose of drug therapy without the permission of health workers. Point 10 showed all patients believed that taking medication regularly would cure their tuberculosis.

The role and motivation of treatment supporters and family are very important for the successful treatment of Tuberculosis patients. The role of the treatment supporters is very important to carry out supervision of patients in terms of taking medication, reminding patients to recheck their sputum according to a predetermined schedule, encouraging patients to seek treatment regularly until the completion of the treatment period, advising patients to keep taking medication regularly until the completion of the treatment period<sup>18</sup>.

## CONCLUSION

Almost all tuberculosis patients at Krangganeng Community Health Center, Lamongan are adhere to treatment. Adherence to taking medication is affected by the role of the family, belief in the success of therapy and the role of health workers.

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