

## Characteristics of Loss to Follow-Up Patient in Drug-Sensitive Pulmonary TB in Medan

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### ABSTRACT

**Introduction:** Tuberculosis (TB) is a chronic infectious disease caused by Mycobacterium tuberculosis. Adherence to TB treatment is a complex and dynamic phenomenon with various interacting factors. The Aim of study was to identify characteristics of loss to follow-up patients in drug-sensitive pulmonary TB in Medan.

**Method:** This research is a descriptive study using a cross-sectional approach. All variables were measured and observed at a time during the study. The study was conducted at RSUP Adam Malik Medan and Prof. Dr. Chairuddin P. Lubis USU Hospital in loss to follow-up TB patients diagnosed bacteriologically that meet the criteria of inclusion and exclusion. This study used data from medical records and questionnaires. Independent variables include age, gender, educational level, employment, marital status, family history of lung tuberculosis, attitudes to TB treatment, social support, health services, and reasons for loss to follow-up.

**Results:** Out of 40 patients with loss to follow-up pulmonary tuberculosis, the majority were patients in the age range of 45-65 years (n=26.65%), male (n=31.77,5%), equal level of high school education (n = 24.60%) had a fixed job (n=33.82.5%), marital status (n=33.90%), had no family history of lung tuberculosis (n=36.90%), poor attitude to TB treatment (n=36.90%), received low social support (n=51.52,5%), and received less supported health care services (n<33.82,5%). Reasons patients TB SO quit taking medication presented in this study vary, among others due to the side effects of TB drugs, patients choosing herbal drugs, already feeling healthy, laziness consuming TB medication, being embarrassed with pulmonary TB disease, not taking lung TB drugs because no one carries or has no transportation costs.

**Conclusion:** Most patients with drug-sensitive pulmonary tuberculosis who quit their medication in the fields are between 46 and 65 years of age, male sex, high school graduates of equal degree, have a fixed job, marital status, have no family history of TB, have an inferior attitude to TB treatment, receive low social support, and receive less supportive health services. Reasons for loss to follow-up for SO TB patients vary, including TB drug effects, clinical, and economic.

### Keywords

TB, Loss to follow-up, Drug-Sensitive TB

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## INTRODUCTION

Treatment non-compliance is an important concern in the management of infectious diseases, especially for the government in making public health policies as a strategy for eradicating TB. Preventing loss to follow-

up TB patients can reduce mortality rates, prevent the spread of germs, and prevent the development of TB bacteria that can become resistant.[1,2]

Based on the 2022 Global TB Report, data as of September for the coverage of TB detection and treatment was 39% and the TB treatment success rate was 74%. In Indonesia, the incidence of TB is 969,000 cases per year with loss to follow-up TB patients increasing from 2020 (5.6%) to 2021 (6.9%). Loss to follow-up TB patients with a range of 1.3%-19.4% are highest in West Papua Province and lowest in Lampung Province. In Indonesia, premature termination of treatment is the biggest factor in the failure of treatment for pulmonary TB patients, which is 50%.[3]

Factors that influence a person's behavior during TB treatment include predisposing factors, enabling factors, and reinforcing factors. Predisposing factors or predisposing factors consist of knowledge, attitudes, beliefs, convictions, and values. Enabling factors or supporting factors consist of things that are manifested in the physical environment, including health facilities and infrastructure including health centers, medicines, tools, legislation, and health-related skills. While reinforcing factors or motivating factors such as health workers, families, and decision-makers.[3-5]

The characteristics of loss to follow-up patients are very diverse including social, clinical, and economic characteristics. Prevention and management of loss to follow-up patients will have an impact on the development of strategies to prevent loss to follow-up patients which are expected to have an impact on reducing mortality rates, preventing the spread of germs, and preventing the development of TB bacteria that can become resistant.[6]

## METHOD

This study is a descriptive study using a cross-sectional approach. This study was conducted at H. Adam Malik General Hospital Medan and Prof. Dr. Chairuddin P. Lubis Hospital USU. This study will be conducted for 7 months after being approved by the Health Research Ethics Committee of the USU Medical Faculty/Adam Malik General Hospital Medan. The population of this study were patients who came to Adam Malik General Hospital Medan and Prof. Dr. Chairuddin P. Lubis Hospital USU and had a history of SO TB treatment.

Sampling using a purposive sampling technique that has criteria, namely those over 18 years old, patients who have a history of loss to follow-up SO TB from health facilities in Medan City, willing to participate in training, based on these criteria, a sample of 40 loss to follow-up TB patients was obtained. The variables that will be assessed in this study are age, gender, education level, employment status, marital status, family history of TB, attitudes towards TB treatment, social support, and health worker services.

The instrument in this study used a questionnaire consisting of demographic data and a questionnaire to assess patient attitudes towards TB treatment, social support, and health worker services as well as open questions regarding the reasons why patients lose to follow-up.

## RESULTS

Univariate data analysis was conducted to distribute the characteristics of the research subjects consisting of age, gender, education, occupation, marital status, family history of TB, patient attitudes, social support, and health worker services. Table 1 presents the sociodemographic characteristics profile of loss to follow-up SO pulmonary TB patients.

Based on age, loss to follow-up SO pulmonary TB was mostly found in the 45-65 year age group with a total of 26 people (65%) followed by the 18-45 year age group with a total of 14 people (35%). Based on gender, loss to follow-up SO pulmonary TB was mostly male, namely 31 people (77.5%), and female patients totaling 9 people (22.5%). Based on education level, the high school education level group was the largest group in loss to follow-up SO TB cases totaling 24 people (60%), followed by the tertiary education level totaling 9 people (22.5%), and no loss to follow-up SO TB patients were found who had an elementary school education level. Based on occupation, the highest loss to follow-up incidence for SO pulmonary TB was found in the group with permanent employment with a total of 33 people (82.5%). On marital status, the married

status group was the largest in the loss to follow-up incidence of SO pulmonary TB with a total of 33 people (82.5%). In the loss to follow-up SO pulmonary TB group, most patients did not have a family history of TB, namely 36 people (90%), and patients who had a family history of TB 4 people (10%).

Table 1. Sociodemographic Characteristics Profile of Loss to Follow-up SO Pulmonary TB Patients

Characteristics of Research Subjects	Loss to Follow-up Incident	
	n	%
Age		
18-45 Years	14	35
46-65 Years	26	65
Gender		
Male	31	77.5
Female	9	22.5
Level of Education		
Primary School	0	0
Middle School	7	17.5
High School	24	60
Tertiary Education	9	22.5
Occupation		
Unemployed	6	15
Non-Permanent Employment	1	2.5
Permanent Employment	33	82.5
Marital status		
Not Married	2	5
Marry	33	82.5
Divorce	5	12.5
Family History of TB		
Yes	4	10
No	36	90

Table 2 presents the characteristics profile of patients' attitudes towards pulmonary TB treatment, the social support that patients receive when undergoing TB treatment, and the health services that pulmonary TB patients receive when undergoing treatment.

Table 2. Characteristics Profile of Attitudes, Social Support, and Health Worker Services

Characteristics of Research Subjects	Loss to Follow-up Incident	
	n	%
Attitude		
Poor	36	90.0
Good	4	10.0
Social support		
Low	21	52.5
Middle	18	45.0
High	1	2.5
Health Care Services		
Support	7	17.5
Quite Supportive	0	0
Lack of Support	33	82.5

Based on attitudes towards TB treatment, the loss to follow-up incidence in SO pulmonary TB patients often occurs in the group of patients who have poor attitudes with a total of 36 people (90%). Based on the social support received by SO TB patients during treatment, the highest loss to follow-up the incidence of TB was found in the group with low social support, namely 21 people (52.5%) followed by the group with moderate social support as many as 18 people (45%) and only 1 person who has high social support. Of the 3 aspects of support from friends, family, and other special people, it was found that from 21 people who had

low social support, the largest group, namely 15 people, chose the point of friend support as an aspect of low social support.

Based on the health services received by SO TB patients during treatment. The most frequent loss to follow-up incidents of TB occurred in the group that received less supportive health services, namely 33 people (82.5%), followed by the group that received supportive health services, namely 7 people (17.5%), and no loss to follow-up SO pulmonary TB patients who received sufficiently supportive health services.

Table 3 presents the reasons why drug-sensitive pulmonary TB patients choose to lose to follow-up TB treatment.

Table 3. Characteristics of Reasons for Loss to Follow-up SO Pulmonary TB Patients

Reasons for OAT Loss to Follow-up SO TB Patients	n	%
Feeling more pain when taking medication	1	7.5
Headache/ dizzy	3	7.5
Feeling sore all over the body	7	17.5
Nausea and abdominal pain	3	7.5
Chest pain	1	2.5
Black legs	1	2.5
Knee pain	2	5.
Choosing Herbal Medicine	1	2.5
Already feeling well after the initial effects of TB drug treatment	14	35.
Lazy to take medicine for too long	1	2.5
Shame about illness and shame about taking medication	1	2.5
There is no family to accompany the patient to pick up the medicine.	4	10
Don't have money to go to the TB drug collection point	1	2.5

In Table 4.3, the most common problem was drug side effects in the case of loss to follow-up SO TB of 18 people (45%). Drug side effects are the most frequently reported primary reason for loss to follow-up, this is because the symptoms they experience make them feel worse than the symptoms associated with TB. Furthermore, the most common problem in loss to follow-up SO TB of 14 people (35%) was terminating treatment because they felt better and believed that they had received sufficient treatment or felt that they did not need treatment when symptoms had improved.

## DISCUSSION

Overview of the patients studied, the largest group of loss to follow-up patients was those who received treatment from health centers (72%), followed by government hospitals and private hospitals (26%) and independent doctor practices (1%). The age distribution of loss to follow-up SO TB patients was mostly aged 45-65 years, namely 26 people (65%). The majority of respondents in this study came from the productive age group (19-59 years). The productive age group is a period that plays an important role in earning a living outside the home and often leaving the house which makes it easy for the transmission of pulmonary TB.[7-9]

The data in this study showed that the male gender had a higher incidence rate than females in cases of loss to follow-up SO pulmonary TB of 31 people (77.5%). The education level of the high school group was the largest group of loss to follow-up SO pulmonary TB patients, namely 24 people (60%). The group of patients who had permanent employment was the largest group of loss-to-follow-up SO pulmonary TB cases, namely 33 people. Married status was the largest group in this study with 33 people (82.5%). In this study, the largest group of loss-to-follow-up SO pulmonary TB patients was the group who did not have a family history of TB. From the results of the study, it was found that a lack of attitude was the largest group in loss to follow-up SO TB patients with 36 people (90%).[10-15]

Loss to follow-up SO pulmonary TB patients were mostly in the low social support group, namely 21 people (52.5%). This study used a questionnaire that assessed the social support of friends, family, and people who were considered special, from the results of the study, most cases of loss to follow-up were in low support

from friends. The loss to follow-up incidence in SO pulmonary TB patients was found in the group of health workers who were less supportive, as many as 33 people (82.5%). The relationship between health workers and patients greatly influences the success of treatment and one of the determinants of compliance behavior in pulmonary TB treatment is support from health workers during treatment.[16-20]

Each public health facility has a program to handle certain diseases, such as tuberculosis. According to FMD (Foot and Mouth Disease), the Health Office stipulates that the Community Health Center must have trained doctors, nurses, and laboratory analysts. The questionnaire used to assess the entire health workforce, there is no assessment of whether the aspect being assessed is the doctor, nurse, or officer so it is not clear which health worker service is the benchmark for patients in assessing the level of service.[21-27]

This study also discussed the problems that caused patients' loss to follow-up. The most common problem was the side effects of medication that occurred in 18 (45%) loss to follow-up patients with SO pulmonary TB. The side effects of medication in this study were mild side effects of OAT and could be treated so that patients could continue taking OAT medication without stopping it, so unfortunately this incident caused loss to follow-up patients. Side effects of OAT often occur at the beginning of treatment, patients begin to feel bored and feel that treatment is in vain because instead of getting better, their illness is getting worse.<sup>29</sup> These side effects of OAT should be able to be overcome if there is effective communication between patients and officers, as well as a well-run monitoring function. Comorbid diseases are also one of the factors that make OAT side effects worse or comorbid complications that are misinterpreted by patients as OAT side effects, such as in 1 case in this study, the patient terminated treatment because he felt his feet were turning black even though it was likely that the patient had type 2 DM comorbidity who had gangrene complications, this is also a deficiency in this study because comorbidities were not assessed in this study.[28]

The next common problem is that patients feel that TB drugs are no longer needed because they feel healthy, this happened to 14 (35%) loss to follow-up SO pulmonary TB patients. The reason most often given by patients is that the improvement in condition and reduction in complaints of the disease then the patient will terminate treatment and start choosing herbal medicine/traditional medicine made from plants because it is considered to provide comfort, has no side effects, tastes better than anti-TB drugs, there is no strict time limit for taking the drug, and does not cause resistance.[29]

Another reason found was that patients were embarrassed to take TB drugs and did not take TB drugs to hide their diagnosis from the community because of concerns about community stigma. The role of the family in accompanying patients undergoing treatment for six months and regularity in taking medication according to schedule, especially in the early stages of treatment, greatly influenced the success of therapy. Another problem revealed in this study was financial problems in 1 case. The samples in this study were all BPJS patients so treatment did not incur costs.[30]

TB patients still have to bear other costs, such as transportation costs to go to health services, as well as the cost of medication for accompanying symptoms such as cough and fever. These costs tend to be a greater burden for patients.

## CONCLUSION

Based on gender data, loss to follow-up SO pulmonary TB patients were mostly male, based on age between 46-65 years. Most patients were high school graduates who lost to follow-up with permanent employment. Loss to follow-up TB patients mostly did not have a family history of TB. The patient's attitude was also lacking towards TB treatment, in addition to having low social support. The reason for the loss to follow-up patients was that patients felt that the health service they received was not supportive during TB treatment. In addition, there were many reasons for the loss to follow-up for SO pulmonary TB patients, including side effects of TB drugs, patients choosing herbal medicine, feeling healthy after the effects of TB drugs, being too lazy to take TB drugs, being embarrassed to take TB drugs, families not supporting them to get TB drugs and not having transportation costs to get TB drugs.

## DECLARATIONS

Ethics approval and consent to participate. Permission for this study was obtained from the Ethics Committee of Universitas Sumatera Utara and Haji Adam Malik General Hospital.

## CONSENT FOR PUBLICATION

The Authors agree to publication in Journal of Society Medicine.

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## COMPETING INTERESTS

The authors declare that there is no conflict of interest in this report.

## AUTHORS' CONTRIBUTIONS

All authors significantly contribute to the work reported execution, acquisition of data, analysis, and interpretation, or in all these areas. Contribute to drafting, revising, or critically reviewing the article. Approved the final version to be published, agreed on the journal to be submitted, and agreed to be accountable for all aspects of the work.

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