ATLANTIS PRESS
Advances in Health Sciences Research, volume 39
Proceedings of the 2nd Syedza Saintika International Conference on Nursing, Midwifery, Medical Laboratory Technology, Public Health, and Health Information Management (SeSICNiMPH 2021)

Treatment Adherence in Patients with Pulmonary Tuberculosis in the Work Area of the Mapaddegat Public Health Center, Mentawai Islands

Ropendi Pardede[1]*, Nova Arikhman[2], Roidayanti Butar-Butar[3]

[123]STIKes Syedza Saintika
** Corresponding author. Email: ropendipardede02@gmail.com[1]*

ABSTRACT
Tuberculosis is an infectious and deadly disease caused by bacterium Mycobacterium tuberculosis, Therefore, TB patients must comply with the rules of taking medication and carry out treatment to completion. The purpose of this research is to know the factors associated with treatment adherence in patients with pulmonary TB in the Mapaddegat Public Health Center work area, Mentawai Islands. The type of this research is descriptive analytics using cross sectional approach. Sampling was done by 37 peoples. Data collected through questionnaires. The result showed that 45.9% of patients's adherence was in the low category, 64.9% in the low category of knowledge, 45.9% patients have negative attitude and 51.4% states that PMO (Medication Swallowing Supervisor) does not support. There are a relationship between knowledge with p-value of 0.016, attitude with p-value of 0.015, and the role of PMO with p-value of 0.002 with pulmonary tuberculosis treatment adherence. It can be concluded that there are a significant relationship between knowledge, attitude and the role of PMO with treatment adherence in patients with pulmonary TB in Mapaddegat Public Health Center, Mentawai Islands. The health workers are expected to make regular home visits to pulmonary TB patients to provide support for patients to take regular treatment. In addition, it also controls the PMO's performance in carrying out a role in supervising taking medication to patients so that patients are obedient in taking treatment.

Keywords: Knowledge, Attitude, The Role Of PMO and Treatment Adherence

1. INTRODUCTION

Tuberculosis is an infectious and deadly disease caused by bacterium Mycobacterium tuberculosis. As stated by (WHO, 2014) that tuberculosis is a contagious and deadly disease and is still a concern of the global community. Pulmonary tuberculosis is an infectious disease caused by rod-shaped Mycobacterium tuberculosis (Bacillus) which is transmitted through saliva or phlegm containing tuberculosis bacillus when the patient coughs [1].

WHO (World Health Organization) estimates that the bacteria that cause pulmonary TB can kill about two million people every year. From 2002 to 2020, it is measured that around 1 billion people will be infected with pulmonary tuberculosis. In other words, the change in the number of infections is more than 56 million annually. Based on WHO data in 2018, for the 10 of leading causes of death in the world and pulmonary TB is one of them. In 2017, as many as 10 million people suffered from pulmonary TB. Indonesia is ranked third with the highest load of TB cases in the world and at the same time, the fourth leading cause of death after cardiovascular disease [2].

The Health Ministry of Indonesia (2018), explained that the incidence of pulmonary TB in Indonesia in 2016 was 298,128 cases per year and increased in 2017 to 420,994 cases. Of all cases, the number of cases with smear-positive was 156,723 cases with treatment failure results as much as 0.4%, loss to follow-up (lost from observation) 5.4%, complete treatment 43.1%, and 42% recovered. The incidence of pulmonary TB when viewed in terms of age, highest is in the age range of 45-54 years as much as 19.82%. According to Riskesdas (2018), the incidence of pulmonary TB in Indonesia in 2018 was 321 per 100.000 population.

The high incidence of TB sufferers shows a low rate of treatment success, where the success rate of TB treatment in 2016 was 75.4% and in 2017 it increased to 85.1%. Meanwhile, the Ministry of Health has set a minimum target of 88%. Thus, Indonesia has not yet reached the standard for the

success rate of pulmonary TB treatment that has been set [3].

Pulmonary TB cases in various regions in the Mentawai Islands Regency are also a concern, wherein 2018 there were 173 cases with 48.95% cured treatment outcomes, 47.91% complete treatment and 2.89% Drop Out. In 2019 there were 219 cases with treatment results recovered as much as 44.59%, complete treatment 86.48% and Drop Out as much as 0.45% [4].

Judging from the number of TB cases at Public Health Centers in the Mentawai Islands Regency, it was found that in 2019 the incidence of pulmonary TB cases at the Mapaddegat Health Center, Mentawai Islands Regency, was found to be 37 cases. Based on the results of treatment in 2019 at the Mapaddegat Public Health Center, it was found that patients with adherence rate of 43.24%, where the complete treatment rate was 90.9%, Drop Out was 2.70% and 36.36%, of whom were declared cured. Based on this, it can be seen that the cure rate is still far below the Ministry of Health standard of 88%. This shows that there are still TB patients who do not comply with treatment [5].

Treatment adherence is one of the patient's behavior. According to Green's theory (1980) in Notoatmojo 2014 states that the factors that influence the formation of behavior are predisposing factors (predisposing factors) which are the basic factors of motivation to act including the level of education, knowledge, attitudes. Enabling factors are factors that enable an implementer's motivation which includes the availability of human resources, facilities, participation, health services, and distance from home to health services. Reinforcing factors are supporting changes in a person's behavior including family, personal health workers, superiors, and the role of the media [6].

Several studies related to treatment adherence of pulmonary TB patients include, conducted by Yuda (2018) about relationship between characteristics, knowledge, and attitudes of pulmonary TB patients on medication adherence at Kalikewall Health Center. The results showed that as many as 44% did not adhere to treatment and 56% of respondents adhered to treatment and there was a significant relationship between education, knowledge, and attitudes with medication adherence [7].

Another study was conducted by Wulandari (2015) regarding the analysis of related factors to the adherence of advanced pulmonary tuberculosis patients to treatment at the Integrated Health Hospital in 2015. The results showed that 45.7% were non-adherent and 54.3% adhered to treatment. This non-compliance is caused by behavioral factors (Predisposition, Enabling, and Reinforcing) and non-behavior [8].

Research conducted by Zainal S.M (2019) on Factors Affecting Treatment Compliance for Tuberculosis (TB) Patients in the Community TB Care Aisyiyah Program Makassar City. The result stated that there was a significant relationship between characteristic and treatment adherence [9].

Following Notoatmodjo's theory (2014) which states that the knowledge possessed will form an attitude which is then manifested in a tangible form in the form of action, so that behavior is formed, which is a person's response to a stimulus outside the object [6].

The patient's attitude can be positive or negative, and the patient's attitude will be influenced by many things, apart from the knowledge factor it is also influenced by culture, important considered people, medias, self-experience, educational and religious institutions background, and emotions from within. Whereas according to Azwar, (2013), in Nurmala (2020) a person's attitude can be influenced by experience. □e attitude gained through experience will have a direct influence. Also, someone who is considered important or someone significant will influence the formation of individual attitudes towards a behaviour [10]. The patient's attitude is very influential on medication adherence where a negative attitude tends to disobey, while a positive attitude tends to be obedient in doing treatment completely [6].

Another factor that can influence treatment adherence is the role of the Medication Swallowing Supervisor (PMO). The PMO's job is to make TB patients obedient in their treatment, therefore the PMO must monitor TB patients to take medication regularly until the completion of treatment, encourage patients to want regular treatment, remind patients to re-examine sputum at the appointed time. The Ministry of Health of the Republic of Indonesia (2011) states that the role of PMO is needed for pulmonary TB patients who can avoid patients from Drop Out events and can improve patient adherence in treatment and taking their medicine without interruption until the patient is said to be cured [11].

Based on the initial survey at the research location of 10 respondents, it was found that 7 people did not know the impact of dropping out of drugs on pulmonary TB. A total of 8 of them had a negative attitude towards pulmonary TB treatment, such as not wanting to take the treatment regularly, because they were embarrassed to be known by others. After all, their disease could be contagious and said they would only do treatment in the village. On average, PMO does not play a good role in monitoring drug swallowing in patients.

2. MATERIAL AND METHODS

The type of this research is descriptive-analytic with a cross-sectional design approach. In this type, the independent variable (education level, knowledge level, and attitude) and the dependent variable (medication adherence) are assessed simultaneously at the same time, and no follow-up. Data collected through questionnaires. Sampling was done by 37 peoples.

Univariate analysis in this study aims to determine the frequency distribution of education level, level of knowledge, attitudes, and treatment adherence in pulmonary TB patients. Bivariate analysis was carried out on two variables that were thought to be related or correlated, between the independent and dependent variable in a computerized manner. Data analysis was performed using the Chi-square test, with a significant degree (α) of 0.05. If the results of the Chi-square test with p 0.05 then it can be said that there is a significant relationship between the independent variable and the dependent variable.

3. RESULT

3.1 Relationship between Knowledge and Adherence Treatment

Table 1. Relationship between Knowledge and Adherence Treatment

Knowledge	Treatment Adherence				Total		P-Value
	Low		Medium				
	f	%	f	%	f	%	
Low	15	62.5	9	37.5	24	100	0.016
High	2	15.4	11	84.6	13	100	
Total	17	45.9	20	54.1	37	100	

Table 1 showed that the 24 of respondents who have low knowledge, there are 15 respondents (62.5%) who have a low level of adherence and 9 respondents (37.5%) have medium adherence. Of the 13 respondents who have high knowledge, there are 2 respondents (15.4%) who have a low level of adherence and 11 respondents (84.6%) who have a medium level of adherence. From the results of the statistical obtained a p-value of 0.016 which means p-value < 0.05, it can be concluded that there is a significant relationship between knowledge and adherence to pulmonary tuberculosis treatment.

3.2. Relationship between Attitude and Adherence Treatment

Table 2. Relationship between Attitude and Adherence Treatment

Attitude	Treatment Adherence				Total		P-Value
	Low		Medium				
	f	%	f	%	f	%	
Negative	12	70.6	5	29.4	17	100	0.015
Positive	5	25.0	15	75.0	20	100	
Total	17	45.9	20	54.1	37	100	

Based on table 2, it is found that of the 17 respondents who have a negative attitude, there are 12 respondents (70.6%) who have a low level of adherence and 5 respondents (29.4%) who have a medium level of adherence. Of the 20 respondents who have positive attitude, there are 5 respondents (25.0%) who have a low level of adherence and 15 respondents (75.0%) who have a medium level of adherence. The results of the statistical test (Chi-square) obtained a value of p = 0.015 (p < 0.05), it can be concluded that there is a significant relationship between attitude and adherence to pulmonary tuberculosis treatment in Mapaddegat Public Health Center Work Area, Mentawai Island**.**

3.3 Relationship between PMO (Medication Swallowing Supervisor) and Adherence Treatment

Table 3. Relationship between PMO (Medication Swallowing Supervisor) and Adherence Treatment

PMO (Medication Swallowing Supervisor)	Treatment Adherence				Total		P-Value
	Low		Medium				
	f	%	f	%	f	%	
Unupportive	14	73.7	5	26.3	19	100	0.002
Supportive	3	16.7	15	83.3	18	100	
Total	17	45.9	20	54.1	37	100	

Based on table 3, it was found that of the 19 respondents who stated that the PMO unsupportive, there were 14 respondents (73.7%) who had a low level of adherence and 5 respondents (26.3%) who had a medium level of adherence. And of 18 respondents who stated that the PMO was supportive, there were 3 respondents (16.7%) who had a low level of adherence and 15 respondents (83.3%) who had a medium level of adherence. The results of the statistical test obtained a value of p = 0.002 which means p < 0.05, then the conlusion is there is a significant relationship between medicine swallowing supervisors (PMO) and pulmonary tuberculosis treatment adherence.

4. DISCUSSION

The Relationship between Knowledge and Adherence Treatment

The results showed that from 24 pulmonary TB patients with low knowledge, there were 15 pulmonary TB patients (62.5%) who had low adherence and 9 pulmonary TB patients (37.5%) had medium adherence. And of 13 pulmonary TB patients who had high knowledge, there were 2 pulmonary TB patients (15.4%) who had low levels of adherence and 11 pulmonary TB patients (84.6%) who had medium levels of adherence. From the results of the statistical test obtained of p-value = 0.016 (p <0.05), it can be state that there is a significant relationship

between knowledge and adherence to pulmonary tuberculosis treatment.

The result obtained above is in line with previous research by Mientarini (2018) regarding the relationship of knowledge and attitudes towards medication adherence in patients with advanced pulmonary tuberculosis in the Umbulsari District, Jember, showing that there is a relationship between the level of knowledge and adherence to medication in patients with p-value = 0.041 ($p < 0.05$) [12].

It is proven in research that the level of knowledge will affect the adherence to treatment of TB patients. This can be caused by the high level of knowledge, it will be able to increase patient awareness about the importance of taking the medication regularly and the impact of irregular and incomplete treatment so that patients will comply with pulmonary tuberculosis treatment. Following the opinion of Notoatmodjo (2014) that knowledge is a very important domain for the formation of one's actions. Based on experience and research, it turns out that behavior based on knowledge will be more lasting than behavior that is not based on knowledge.

However, in the study, it was also found that in patients who had a high level of knowledge but did not comply with treatment. This can be caused by the patient's inability to tolerate the side effects of the drugs they take so that the patient does not want to continue taking the drug.

Based on this, according to the researcher's analysis of this study, it is proven that the level of knowledge will affect the adherence to treatment of TB patients, where if the patient's level of knowledge is high then there will be a tendency for the patient to comply with the TB treatment rules, because after knowing the patient that if the pulmonary TB patient does not comply Taking medication regularly will have an impact on the patient's recovery rate. With this knowledge base, the patient will follow the pulmonary TB treatment to completion.

Relationship between Attitude and Adherence Treatment

The results showed that from 77 pulmonary TB patients who had a negative attitude, there were 12 pulmonary TB patients (70.6%) who had a low level of adherence and 5 pulmonary TB patients (29.4%) who had a medium level of adherence. And from 20 pulmonary TB patients who had a positive attitude, there were 5 pulmonary TB patients (25.0%) who had low adherence rates and 15 pulmonary TB patients (75.0%) who had medium levels of adherence. The results of the statistical test obtained of p value = 0.015 ($p < 0.05$), it can be concluded that there is a significant relationship between attitude and adherence to pulmonary tuberculosis treatment in Mapaddegat Public Health Center Work Area, Mentawai Islands.

In addition, the result of this research is in line with research conducted by Mientarini (2018) regarding the relationship of knowledge and attitudes towards medication adherence in patients with advanced pulmonary tuberculosis in the Umbulsari District, Jember, showing there is a relationship between the level of knowledge and medication adherence in patients with p value = 0.041 ($p < 0,05$).

It is proven in research that the patient's attitude will affect the adherence to swallowing drugs for patients with pulmonary TB. This can be caused by a positive attitude, the patient will give a positive response about the importance of complying with pulmonary TB treatment.

Following the opinion of Notoatmodjo (2014), that attitude is a readiness or willingness to act and is not an implementation of certain motives. In other words, the attitude function is not an action (open reaction) or activity, but is a behavioral predisposition (action) or closed reaction.

Based on this, according to the researcher's analysis of this research, it is proven that attitudes affect patient adherence in treatment. If the patient is positive, there will be a tendency to adhere to treatment because of a positive response that is born in the patient so that they are aware of the importance of regular treatment. Vice versa, if the patient's attitude is negative, there will be a tendency for the patient to be disobedient in treatment. For this reason, it is necessary to form a positive attitude for patients about the importance of undergoing regular treatment so that patients are obedient in undergoing regular treatment.

Relationship between PMO (Medication Swallowing Supervisor) and Adherence Treatment

The results showed that from 19 pulmonary TB patients who stated that PMO was unsupportive, there were 14 pulmonary TB patients (73.7%) who had low adherence levels and 5 pulmonary TB patients (26.3%) who had medium levels of adherence. And of 18 pulmonary TB patients who stated that PMO was supportive, there were 3 pulmonary TB patients (16.7%) who had a low level of adherence and 15 pulmonary TB patients (83.3%) who had a medium level of adherence. The results of the statistical test obtained a value of p value = 0.002, in other form of $p < 0.05$, it is mean that there is a significant relationship between medication swallowing supervisor (PMO) and adherence to pulmonary tuberculosis treatment.

The results of this study are in line with research conducted by Wiranata (2019) regarding the relationship between PMO and medication adherence in tuberculosis patients in the Dimong Public Health Center, Madiun Regency. The results showed that

there was a relationship between PMO and medication adherence in patients with a p-value = 0.000 [13].

It is proven in research that the role of PMO will affect the adherence to swallowing medication for patients with pulmonary TB. This can be due to the supervision of the PMO, so there will be supervision of the patient in taking the drug so that the patient obeys the rules in taking medication.

According to the Indonesian Ministry of Health (2014) that a PMO must make TB patients obedient in their treatment, therefore the PMO must supervise TB patients to take medication regularly until completion of treatment, encourage patients to want regular treatment, remind patients to recheck sputum regularly specified time [14]. Furthermore, the Ministry of Health of the Republic of Indonesia (2011) stated that the role of PMO is needed for pulmonary TB patients who can avoid patients from Drop Out events and can increase patient adherence in treatment and take their medicine without interruption until the patient is said to be cured [11].

Based on this, according to the researcher's analysis of this study, it is proven that there is an influence of the PMO's role on treatment adherence for patients, where if the PMO performs its role well then there is a tendency for patients to comply with the treatment rules. On the other hand, if the PMO does not perform its role properly, there will be a tendency for patients to often forget or even not take their medication regularly and some are even incomplete in their treatment. In this case, it is necessary to strengthen PMOs so that they can carry out their roles better through counseling conducted by health workers.

5. CONCLUSION

There is a significant relationship between knowledge, attitude, PMO (Medication Swallowing Supervisor) respectively towrads adherence to pulmonary tuberculosis treatment in Mapaddegat Public Health Center Work Area, Mentawai Islands.

Health workers are expected to make regular home visits to pulmonary TB patients to provide support for patients to take regular treatment. In addition, it also controls the performance of PMO in carrying out a role in supervising taking medication to patients so that patients are obedient in taking treatment.

REFERENCES

[1] Makhfudli. (2016). Pengaruh Modifikasi Model Asuhan Keperawatan Adaptasi Roy Terhadap *self Efficacy*, Respons Penerimaan, Dan Respons Biologis Pada Pasien Tuberkulosis Paru. Disertasi Program Studi Ilmu Kedokteran Jenjang Doktor Fakultas Kedokteran Universitas Airlangga Surabaya.

[2] WHO. (2018).Global Tuberculosis Report 2017.Diaksestanggal19Juli 2019. http://www.who.int/tb/publications/global_report/en/.

[3] Kemenkes RI. (2018).*Pusat Data dan Informasi Tuberculosis*. Jakarta : Kemenkes RI. Diakses pada 8 Februari 2020.

[4] Dinas Kesehatan Mentawai. 2018. Profil Kesehatan Mentawai. Dinkes. Mentawai.

[5] Dinas Kesehatan Mentawai. 2019. Profil Kesehatan Mentawai. Dinkes. Mentawai.

[6] Notoatmodjo, S. (2014). Ilmu Perilaku Kesehatan. Jakarta: Rineka Cipta.

[7] Yuda, (2018). Hubungan Karaktersitik, Pengatahuan Dan Sikap Pasien TB Paru Terhadap Kepatuhan Minum Obat di Puskesmas Kalikedinding. Skripsi S1 Program Studi Pendidikan Ners Fakultas Keperawatan Universitas Airlangga Surabaya. .

[8] Wulandari (2015). Analisis Faktor-Faktor Yang Berhubungan Terhadap Kepatuhan Pasien Tuberculosis Paru Tahap Lanjutan Untuk Minum Obat di RS Rumah Sehat Terpadu Tahun 2015. Jurnal ARSI/Oktober 2015.

[9] Zainal, S. M., & Dewi, I. K. (2019, October). The prevention of TB using promotive aspect in Aisyiyah TB care program. In IOP Conference Series: Earth and Environmental Science (Vol. 343, No. 1, p. 012151). IOP Publishing.

[10] Nurmala, I., Rachmayanti, R. D., MUTHMAINNAH, M., PERTIWI, E., & HARRIS, N. (2020). Students Attitudes Towards Reactivation of Peer Counselor Program to Prevent Substance Use. *Utopía y Praxis Latinoamericana*, *25*(6), 134-143.

[11] Kemenkes. (2011). Panduan Nasional Pengedalian Penyakit Tuberkulosis di Indonesia. Jakarta : Direktorat Jenderal Pencegahan dan Pengendalian Penyakit Menular Kemenkes RI, 2017.

[12] Mientarini, E. I., Sudarmanto, Y., & Hasan, M. (2018). Hubungan Pengetahuan dan Sikap Terhadap Kepatuhan Minum Obat Pasien Tuberkulosis Paru Fase Lanjutan Di Kecamatan Umbulsari Jember. *IKESMA*, *14*(1), 11-18.

[13] Anthony, W. (2020). *HUBUNGAN PMO (PENGAWAS MENELAN OBAT) DENGAN KEPATUHAN MINUM OBAT PADA PASIEN TUBERKULOSIS DI WILAYAH KERJA PUSKESMAS DIMONG KABUPATEN MADIUN* (Doctoral dissertation, STIKES BHAKTI HUSADA MULIA MADIUN).

[14] Kemenkes RI. (2014). Strategi Nasional Pengendalian TB di Indonesia 2010-2014. Jakarta : Kemenkes RI. Diaksestanggal 18Juli 2019.