

Factors Influencing Adherence to Tuberculosis Treatment Among Patients in UPTD Puskesmas Muaradua and UPTD Puskesmas Buay Pemaca Ogan Komerling Ulu Selatan

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, affecting various organs, especially the lungs. The infection is spread by inhaling tiny droplets from an infected person. Non-adherence to TB treatment can result in new strains, prolonged infectiousness, drug resistance, and poor treatment outcomes. Assessment of adherence to anti-TB treatment and identifying factors associated with non-adherence medication is essential for improving a successful treatment. The main objectives of the current study were to assess the level of adherence to anti-TB treatment among patients in UPTD Puskesmas Muaradua and UPTD Puskesmas Buay Pemaca Kabupaten Ogan Komerling Ulu Selatan and to evaluate the association of background characteristics of study participants and level of adherence to anti-TB treatment. By conducting a cross-sectional study design, TB patients taking anti-TB drug treatment between January and March 2021 were interviewed using a structured questionnaire (MMAS-8) to evaluate adherence to anti-TB treatment. Ninety-six respondents were interviewed, of whom 75 respondents (78,1%) are compliant. In conclusion, the level of adherence (78.1 %) observed in the current study area is relatively high. There was no association between background characteristics such as age, gender, level of education, and job ($P>0,05$) with medication adherence to anti-TB treatment in UPTD Puskesmas Muaradua and UPTD Puskesmas Buay Pemaca Kabupaten Ogan Komerling Ulu Selatan.

Keywords: Tuberculosis, Medication Adherence, TB Treatment, Factors.

1. INTRODUCTION

Tuberculosis (TB) is a major global public health problem and one of the leading causes of death among infectious diseases. TB has become a global threat. Almost one-third of the world's population is infected with TB.¹ There were 95% cases and 98% of deaths caused by TB reported worldwide in developing countries. India has the highest number of new TB cases globally (23%), followed by Indonesia and China (10%). The complete cure requires six months of treatment without interruption with multiple drugs, challenging for patients and health care workers. Incomplete TB treatment may cause prolonged TB transmission, increased risk of development of drug-resistant TB, and higher mortality.²

TB in Indonesia is the fourth leading cause of death after stroke, diabetes, and hypertension. The

prevalence of TB in Indonesia is relatively high, reaching around 450 thousand cases per year and deaths from TB approximately 65,000 people.³ Based on the 2018 Riskesdas report, the Indonesian population diagnosed with pulmonary TB by health workers is 0.4%. Provinces with the highest prevalence of pulmonary tuberculosis were Aceh (0.5%), Banten (0.8%), West Java (0.6%), and Papua (0.8%).⁴ According to the profile of the South Sumatra Provincial Health Office, in 2014, there were 5,900 smear-positive pulmonary TB cases or 48.41%, with the highest number of cases in Palembang City as many as 1,422 cases. In 2015 cases increased to 6,233 points or 45.05%, with the highest number of cases in Palembang City with 1,286 cases. The data shows that there are still high cases of smear-positive pulmonary tuberculosis in the city of Palembang.⁵

The level of adherence to pulmonary TB drug consumption is an essential factor determining the

success of treatment. Non-adherence to TB treatment can result in widespread immunity (resistance) of TB bacteria to anti tuberculosis drugs or called Multi Drugs Resistance (MDR).⁶ Failure of treatment for pulmonary TB patients results in more pulmonary tuberculosis patients with an acid-fast bacillus (AFB) resistant to standard therapy. These patients can be a source of transmission in the community and become a challenge in reducing TB cases.⁷ A study of 76 respondents at the Pancoran Mas District Health Center, Depok, found the number of respondents who were compliant to TB treatment was relatively low (56.58%).⁸ In the study conducted by Maulida (2014), in Puskesmas East Chester, only 25% of patients are compliant with treatment. One factor that influenced the non-adherence to treatment is the lack of support from the family.⁹

Based on the problems, poor adherence to anti TB treatment is still an important independent determinant of treatment success in Indonesia. Therefore, this study aimed to evaluate the factors influencing adherence to tuberculosis treatment among patients attending UPTD Puskesmas Muaradua and UPTD Puskesmas Buay Pemaca Regency.

2. RESEARCH METHODS

This cross-sectional analytical study was conducted on 96 TB patients who met the inclusion criteria at the UPTD Puskesmas Muaradua and UPTD Puskesmas Buay Pemaca Regency Ogan Komering Ulu Selatan. Data were collected from January 2021 through April 2021. The researcher consecutively selected eligible patients who informed them of the study objectives and recruited all patients who agreed to participate. All the study participants gave informed consent.

The inclusion criteria were as follows: 1) clinically confirmed tuberculosis diagnosis, 2) TB patients with initial and final phase treatment 3) patient’s written informed consent. The exclusion criteria were as follows: 1) patients not willing to be a respondent.

In this study, the research instrument used was the MMAS-8 questionnaire. Data from patients was taken by interviewing respondents and then filling out a questionnaire. The data obtained were then collected and processed, and then analyzed using the chi-square test. The limit of significance was set at *p-value* <0.05.

3. RESEARCH RESULTS

The sample of this study was 96 respondents, with most respondents aged between 21-40 years

(45,8%) and 40-60 years (45,8%), with male as the majority of respondents (53.1%). Based on their occupation, most of them are housewives (28.1%). Based on their educational background, the highest frequency of respondents has a high school education (59.7%).

Table 1. Characteristics of Respondents

Variable	Total (%) N=96	Mean± SD	Median (Min;Max)
Age (Years)	-	41.73 ± 12.92	41 (21;69)
21-40	44(45.8)	-	-
40-60	44(45.8)	-	-
>60	8(8.3)	-	-
Gender	-	-	-
Male	5(53.1)	-	-
Female	45(46.9)	-	-
Education level	-	-	-
SD	22(22.9)	-	-
SMP	30(31.3)	-	-
SMA	44(45.8)	-	-
Occupation	-	-	-
Housewife	27(28.1)	-	-
Trader	5(5.2)	-	-
Farmer	15(15.6)	-	-
Civil Servant	5(5.2)	-	-
Private	1(1.0)	-	-
Self Employed	17(17.7)	-	-
Not working	25(26.0)	-	-
Others	1(1,0)	-	-
Monthly income(Rupiah)	-	-	-
<1,500,000	96 (100)	-	-
Period diagnosed with TB (months)	-	4.9±1.97	5 (1-10)

This study concluded that 75 respondents (78.1%) were compliant with TB treatment.

Table 2. Medication adherence in TB patients

Level of adherence	Total (%) N=96
Adherence	75 (78.1)
Non-adherence	21 (21.9)

Table 3. Relationship between some factors and medication adherence

Factors		Medication adherence		Total	P-Value
		Adherence	Non-adherence		
Age	<40 years	35 (79.5%)	9 (20.5%)	44 (100%)	0.757
	>40 years	40 (76.9%)	12 (23.1%)	52 (100%)	
Gender	Male	41 (80.4%)	10 (19.6%)	51 (100%)	0.567
	Female	34 (75.6%)	11 (24.4%)	45 (100%)	
Level Education	Elementary	16 (72.7%)	6 (27.3%)	22 (100%)	0.647
	Junior	25 (83.3%)	5 (16.7%)	30 (100%)	
	High School	34 (77.3%)	10 (22.7%)	44 (100%)	
Employment Status	Yes	54 (76.1%)	17 (23.9%)	71 (100%)	0.409
	No	21 (84.0%)	4 (16.0%)	25 (100%)	

The result study based on age group showed out of 44 respondents aged < 40 years, 35 respondents (84.1%) were compliant to take medicine, and out of 52 respondents aged ≥ 40 years, 40 respondents (76.9%) were compliant.

The result based on gender showed out of 51 male respondents, 41 respondents (80.4%) were compliant to take medicine, and out of 45 female respondents, 34 respondents (75.6%) were compliant.

The result based on education level showed 16 respondents out of 22 (72.7%), 25 respondents out of 30 (83.3%, and 34 respondents out of 44 (81.8%) who had an elementary school, junior high school, and high school education level, respectively, were compliant.

The result from the working respondent group showed that 54 respondents out of 71 (76.1%) and 21 out of 25 respondents (84.0%) were compliant. Analysis from those factors showed no relationship between each factor and medication adherence to TB treatment with p-value 0.757, 0.567, 0.647, and 0.409, respectively (p-value > 0.05).

4. DISCUSSION

In this study, 78.1% of respondents were obedient in taking anti-tuberculosis drugs. The result obtained is high enough. Several factors influenced the outcome, such as knowledge, family support, education, and employment status. With good knowledge about TB and family support during treatment, patients need to remain obedient in taking OAT.

There is no significant relationship between age and medication adherence in this study. During the research conducted from January 2021 – March 2021, it was found that the majority of 40 respondents (76.9%) were >40 years old and compliant to taking TB drugs. This result is in line with the study of Wulandari et al., who found 47 patients aged 22-60 years of 70 TB patients (67.1%) at the Kemang Integrated Health Home, West Java. The analysis showed no significant relationship between age and medication adherence.¹⁰ On the contrary, a study conducted by Budianto et al. showed a significant relationship between age and medication adherence. The study showed that of the 21 in-patients at the Pringewu health center who had been diagnosed for more than one month or in advanced stages, 42,9% of patients who were 50 years old were compliant to taking anti-tuberculosis drugs. This study states that there is a significant relationship between age and medication adherence.¹¹

Analysis based on gender showed no significant relationship between gender and adherence to taking OAT. This result is in line with research conducted by Wulandari. Out of 70 patients, 45 respondents (64.3%) were male, and the analysis also showed no significant relationship between gender and adherence to taking antituberculosis drugs.¹⁰

Based on the education level, the majority of 34 respondents (77.3%) had a high school education

level who were compliant to take medicine. Still, the results showed no significant relationship between the level of education and medication adherence, which is in line with the research conducted by Wulandari. Out of 70 patients, 41 respondents (58.6%) were elementary school graduates, and the results showed no significant relationship between the level of education and medication adherence.¹⁰ On the contrary, Budianto et al. found out of 21 patients, eight respondents (38.1%) who were compliant were high school graduates. The analysis showed a significant association between education level and medication adherence.¹¹

In this study, 54 patients (74.6%) were employed and compliant to taking medication. The results showed no significant relationship between employment history and medication adherence. This result is in line with the research conducted by Kondoy et al. at the Tuminting Health Center, Wawonasa Health Center, Tikala Health Center, Telling Health Center, and Bahu Health Center, also showed no significant relationship between employment history and medication adherence.¹²

5. LIMITATIONS OF THE RESEARCH

There may be a selection bias in this study due to the consecutive sampling technique. The sample was from respondents who meet the inclusion criteria and are willing to become respondents in this study, not randomized.

6. CONCLUSION

Based on this study, 78.1% of respondents were compliant in taking anti-tuberculosis drugs. Some factors can influence medication adherence. There is no significant relationship between age, gender, education level, and occupational status factors in this study with adherence to taking TB medication.

7. SUGGESTION

Health workers in puskesmas can motivate patients to increase medication adherence by conducting more health education for TB patients. Further research is expected to recruit more respondents and evaluate other factors influencing medication adherence to taking antituberculosis treatment.

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