THE COMPLIANCE AND EFFECTIVENESS OF TUBERCULOSIS DRUG USE AT THE TALUN HEALTH CENTER IN CIREBON

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis (Mtb). This disease affects the lung organs and may also affect organs outside the lungs. This study aimed to determine the level of compliance and effectiveness of TB drugs, the relationship between compliance and effectiveness in using TB drugs, and the relationship between compliance and effectiveness based on socio-demographic data of the community. The research method used was descriptive observational, with retrospective data collection based on TB patient treatment cards. Compliance data were collected by completing the MMAS questionnaire, and effectiveness data were collected by recording sputum examination results using the SITB (Tuberculosis Information System) software. The sample comprised the total population according to these criteria. The technique used for sampling was total sampling, namely the total number of TB patients at Talun Health Center, Cirebon Regency, from November 2023 to April 2024, a total of 40 patients. Data analysis using the Spearman test consisted of compliance analysis, effectiveness analysis, the relationship between compliance and effectiveness, and the relationship between compliance and effectiveness based on socio-demographic data of the population. The results of the study showed that the level of compliance with TB drug use was 7.9 (medium level of compliance), and the effectiveness of TB drug use was 100%. There is a relationship between compliance and the effectiveness of TB drug use, but there is no relationship based on the socio-demographic data of the population.

Keywords: Compliance, Effectiveness, TB Drugs

INTRODUCTION

Tuberculosis (TB) is a disease caused by Mycobacterium tuberculosis. The germ spreads through the air from people with TB. This germ usually attacks the lung organ and can also be found outside the lungs (Kautsar et al, 2016). According to the WHO, 10 million people contract tuberculosis every year and 1.5 million people die from TB (WHO, 2023). People suffering from TB can infect 10 to 15 people around them when this disease can lead to death without proper treatment (Adhanty et al, 2023). Non-adherence to TB treatment is strongly associated with personal perceptions, smoking, current TB status, place of first treatment, and education (Sari et al, 2020). Treatment adherence plays an important role in the success of TB treatment (Tukayo, et al, 2020). Another study found that the factors influencing TB patients' nonadherence are the role of health workers, side effects of drugs, and the belief that they are healthy and do not have TB (Adhanty et al, 2023). Based on the Indonesian Health Profile in 2021, the TB treatment success rate in Indonesia is 86% (target ≥ 90%). The TB treatment success rate in the West Java province was 82.4% (Kemenkes RI, 2022). In Talun Health Center From May to November 2023, there were 31 TB cases (30

cured, 1 failed), and there has been no research based on community sociodemographic data. This is because patients are not compliant with treatment; therefore, the cure rate is not as expected. The Talun Health Center is a community health center that helps government programs overcome TB.

RESEARCH METHODS
Equipment
The research tools used were the TB patient treatment card, MMAS-8 questionnaire, consent form, and Tuberculosis Information System (SITB) software.

Materials
The research conducted by the author used a descriptive observational method with retrospective data collection based on TB patient treatment cards. The independent variable was compliance with taking TB medication, and the dependent variable was the effectiveness of TB treatment. The technique used for sampling was total sampling, namely the total number of TB patients at Talun Health Center, Cirebon Regency from November 2023 to April 2024, a total of 40 patients The instrument used in this study consisted of Tuberculosis Information System (SITB) software, which contains patient identity and treatment data. In SITB, data on the results of sputum smears were collected and compared with the literature to improve the effectiveness of tuberculosis treatment. A convenience sample was used in this study. The inclusion criteria were patients diagnosed with TB, aged between 17 and 63 years, and willingness to be a respondent (cooperative). The exclusion criteria in this study included patients who were not diagnosed with TB, under 17 years of age, and communication difficulties, such as speech impediment and withdrawal while participating in the research. Sociodemographic data of the patients were collected using a questionnaire. Adherence data were collected by completing the MMAS-8 questionnaire, which is an 8-item medication adherence scale. The validity and reliability of the questionnaire were also tested. The MMAS-8 questionnaire consists of 7 questions with a Guttman scale with yes/no answers and 1 a scale question with five alternative answers. In question items number 1, 2, 3, 4, 6, 7, if answered "yes" then given a value of 0 and if answered "no" then given a value of 1. Question number 5 if answered "yes" then given a value of 1 and if answered "no" is given a value of 0. Question number 8 has multiple answer choices, and only one answer is given a value of 1 if answered "no" and a value of 0 if answered "yes". The combined scores for all questions were grouped into three compliance categories: low compliance, if the total score was < 6; medium compliance, if the total score was 6-7, and high compliance, if the total score was 8 (Riani et al. 2017).Click or tap to enter text.

Research Procedure
Researchers conducted a survey in the form of making initial observations, looking at data on the number of tuberculosis patients, and recording the results of observations. The sample size was determined based on these criteria. Compliance data were collected using the MMAS-8 questionnaire for tuberculosis patients, and effectiveness data were obtained from the results of BTA examination in the 1st, 2nd, 5th and final months of treatment. Processing and analysis of research data. Informed consent to become a respondent will be used to ask the patient's consent to become a respondent. This study was approved by our ethics committee.

Data Analysis
Analysis of TB treatment effectiveness was obtained from SITB software medical records and data processing using SPSS V26, and treatment outcome data were compared with literature showing the conversion of positive BTA values to negative. TB treatment

compliance was analyzed by calculating the compliance score from the MMAS-8 questionnaire, and data were processed using SPSS V26. The level of compliance was graded as high (score=8), moderate (score=6-7) and low (score <6). The data analysis to determine the relationship between compliance and the effectiveness of TB treatment will use the Chi-square method, which is very simple and flexible owing to its ease of use and problem-solving implementation. The Chi-square test is a type of nonparametric comparative test performed on two variables, where the data scale for both variables is nominal. Meanwhile, the data analysis to determine the relationship between compliance and effectiveness was based on the sociodemographic data of the population using the Spearman test.

RESULTS AND DISCUSSION

Table I. Sociodemographic characteristics of TB respondents

Variable	Category	N (%)	Total N=40 N (%)
Age	Adolescent (13-19 Years old)	1 (2,5)	40 (100)
	Young adult (20-40 years old)	23 (57.5)	
	Middle Adult (45-64 years old)	16 (40)	
Gender	Male	17 (42.5)	40 (100)
	Female	23 (57.5)	
Education	Not in school	1 (2.5)	40 (100)
	SD/MI	18 (45)	
	SMP/MTs	8 (20)	
	SMA/SMK	12 (30)	
	Diploma/Strata	1 (2.5)	
Income	< Rp. 1.000.000/ month	10 (25)	40 (100)
	Rp. 1.000.000-2.000.000/ month	14 (35)	
	Rp. 2.000.000-3.000.000/ month	14 (35)	
	Rp. 3.000.000-5.000.000/ month	2 (5)	
Family members	No family members	7 (17.5)	40 (100)
	Children	17 (42.5)	
	Parents	11 (27.5)	
	Spouse	3 (7.5)	
	Other family members	2 (5)	

Table II. Tabel II Adherence To Medication Among TB Patients

No	Compliance Level	Total	Percentage
1.	High	36	90 %
2.	Moderate	4	10 %
3.	Low	0	0 %
	Total	40	100 %

Table III. Distribution of Effectiveness Scores for TB Patients

No	Effectiveness	Total	Percentage
1.	Effective	40	100 %
2.	Ineffective	0	0 %
	Total	40	100 %

Table IV. Relationship Between Compliance And Effectiveness Of TB Drug Use

Compliance	N (%)	Effectiveness		Relationship Value	Sig
		Effective	**Ineffective**		
Compliant	36 (90)	40	0	0,480	0,002
Non-compliant	4 (10)	0	0		

Table V. Association Between Medication Adherence And Socio-Demographics

Characteristics	Correlation Value	Sig	N
Age	.238	.139	40
Gender	.118	.468	40
Education	-.382	.143	40
Income	-.167	.302	40
Dependents	-.122	.453	40

* Significance <0,005

The majority of TB patients showed a high level of compliance, namely 36 people (90%) and a moderate level of compliance, namely 4 people (10%) can be seen in **Table I**. This moderate level is due to the large tablet shape, which makes it difficult for elderly patients to swallow the medicine. To overcome this, special TB officers coordinate with pharmaceutical officers to educate patients and their families on how to administer drugs to elderly patients who have difficulty taking large tablets, namely by cutting the tablets into small pieces so that they are easy for elderly patients to swallow. The efficacy data showing 100% efficacy are presented in

Table III. TB treatment is considered effective if the sputum test results change from positive at the beginning of treatment to negative after 6 months of treatment. The success of TB treatment cannot be separated from the active participation of Puskesmas TB Officers, Drug Drinking Supervisors (PMOs), and patients who have undergone treatment regularly and in accordance with regulations. This could reduce the level of TB transmission in the working area of the Talun Health Center.

Based on the results of the statistical analysis using Spearman's test in **Table IV**, the correlation coefficient was 0.480, which means that the relationship between the variables was sufficient and unidirectional. As compliance increases, effectiveness also increases. The significance value was set at 0.002 or <0.05. This shows a significant relationship between adherence to medication and the effective use of TB drugs. Compliance with TB medication will have an impact on the effectiveness of TB drug use. However, in this study, adherence did not affect the treatment success. This is evidenced by the fact that all patients with TB were declared to be cured. The success of this treatment cannot be separated from the active role of Puskesmas TB officers and Drug Drinking Supervisors (PMOs), who always provide education, motivation, and monitoring for patients to take medicine regularly. Another factor that makes this treatment successful is that the patient's immune system starts to increase, so that it can quickly fight the bacteria in his body.

Based on the **Table V**, it can be seen that the results of Spearman's test on the age aspect show a correlation value of 0.238. This value indicates that the relationship is weak. The Sig value obtained was 0.139 (> 0.05), which means that age has no relationship with compliance, this result is in line with the research of (Wulandari, 2015). The gender aspect had a correlation value of 0.118. This value indicates that the relationship is weak. The Sig value obtained was 0.468 (> 0.05), which means that gender has no relationship with compliance with the use of TB drugs, this result is in line with the research of Sholichah et al, (2020). This shows that compliance with the use of TB drugs cannot be judged by gender. Both male and female, have the same opportunity in terms of compliance with the use of TB drugs. Regarding education, the correlation value obtained was negative, which means that the relationship between the two variables was not unidirectional. When one variable increases, the other decreases. These results are consistent with the research of Basri et al, (2019). Compliance can be formed from the information about TB disease provided by the health center staff (Dewi, 2021). A person with a high level of education will actively absorb various information that increases awareness in maintaining health (Muhammad, 2019) . Regarding income, the correlation value shows negative results, indicating that the relationship between the variables is not unidirectional. The resulting Sig value is 0.302 (> 0.05), indicating that income has no relationship with compliance. This result is consistent with the research of Nailius et al (2022) that no matter how much income the patient receives, because the treatment does not require cost, patients may try to get the medicine. This may be due to the transportation costs that need to be incurred as an obstacle to treatment (Ruditya, 2015). Based on the number of famil (Kemenkes RI 2022) dependents, it shows a unidirectional relationship and the sig value obtained is 0.453 (>0.05), which means that the number of family dependents is not an issue that prevents patients from being noncompliant with TB treatment. Because the government has provided TB drugs free of charge at health centers, the cost of supporting family life will not be disturbed. The research limitations only evaluated the socio-demographics of one health center location. Conduct further research regarding evaluations related to the use of TB drugs at several or more observation sites for comparison, so that the results obtained are more varied.

CONCLUSION

From the results of the observations, the level of compliance with the use of TB drugs in TB patients was 7.9, including a moderate level of compliance with the effectiveness of using

TB drugs of 100%. There is a relationship between compliance and the effectiveness of the use of TB drugs in patients with TB. There is no relationship between compliance and the effective use of TB drugs based on socio-demographic data of the population, which includes age, gender, education, income, and number of family members.

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