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Determinants of Treatment Failure in Drug-Resistant Tuberculosis Patients in Papua Province

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ABSTRACT

The purpose of the study was to analyze the determinants of treatment failure in RO tuberculosis patients in Papua Province. Types of analytical observational research with *a cross-sectional* approach. The population is 471 people, and *the sampling is saturated*. Data were obtained using secondary data using univariate analysis, bivariate analysis using the *Chi-square* test, and multivariate analysis using *binary logistic regression.* The results of the study were found to be 55.4% failed in the treatment of Drug-Resistant TB. Chi-square test results *with a p-value of* < *0.05 were* occupation, OAT side effects, treatment combinations, and adherence to OAT intake. The insignificant variables were age, sex, ethnicity, comorbid DM, comorbid HIV/AIDS, and TB treatment history. Comorbid HIV AIDS is the most dominant factor for treatment failure in RO TB patients

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INTRODUCTION

Tuberculosis is an infectious disease caused by bacilli or *Mycobacterium tuberculosis* bacteria with very varied symptoms. Some tuberculosis germs attack the lungs (pulmonary tuberculosis), but can attack various other organs and tissues of the body (Hasmi and Makaba 2024) (Ruru et al. 2017).

Drug-Resistant Tuberculosis (TBC RO) is a condition in which *the germ M. tuberculosis* can no longer be killed with first-line anti-tuberculosis drugs (OAT). The global treatment success rate is only 56% (Fitriana 2022). Resistance occurs when *M. tuberculosis* becomes immune to first-line treatment, namely Isoniazid and Rifampicin, which are used as first-line drugs for tuberculosis (Priscillia Ryani Tutuhatunewa, Lukman Hardia 2024). RO tuberculosis is basically a "man-made" phenomenon, as a result of inadequate treatment of TB patients and transmission from RO TB patients. The management of RO tuberculosis is more complicated and requires more attention than the management of non-resistant tuberculosis (Ministry of Health of the Republic of Indonesia, 2024).

RO TB treatment is toxic, expensive, and long-lasting, more than 18 to 24 months. This incurs a huge medical and economic burden, as well as a negative impact on the patient's quality of life. Shorter oral TB regimens, such as BPaL (bedaquiline, pretomanid, linezolid) and BPaLM (bedaquiline, pretomanid, linezolid, moxifloxacin), may improve treatment duration, patient quality of life, and adherence to treatment. The BPaL and BPaLM methods are estimated to have a 90% success rate in treating drug-resistant tuberculosis and last for six months (Dessritina et al. 2025).

Based on WHO data (2025), RO tuberculosis is a serious health problem at the world level, including Indonesia. RO TB cases are estimated at 450,000 cases worldwide in 2021, and Indonesia is one of the seven countries with the highest burden of RO TB in the world, with an estimated 28,000 cases in 2022 (World Health Organization 2025).

Indonesia is one of the countries with the highest burden of TB and TB RO in the world. In 2022, it is estimated that 2.2% of new TB patients and 25% of TB patients who have been treated in Indonesia are RO TB patients. The notification of RO tuberculosis in Indonesia in 2022 was 12,531 cases, and 8,089 cases were treated. In 2023, 12,482 cases were found, and 9,134 cases were treated, in 2024 there were 12,128 cases found, and 9,573 were treated. The *treatment success rate* was 58% in 2022, 60% in 2023, and 62% in 2024. where the TSR TBC RO target is still low compared to the national target of 90% (Ministry of Health of the Republic of Indonesia, 2024).

The number of cases of RO tuberculosis in Papua Province that were treated in 2022 was 150 cases, while the treatment *success rate* in 2022 was 33% of the cases treated, of which 2% of the cases failed rate, 42% of *the Lost to Follow Up* (LFU) cases, 19% of the death cases and 4% of the cases were not evaluated/moved to live (Papua Provincial Health Office 2025).

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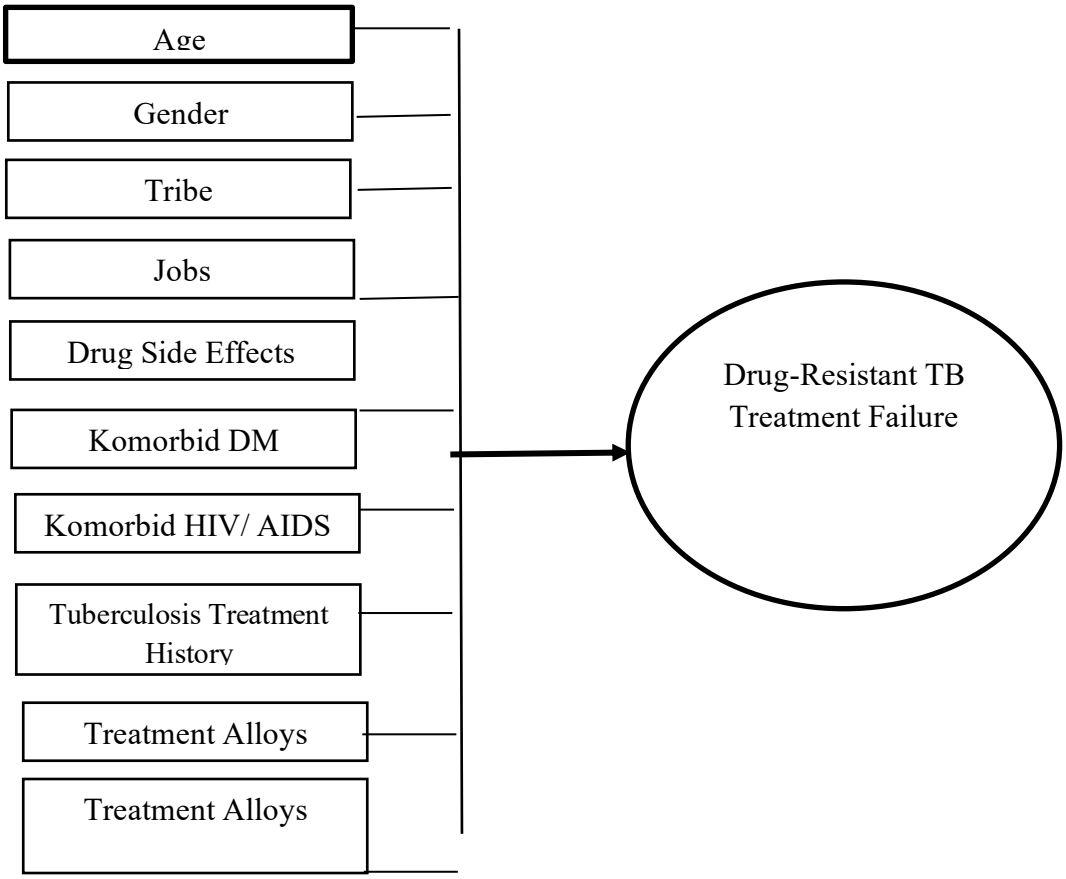
(LFU) cases, 19% of the death cases and 4% of the cases were not evaluated/moved to live (Papua Provincial Health Office 2025).

In 2024, the number of RO TB cases in Papua Province that will be treated in 2024 will be 178 cases, while the treatment *success rate* will be 56% of the cases treated, of which 4% of cases fail, 22% of *Lost to Follow Up* (LFU) cases, 13% of deaths and 15% of cases not evaluated/relocated (Papua Provincial Health Office 2025).

The study on Determinants of Treatment Failure in RO TB Patients in Papua Province includes aspects of patient characteristics (age, sex, ethnicity, occupation), TB treatment history, treatment guidelines, drug side effects, comorbid diseases (*Diabetes Mellitus* and HIV), and medication adherence.

Frame of Mind



Picture 1. Conceptual Framework

THEORETICAL REVIEW

A theoretical review of drug-resistant tuberculosis (TB RO) emphasizes that this disease is a form of tuberculosis caused by Mycobacterium tuberculosis which has developed resistance to first-line drugs, such as isoniazid and rifampicin. This condition generally arises due to inadequate treatment, patient non-compliance in taking medication, and transmission from other RO TB patients. In theory, the success of RO TB treatment is strongly influenced by various factors, including individual characteristics (age, gender, occupation), clinical conditions (comorbidities such as HIV/AIDS and diabetes mellitus), as

well as treatment factors such as anti-tuberculosis drug (OAT) side effects, type of therapy regimen, and patient compliance levels. Treatment of RO TB that is complex, long-lasting, and has severe side effects is the main challenge in achieving successful therapy.

In addition, health behavioral theory states that patient adherence to treatment is an important determinant in the success of chronic disease therapy, including RO TB. Severe drug side effects can reduce the patient's motivation to continue treatment, thereby increasing the risk of therapy failure. Socioeconomic factors such as employment status also play a role in supporting the success of treatment through access to health services and the ability to meet needs during therapy. On the other hand, comorbidities such as HIV/AIDS can theoretically worsen the patient's condition because they lower the immune system, thereby increasing the risk of treatment failure. Therefore, a multidimensional approach that includes medical, behavioral, and social aspects is indispensable in an effort to improve the success of RO TB treatment.

METHODOLOGY

This type of research is observational analytics, using a *cross-sectional approach.* This approach is to find out the relationship between free variables and bound variables, which are measured only once observed at a time (Hasmi 2023). The population of this study is all patients with drug-resistant tuberculosis who have completed treatment in the work area of the Papua Provincial Health Office in 2022-2024. A total of 471 patients were taken using saturated sampling techniques. Data are analyzed with univariate (Proportion), bivariate (chi-square, Prevalence Ratio), and multivariate (Logistic Regression) analysis.

RESEARCH RESULTS

Univariate Analysis

Table 1. Independent variable distribution

No	Variabel	Frekuensi (n)	Presentase (%)
1	**Age**		
	Unproductive	56	11,9
	Productive	415	88,1
2	**Gender**		
	Male	255	54,1
	Female	216	45,9
3	**Tribe**		
	Papua	352	74,7
	Non Papua	119	25,3
4	**Jobs**		
	Not working	366	77,7
	Work	105	22,3
5	**Side Effects of OAT**		
	Weight	194	41,2
	Lightweight	277	58,8
6	**Komorbid *Diabetes mellitus***		

	Yes	40	8,5
	None	431	91,5
7	**Komorbid HIV/ AIDS**		
	Yes	92	19,5
	None	379	80,5
8	**Tuberculosis Treatment History**		
	Yes	157	33,3
	None	314	66,7
9	**Treatment Alloys**		
	Long-Term	214	45,4
	Short-Term	257	54,6
10	**OAT Drinking Adherence**		
	Non-compliant	252	53,5
	Obedient	219	46,5
	Total	471	100,0

Based on table 4, it shows that of the 471 respondents with the most productive age, 415 respondents (88.1%), 255 respondents are male (54.1%), 352 Papuan respondents (74.7%), 366 respondents are not working (77.7%), with mild OAT side effects 277 respondents (58.8%), there are no comorbidities *of Diabetes mellitus* as many as 431 respondents (91.5%), there are no comorbidities of HIV/AIDS as many as 379 respondents (80.5%), there was no history of TB treatment for 314 respondents (66.7%), with a combination of short-term treatment for 257 respondents (54.6%) and non-adherence to take OAT as many as 252 respondents (53.5%).

Bivariate Analysis

Chi-Square Analysis and Prevalence Ratio

No	Variable	*Treatment failure*				n	*p-value*	*RP*
		Fail		Successful				Lower-Upper
		n	%	n	%			
1	**Age**							
	Unproductive	30	53.6	26	46.4	56	0.9	0,88
	Productive	231	55.7	184	44.3	415		(0,7-1,2)
2	Gender							
	Male	134	52.5	121	47.5	255	0.21	0.8
	Female	127	5.,8	89	41.2	216		(0.7-1.0)
3	Tribe							
	Papua	203	57.7	149	42.3	352	0.11	1.1
	Non-Papua	58	48.7	61	51.3	119		(0.9-1.4)
4	Jobs							
	Non working	213	58.2	153	41.8	366	0.03	1.2
	Working	48	45.7	57	54.3	105		(1.0-1.5)
5	Side Effects of Anti-Tuberculosis Drugs							
	Weight	179	92.3	15	7.7	194	0.00	3.1
	Lightweight	82	29.6	195	70.4	277		(2.5-3.7)

6	comorbidities Diabetes mellitus							
	Yes	19	47.5	21	52.5	40	0.37	0.8
	No	242	56.1	189	43.9	431		(0.6-1.18)
7	comorbidities HIV/AIDS							
	Yes	57	62	35	38	92	0.19	1,1
	No	204	53.8	175	46.2	379		(0.9-1,38)
8	Tuberculosis Treatment History							
	Yes	97	61,8	60	38.2	157	0.06	1,1
	No	164	52.2	150	47.8	314		(1.0-1.39)
9	OAT Treatment Alloy							
	Long-Term	149	69.6	65	30.4	214	0.00	1.5
	Short Term	112	43.6	145	56.4	257		(1.4-1.88)
10	OAT Drinking Adherence							
	None	249	98.8	3	1.2	252	0.00	18
	Obedient	12	5.5	207	94.5	219		(10.4-31)

Based on the graph above, it is known that the significant variables in the failure of treatment of RO tuberculosis patients in order are occupation, side effects of OAT, combination of OAT treatment, and adherence to taking OAT. While the insignificant variables are in order of age, gender, ethnicity, comorbidities *of diabetes mellitus, and* comorbidities of HIV/AIDS.

Multivariate Analysis

Table 3. Multiple Logistic Regression Variable Analysis

No	Variabel	*p-value*	RP	95% CI	
				Lower	*Upper*
1	Gender	0,205	0,8	0,760	1,050
2	comorbidties HIV/ AIDS	0,197	1,1	0,956	1,385
3	Tribe	0,112	1,1	0,964	1,452
4	Tuberculosis Treatment History	0,062	1,1	1,006	1,391
5	Jobs	0,031	1,2	1,016	1,596
6	Side Effects of OAT	0,000	3,1	2,588	3,754
7	OAT Treatment Alloy	0,000	1,5	1,355	1,884
8	OAT Drinking Adherence	0,000	18,0	10,401	31,263

Based on the table above, there are 8 variables that are included in the multivariate model and tested together with the binary logistic test of the *Enter method*. The results of multivariate analysis obtained *a p-value* < 0.005 as shown in Table 4. below.

Table 4. Multiple Logistic Regression Variable Analysis

No	Variable	B	*p-value*	OR	95% CI for Exp(B)	
					Lower	Upper
1	Komorbid HIV/AIDS	5.877	0.001	356.6	12.0	10588

Source: Secondary Data, diolah 2026

In the table above, a *p-value* of 0.001 is obtained; RP = 356.6 CI95% (12,011-10588,890), which indicates that comorbid HIV/AIDS is the dominant factor in the failure of RO tuberculosis treatment in Papua Province.

DISCUSSION

Age is a measure of the time of existence of an object or creature, both living and dead. In terms of public beliefs, older people show more maturity in acting. This maturity of mind helps in implementing a healthy life because diseases can attack at any age (Fitriana 2022). Age can affect the body's defenses; the higher the age, the weaker the body's defense system and the body's ability to react with OAT, due to inefficient drug metabolism and organ function at an older age (Nurwajdaini Nurfa 2022).

The results of this study are in line with research conducted by Anisah et al. (2021, stating that age does not affect the failure of RO TB treatment, and the older the age of RO TB patients, the more likely they are to have a risk of failure/death,/drop out. This is because the older a person lives, the body's immune system decreases, so that it is susceptible to disease. And at an old age, they are less motivated to be healthy and less concerned about their health, and there is a decline in social functions such as intellectual, memory, and problem-solving skills (Aminah and Djuwita 2021).

The results of this study are not in line with those of (in 2024 reporting that the productive age group has a higher risk of TB treatment failure than the unproductive age group. This is due to high activity levels, workload, and the tendency of patients of productive age to stop treatment prematurely.

The results of this study show that the relationship between age and treatment failure in RO tuberculosis patients in Papua Province is not significant because the number of respondents with a risk age (0-14 years, >55 years) is less in treatment compared to the number of non-risk age due to respondents who are absent and do not return to *follow up*.

While a person's gender variable indicates a person's busyness and activity routine, where men have higher activities, most of them go out of the house to earn a living, so they do not pay attention to their health, compared to women who are more at risk of succeeding in treatment. Men also have the habit of smoking and drinking alcoholic beverages, which lowers immunity and affects success in treating drug-resistant TB (Afriani and Edianto, 2024).

The results of this study are not in line with (Mahartati and Syahrizal Syarif 2024), which states that gender has a relationship with treatment success, where men have lower regularity of treatment compared to women because men

are more likely to leave the house to earn a living and smoke. In smokers, macrophage disorders occur and increase the resistance of the airways and pulmonary epithelium, because cigarettes aggravate and worsen lung health.

The results of this study show that the relationship between gender and treatment failure in RO tuberculosis patients is not significant, traditional customs in Papua women also have the task of working for a living, gardening, so that women do not pay attention to their health and reduce their immunity so that they are at risk of failing treatment compared to men (Womsiwor et al. 2024)).

According to epidemiological research conducted in Houston, Texas, United States, tuberculosis in blacks is associated with younger age, living in urban centers, HIV positive status, and drug-resistant tuberculosis. Tuberculosis cases in black (82%) and white (77%) groups (Serpa et al. 2009).

The results of this study are in line with Priscillia Ryani Tutuhatunewa and Lukman Hardia in 2024, who stated that there was no relationship between tribes and treatment failures in RO tuberculosis patients. Based on ethnographic studies, the Papuan tribe has cultural diversity, knows about overcoming various health problems that have been passed down from generation to generation with traditional medicine approaches due to customary factors, more trust in the habits of their ancestors, close to direct practitioners such as shamans, or relatives who are experienced in dealing with traditional health problems. The Papuan tribe emphasizes more the symptoms of disease caused by supernatural factors or the intervention of supernatural forces, evil spirits, and suanggi, which can all be overcome with traditional treatment systems (Womsiwor et al. 2024).

The results of this study show that the relationship between tribalism and treatment failure in drug-resistant tuberculosis patients in Papua Province is not significant because RO TB treatment failure can occur in all tribal groups and is not only influenced by the patient's ethnic background.

Based on the results of this study, it shows that the relationship between work and treatment failure in RO tuberculosis patients in Papua Province is significant.

Work is an activity carried out by individuals to earn income that can affect their time, energy, and consistency in undergoing treatment (Anisah, Sumekar, and Budiarti 2021).

The results of this study are in line with the research conducted by Research by Setiawan et al., in 2024 stating that there is a relationship between work and treatment failure of RO TB patients, where patients who are at risk of failure in treatment are those who do not work. Employment status is considered to be one of the indicators of socioeconomic status that affects the success of treatment. Work status can be used as an illustration of the fixed income ability generated by tuberculosis patients that can support the success of treatment (Fitriana 2022).

The results of this study show that the relationship between work and treatment failure in RO tuberculosis patients in Papua Province is significant because the number of respondents who fail in RO TB treatment by not working is higher (58.2%) compared to the number of respondents who work.

Based on the results of this study, it is shown that the relationship between OAT side effects and treatment failure in drug-resistant tuberculosis patients in Papua Province is significant.

All OATs used for the treatment of drug-resistant TB patients have the possibility of mild, moderate, or severe side effects. If more severe side effects of treatment appear, it is likely that the patient will stop treatment without notifying the TAK/health facility officer (*Lost to follow-up)* (Ministry of Health of the Republic of Indonesia, 2024).

The results of this study are in line with those conducted by Aminah & Djuwita (2021), stating that there is a relationship between the respondents' OAT side effects and adherence and failure to treat Drug-Resistant TB, because with severe side effects causing patients to feel afraid to consume drugs that cause the patient to stop taking medication, the more severe the side effects of OAT, the more non-compliant they are with taking medication, and the milder the side effects of OAT, the more obedient you will be to take the medication.

The results of this study showed that the relationship between OAT side effects and treatment failure in patients with Drug-Resistant Tuberculosis was significant, because of the 194 respondents with severe side effects who failed treatment, 179 respondents (92.3%).

Based on the results of this study, it is shown that the relationship between Comorbid *Diabetes mellitus* and treatment failure in Drug-Resistant Tuberculosis patients in Papua Province is not significant.

Diabetes mellitus can decrease cellular immunity, specifically the function of macrophages and lymphocytes, which are important components of the body's defenses against *Mycobacterium tuberculosis* infection. Therefore, patients with comorbid DM have a higher risk of developing a severe form of tuberculosis, a slower response to treatment, and a greater likelihood of recurrence or failure to treat (Anisah, Sumekar, and Budiarti 2021).

The results of this study are in line with those conducted by stating that there is no relationship between the respondents' comorbid DM and the failure of Drug-Resistant TB treatment, because patients with comorbid DM have received routine management of comorbidities, so that blood sugar levels are more controlled and do not directly affect the success of drug-resistant TB treatment. Good diabetes management helps prevent complications that can worsen the patient's condition during treatment for drug-resistant TB.

The results of this study show that the relationship between comorbid DM and treatment failure in patients with drug-resistant tuberculosis in Papua Province is not significant. This is suspected because patients with comorbid DM have received good disease management since the beginning of treatment, accompanied by routine health monitoring during treatment for drug-resistant tuberculosis until completion according to the prescribed program. Good management of DM can help keep the patient's condition stable, so that the treatment of Drug-Resistant TB can be carried out optimally and the chances of recovery are greater.

Based on the results of this study, it is shown that the relationship between HIV/AIDS comorbidities and treatment failure in drug-resistant tuberculosis patients in Papua Province is not significant.

RO TB patients with HIV/AIDS comorbidities have a very weak immune system, so TB treatment becomes more complex, has a longer duration, and the risk of death increases to experience RO TB treatment failure compared to patients without TB-HIV co-infection due to decreased immune response to therapy and the high potential for side effects of interactions between ARV drugs and OAT (Ministry of Health of the Republic of Indonesia, 2024).

The results of this study are not in line with the study (Laili, Murtiani, and Ronoatmodjo 2024) which states that people with TB-HIV co-infection will be at a 2.3 times higher risk of experiencing RO TB treatment failure in Indonesia, where decreased immune conditions in HIV patients can accelerate disease progression, increase the risk of opportunistic infections, and worsen the body's response to TB treatment.

The results of this study showed that the relationship between HIV/AIDS comorbidities and treatment failure in drug-resistant tuberculosis patients in Papua Province was not significant, because the number of respondents with HIV/AIDS comorbidities was less (19.5%) compared to the number of non-HIV/AIDS comorbidities (80.5%).

Based on the results of this study, it is shown that the relationship between TB treatment history and treatment failure in RO TB patients in Papua Province is not significant.

Tuberculosis treatment history refers to conditions in which RO TB patients have undergone previous TB treatment therapy, either completed completely, discontinued treatment, or failed treatment (Ministry of Health of the Republic of Indonesia, 2024).

The results of this study are not in line with the research conducted by (Wulandari 2024) which states that the presence of a history of previous TB treatment will increase the chance of experiencing treatment failure by 3.6 times compared to new TB patients, where in patients with a history of previous TB treatment the level of adherence to taking the drug is lower than that of new TB patients, possibly due to lack of knowledge, the presence of drug side effects or lack of supervision, and TB bacteria may have developed a resistance to previous OATs which resulted in the eventual failure of the treatment. The previous history of TB treatment provides an overview of the effectiveness and quality of previous treatment in the patient. Patients who have a previous history of TB treatment have a better picture of the treatment model and the body's side effects on drugs (Setiawan et al. 2024).

The results of this study showed that the relationship between TB treatment history and treatment failure in RO TB patients in Papua Province was not significant because the number of respondents with a history of TB treatment in RO TB treatment was less (33%) compared to the number of respondents with no history of TB treatment (67%).

Based on the results of this study, it is shown that the relationship between treatment combination and treatment failure in patients with Drug-Resistant Tuberculosis in Papua Province is significant.

Drug-Resistant TB (TB RO) treatment combination is a combination of second-line anti-TB drugs given to patients who have been shown to be resistant to rifampicin (RR TB) or to more than one type of major TB drug (MDR TB). This combination can be short-term (*Shorter Regimen*) or long-term (*Longer Regimen*), depending on the type and level of resistance the patient has (Ministry of Health of the Republic of Indonesia, 2024).

The results of this study are in line with the research conducted by Research by Setiawan et al., in 2024 stating that there is a relationship between treatment alloys and treatment failure of RO TB patients, where long-term alloys have greater challenges due to the very long duration of treatment.

Research shows that patients who receive a combination of short-term treatment with strict monitoring have a higher therapy success rate (above 70%) compared to patients with long regimens who often have more side effects and a risk of discontinuation.

The results of this study showed that the relationship between treatment combinations and treatment failure in drug-resistant tuberculosis patients in Papua Province was significant, because the number of respondents who used long-term combinations who failed treatment was higher (69.6%) compared to short-term ones who failed treatment (43.6%).

Based on the results of this study, it is shown that the relationship between OAT adherence to OAT and treatment failure in drug-resistant tuberculosis patients in Papua Province is significant.

Compliance with OAT is the extent to which the patient's behavior in taking medication is in accordance with the instructions, dosage, and schedule that have been set by health workers. In the context of Drug-Resistant Tuberculosis (TB RO), compliance is very important because treatment usually lasts more than 9 months, with a combination of several types of drugs that have the potential to cause side effects (Mega, Gama, and Ramadhan M 2016).

According to the compliance with RO TB patients is regularity in consuming all types of second-line OATs during a predetermined treatment period, including timeliness, frequency, and absence of pauses in drug consumption, that risk causing ineffective treatment**.**

The results of this study are in line with the research; there is a relationship between adherence to taking OAT and RO TB treatment failure. Adherence greatly affects TB treatment because patients who refer to TB therapy procedures and carry out all the instructions given by medical personnel will give good therapy results. Patients who do not comply with taking OAT are at risk of failure in the treatment of RO tuberculosis (Ministry of Health of the Republic of Indonesia, 2024).

The results of this study show that the relationship between OAT adherence to treatment failure in patients with drug-resistant tuberculosis in Papua Province is significant, because patients who do not comply with OAT are at risk of 18 times the failure of RO TB treatment in Papua Province where 98%

of the number of non-compliant respondents who fail in RO TB treatment compared to those who comply.

The results of this study showed that comorbid HIV/AIDS is the most dominant factor in the failure of RO TB treatment in Papua Province. The results of this study show that the relationship between OAT adherence to treatment failure in patients with drug-resistant tuberculosis in Papua Province is significant, because patients who do not comply with OAT are at risk of 18 times the failure of RO TB treatment in Papua Province where 98% of the number of non-compliant respondents who fail in RO TB treatment compared to those who comply.

The results of this study showed that comorbid HIV/AIDS is the most dominant factor in the failure of RO TB treatment in Papua Province.

This research is in line with that conducted by Laili et al. (2024, HIV patients are the most vulnerable group to be infected with RO tuberculosis. This group is at high risk of developing into active tuberculosis with a very high mortality rate, and without treatment, death will usually occur within 1-3 months.

The existence of TB-HIV co-infection causes a person's immunity to be low, so that if treatment is not carried out carefully, of course, it will affect the success of treatment for the sufferer. This is caused by HIV infection, which makes the tuberculosis germ stronger to infect while a person's immune system continues to decline. The existence of tuberculosis germs will make the human body produce pro-inflammatory cytokines, which cause increased replication and diversity of the HIV virus, so that there is a release of the body's immunity (Ministry of Health of the Republic of Indonesia, 2024).

Treatment failure in RO tuberculosis patients with comorbidities of HIV/AIDS can also be affected by the complexity of the therapy undergone. Patients should take second-line anti-tuberculosis drugs for a long time, often in conjunction with antiretroviral therapy. This combination of medications can increase the risk of side effects, drug interactions, and decrease patient adherence to taking medication. If compliance is not maintained, the chances of treatment failure will be greater (Anisah, Sumekar, and Budiarti 2021).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The results of the study were found to be 55.4% failed in the treatment of Drug-Resistant TB. The results *of the Chi-square* test showed a significant association with treatment failure with work (*p-value* 0.031; RP = 1.2; CI95% (1,016-1,596), OAT side effects (*p-value* 0.000; RP = 3.1; CI95% (2.588-3.754), treatment alloy (*p-value* 0.000; RP = 1.5; CI95% (1,355-1,884), adherence to taking OAT (*p-value* 0.000; RP = 18.0; CI95% (10,401-31,263) or *p*> *a* value (0.05). Insignificant variables were age, sex, ethnicity, comorbid DM, comorbid HIV/AIDS, and TB treatment history. Comorbid HIV AIDS is the most dominant factor for treatment failure in RO tuberculosis patients in Papua Province (*p-value* = 0.000 RP = 356, CI95% (12,011-10,588,890).

Recommendations

Public Health Center and Hospitals need to improve the supervision of taking medication in RO TB patients so that treatment adherence increases.

ADVANCED RESEARCH

Researchers can then examine other factors that affect the failure of RO TB treatment, such as family support, nutritional status, patient knowledge, and access to health services.

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