

The Influence Of Knowledge Of Pulmonary Tuberculosis Patients On Compliance With Taking Anti-Tuberculosis Drugs

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ABSTRAK

Tuberkulosis (TB) paru merupakan penyakit menular kedua di dunia setelah Covid-19 dan penyebab kematian ketiga belas di seluruh dunia pada tahun 2021. India memiliki jumlah penderita TBC terbanyak kedua di dunia setelah India. TBC dapat disembuhkan dengan pengobatan rutin selama 6 bulan. Pengobatan yang berkepanjangan dapat menyebabkan pasien TBC menjadi bosan dan berujung pada penghentian obat sehingga menimbulkan masalah resistensi obat. Semakin baik pengetahuan pasien tentang penyakit TBC, lama pengobatan, efek samping dan komplikasinya dapat mempengaruhi keputusan untuk mendorong pasien agar patuh dalam berobat. Keberhasilan pengobatan TBC dipengaruhi oleh kepatuhan pasien dalam minum obat. Jenis penelitian yang digunakan adalah observasional analitik dengan pendekatan cross sectional untuk mengetahui hubungan pengetahuan dengan kepatuhan minum obat. Responden penelitian ini adalah penderita TBC paru di Puskesmas Percut Tanjung Rejo sebanyak 51 orang. Penelitian ini menggunakan kuesioner dalam pelaksanaannya. Uji analisis yang digunakan adalah uji gamma. Hasil penelitian menunjukkan adanya hubungan antara pengetahuan dengan kepatuhan minum obat antituberkulosis pada pasien tuberkulosis paru. (nilai p 0,023). Hasil penelitian menunjukkan mayoritas berjenis kelamin laki-laki, usia produktif, kategori akhir pengobatan lengkap (92,2%), yaitu sembuh (53,0%), tidak sembuh (39,2%) dan tidak lengkap (7,8%). Pengetahuan pasien mayoritas sebesar 78,4% dengan kategori baik dan kepatuhan pengobatan pasien TBC mayoritas sebesar 64,7% dengan kategori kepatuhan tinggi.

Kata kunci : Kepatuhan minum obat , Pengetahuan, Tuberkulosis

ABSTRACT

Pulmonary tuberculosis (TB) is the second infectious disease in the world after Covid-19 and the thirteenth leading cause of death worldwide in 2021. Indonesia has the second highest number of TB patients in the world after India. TB can be cured with regular treatment for 6 months. Prolonged treatment can cause TB patients to become bored and lead to drug withdrawal, causing drug resistance problems. The better the patient's knowledge about TB disease, length of treatment, side effects and complications can influence the decision to encourage patients to adhere to their treatment. The success of Tuberculosis treatment is influenced by patient compliance in taking medication. The type of research used was observational analytic with a cross sectional approach to determine the relationship between knowledge and adherence to taking medication. Respondents of this study were pulmonary TB patients at Tanjung Rejo Percut health center as many as 51 people. This study used a questionnaire in its implementation. The analysis test used is the gamma test. The results of the study showed a relationship between knowledge and compliance with taking antituberculosis drugs in pulmonary tuberculosis patients. (p value 0.023). The results of the study showed that the majority of male gender, productive age, the final category of treatment was complete (92.2%), namely cured (53.0%), not cured (39.2%) and incomplete (7.8%). The majority of patients' knowledge was 78.4% in the good category and the majority of TB patients' medication compliance was 64.7% in the high compliance category.

Keywords: Adherence to medication, Knowledge, Tuberculosis

I. INTRODUCTION

Tuberculosis (TB) is caused by bacteria (*Mycobacterium tuberculosis*) and it most often affects the lungs. TB can affect anyone, regardless of age or sex. The highest burden is in adult men, who accounted for 56.5% of all TB cases in 2021. TB is spread through the air when people with lung TB cough, sneeze or spit. A person needs to inhale only a few germs to become infected. According to the WHO global tuberculosis report 2022, Indonesia is in the list of 30 countries with the highest tuberculosis burden in the world and is ranked second highest in the world after India in terms of tuberculosis incidence followed by China, Philippines, Pakistan, Nigeria, Bangladesh and Democratic Republic of Congo in order. (WHO, 2022). Tuberculosis cases in Indonesia in 2021 are 969,000, up 17% from 2020, which was 824,000 cases. The incidence of TB cases in Indonesia is 354 per 100,000 population, which means that for every 100,000 people in Indonesia, 354 of them have TB. The number of TB case finding and reporting has increased sharply since 2017 as a result of TB case screening efforts in hospitals. TB case notification rates by province in 2021 Papua, DKI Jakarta, Gorontalo, North Sulawesi, West Papua, West Java, Riau Islands, Banten, South Sulawesi, West Sulawesi, South Sumatra, Maluku, North Sumatra. The three districts/cities with the highest TB cases in North Sumatra in 2021 are Medan, Deli Serdang and Simalungun. (Ministry of Health, 2021). High and low treatment success is influenced by several factors, including patient factors, drug swallowing supervisor (PMO) factors, and drug factors. (Indonesian Ministry of Health, 2020) It is very important for people with TB to comply with the rules of taking TB drugs adequately and according to standards in order to recover. Irregularity in taking OAT, taking OAT not according to the mixture, unilaterally stopping treatment prematurely / dropping out of medication for a certain period of time causes failure and relapse, resulting in resistance and continuous transmission of the disease. (P2PL KEMENKES, 2020) Successful TB treatment is associated with sustained treatment without interruption. (Singano et al., 2020). Adherence to the use of antituberculosis drugs is very important because if treatment is not carried out regularly, it can cause obstacles to achieving cure rates. (P2PL KEMENKES, 2020), causing germ immunity (resistance) (Asmawanti et al., 2022).. The high dropout rate results in high cases of germ resistance to OAT, which requires greater costs and increases the length of treatment. (P2PL KEMENKES, 2020) Education can influence patient attitudes and patient actions to take OAT regularly. The higher the level of education, the higher the awareness of health. Educational background can influence a person in thinking and acting where through education a person can increase intellectual maturity so that they can make better decisions in action. (Rani et al., 2022).

1. Problem Formulation

The problem formulation in this research is how knowledge of pulmonary TB sufferers influences compliance with taking anti-tuberculosis medication.

2. Research Purposes

This study aims to obtain results from the influence of knowledge of pulmonary TB sufferers on compliance with taking anti-TB medication.

3. Research Benefits

The results of this research are useful for providing information and knowledge regarding the results of the influence of knowledge of pulmonary TB sufferers on adherence to taking anti-TB medication to the academic community and the medical world.

II. METHODS

This study is a type of observational analytic research using a cross sectional design to determine the relationship between knowledge and compliance with taking antituberculosis drugs in patients with pulmonary tuberculosis at Tanjung Rejo Percut Health Center. This study was conducted in the period August - November 2022. Primary data collection methods were obtained through interviews with patients with pulmonary TB using a 20-question pulmonary TB disease knowledge questionnaire and a 5-question Medication Adherence Report Scale (MARS) questionnaire. The population in this study were all pulmonary TB patients who met the inclusion and exclusion criteria set by the researcher and had completed OAT treatment in 2021, totaling 51 people. Data analysis used univariate analysis in the form of frequency distribution and bivariate analysis through the Gamma test.

III. RESULT AND DISCUSSIONS

Table 1 Patient Characteristics

Variables	Category	n	%
Age	Late teens 17-25	5	9.8
	31-35	4	7.8
	37-45	16	31.4
	46-54	18	35.3
	58-63	4	7.8
	66-74	4	7.8
Gender	Male	30	58.8
	Female	21	41,2
Education	Elementary School	10	19.6
	Junior High School	11	21.6
	Senior High School	29	56.9
	University	1	2.0
Jobs	Not Working	21	41.2
	Farmers	4	7.8
	Self Employed	17	33.3
	Private Employee	5	9.8
	Labor	3	5.9
	Government Employe	1	2.0
Marriage Status	Not Married	9	17.6
	Married	40	78.4
	Divorce	2	3.9
End of Treatment	Healed	27	52.9
	Complete Treatment	20	39.2
	Not Completed	4	7.8

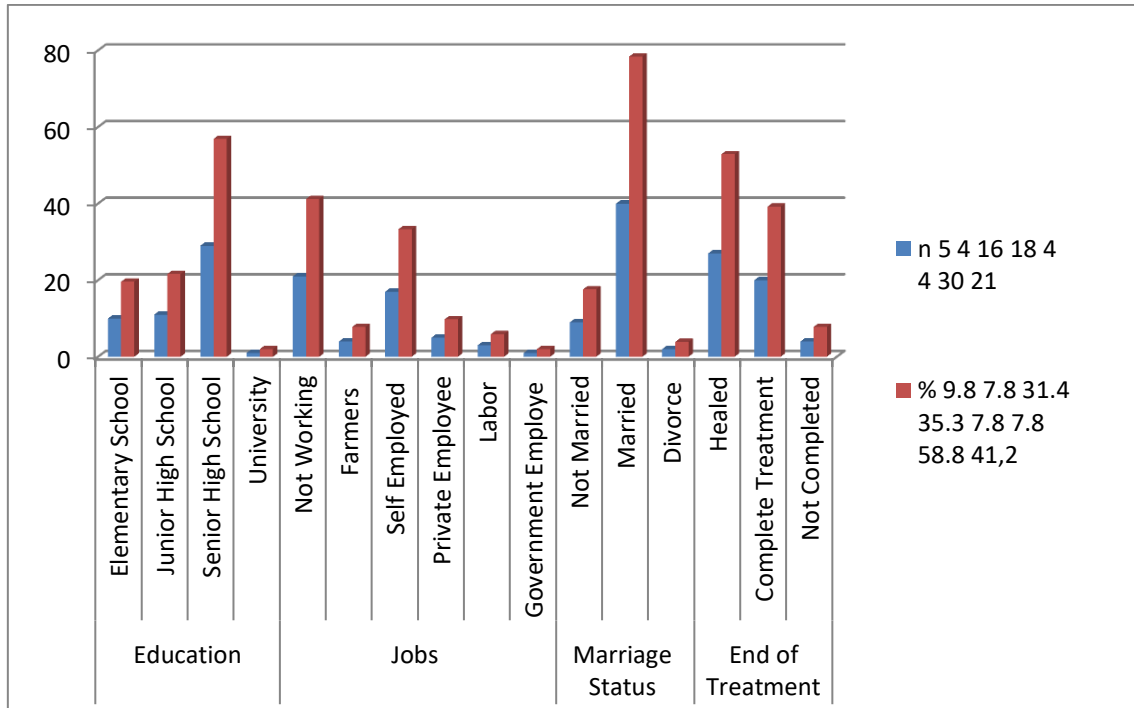


Figure 1. Bar graph from Patients Characteristics

Based on table 1 above, we can note the majority of patients are male 30 people (58.8%), the majority of productive age between 35-55 years, the majority of education is high school as many as 29 people (56.9%), not working 21 people (41.2%), married marital status 40 people (78.4%), the majority of the end of treatment is cured as many as 27 people (52.9%).

Table 2 Univariate analysis

Variables	Category	n	%
Knowledge	Less	6	11.8
	Simply	5	9.8
	Good	40	78.4
OAT Adherence	Low	2	3.9
	Medium	16	31.4
	High	33	64.7

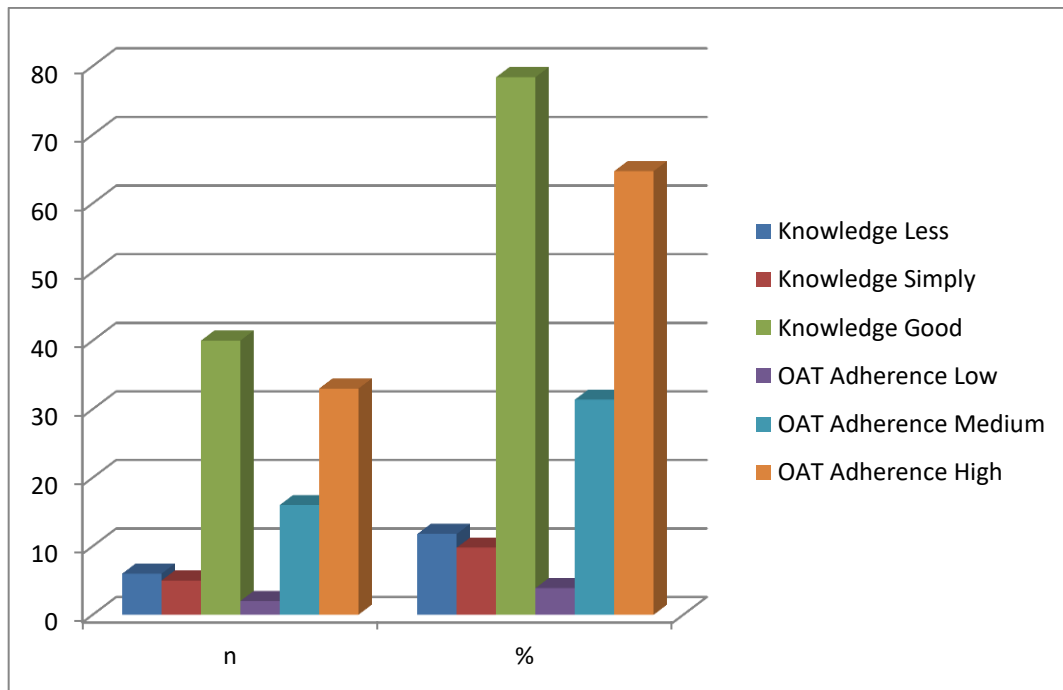


Figure 2. Bar graph from Univariate Analysis

Based on table 2 above, we can see that the majority of respondents have good knowledge as many as 40 people (78.4%) and high OAT medication compliance as many as 33 people (64.7%). A person's knowledge is influenced by many factors including level of education, experience, facilities, occupation and information media.(Amran et al., 2021) Usually the higher a person's education, the more information he receives and the higher a person's knowledge. (Siburian et al., 2023) Education is a factor that supports patients in treatment compliance, high education makes it easier for patients to absorb knowledge information to overcome health problems towards a healthy life, (Ziliwu & Girsang, 2022) Respondents' education reached the high school level as much as 56.9% had an influence on the respondents' level of knowledge. A person's knowledge is supported by educational background, the longer a person is in education, the better a person's level of knowledge will be. (Nurbaety et al., 2020). Knowledge will influence the outcome of a person's behavior. Apart from educational factors, another factor that can influence knowledge is the presence of health counseling about TB. The occurrence of a good level of knowledge is because patients undergoing treatment have been given educational guidance and counseling about TB disease, prevention, transmission and about the treatment that must be taken (Siburian et al., 2023). (Siburian et al., 2023) and the side effects of drugs, so that respondents already understand and understand about TB disease. A person with good knowledge will behave well, be responsible for what will be done. After the provision of education, patients will behave positively in undergoing treatment and already understand in accepting, responding, appreciating and being responsible for the disease suffered. (Ziliwu & Girsang, 2022). Medication adherence is the behavior of adhering to treatment that requires the willingness of the patient and forms a rule that has been agreed upon between the health care provider and the patient. (Siburian et al., 2023) A person's compliance is influenced by knowledge, with good knowledge a person will have a higher awareness in responding to their health. (Ziliwu & Girsang, 2022) The results of research conducted at the Somambawa South Nias Health Center found that patients think that anti-tuberculosis drugs can be stopped if they are better because if consumed continuously it can damage the kidneys, patients sometimes forget to take medicine, patients are bored

with taking medicine continuously, lazy in taking medicine because the medicine is very 6 bitter and a lot of drugs are consumed, tired to go to the health center when the medicine has run out because the distance between the house to the health center is very far. (Siburian et al., 2023). Compliance in an attitude that is a response that only arises when a person is faced with a stimulus that requires an individual reaction. Compliance is an attitude that will appear in someone who is a reaction to something in the regulations that must be carried out. Respondents who have a positive attitude about the consumption of anti-TB drugs will comply with these provisions. Meanwhile, respondents who have a negative attitude because they do not know clearly and effectively about the benefits of taking medication in TB disease. (Siburian et al., 2023).

Table 3 Bivariate Analysis

		OAT adherence			Total	p Value
		Low	Medium	High		
Knowledge	Less	2	3	1	6	.023
	Enough	0	2	3	5	
	Good	0	11	29	40	
Total		2	16	33	51	

Based on the results contained in table 3, showing the results of cross tabulation of the level of compliance with the level of knowledge From the Gamma test, the p value = 0.023, the value is $p < 0.05$, so there is a significant relationship between the knowledge of TB patients and compliance with taking medication at the Tanjung Rejo Percut Health Center. A person's knowledge can affect compliance in the treatment process. Patient irregularity is caused by lack of knowledge. Good knowledge will encourage someone to take medicine regularly. From knowledge, a person's good or bad attitude will affect a person's regularity and compliance. (Parlaungan et al., 2021) The better a person's knowledge about TB treatment and cure, the compliance in undergoing treatment will also be good so that treatment success will be achieved. (Nurbaety et al., 2020) The occurrence of long treatment is due to non-compliance and 7 low public knowledge of the importance of being compliant in taking medication. (Ziliwu & Girsang, 2022). Adherence is very important in healthy living behavior. Adherence to anti-tuberculosis medication is taking the medicines prescribed by the doctor at the right time and dose. Treatment will only be effective if the patient complies with the rules in the use of drugs. The success of pulmonary TB treatment is strongly influenced by adherence to treatment. (Parlaungan et al., 2021) A person's compliance is influenced by knowledge and attitudes, with good knowledge and a good attitude a person will have a higher awareness in responding to their health. (Ziliwu & Girsang, 2022). The better a person's knowledge about the treatment and cure of tuberculosis, the compliance in undergoing treatment will also be good so that treatment success will be achieved. (Nurbaety et al., 2020). The results of this study showed a relationship between knowledge and compliance.

IV. CONCLUSION

The results of the study showed a relationship between knowledge and compliance with taking antituberculosis drugs in pulmonary tuberculosis patients. (p value 0.023). The results of the study showed that the majority of male gender, productive age, the final category of treatment was complete (92.2%), namely cured (53.0%), not cured (39.2%) and incomplete (7.8%). The majority of patient knowledge about Tb disease (78.4%) is in

the good category and the majority of drug compliance owned by Tb patients (64.7%) is in the high compliance category.

V. REFERENCE

- Amran, R., Abdulkadir, W., & Madania, M. (2021). Tingkat Kepatuhan Penggunaan Obat Anti Tuberkulosis Pada Pasien Di Puskesmas Tombulilato Kabupaten Bone Bolango. *Indonesian Journal of Pharmaceutical Education*, 1(1), 57–66.
- Asmawanti, I., Mardiyarningsih, A., & Trilestari. (2022). Tingkat Kepatuhan Penggunaan Obat Antituberkulosis pada Pasien Poli Paru di RSUD Muhammadiyah Ponorogo. *Jurnal Ilmu Kesehatan Bhakti Setya Medika*, 7(2), 38–46.
- Kemendes. (2021). *Laporan Program Penanggulangan Tuberkulosis 2021*. kementerian Kesehatan RI.
- Kemendes RI. (2020). *PEDOMAN NASIONAL PELAYANAN KEDOKTERAN TATA LAKSANA TUBERKULOSIS* (Issue Januari). Kemendes RI. file:///C:/Users/hp/Downloads/UMUM_PNPK_revisi-1.pdf
- Nurbaety, B., Wahid, A. R., & Suryaningsih, E. (2020). Gambaran Tingkat Pengetahuan dan Kepatuhan Pada Pasien Tuberkulosis di Rumah Sakit Umum Provinsi NTB Periode Juli-Agustus 2019. *Lambung Farmasi: Jurnal Ilmu Kefarmasian*, 1(1), 8.
- P2PL KEMENKES. (2020). *PETUNJUK TEKNIS PENATALAKSANAAN TUBERKULOSIS RESISTAN OBAT DI INDONESIA* Direktorat. Kemendes RI.
- Parlaungan, J., Huriani, Y., Mobalen, O., & Situmorang, P. (2021). FAKTOR YANG MEMPENGARUHI PENDERITA TB PARU DROP OUT MINUM OBAT ANTI TUBERKULOSIS. *Nursing Arts*, 15(1), 36–46.
- Rani, R. S., Priyatno, A. D., & Harokan, A. (2022). Analisis kepatuhan minum obat TB paru pada masa pandemi di puskesmas Sukarami kota Palembang tahun 2022. *Jurnal Kesehatan Saelmakers PERDANA*, 6(1), 179–189.
- Siburian, C. H., Damerius Silitonga, S., Nugraha, E., & Naibaho. (2023). Hubungan Pengetahuan dengan Kepatuhan Minum Obat pada Pasien Tuberkulosis Paru. *Jurnal Kesehatan Masyarakat*, 2(1), 160–168.
- Singano, V., Kip, E., Ching'ani, W., & Chiwaula, L. (2020). Tuberculosis treatment outcomes among prisoners and general population in Zomba, Malawi. *BMC Public Health*, 20(1), 700.
- WHO. (2022). *GLOBAL TUBERCULOSIS REPORT* (Issue 1). WHO.
- Ziliwu, J. B. P., & Girsang, E. (2022). KEPATUHAN MINUM OBAT PADA PASIEN TUBERKULOSIS DI RS . KHUSUS PARU MEDAN THE RELATIONSHIP OF KNOWLEDGE AND ATTITUDES TOWARDS MEDICATION ADHERENCE IN TUBERCULOSIS PATIENTS IN MEDAN. *Jambura Journal of Health Sciences and Research*, 4(3), 999–1006.

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