

Characteristics of Tuberculosis Patients With Drug Resistance at Candi Health Center, Wonoayu Health Center, and Krian Health Center

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ABSTRACT

Drug-Resistant Tuberculosis (TB) occurs when the *M. tuberculosis* bacteria become resistant to standard anti-TB drugs. This study aimed to identify the characteristics of patients with drug-resistant TB at Candi, Wonoayu, and Krian Health Centers. The type of research that will be carried out uses qualitative research with a descriptive research design and the research population is all RO TB patients who are undergoing treatment at the Candi Health Center, Wonoayu Health Center, Krian Health Center, totaling 15 people. Data collection uses a questionnaire. The findings revealed that most respondents were of productive age (93.3%), predominantly male (53.3%), with a majority having low BMI (46.6%), junior high school education (53.3%), and being unemployed. It was found that 15 respondents (100%) did not have the habit of consuming alcohol, and most (80%) did not smoke. A significant portion (46.6%) had a history of diabetes mellitus (DM), but none had a history of exposure to other TB patients. The study highlights that factors like productive age, male gender, poor nutrition, and low education levels may increase the risk of drug-resistant TB, while treatment adherence and the absence of smoking and alcohol use are crucial in controlling the disease. This research emphasizes the importance of intervention in the community to increase awareness and prevention of TB RO at the Candi Health Center, Wonoayu Health Center, and Krian Community Health Center.

Keywords: *Tuberculosis, Drug Resistance, characteristics of RO TB patients*

INTRODUCTION

Tuberculosis (TB) is a disease caused by *Mycobacterium Tuberculosis* and is still a global problem that causes millions of people to get sick every year and is the second largest cause of infection death in the world after HIV-AIDS.

According to the WHO, global TB cases increased from 10 million in 2020 to 10.6 million in 2021. In 2022, 717,941 cases were recorded. Indonesia, as the country with the second highest number of TB cases, recorded 561,100 cases in 2020, down to 370,290 in 2021, but rising again to 724,309 in 2022. Indonesia recorded an increase in drug-resistant TB (RO) cases from 7,921 in 2020 to 8,296 in 2021, up 3%, and to 12,531 in 2022, up 4% (Prof.Dr.Tjandra Yoga Aditama & Dr.Mohammad Subuh, 2011).

In East Java, TB cases fell from 66,077 in 2020 to 44,025 in 2021, then decreased again to 42,387 in 2022. In 2020, East Java recorded 45% of TB RO cases. This number decreased to 37% in 2021, then increased to 57% in 2022.

According to Sidoarjo's health profile, in 2020, Sidoarjo ranked third in East Java with 3,544 TB cases found, registered, and treated. In 2021, the number of cases dropped to 2,523, but increased to 2,695 in 2022. In 2020, the Health Center in Sidoarjo treated 26 cases of TB RO, down to 18 cases in 2021. In 2022, there were 23 cases, and a significant increase to 33 cases in 2023 (BPS, 2022).

Sidoarjo's health profile noted that in 2020, Waru District had the highest number of TB cases with 164 cases, followed by Taman with 145 cases and Sukodono with 142 cases. In 2021, Waru is still the highest with 122 cases, followed by Krian with 119 cases and Sukodono with 112 cases. In 2022, Sedati occupies the first position with 105 cases, followed by Sukodono with 101 cases and Krian with 89 cases.

TB drug resistance is becoming a serious global challenge. To overcome this, it is necessary to carry out early detection through screening, increasing access to treatment, and monitoring patient compliance. Public education and training

of health workers must also be strengthened. Additional research and multisectoral collaboration are needed to control drug-resistant TB, especially in the Candi Health Center, Wonoayu Health Center, and Krian Health Center.

From the description above, the research problem is that the incidence of TB RO is getting higher so that researchers are interested in conducting research on "Characteristics of Tuberculosis Patients with Drug Resistance at the Temple Health Center, Wonoayu Health Center, and Krian Health Center".

RESEARCH METHOD

The design of this research is qualitative research using a descriptive method. The population was taken from data on RO TB patients at the Candi Health Center, Wonoayu Health Center, and Krian Health Center in 2024 in January-June, then sample results were obtained using the *purposive sampling* with a total of 15 samples with. The independent variable in this study is the characteristics of tuberculosis patients and the dependent variable is drug-resistant tuberculosis. In this study, the author uses an instrument in the form of a sheet *informed consent* approval of willingness to be a respondent in the study. When filling out the questionnaire, time is given for ± 15 minutes, and the researcher is around the respondents so that if there are respondents who do not understand, the researcher can explain it. This research was conducted at the Candi Health Center, Wonoayu Health Center, and Krian Health Center in May 2024. The data processing process carried out by the researcher is the process of *editing, coding, scoring* and *tabulating*. Data analysis using this descriptive analysis was carried out with the aim of describing or describing the characteristics of each research variable. This research was carried out in accordance with research ethics, namely *informed consent* (consent sheet), *Confidentiality* (confidentiality), and *anonymity* (without name).

RESULT

Table 1
Distribution of drug RO TB respondents at the Candi, Wonoayu, and Krian Health Centers by gender in May 2024

No	Phc	Man	Woman	Total
1.	Temple	3	1	4
		75%	25%	100%
2.	Wonoayu	4	3	7
		57,1%	42,9%	100%
3.	Krian	1	3	4
		25%	75%	100%

	8	7	15
Total	53,3%	46,7%	100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the occurrences of TB RO are males as many as 8 (53.3%).

Table 2
Distribution of TB RO respondents at the Candi, Wonoayu, and Krian Health Centers by age in May 2024

No.	Phc	19-44 th	45-59 th	>60 th	Total
1.	Temple	3	1	0	4
		75%	25%	0%	100%
2.	Wonoayu	2	4	1	7
		28,6%	57,1%	14,3%	100%
3.	Krian	2	2	0	4
		50%	50%	0%	100%
Total		7	7	1	15
		46,7%	46,7%	6,6%	100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the age incidence of TB RO patients is productive age (19-59 years) as many as 14 (93.4%).

Table 3
Distribution of drug-resistant tuberculosis respondents at the Candi, Wonoayu, and Krian Health Centers based on nutritional status (BMI) in May 2024

No.	Phc	17-18,4	18,5-25	25,1-27	>27	Total
1.	Temple	1	2	1	0	4
		25%	50%	25%	0%	100%
2.	Wonoayu	3	2	0	2	7
		42,8%	28,6%	0%	28,6%	100%
3.	Krian	3	1	0	0	4
		75%	25%	0%	0%	100%
Total		7	5	1	2	15
		46,7%	33,3%	6,7%	13,3%	100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the nutritional status of TB RO patients is less than a mild level of 7 people (46.7%).

The distribution of drug-resistant tuberculosis respondents in the Candi, Wonoayu, and Krian Health Centers based on smoking habits in May 2024 all patients with RO TB do not consume alcohol (100%).

Table 4
Distribution of drug-resistant tuberculosis respondents at the Candi, Wonoayu, and Krian Health Centers based on smoking habits in May 2024

No	Phc	Smoke	No smoking	Total
1.	Temple	2 50%	2 50%	4 100%
2.	Wonoayu	1 14,3%	6 85,7%	7 100%
3.	Krian	0 0%	4 100%	4 100%
Total		3 20%	12 80%	15 100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the patients with TB RO do not have a smoking habit, namely 12 people (80%).

Table 5
Distribution of drug-resistant tuberculosis respondents in the Candi, Wonoayu, and Krian Health Centers based on treatment history in May 2024

No	Phc	Orderly	Irregular	Total
1.	Temple	3 75%	1 25%	4 100%
2.	Wonoayu	5 71,4%	2 28,6%	7 100%
3.	Krian	2 50%	2 50%	4 100%
Total		10 66,7%	5 33,3%	15 100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the patients with TB RO do not have a smoking habit, namely 12 people (80%).

Table 6
Distribution of drug-resistant tuberculosis respondents at the Candi, Wonoayu, and Krian Health Centers based on comorbidities in May 2024

No.	Phc	None	DM	HT	Total
1.	Temple	3 75%	1 25%	0 0%	4 100%
2.	Wonoayu	4 57,1%	2 28,6%	1 14,3%	7 100%
3.	Krian	2 50%	1 25%	1 25%	4 100%
Total		9 60%	4 26,7%	2 13,3%	15 100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the patients with TB RO do

not have comorbid diseases, namely 9 people (60%).

Table 7
Distribution of respondents based on exposure history with TB patients at the Candi, Wonoayu, and Krian Health Centers in May 2024

No	Phc	Exposed	Not exposed	Total
1.	Candi	3 75%	1 25%	4 100%
2.	Wonoayu	5 71,4%	2 28,6%	7 100%
3.	Krian	2 50%	2 50%	4 100%
Total		10 66,7%	5 33,3%	15 100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the patients with RO TB are exposed to 10 other patients (66.7%).

Table 8
Distribution of respondents based on contact history with whom at the Candi, Wonoayu, and Krian Health Centers in May 2024

No	Phc	Family	Friend	No	Total
1.	Candi	1 25%	2 50%	1 25%	4 100%
2.	Wonoayu	4 57,1%	1 14,3%	2 28,6%	7 100%
3.	Krian	1 25%	1 25%	2 50%	4 100%
Total		6 40%	4 26,7%	5 33,3%	15 100%

(Source: Primary Data)

Based on the table above, it can be interpreted that most of the patients with TB RO are in direct contact with infected family members as many as 6 people (40%).

DISCUSSION

The May 2024 study found 15 patients with drug-resistant pulmonary TB at the Candi, Wonoayu, and Krian Health Centers, with the majority of men (53.3%) and women (46.7%). In the Candi Health Center, most of them are men (74%), in Wonoayu they are also dominated by men (57.1%), while in Krian the majority are women (75%). Researchers assume that pulmonary TB is more susceptible to attacking men because they generally have the role of a family head responsible for making a living. To reduce the incidence of productive age (19 - 59 years) are more susceptible to drug-resistant TB. Factors such

as high social and economic activity in this age group may increase the risk of TB exposure. In addition, non-compliance in taking anti-TB drugs consistently can also be the cause of drug resistance. Reducing the incidence of TB RO in productive age groups requires strategic measures such as improvements in health education programs to improve adherence to TB treatment, especially among socially active workers (Pratama et al., 2021).

Nutritional status is one of the factors that contribute to the development of TB disease. In a study of 85 respondents, it was found that 41 respondents (48.2%) had malnutrition status, while 34 respondents (40%) had normal nutritional status, as many as 10 respondents (11.8%) were very malnourished. Malnutrition can lead to a decrease in the body's immunity. the majority of people with TB RO have nutritional status in the undernourished category (Fraud & Malinti, 2023).

The education level of junior high school graduates dominates among TB RO patients at the Candi, Wonoayu, and Krian Health Centers. Education can affect a person's level of knowledge, education is also related to a person's behavior which can affect healthy living behavior. Not only that Continuous exposure to polluted air can increase the risk of disease, especially respiratory problems and pulmonary TB (Dewi & Dafriani, 2021).

The results of the study that researchers have conducted in May at the Candi Health Center, Wonoayu Health Center, and Krian Health Center showed that 15 out of 15 respondents (100%) did not consume alcohol. Consuming alcohol can weaken the immune system, thereby increasing the risk of developing tuberculosis infection, and allowing for latent tuberculosis reactivation (John, 2019).

In May 2024, the majority of drug-resistant pulmonary TB patients at the Candi, Wonoayu and Krian Health Centers did not smoke, the majority of 12 out of 15 respondents. At the Temple Health Center, 2 people did not smoke, 2 other people smoked. Meanwhile, the majority of respondents at the Wonoayu Health Center did not smoke, a total of 6 people and 14 people still smoked. Krian Health Center, all 4 respondents did not smoke. Active smoking is considered a risk factor for the recurrence of tuberculosis (TB) and can increase the death rate from TB.

The results of the research that has been carried out reveal that all respondents always take medication on time, take medication regularly at their respective health centers, and never give up treatment. Thus, the advice that can be given is to

increase awareness and attention to the importance of regular and timely treatment of pulmonary TB.

According to a study that has been conducted in May 2024, the majority of pulmonary tuberculosis patients with drug resistance at the Candi Health Center, Wonoayu Health Center, and Krian Health Center, the majority of respondents, as many as 9 out of 15 people, do not have comorbidities. This shows that drug resistance in TB patients at the Candi, Wonoayu, and Krian Health Centers is not always related to the presence of comorbidities. Therefore, it is important for patients with pulmonary TB with drug resistance to continue to monitor and follow doctor's prescriptions and carry out treatment regularly to prevent the occurrence of comorbidities that will worsen.

According to a May 2024 study, the majority of TB patients with drug resistance at the Candi, Wonoayu and Krian Health Centers, 10 respondents out of 15 people had direct contact with other TB patients, while 5 people had never had direct contact with other TB patients. The majority of respondents often have direct contact with families who have TB disease in the neighborhood, never living in the same house. In facing this challenge, it is necessary to make further education and awareness efforts regarding the prevention and treatment of TB RO, especially for patients with TB RO who have a history of exposure to other TB patients.

CONCLUSION

1. Based on the findings of the study entitled "Characteristics of Tuberculosis Patients with Drug Resistance in the Temple Health Center, Wonoayu Health Center, and Krian Health Center" the conclusions that can be drawn are:
2. General data analysis revealed that most of the respondents were productive aged 19–59 years, namely 14 people (93.3%), and the majority were male, namely 8 people (53.3%).
3. The results of special data analysis were also obtained with the nutritional status (BMI) of 7 people (46.6%), 8 people (53.3%) graduated from junior high school and 7 people (46.6%) worked as private employees, as many as 15 respondents (100%) did not have the habit of consuming alcohol, the majority of respondents always took medication on time, took medication regularly, and never stopped taking treatment. The majority of respondents were 12 people (80%) who did not smoke, 9 people (60%) did not have comorbidities, and a total of 10 people (66.7%) had a history of

exposure by other TB patients, most of whom were from the family.

SUGGESTION

1. For Research Sites
Healthcare institutions can improve services by focusing not only on medical treatment, but also on psychological support. Healthcare workers should hold regular meetings with patients and families to share information about treatment, treatment, and problems that people with drug-resistant TB may face.
2. For Respondents
It is expected to make useful activities such as increasing their religiosity and carrying out positive activities such as active control regularly, taking medication regularly, not smoking, and healthy living behavior to increase immunity.
3. For the next researcher
If you have sufficient time and energy, research should be carried out on a wider scale to get more diverse results and allow for different results from this research.

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