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Risk Analysis of Drug-Resistant Tuberculosis Incidence in Papua Province

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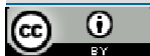

ABSTRACT

Drug-resistant tuberculosis is a public health threat because it contributes to the increasing incidence of tuberculosis. The purpose of this study is to determine the risk of the incidence of Drug-Resistant Tuberculosis (TB C RO) in Papua Province. Types of analytical observational research with a cross-sectional approach. The population is 272 people, and the sample is the total population. The secondary data were then analyzed univariately, bivariately with the Chi-Square test, and multivariately using binary logistics. The results of the study found that factors that were significantly related to the incidence of RO tuberculosis were ethnicity, HIV comorbidities, treatment history, contact examinations and HIV comorbidities were the dominant factors. Insignificant variables are Age, Gender, and occupation

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INTRODUCTION

Tuberculosis (TB) is a preventable disease, and more than 10 million people continue to fall ill from TB every year, and more than 1 million people die from the disease, making it the leading cause of death in the world due to a single infectious agent, and included in the top 10 causes of death worldwide (WHO 2025).

Drug-Resistant Tuberculosis (TB RO) is still a public health problem, posing major challenges for patients, health workers, communities, and health care systems. The increase in RO TB cases can threaten global and national progress(Ministry of Health, 2024).

The factors that cause drug-resistant tuberculosis or germ resistance to anti-TB drugs are the result of human actions, both from health workers, patients, and health service programs that are not in accordance with the standards and quality set. The length of time the recommended treatment is determined by the conversion of sputum and culture. The minimum recommendation is that treatment run for at least 18 months after culture conversion until there is other evidence that can shorten the duration of treatment (Susi, 2021).

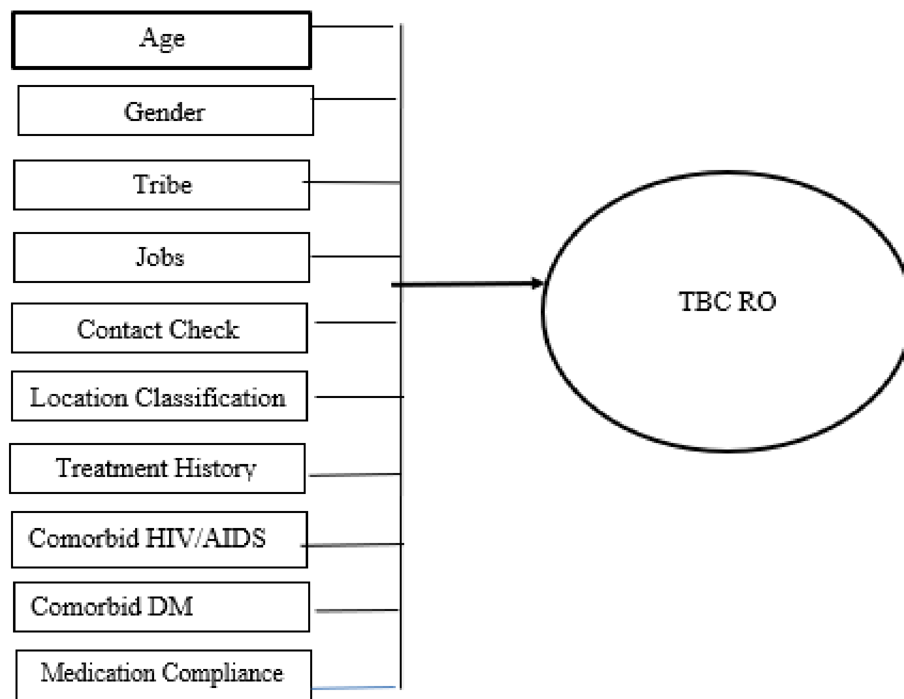
Indonesia ranks second highest in the world in terms of the number of TB burdens, with the incidence of TB in 2023 being 387 per 100,000 population, or around 1,090,000 people suffering from TB. Of these, in 2024, as many as 856,420 cases of 78% of TB have been notified, while 2.2% of cases have not been found and reported by the TB Control Program. The success rate of TB treatment reaches 85%, still below the World Health Organization (WHO) global target of 90%. In addition, it is estimated that the death rate due to tuberculosis in Indonesia reaches 40 per 100,000 population, or around 125,000 deaths in the same year (Ministry of Health of the Republic of Indonesia, 2025).

Drug-resistant tuberculosis is a public health threat. Resistance to isoniazid (H) and rifampicin (R), two of the most potent OAT regimens known as Resistant tuberculosis (TB RO), has become a major concern in the control of TB cases. Patients with RO tuberculosis cannot be cured with a first-line OAT regimen. Poorer treatment outcomes, high mortality rates, longer treatment duration (approximately two years), high costs, and various other complications make the treatment of RO tuberculosis more complex compared to drug-sensitive tuberculosis (Fathul, 2023).

The discovery of Tuberculosis (TB) cases during the period of 2023-2025 shows that there are significant dynamics in the achievement of case discovery. In 2023, there will be 16,645 cases of tuberculosis, with the number of cases found to be 6,310 cases or around 38%. With the number of cases of drug-resistant tuberculosis (TB RO), there were 230 cases. In 2024, TB cases will decrease to 11,645 cases, but the achievement of case discovery will increase significantly to 7,121 cases, or around 61%. The number of RO TB cases is also increasing to 280 cases. In 2025, TB cases will be relatively stable, at 11,624 cases. The number of cases found reached 7,038 cases with a detection percentage of around 60%. In this period, the number of RO TB cases increased again to 289 cases. Papua Province oversees 8 RO TB referral hospitals (Papua Health Office, 2023).

The occurrence of RO tuberculosis involves many factors, such as the existence of a history of TB treatment, minimal knowledge of the patient, and poor medication adherence. In addition, many new cases of RO TB are caused by errors in previous TB management, which include ineffective and inappropriate dosage of OAT or monotherapy regimens, unclear doctor's instructions, lack of the role of the Drug Swallowing Supervisor (PMO), as well as failure to identify pre-existing resistance. Other risk factors for RO tuberculosis are a history of diabetes mellitus, HIV-AIDS infection, education level, residence, gender, age group, alcohol consumption, smoking, and nutritional status. Identifying risk factors for RO TB is very important and can help in developing appropriate case discovery strategies as well as optimal promotive-preventive efforts (Fathul, 2023).

Frame of Mind



Picture 1. Conceptual Framework

THEORETICAL REVIEW

Drug-resistant tuberculosis (DR-TB) can be explained through the theory of infectious disease dynamics and antimicrobial resistance, which emphasizes the interaction between host, pathogen, and treatment factors. According to this framework, resistance emerges when Mycobacterium tuberculosis is exposed to inadequate or incomplete anti-tuberculosis therapy, allowing selective survival of resistant strains. This aligns with the concept of "selection pressure" in microbiology, where improper drug regimens, poor adherence, and suboptimal drug absorption contribute to the evolution of resistant bacteria. Furthermore, the epidemiological triangle highlights that host-related factors such as immune status (e.g., HIV infection and diabetes mellitus), environmental exposure, and

health system performance play a crucial role in determining susceptibility and transmission of drug-resistant TB.

From a behavioral and health system perspective, the Health Belief Model (HBM) and Andersen's Behavioral Model of Health Services Utilization provide a theoretical basis for understanding patient compliance and treatment outcomes. The HBM suggests that patients' perceptions of disease severity, benefits of treatment, and barriers to adherence influence their likelihood of completing long-term TB therapy. Meanwhile, Andersen's model emphasizes that predisposing factors (e.g., demographic characteristics), enabling factors (e.g., access to healthcare services), and need factors (e.g., comorbid conditions) collectively shape health-seeking behavior. In the context of drug-resistant TB, these theories explain why factors such as previous treatment history, medication adherence, and comorbidities significantly contribute to the incidence and progression of the disease, as they directly affect both biological vulnerability and treatment continuity.

METHODOLOGY

Types of analytical observational research, with a cross-sectional study approach to determine the relationship between independent variables and dependent variables, which are measured only once observed at a time (Hasmi, 2023).

RESEARCH RESULTS

Univariate Analysis

Table 1. Independent variable distribution

No	Variabel	Frekuensi (n)	Presentase (%)
1	**Age**		
	Productive	228	83.8
	Unproductive	44	16.2
2	**Gender**		
	Male	155	57
	Female	117	43
3	**Tribe**		
	Papua	174	64
	Non Papua	98	36
4	**Jobs**		
	Not working	197	72.4
	Work	75	27.6
5	Medication Compliance		
	Non-compliant	180	66.2
	Obedient	92	33.8
6	**Komorbid *Diabetes mellitus***		
	Yes	21	7.7
	None	251	92.3
7	**Komorbid HIV/ AIDS**		

	Yes	67	24.6
	None	205	75.4
8	**Tuberculosis Treatment History**		
	Yes	163	59.9
	None	109	40.1
9	**Contact checks**		
	None	172	63.2
	Yes	100	36.8
10	**Classification**		
	Pulmonary TBC	264	97.1
	Extrapulmonary TBC	8	2.9
	Total	272	100,0

Based on table 1 above, it shows that of the 272 respondents, the most productive age is 228 (83.8%), male gender is 155 (57%), respondents who do not work as many as 197 (72.4%), non-Papuan tribes as many as 174 (64%), non-compliant respondents as many as 180 (66.2%) who have Comorbid DM as many as 251 (92.3%), who have HIV Comorbidities as many as 163 (59.9), who have a previous medical history as many as 205 (75.4%), who did not carry out contact checks as many as 172 (63.2%) and anatomical location classification of pulmonary tuberculosis as many as 264 (97.1%).

Bivariate Analysis

Table 2. Chi-Square Analysis and Prevalence Ratio

No	Variable	*TBC RO*				n	*p-value*	*RP*
		Yes		No				Lower-Upper
		n	%	N	%			
1	**Age**							
	Productive	97	42.5	131	57.5	228	0.639	0.8
	Unproductive	21	47.7	23	52.3	44		(0.6-1.2)
2	Gender							
	Male	64	41.3	91	58.7	155	0.49	0.8
	Female	54	46.2	63	53.8	117		(0.6-1.1)
3	Tribe							
	Papua	75	43.1	99	56.9	174	1.00	0.9
	Non-Papua	43	43.9	55	56.1	98		(0.7-1.3)
4	Jobs							
	Non working	77	39.1	120	60.9	197	0.02	0.7
	Working	41	54.7	34	45.3	75		(0.5-0.9)
5	Contact Cheks							
	None	72	41.9	100	58.1	172	0.59	0.9
	Yes	46	46	54	54	100		(0.6-1.1)
6	Classification TBC Anatomy							
	Pulmonary TBC	116	43.9	148	56.1	264	0.47	1.7

	Extrapulmonary TBC	2	25	6	75	8		(0.5-5.8
7	Tuberculosis Treatment History							
	Yes	35	21.5	128	78.5	163	0.00	0.2
	No	83	76.1	26	23.9	109		(0.2-0.3)
8	Comorbid HIV							
	Yes	19	28.4	48	71.6	67	0.007	0.5
	No	99	48.3	106	51.7	205		(0.3-0.8)
9	Comorbid DM							
	Yes	14	66.7	7	33.3	21	0.04	1.6
	No	104	41.4	147	58.6	251		(1.1-2.2)
10	OAT Drinking Adherence							
	None	88	48.9	92	51.1	180	0.015	1.4
	Obedient	30	32.6	62	67.4	92		(1.0-2.1)

Based on the table above, it is known that the variables that determine the incidence of RO tuberculosis in order are occupation, previous treatment history, HIV comorbidities, comorbid DM, adherence to taking drugs, with a P Value of <0.05. Meanwhile, variables that are not significant to the incidence of RO tuberculosis are variables of age, sex, ethnicity, contact examination, and classification of anatomical locations.

Multivariate Analysis

Table 3. Multiple Logistic Regression Variable Analysis

No	Variabel	*p-value*	RP	95% CI	
				Lower	*Upper*
1	Jobs	0.029	0.7	0.546	0.937
2	Treatment History	0.000	0.2	0.206	0.385
3	Comorbid HIV	0,007	0.5	0,391	0.881
4	Comorbid DM	0,044	1,6	1,149	2.252
5	OAT Drinking Adherence	0,015	1,4	1.078	2.084

Based on the table above, there are 5 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*	Exp (B)	95% CI for Exp(B)	
					Lower	Upper
1	Tuberculosis Treatment History	2.512	0.000	12.3	6.5	23.4

Source: Secondary Data, processed 2026

Based on the table above, a p-value of 0.000 RP = 12.392 CI95% EXP(B)(6.563-23.401) was obtained, which indicates that TB treatment history was the most dominant factor for the incidence of RO TB in Papua Province. Respondents with a history of TB treatment were 12,392 times more likely to experience an incidence of RO TB than those with no previous treatment history.

DISCUSSION

Based on the results of this study, it is shown that the relationship between age and the risk of RO tuberculosis incidence in Papua Province is not significant. A person's age can affect exposure to a disease. The older a person is, the more mature they will be in the prevention of a disease. However, in the case of tuberculosis, it can attack anyone regardless of age limit (Anisah, 2021).

Age is a life span measured by years. Older people have more information than younger people (Nurul Hidayah, 2022).

The results of the study are in line with the research (Fathul 2023) that the age factor is not significant to the incidence of RO tuberculosis. The incidence of pulmonary tuberculosis is more common in the productive age range because they are still active in work and have quite intense social interactions. This makes this age vulnerable to transmission from high mobility, and the environment around the productive age is the highest group that often experiences RO TB infection (Isni, 2025).

In line with research (Susi 2021), because at that age it is a productive age that is vulnerable to RO TB transmission, where they interact more with other people and have high mobility, so that transmission to other people and the surrounding environment can occur.

The results of this study show that the relationship between age and the incidence of RO tuberculosis in Papua Province is not significant because the number of respondents with a risk age (0-14 years, >55 years) is less than the number of respondents with a non-risk age due to extensive social activities, as well as the risk of non-compliance with treatment.

Based on the results of this study, it is shown that the relationship between sex and the risk of incidence in RO tuberculosis patients in Papua province is not significant. RO tuberculosis is more commonly found in males than in females. More vulnerable men to suffer from RO tuberculosis may be related to lifestyle, namely, men usually have unhealthy lifestyles such as consuming alcohol and smoking (Fathul, 2023). Men are more susceptible to RO tuberculosis. This vulnerability is likely caused by workload, lack of rest, high mobilization, and an unhealthy lifestyle, including smoking and drinking alcohol(Simorangkir et al. 2022).

The results of this study are in line with the research (Nurul Hidayah 2022) that there is no relationship between sex and the incidence of RO tuberculosis. In general, the group that is vulnerable to RO TB is men who play the role of the head of the family, because they are more often active outside the home and are more at risk of exposure to TB.

Men have a high risk of developing pulmonary tuberculosis due to factors such as the patient's environment and habits. Patients with low immunity levels are particularly susceptible to infection with tuberculosis bacteria. In addition, excessive activity without adequate rest can also increase this risk (Makaba, Ruru, and Togodly 2025).

The results of this study are in line with the research (Tri Anugrah 2025) that there is no gender relationship with the high incidence of RO tuberculosis. Busyness can also lead to negligence in undergoing treatment, leading to RO tuberculosis. In addition, men tend to be more difficult to direct, so the likelihood of non-compliance in undergoing treatment is higher than that of women.

The results of this study show that the relationship between sex and the incidence of RO tuberculosis in RO TB patients is not significant In general, gender does not affect a person whether the person is at risk of developing RO tuberculosis or not. Because infectious diseases can affect anyone regardless of gender, both male and female (Zahra, 2024).

Based on the results of this study, it is shown that the relationship between tribes and the risk of RO tuberculosis incidence in Papua Province is not significant. Tribes in Papua themselves have a variety of languages and dialects in local tribes that are usually used when speaking. Understanding the official or common language used in health services can be an obstacle for some patients who are not used to using official or common language when going for treatment (Priscillia, 2024).

Based on ethnographic studies, the Papuan tribe has cultural diversity, has knowledge about overcoming various health problems that have been inherited from generation to generation with traditional medicine approaches due to customary factors, more trust in their ancestral habits, close to direct practitioners such as shamans, or relatives who are experienced in dealing with traditional health problems (Yulpriati 2020).

This study is not in line with the study (Makaba, Ruru, and Togodly 2025) on the influence of ethnicity on the incidence of pulmonary tuberculosis in Nabire Regency, Central Papua Province. The habit that can arise in individuals living in Papua is eating areca nuts, which are sometimes spit out indiscriminately, showing a lack of hygiene and prevention of disease transmission.

In line with research (Yulpriati 2020), there is no significant relationship between tribes and the incidence of RO tuberculosis. Papuans have a higher risk of developing pulmonary tuberculosis than non-Papuans, due to factors such as knowledge, ethnic housing habits, and housing density.

Based on the results of this study, it is shown that the relationship between work and the risk of tuberculosis incidence among RO tuberculosis patients in Papua Province is significant. Work is an activity that is carried out to earn a living. Work environment factors link a person to being exposed to a disease. A poor work environment supports being infected with pulmonary tuberculosis, including drivers, laborers, pedicab drivers, and others, compared to people who work in office areas (Anisah, 2021).

A person's work also affects family income, which will have an impact on daily lifestyle, including food consumption, health maintenance, besides that it will also affect home ownership or house construction (Windiyaningsih et al., 2017).

This study is in line with research (Sophian, 2023) on the significant relationship of work to the incidence of RO tuberculosis. The type of work determines what risk factors each individual has to face. If workers work in a dusty environment, exposure to dust particles in the exposed area will affect the occurrence of respiratory tract disorders. Chronic exposure to polluted air can increase morbidity, especially the occurrence of problems in the respiratory tract.

The results of this study are not in line with the research (Anisah 2021). There is no relationship between work and the risk of RO tuberculosis incidence. Work is an activity that is carried out to earn a living. Work environment factors relate a person to being exposed to a disease. A poor work environment increases the risk of contracting pulmonary tuberculosis, including drivers, laborers, pedicab drivers, and others, compared to people who work in office areas.

In line with research (Liana et al., 2025), the relationship between work and the incidence of RO tuberculosis is significant Through work, a person will earn an income that can influence a person to get information in making decisions in obtaining and utilizing existing health services, the provision of nutritious food, a healthy home environment, and the maintenance of health status.

Based on the results of this study, the relationship between contact tracing and the risk of tuberculosis incidence among RO tuberculosis patients in Papua Province is not significant. RO tuberculosis can spread from human to human. One of the essential things in the spread of RO tuberculosis is the patient's contact history. If droplets are inhaled into the respiratory tract of a healthy person, the patient can become infected. Then, Mycobacterium tuberculosis enters other organs through the bloodstream, lymphatic, or respiratory system, or directly into those organs. Disease transmission occurs through contact (Anugrah 2024).

In line with research (Ranti Yuliana 2025), there is no relationship between contact history and tuberculosis incidence. There are several factors for a person who is in close contact and household contact with a TB patient but not infected with TB, including tuberculosis patients using masks indoors, maintaining cough etiquette, and taking TB medicine regularly as recommended by doctors. Families or relatives who are in close contact and household contact with TB patients also use masks when in contact with patients, especially in the initial phase of TB treatment, which is the first 2 months, where TB germs are still very abundant and active as a source of transmission.

This study is not in line with (Chandra, Fikriana, and Nurbadriyah 2025). Direct or prolonged contact with RO TB patients is at significant risk of transmission, especially in environments with poor sanitation and ventilation, which includes prophylaxis for individuals with high exposure and active surveillance of household contacts.

Not in line with the research (Susi 2021). Based on this study, the results showed that there was a significant relationship with contact history. Close contact of TB patients is at high risk of infection and can become a new source of

transmission if not handled properly. Therefore, TB prevention depends not only on early detection and treatment of active patients, but also on awareness and close contact behavior.

Based on the results of this study, it is shown that the relationship between anatomical location classification and the risk of tuberculosis incidence of RO tuberculosis patients in Papua Province is not significant.

Pulmonary tuberculosis is a case of tuberculosis involving the pulmonary or tracheobronchial parenchyma. Pulmonary tuberculosis is classified as such because there are lesions in the lungs, while extrapulmonary tuberculosis is a case of tuberculosis that involves organs outside the pulmonary parenchyma, such as pleura, lymph nodes, abdomen, genitourinary tract, skin, joints, and bones, and brain membranes (Ministry of Health, 2019).

In line with research (Malik Ibrahim, 2019), pulmonary anatomical locations are more than lung extracts of disease anatomical locations, tuberculosis is classified into pulmonary tuberculosis and pulmonary ecstatic tuberculosis. Pulmonary tuberculosis is tuberculosis that occurs in the parenchyma (tissue) of the lungs, while extrapulmonary tuberculosis is tuberculosis that attacks organs other than the lungs, for example, pleura, lymph nodes, brain membranes, bones, joints, skin, intestines, kidneys, urinary tract, and genitals.

Based on the results of this study, it is shown that the relationship between previous treatment history and the risk of tuberculosis incidence in RO tuberculosis patients in Papua Province is significant. Treatment is one way to combat tuberculosis. Treatment success rate is an indicator used to evaluate treatment. The recovery rate and the amount of time needed for treatment are used to determine the success rate of treatment. One way to ensure patient recovery is to combine short-term anti-TB drugs with drug consumption supervision. Even though the drugs used are good, if the patient does not receive treatment regularly, the treatment results are usually unsatisfactory (Anugrah, 2024).

In line with research (Tri Anugrah 2025), patients with a history of previous treatment are at risk of developing OAT resistance. Resistance generally occurs in patients who have been on treatment for more than 1 month, including patients who have failed treatment, patients who have relapsed, or who have stopped treatment irregularly

Patients who have received anti-tuberculosis drug treatment before RO tuberculosis treatment are suspected to be the cause of patients not completing treatment because of the length of time from consuming anti-tuberculosis drugs. (Damayanti et al., 2022).

Previous or new treatment history that could be contracted from RO TB patients, resulting in direct exposure to RO TB bacteria. Patients diagnosed with TB-RO but have never received previous OAT treatment or are new cases (Anisa Nur 2023)

Based on the results of this study, it is shown that the relationship between HIV comorbidities and the risk of tuberculosis incidence in RO tuberculosis patients in Papua Province is significant.

HIV-AIDS is also an important risk factor for RO tuberculosis because people with HIV have a weaker immune system, so they are easily infected if they come into contact with RO TB patients (Restiana, 2025).

Tuberculosis is the most common opportunistic infection in people with HIV/AIDS (ODHA). In addition to being the strongest known risk factor for the development of tuberculosis, HIV is currently also considered one of the risk factors for the occurrence of drug-resistant TB (Fathul, 2023).

This study is in line with the research (Arianti et al., 2024) on the relationship between HIV comorbidities and the incidence of drug-resistant tuberculosis. There is an increased risk of drug-resistant tuberculosis infection in patients with HIV due to one of the reasons for the malabsorption of OATs, such as rifampicin and etambutol.

Impaired function of macrophages and monocytes in HIV patients is caused by a progressively declining number and function of CD4 cells. Meanwhile, the main role in the body's defense against microorganisms is carried out by macrophages and CD4, as a result of which people with HIV have a tendency to be susceptible to bacterial infections including the Mycobacterium tuberculosis germ.(Ayu et al., 2023).

Based on the results of this study, it is shown that the relationship between comorbid DM and the incidence of RO tuberculosis is significant. Diabetes mellitus is a metabolic disorder with a multifactorial etiology. The disease is characterized by chronic hyperglycemia and affects the metabolism of carbohydrates, proteins, and fats. Hyperglycemia can go undetected because diabetes mellitus does not cause symptoms (asymptomatic) and causes vascular damage before the disease is detected (Rahayu, 2021).

Diabetes mellitus can increase the risk of TB infection. This bacterial infection can also cause the body to be unable to control blood sugar levels, so that tuberculosis patients will easily develop diabetes mellitus (Isni, 2025).

In line with the results of the study (Fathul, 2023), it was found that there was a meaningful relationship between the history of DM and the incidence of RO tuberculosis. Diabetes Militus increases susceptibility to early Mycobacterium tuberculosis infection or the risk of progression from TB infection to active disease, but evidence of both congenital and adaptive immune impairment in DM patients suggests that this chronic disease can affect both stages of TB.

The results of this study are not in line with research (Syahrani and Lestari 2025) that there is no significant relationship between the history of DM disease and the incidence of RO tuberculosis. There is a possibility that respondents suffering from DM disease are acquired due to tuberculosis and in addition, those who suffer from DM are not affected by tuberculosis because there are other things such as PHBS or good hygiene, uncrowded housing, good family income so that they can access health facilities properly, and others. So, even if they have a history of DM, they don't get TB.

DM patients with pulmonary tuberculosis typically show greater amounts of mycobacteria at the start of treatment, so they have a higher likelihood of mutations and resistance. that plasma levels of rifampicin were found to be 53%

lower in tuberculosis patients with DM, which may affect treatment outcomes (Fathul, 2023).

In patients with diabetes mellitus, one of the symptoms experienced is a physiological disorder in the lungs that causes the immune system to be inhibited in fighting infection, so that in patients the spread of infection is faster (Novita et al., 2018). People with diabetes mellitus have high glucose levels which is a good environment for bacteria to thrive, including Mycobacterium tuberculosis. This is the cause of tuberculosis appearing along with diabetes mellitus (Kahar, Purlinda, and Setyowatiningsih 2021)

Based on the results of this study, it is shown that the relationship between medication adherence to the incidence of RO tuberculosis is significant. Non-adherence leads to ineffective treatment, which allows TB bacteria to survive in the patient's body and develop resistance to commonly used drugs. In addition, patients who do not comply with the rules of taking medication may take inadequate or irregular doses, making treatment less optimal in eradicating tuberculosis bacteria completely (Ode et al. 2024)

Development of Drug Resistance Patients who do not adhere to OAT treatment correctly, TB bacteria can become resistant to the drugs used. This drug resistance can develop into RO tuberculosis where the bacteria become resistant to the two main drugs used in standard TB treatment, namely isoniazid and rifampicin (Sophian 2023)

In line with the results of the study (Ode et al. 2024) that there is a meaningful relationship between medication adherence to TB Medication adherence to medication adherence is essential to prevent medication failure and the emergence of drug-resistant TB during the treatment process.

Non-adherence to medication can be a refusal to take medication or forgetting to take medication in the wrong dose, leading to drug resistance. Intentional and unintentional factors can cause an increase in non-compliance factors (Anugrah 2024)

In line with the results of the study (Sophian 2023) adherence to taking OAT is very significant to the risk of RO TB incidence. Adherence in TB treatment is essential to prevent MDR-TB, because if the patient regularly takes antituberculosis drugs (OATs), TB bacteria can become resistant to the drug.

To reduce the risk of drug-resistant tuberculosis caused by low adherence to taking Anti-Tuberculosis Drugs (OAT). A standard OAT treatment plan that involves several medications that must be taken regularly and for a long period of time (at least 6 months). Following a strict medication schedule is a key to successful TB treatment (Sophian 2023).

Adherence to taking medication can be established despite the side effects felt by the patient. This can be due to good social support, high motivation, self-confidence, and a good level of knowledge. Conversely, low adherence to taking medication even though the perceived side effects are minimal can also be affected by poor stigma and low self-confidence to recover.(wulan Maulidatul Hasanah 2024).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The variables that were synonymous with the incidence of RO tuberculosis in order were occupation, previous treatment history, HIV comorbidities, comorbid DM, adherence to taking medication with a P Value of <0.05. Meanwhile, variables that are not significant to the incidence of RO tuberculosis are variables of age, sex, ethnicity, contact examination, classification of anatomical locations. Variable TB treatment history is the most dominant factor for the incidence of RO TB in Papua Province.

Recommendations

Improving the quality of recording and reporting of Tuberculosis cases, especially Drug-Resistant Tuberculosis (TB RO).

ADVANCED RESEARCH

For future researchers, it is recommended to conduct further research on the factors that influence the incidence of Drug-Resistant Tuberculosis (TB RO) by adding other variables.

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