JISS Journal of Indonesian Social Science

Vol.4, No.04, April 2023
E-ISSN: 2723-6692
P-ISSN: 2723-6595
http://jiss.publikasiindonesia.id/

Determinants of Success in Treatment of Tuberculosis (TB) Patients at the Karang Rejo Health Center, Balikpapan City

Aspiansyah
Fakultas Ilmu Kesehatan Masyarakat, Institut Ilmu Kesehatan STRADA Indonesia
Email: mmhafiy@gmail.com

Corresponding Author: mmhafiy@gmail.com

ARTICLE INFO

Submitted :**02-04-2023**
Received :**05-04-2023**
Approved :**15-04-2023**

Keywords: Tuberculosis; determinant factor; patient treatment

ABSTRACT

Tuberculosis is one of the infectious diseases that is still a public health problem around the world. Balikpapan City in 2020, the number of patients infected with tuberculosis was 937 patients. As for 2021, there are 1,152 new patients and for 2022 until June there are 566 new patients. According to data obtained by the Karang Rejo Health Center, it is known that the number of patients infected with tuberculosis in 2020 was 36 people, then in 2021 as many as 18 people, and in 2022 as many as 17 people. This study aims to determine the determining factors for the success of treatment of tuberculosis (TB) patients at the Karang Rejo Health Center, Balikpapan City. This study used the design method of cross-sectional analytical research. The sample in this study was 17 patients in 2022. Using data analysis through two steps, namely univariate analysis and bivariate analysis using the Chi Square test and the Fisher's Exact test. The results showed that there was no significant association between treatment status (P-Value 0.63), age (P-Value 0.46), sex (P-Value 0.56), occupation (P-Value 0.48), diagnosis type (P-Value 0.27), OAT guidance (P-Value 0.56) and adherence rate to cadres (P-Value 0.79) with successful tuberculosis treatment. Meanwhile, there is a relationship between the source of the drug and the success of tuberculosis treatment with a P-Value of 0.05.

1. Introduction

Tuberculosis is an infectious disease that is still a public health problem throughout the world. Tuberculosis is a disease caused by the bacterium Mycobacterium1. The world has declared tuberculosis to be one of the world's priority goals to eradicate, namely through the Sustainable Development Goals (SDGs). In this case, the target is to set tuberculosis as a goal in the health sector, namely the end of the tuberculosis epidemic). Since 1995, the DOTS (Directly Observed Treatment Short course) strategy has been recommended by the World Health Organization (WHO) and the International Union Against Tuberculosis and Lung

Diseases (IUATLD) as a strategy to combat tuberculosis and has proven to be the most effective (Rikmasari, 2018).

Several factors can influence the emergence of tuberculosis in patients, namely, (1) the age factor, in Indonesia tuberculosis is most common among young adults, with an estimated 75% of patients diagnosed with tuberculosis are of working age. (2) Gender factor, which affects men more than women because most of them smoke. (3) Smoking habits can weaken the immune system and make it easier to get sick, especially for men who are used to smoking4 (4) Environmental factors, someone who lives in a slum, dark environment and no sunlight will be susceptible to tuberculosis. (5) Occupational factors can be a factor due to direct contact with sick people. The risk of contracting tuberculosis in the workplace is health workers who often have direct contact with patients. (6) The economic status factor, the most important factor in the family, is that there are still many low-income people who can transmit tuberculosis to tuberculosis sufferers because low-income people are unable to meet their health needs. (Sutisna et al., 2016)

One way to deal with the high incidence of tuberculosis is in the form of the DOTS program, namely the Directly Observed Treatment Shortcourse, or tuberculosis treatment directly supervised by medical personnel (PMO). One of the contents of the DOTS program is a short-term combined anti-tuberculosis treatment (OAT) with direct supervisors. A PMO (Medical Supervisor) is required to ensure regularity of care (Pameswari et al., 2016). This effort is an effort that is used for tuberculosis patients at the Karang Rejo Health Center. The indicator used to evaluate treatment is the success rate of the program. The treatment success rate consists of the cure rate and the total number of treatments. There are factors that can affect the success of tuberculosis treatment.

The external factor of the patient's environment that influences adherence behavior in undergoing treatment is PMO. The PMO is a health cadre whose duty is to schedule treatment for tuberculosis patients, the correct procedure for taking tuberculosis medication, provide an understanding of the side effects of drugs, and remind patients not to stop taking tuberculosis medication(Yanti, 2016). This is because it can be resistant and repeated again as before the treatment from the start. The role of tuberculosis health cadres is that when a patient does not come for treatment at the puskesmas, they contact the patient and visit the house to check the availability of the drug. If there is no response from the patient, the tuberculosis health worker will come to the tuberculosis patient's house.

Other external efforts made to increase patient adherence in undergoing treatment are through the family, the family is the patient's closest family member, so that they can monitor the patient's daily adherence to taking medication. In this role, the patient will consistently take to the puskesmas and take tuberculosis medicine (Eko, 2019). The things that can affect the successful treatment of tuberculosis patients are treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, drug sources, and level of adherence to cadres. Based on this description, the researchers conducted research on "Determining Factors for the Success of Treatment of Tuberculosis (TB) Patients at the Karang Rejo Health Center, Balikpapan City".

2. Materials and Methods

This study used an analytic cross sectional research design method. The sample in this study was 17 patients in 2022 at the Karang Rejo Health Center. The sample selection used total sampling with retrospective data collection based on TB patient registers according to

the source of the drug, namely the TB program. This study uses data analysis through two steps, namely using univariate analysis and bivariate analysis.

The univariate analysis was used to identify respondents based on their characteristics (treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, drug sources, and level of adherence to cadres) and the data was presented in tabular form. Bivariate analysis to determine the relationship between treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, drug sources, and level of adherence to cadres. Each of these variables was tested with data on treatment success (the end result of treatment) using the Chi Square test and Fisher's Exact test (Sugiyono., 2017).

3. Results and Discussions

A. Univariate analysis

Univariate analysis was used to obtain data on treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, source of drugs, and level of adherence to cadres.

Table 1. Frequency distribution of respondents based on treatment status, age, gender, occupation, type of diagnosis, oat guidelines, source of medicine, and level of adherence to cadres

No	Characteristics of respondents	F	%
1	Treatment Status		
	Standard Compliant	14	82,3
	Not Standard	3	17,6
	Total	17	100
2	Age		
	0-25 years	5	29,4
	26-50 years	7	41,1
	>50 years	5	29,4
	Total	17	100
3	Gender		
	Man	13	76,5
	Woman	4	23,5
	Total	17	100
4	Work		
	Laborer	4	23,5
	IRT	2	11,7
	Private Employees/BUMN/BUMD	3	17,6
	Student / Student	3	17,6
	Doesn't work	5	29
	Total	17	100
5	Diagnostic Type		
	Clinically Diagnosed	8	47
	Bacteriological Diagnosed	9	53
	Total	17	100
6.	OAT guide		

	Category 1	13	76,5
	Children Category	4	23,5
	Total	17	100
	Drug Source		
7.	Program TBC	17	100
	Total	17	100
	Level of Compliance with Cadres		
8	Comply	16	94,1
	Disobedient	1	5,9
	Total	17	100

Table 1 shows that the majority of respondents who received standard treatment were 14 people with a presentation of 82.3%. The majority of the age group is 26-50 years with a percentage of 41.1%. In terms of gender, the majority were male as many as 13 people with a percentage of 76.5%. The majority of respondents did not work, namely as many as 5 people with a percentage of 29.4%. Characteristics of respondents based on the majority of the type of diagnosis with the type of clinical diagnosis as many as 8 people with a percentage of 47%. Respondent characteristics based on OAT guidelines with category 1 were 13 people with a percentage of 76.5%. Characteristics of respondents based on the TB program as many as 17 people with a percentage of 100%. Characteristics of respondents based on the level of adherence to cadres The majority of respondents obeyed cadres as many as 16 people with a percentage of 94.1%.

B. Bivariate Analysis

Bivariate analysis is an analysis to determine the relationship between variables. The statistical test used to determine the relationship between these variables is a test *that squares* and test *Fisher's exact test .*

Table 2. Relationship between treatment status and Success treatment of tuberculosis patients

Treatment Status	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
Standard Compliant	13	76,5	1	5,8	14	82,3	0,63
Not Standard	3	17,6	0	0	3	17,6	

Based on the table, shows that in the category of successful treatment of cured patients, the majority of respondents were in the category of standardized treatment status, namely 13 people with a percentage of 76.5%. In the category of non-standard treatment status, there were 3 people with a percentage of 17.6%. The results of the analysis using the test whose *squares* generate value *p-value* (0.63) > α (0.05) it can be concluded that there is no relationship between treatment status and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City (Damayanti, 2019a).

Table 3. Relationship between Age and successful treatment of tuberculosis patients

Age	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
0-25 years	5	29,4	0	0	5	29,4	0,46
26-50 years	6	35,2	1	5,9	7	41,1	
>50 years	5	29,4	0	0	5	29,4	

Based on the table, it shows that in the category of successful treatment, most recovered patients were in the 26-5-year age category, namely 6 people with a percentage of 35.2%. In the 0-25 year age category, there were 5 people with a percentage of 29.4%. In the age category of 50 years and over there were 5 people with a percentage of 29.4%. Results Analysis using test who *squares* earned value *p value (*0.46) > α (0.05) it can be concluded that there is no relationship between age and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 4. The relationship between gender and the successful treatment of tuberculosis patients

Gender	Treatment success						*P. Value*
	Healed		Die		Total		
	N	%	N	%	N	%	
Man	12	70,5	1	5,9	13	76,4	0,56
Woman	4	23,5	0	0	4	23,5	

Based on the table, it shows that in the category of successful treatment of cured patients the majority of respondents were in the male gender category, namely 12 people with a percentage of 70.5%. In the female gender category, there were 4 people with a percentage of 23.5%. Based on the results of the analysis using the test *who squares* earned value *p value* (0.56) > α (0.05) so it can be concluded that there is no relationship between gender and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 5. The relationship between work and the success of treating tuberculosis patients

Work	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
Laborer	3	17,6	0	0	3	17,6	0,48

IRT	2	11,7	0	0	2	11,7
Private Employees/BUMN/BUMD	3	17,6	1	5,9	4	23,5
Student / Student	3	17,6	0	0	3	17,6
Doesn't work	5	29,4	0	0	5	29,4

Based on the table, it shows that in the category of successful treatment of recovered patients, the majority of respondents were in the category of non-working respondents, namely 5 people with a percentage of 29.4%. In the category of laborers, private/BUMN/BUMD employees, students, there are 3 people each with a percentage of 23.5%. In the IRT job category there are 2 people with a percentage of 11.7%. The results of the analysis using the test *who squares* gain value *p value* (0.48) > α (0.05) so it can be concluded that there is no relationship between work and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 6. Relationship between the type of diagnosis and success treatment of tuberculosis patients

Diagnostic Type	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
Clinically Diagnosed	7	41,1	1	5,9	8	47	0,27
Bacteriological Diagnosed	9	52,9	0	0	9	53	

Based on the table, it shows that in the category of successful treatment of cured patients, the majority of respondents were in the diagnosis type category of respondents diagnosed with bacteriology, namely as many as 9 people with a percentage of 52.9%. In the category of clinical diagnosis, there were 7 people with a percentage of 41.1%. Based on the results of the analysis using the test *who squares* earned value *p value* (0.27) > α (0.05) so it can be concluded that there is no relationship between the type of diagnosis and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 7. The relationship between oat guidance and the successful treatment of tuberculosis patients

OAT guide	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
Category 1	12	70,5	1	5,9	13	76,5	0,56
Children Category	4	23,5	0	0	4	23,5	

Based on the table it shows that in the category of successful treatment of cured patients the majority of respondents were in the OAT guide category of category 1 respondents, namely 12 people with a percentage of 70.5%. In the OAT guide category, there were 4 children with a percentage of 23.5%. Based on the results of the analysis using the test *who*

squares earned value *p-value* (0.56) > α (0.05) so it can be concluded that there is no relationship between OAT guidelines and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 8. Relationship between the source of drugs and successful treatment of tuberculosis patients

Drug Source	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	0,05
Program TBC	16	94,1	1	5,9	17	100	

Based on the table, it shows that both in the category of successful treatment of recovered patients, the majority of respondents were in the category of drug sources, namely 16 people with a percentage of 94.1%. Based on the results of the analysis using the test *who squares* gain value *p value* (0.05) = α (0.05) it can be concluded that there is a relationship between drug sources and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

Table 9. The relationship between the level of patient adherence to cadres and the successful treatment of tuberculosis patients

Patient Compliance Rate	Treatment success						P. Value
	Healed		Die		Total		
	N	%	N	%	N	%	
Comply	15	88,2	1	5,9	16	94,1	0,79
Disobedient	1	5,9	0	0	1	5,9	

Based on the table, it shows that in the category of successful treatment of recovered patients, the majority of respondents were in the category of patient compliance, namely 16 people with a percentage of 88.2%. Respondents were in the category of non-adherent patient compliance level, namely 1 person with a percentage of 5.9%. Based on the results of the analysis using the test *chi square* earned value *p value* (0.79) > α (0.05) so it can be concluded that there is no relationship between the level of patient compliance with the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City.

DISCUSSION

The results of the study stated that there was no significant relationship between treatment status and successful treatment of tuberculosis patients at the Karang Rejo Health Center, Balikpapan City. The category of treatment status in the national TB control data is divided into two aspects, namely the patient's treatment status according to standards and the patient's treatment status not according to standards. Patient treatment status according to standard is a procedure for handling patients starting from finding cases/diagnoses, drug guidelines (OAT), program monitoring to program reporting. Lack of tuberculosis management, especially in health facilities that have not implemented TB services according to national guideline standards such as the absence of finding the right diagnosis,

inappropriate drug guidelines, not carrying out monitoring of treatment programs, and the absence of standard records and reporting (Anggraeni & Kardiwinata, 2020).

In the age category, the results of the study stated that there was no significant relationship between age and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City. In contrast to research[7] Others say that there is a relationship between age and the treatment status of pulmonary TB patients. The test results stated that there was a significant relationship between age and the success of pulmonary tuberculosis treatment. The results showed that there was no relationship between gender and the successful treatment of tuberculosis patients at the Karang Rejo Health Center, Balikpapan City (Wulandari, 2018).

The categories of tuberculosis incidence based on the type of diagnosis are divided into two, namely tuberculosis patients with a bacteriological diagnosis and tuberculosis patients with a clinical diagnosis. A bacteriological diagnosis is a TB patient whose biological test results, namely sputum and tissue, prove positive (Sutisna et al., 2016). Examination of the biological test through a series of direct microscopic examination, TB TCM, and culture. A clinically diagnosed tuberculosis patient is a patient who does not meet the bacteriologically diagnosed component but is diagnosed as an active TB patient by a health worker, and it is decided to be given the TB program as a tuberculosis treatment (Regulation of the Minister of Health of the Republic of Indonesia, 2016).

The results of the study prove that there is no relationship between OAT guidelines and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City. Treatment of pulmonary tuberculosis at the puskesmas for adult patients with OAT FDC category I consist of 2 parts: Intensive/initial treatment with 6 packs of RHZE capsules (150 mg rifampicin, 75 mg isoniazid, 400 mg pyrazinamide and 275 mg ethambutol) for 2 months; and a high-level regimen of 6 blister packs of RH tablets (150 mg rifampicin and 150 mg isoniazid) for 4 months. In the treatment of pulmonary tuberculosis in children, the tuberculosis drug Combipak is used with a fixed combination of category 1 drugs according to the Ministry of Health's 2RHZ(E)/4RH guidelines, namely H. (INH, rifampicin, pyrazinamide and ethambutol) used within 6 months. According to the OAT category guidelines, class I requires 6 months of treatment and class II requires 8 months of treatment with different drug doses (Damayanti, 2019b). Another study found that there was a significant relationship between the instructions for giving OAT and the successful treatment of tuberculosis patients, which was supported by the correct instructions, the type, amount of drug and sufficient duration of treatment, the patient followed these instructions. from doctors/recommendations from health workers and regularly. Follow the OAT instructions (Maulidya et al., 2017).

The results of the study found that there was a relationship between the source of the drug and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City. The success of patient treatment is influenced by drug sources that are in accordance with OAT guidelines. The drugs used are in accordance with the TB program provided by the health facility (100%). Patients who take TB program drugs regularly have a 95% chance of recovery compared to patients who do not receive TB program drugs.

The results of the study said that there was no relationship between patient compliance with cadres and the success of tuberculosis treatment at the Karang Rejo Health Center, Balikpapan City. Patient compliance with cadres is an internal factor in the patient's desire to recover. Compliance is influenced by family support and the patient's level of understanding of tuberculosis treatment. Health cadres are tasked with monitoring patients taking medication (PMO) so good cooperation is needed between patients and health cadres

for the recovery of patients while undergoing treatment.

4. Conclusion

The success of tuberculosis treatment at the Karang Rejo Health Center in Balikpapan City is based on treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, drug sources, and level of adherence to cadres. Based on the results of the study, it was found that there was no significant relationship between the categories of treatment status, age, gender, occupation, type of diagnosis, OAT guidelines, and level of adherence to cadres with the successful treatment of tuberculosis patients. While the category of drug sources has a relationship with the success of treatment of tuberculosis patients.

5. References

Anggraeni, N. W. E. L., & Kardiwinata, M. P. (2020). PELAKSANAAN TUGAS KADER TUBERKULOSIS DI KABUPATEN BADUNG TAHUN 2019. *Health*, 52.

Damayanti, D. A. (2019a). Analisis Faktor-Faktor yang Mempengaruhi Keberhasilan Pengobatan Pasien Tuberkulosis Paru Studi kasus Rumah Sakit Paru Jember. *Prosiding RMIK Politeknik Negeri Jember*, *1*(1).

Damayanti, D. A. (2019b). Analisis Faktor-Faktor yang Mempengaruhi Keberhasilan Pengobatan Pasien Tuberkulosis Paru Studi kasus Rumah Sakit Paru Jember. *Prosiding RMIK Politeknik Negeri Jember*, *1*(1).

Eko, F. (2019). *KETERKAITAN RIWAYAT MEROKOK TERHADAP PASIEN TUBERKULOSIS PARU (TB PARU)*.

Maulidya, Y. N., Redjeki, E. S., & Fanani, E. (2017). Faktor yang Mempengaruhi Keberhasilan Pengobatan Tuberkulosis (TB) Paru pada Pasien Pasca Pengobatan di Puskesmas Dinoyo Kota Malang. *Preventia: The Indonesian Journal of Public Health*, *2*(1), 44–57.

Pameswari, P., Halim, A., & Yustika, L. (2016). Tingkat Kepatuhan Penggunaan Obat pada Pasien Tuberkulosis di Rumah Sakit Mayjen H. A Thalib Kabupaten Kerinci. *Jurnal Sains Farmasi & Klinis*, *2*(2), 116–121.

Rikmasari, Y. (2018). Hubungan Rasionalitas Pengobatan dan Kepatuhan Pasien TB Paru Kategori 1 dengan Keberhasilan Terapi di Puskesmas X Sumatera Selatan. *Jurnal Ilmiah Bakti Farmasi*, *3*(2).

Sugiyono. (2017). *Metode Penelitian Kuantitatif Kualitatif & RND*. Alfabeta.

Sutisna, E., Reviono, R., & Setyowati, A. (2016). Modal Sosial Kader Kesehatan dan Kepemimpinan Tokoh Masyarakat Dalam Penemuan Penderita Tuberkulosis. *Jurnal Kedokteran YARSI*, *24*(1), 20–41.

Wulandari, D. H. (2018). Analisis faktor-faktor yang berhubungan dengan kepatuhan pasien tuberkulosis paru tahap lanjutan untuk minum obat di RS Rumah Sehat Terpadu tahun 2015. *Jurnal Administrasi Rumah Sakit Indonesia*, *2*(1).

Yanti, N. L. P. E. (2016). Pengendalian kasus tuberkulosis melalui kelompok kader peduli tb (kkp-tb). *Jurnal Keperawatan ISSN*, *2303*, 1298.