ORAL

Relationship Between Knowledge of Mdr-Tb and The Role of Dots Supervisor with Medication Adherence of Tb Patients in Oebobo Local Government Clinic of Kupang City

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Abstract

Background. Tuberculosis is a chronic infectious disease caused by Mycobacterium tuberculosis infection. According to WHO data, there are 8.6 million cases of tuberculosis in the world in 2012. The diagnosis of the prevalence of pulmonary tuberculosis in Indonesia is 0.4% and in East Nusa Tenggara Province is 0.3%. Long treatment period and the use of many drugs during the healing stage can cause treatment breaking. The number of failure cases can cause medication resistance for tuberculosis the one of which is MDR-TB. This study aim is to know the relationship between knowledge of MDR-TB and the role of DOTS Supervisor with medication adherence of tuberculosis patients. **Methods.** This study is an observational analytic with cross-sectional design toward 15 respondents who are undergoing treatment in Oebobo Local Government Clinic Of Kupang City. This study uses total sampling. Independent variable in this study is knowledge of MDR-TB and the role of DOTS Supervisor while the dependent variable is the medication adherence of tuberculosis patients in Oebobo Local Government Clinic Of Kupang City. To know the relationship between knowledge of MDR-TB with medication adherence of tuberculosis patients using Fisher's Exact Test. **Result.** The results show that 8 of 15 respondents had good knowledge, and 11 of 15 respondents have medication adherence. The adherence respondents of there is supported by the role of Supervisor DOTS, where the results show that there is a significant relationship between the role of Supervisor DOTS with medication adherence ($p < 0.05$). Fisher's Exact Test results show no significant relationship between knowledge about MDR-TB with medication adherence ($p > 0.05$). **Conclusion.** Characteristics of TB patient: 7 respondents aged more than 40 years old, 9 male respondents, 5 respondents with high education, and 9 respondents are in the phase of advanced TB medication. Level of knowledge about Multi-Drug Resistant Tuberculosis (MDR-TB), 8 respondents have good knowledge, while 7 respondents have less knowledge. Medication adherence of tuberculosis patients, 11 respondents are adhered, while 4 respondents have less medication adherence. There is no significant relationship between knowledge of Multi-Drug Resistant Tuberculosis (MDR-TB) with medication adherence of tuberculosis patients in Oebobo Local Government Clinic Of Kupang City, with the results of p-value $0.338 > 0.05$. There is a significant relationship between the role of DOTS Supervisor with medication adherence of tuberculosis patients in Oebobo Local Government Clinic Of Kupang City, with the results of p-value $0.001 > 0.05$.

Keywords: Knowledge, MDR-TB, Treatment Compliance.

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INTRODUCTION

Tuberculosis is a chronic infectious disease caused by infection with *Mycobacterium tuberculosis*. Most of the bacteria *Mycobacterium tuberculosis* attacks the lungs, the rest attacks other organs, such as the skin, bones, lymph nodes, and brain [1]. The modes of transmission include *droplets* from tuberculosis patients when coughing or sneezing. The power of transmission of tuberculosis is determined by the number of germs released from the lung. The more *Mycobacterium tuberculosis* found in sputum examinations, the higher the risk of transmission [2].

According to data from the *World Health Organization* (WHO), there are an estimated 8.6 million cases of tuberculosis in the world in 2012 [3]. The number of new cases of pulmonary tuberculosis in Indonesia in 2016 was 156,723 cases, with 3,173 cases among them occurring in NTT Province [4]. In Kota Kupang, in 2016 there were 343 new cases of pulmonary tuberculosis in Kupang City. The highest cases occurred in Oebobo Community Health Center with 65 new cases, and the lowest in Naioni Health Center and Kupang Kota with 5 new cases [5].

Long treatment period and large drug use, as well as side effects from drugs can cause patients to *drop out* during the healing phase [6]. This can interfere with the healing process and the success of the treatment process. The number of cases of failure in the treatment process can cause drug resistant tuberculosis, which is a condition in which *Mycobacterium tuberculosis* has been immune to Anti Tuberculosis (OAT). One of the resistance that occurs is *Multi Drug Resistant* (MDR-TB). MDR-TB is a state of resistance to at least two anti-tuberculosis drugs, namely isoniazid (INH) and rifampicin simultaneously, or

accompanied by resistance to other first-line drugs such as ethambutol, sterptomycin, and pyrazinamide. MDR-TB is a case that occurs due to an inappropriate treatment process. In 2012, there were an estimated 450,000 MDR-TB cases in the world, with 170,000 people dying [3]. The number of MDR-TB cases in Indonesia is estimated to be around 15,380 in 2015, with 1,860 cases of them confirmed through examination, and only 1,566 cases of which received treatment [4].

The biggest cause of drug resistance is patient noncompliance with treatment. Patients did not come to treatment *(drop-out*) in the intensive phase or advanced because of low motivation and lack of information about the illness. Lack of knowledge is also a problem in the treatment process.

Oebobo Health Center is one of the health centers in Kupang City. In the case of a new tuberculosis case in 2016 there were 65 cases, with a treatment success rate of 56.94% [5]. In 2016 the number of new cases of tuberculosis in Oebobo Community Health Center was the highest in Kupang City, but in terms of success was the lowest.

The problem above prompted researchers to do research about the Relationship of Knowledge About *Multi Drug Resistant Tuberculosis* (MDR-TB) With Compliance with the Treatment of Tuberculosis Patients in Oebobo Health Center, Kupang City. The purpose of this study is to examine the relationship between knowledge about MDR-TB with compliance with tuberculosis patients in undergoing treatment.

METHOD

This type of research is a correlation analytic study, which examines the relationship of knowledge about MDR-TB with medication adherence to tuberculosis patients at Oebobo Health Center. The study design used is*cross sectional*. This research was conducted PHC Oebobo, Kupang in June 2018.

Independent variable in this study was knowledge about MDR-TB. The dependent variable is the compliance of treatment for tuberculosis patients at Oebobo Health Center. The confounding

variable is Companion Drinking Medicine (PMO). The population in this study were all new patients with pulmonary tuberculosis who were undergoing treatment at Oebobo Health Center as many as 22 people. The sample in this study was an affordable total population during the study, as many as 15 people. The hypothesis in this study is that there is a relationship between the level of knowledge about MDR-TB and compliance with treatment for tuberculosis patients at Oebobo Health Center.

Results of the analysis technique used were univarit and bivariate analysis. Univariate analysis, data presented from each variable in the form frequency. Bivariate analysis used the *Fisher's Exact Test* to examine the relationship between the level of MDR-TB knowledge and medication adherence.

RESULTS AND DISCUSSION

General description

This study was conducted on tuberculosis patients who were undergoing treatment at the Oebobo Local Goverment Clinic. The number of tuberculosis patients up to June 2018 registered on the treatment control card was 23 people, consisting of 22 pulmonary TB patients and 1 extra pulmonary TB patient. As many as 5 of the pulmonary TB patients were pulmonary TB patients in the category of children, so that only 17 people could fulfill the requirement to become respondents. During the study only 15 people were reachable to be used as research samples.

Characteristics of Respondents

Table 1 Data on the frequency distribution of respondents' characteristics

Characteristics		N
Gender:		
	Man	9
	Women	6
Age:		
	21-30 years	5
	31-40 years old	3
	> 40 years old	7
Education:		
	Elementary school	3
	Junior high school	3
	High school	4
	College	5

Distribution of tuberculosis patients by age in community health

center of Oebobo gained 8/15 respondents were of childbearing age (20-40 years). These results are supported by Linda's study (2012), which showed that 85.5% of TB patients in the Jagakarsa Health Center were of productive age. Productive age has a high risk of being infected with TB, because at this age people have high work mobility. In addition, in productive age a person is more active in social interaction so that it is more easily exposed to TB germs. At the age of> 40 years high results were also obtained, namely 7 respondents. At this age the body's resistance tends to decrease, so it will be easily infected with TB [7].

Distribution of tuberculosis patients by sex in community health center of Oebobo obtained 9/15 respondents were female - men. This result is supported by the Manehat study (2013) at Sasi Health Center, which shows that 66.7% of TB patients are male. Men have a higher risk due to a freer lifestyle, and smoking habits that can aggravate tuberculosis [8].

Distribution of tuberculosis patients at health centers-based education obtained Oebobo 5/15 College-educated respondents (PT). This result is supported by Linda's study (2012), which shows that most TB patients with middle to high education (SMA and PT) reach 56.5 [7].

Treatment Phase

Table 2 Data on the frequency distribution of the respondent's treatment phase

Treatment Phase	N
Intensive	6
Advanced	9

A total of 6 of 15 respondents were in the phase of intensive treatment, while 9 of 15 respondents were at an advanced treatment phase.

The phase of tuberculosis treatment is given in 2 stages, namely the intensive stage and the advanced stage. In the intensive stage, the patient will get medication every day for 2 months. This is intended to effectively reduce the amount of germs present in the patient's body and minimize the effect of a small number of germs that may have been resistant since before the patient received treatment. At the advanced stage, the patient will get fewer

drugs, but in a longer period of time. The advanced phase is very important to kill TB germs so that they prevent recurrence.

Knowledge of Respondents

Table 3 Data on frequency distribution of respondents according to level of knowledge

Knowledge Variables	N
Well	8
Less	7

Respondents with good knowledge as much as 8 respondents, and less knowledge as much as 7 respondents. According to Linda (2012) research, 59.7% of respondents had low knowledge about MDR-TB [7].

In this study, the measured knowledge is only limited to the stage of knowing and understanding, not yet included in the application, analysis, synthesis, and evaluation stages. According to Notoatmodjo (2007), there are 6 levels of cognitive domains, namely know, understand, application, analysis, synthesis, and evaluation [9].

Respondent's Medication Adherence

Table 4 Data on frequency distribution according to the level of treatment compliance of respondents

Medication Adherence	N
Well	11
Less	4

The results obtained, the obedient respondents as many as 11 respondents, and respondents who were less obedient as many as 4 respondents. The most common type of non-compliance from respondents was forgetting to take drugs (4 respondents), with 2 respondents including late taking drugs at the community health center at the appointed time.

Compliance with treatment for tuberculosis sufferers is supported by the presence of Companion Drinking Medication (PMO) originating from the patient's own family member. PMO has a very important role for patients who are undergoing treatment, including supervising patients to swallow medicine, encouraging and encouraging patients, also reminding sufferers to visit the health center.

Relationship between knowledge and Medication Adherence

To find out whether there is a relationship or not between knowledge variables and compliance, the *chi-square* test is used, because both data are categorical data. If the resulting p value is smaller than 0.05, then the two variables have a meaningful relationship.

Table 5 Cross tabulation data between knowledge and compliance

Knowledge Variables	Medication Adherence		p-value
	Well	Less	
Well	5	3	0.338
oLess	6	1	

Based on the data in the table it can be seen that both respondents who have good knowledge and those who lack compliance are not much different. Respondents with good knowledge were obedient as many as 5 people, and those who did not comply were 3 people. While respondents with poor knowledge were obedient as many as 6 people, who were less obedient only 1 person. The p value is 0.569> 0.05, indicating that there is no significant relationship between knowledge about MDR-TB and medication adherence to tuberculosis patients at Oebobo Health Center.

The Role of Companion Drinking Medication (PMO)

Table 6 Data on frequency distribution according to the role of the PMO

The role of the PMO	N
Well	11
Less	4

A total of 11 respondents had a good PMO role, while 4 respondents had a lack of PMO roles. The role of PMOs that are lacking the most is to monitor patients in taking medicine (3/15 responde) and remind patients to take drugs and re-check for phlegm (2/15 respondents). This result is supported by the study of Kartikasari et al. (2012), the results obtained only 9.7% of respondents with a lack of PMO roles [[10]].

One of the things that influences compliance is the presence of a Medication Drinking Companion (PMO). Of all respondents taken data, all respondents had a PMO. Medication Companions from respondents are people who are close to the patient, such

as the patient's family. In this study also conducted a test to see whether there was a relationship between the role of PMO and compliance with treatment of tuberculosis patients. The results of the chi square test obtained results of p value 0.001 <0.05, which means that there is a significant relationship between the role of the PMO and the treatment compliance of tuberculosis patients at the Oebobo Health Center.

CONCLUSION

Characteristics of TB patient, 7 respondents have aged more 40 years old, 9 male, 5 respondents in college, and 9 respondents were in the advanced TB treatment.

Level of knowledge about *Multi-Drug Resistant Tuberculosis (MDR-TB)*, 8 respondents have good knowledge, while 7/15 respondents had less knowledge. Compliance with TB patients in undergoing treatment, 11/15 respondents obeyed, while 4/15 respondents did not comply.

There is no significant relationship between knowledge about *Multi-Drug Resistant Tuberculosis (MDR-TB)* and treatment compliance of Tuberculosis patients at Oebobo Health Center, with the results of p-value 0.338> 0.05.

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