

An Overview of Pulmonary Tuberculosis Patients' Knowledge Regarding Treatment Interruption of Anti-Tuberculosis Drugs (OAT) at Batang Beruh Community Health Center

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Pulmonary tuberculosis is an infectious disease that affects the lungs and is characteristically marked by the formation of granulomas that lead to tissue necrosis. Pulmonary tuberculosis is caused by *Mycobacterium tuberculosis*, a rod-shaped bacterium measuring approximately 1–4 µm in length and 0.3–0.6 µm in width. According to the World Health Organization (WHO) in 2007, the number of tuberculosis cases in Indonesia was approximately 528,000, ranking Indonesia third worldwide after India and China. A WHO report in 2009 recorded that Indonesia ranked fifth globally with 429,000 tuberculosis cases, following India, China, South Africa, and Nigeria (WHO Global Tuberculosis Control, 2010). This study aimed to describe the level of knowledge of pulmonary tuberculosis patients regarding the interruption of anti-tuberculosis drug (OAT) treatment at Batang Beruh Community Health Center. The population of this study consisted of patients diagnosed with pulmonary tuberculosis. The sampling technique used was probability sampling with a random sampling method, resulting in a total sample of 40 respondents. Primary data were collected in this study. The results of this study are expected to encourage respondents to improve their knowledge by actively seeking information and being more concerned about personal and community health in order to prevent the transmission of pulmonary tuberculosis. Additionally, improvements in patient behavior are anticipated through the active involvement and cooperation of medical personnel and other healthcare professionals in providing accurate and appropriate health information.

Keywords: Patient Knowledge; Pulmonary Tuberculosis; Anti-Tuberculosis Medication.

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1. Introduction

Pulmonary tuberculosis is an infectious disease that affects the lungs and is characteristically marked by the formation of granulomas that lead to tissue necrosis. Pulmonary tuberculosis is caused by *Mycobacterium tuberculosis*, a rod-shaped bacterium measuring approximately 1–4 µm in length and 0.3–0.6 µm in width. The bacterium contains fatty acids in its cell wall, making it more resistant to acids as well as to chemical and physical disturbances (Santa Manurung et al., 2009).

Tuberculosis remains a major public health concern, particularly with the increasing morbidity rate in developing countries. It is estimated that approximately one-third of the world's population is infected with *Mycobacterium tuberculosis*, the causative agent of tuberculosis. Of all tuberculosis cases, about 11% occur in children under the age of 15 years. For nearly a decade, Indonesia ranked third worldwide in terms of the number of tuberculosis cases. Recently, Indonesia's ranking declined to fifth place, marking an important milestone in the one-year performance achievements of the Ministry of Health.

According to data from the World Health Organization (WHO) in 2023, the number of tuberculosis cases in Indonesia was approximately 528,000, placing the country third globally after India and China. Another

WHO report in 2023 recorded that Indonesia ranked fifth worldwide with 429,000 tuberculosis cases, following India, China, South Africa, and Nigeria (WHO Global Tuberculosis Control, 2023). Although tuberculosis cases remain high, this improvement in ranking represents a significant achievement, as stated by the Minister of Health, Endang Rahayu Sedyaningsih, during the one-year performance evaluation of the Ministry of Health at the Ministry of Health Building in Jakarta.

Based on the WHO Global Report 2023, data on tuberculosis in Indonesia showed that the total number of tuberculosis cases in 2024 reached 294,731 cases, consisting of 169,213 new smear-positive (BTA-positive) tuberculosis cases, 108,616 smear-negative tuberculosis cases, 11,215 cases of extrapulmonary tuberculosis, 3,709 relapse cases, and 1,978 retreatment cases excluding relapse. Meanwhile, treatment success rates from 2019 to 2023 showed an increasing trend, with 87% in 2019, 90% in 2020, and a consistent rate of 91% from 2021 to 2023.

In North Sumatra Province, 14,158 cases of pulmonary tuberculosis were reported in 2023, with 264 deaths recorded. The majority of pulmonary tuberculosis patients were aged between 17 and 54 years (productive age group), accounting for approximately 70% of cases. A patient with smear-positive (acid-fast bacilli positive) tuberculosis can transmit the disease to 10–15 individuals annually (Ministry of Health, 2023). Based on preliminary survey data collected at Batang Beruh Community Health Center, Sidikalang, from January to April 2025, there were 37 cases of pulmonary tuberculosis reported.

According to Gaffrar as cited in Paptianingsih (2022), the roles of healthcare professionals in carrying out their professional duties include several key functions. First, as care providers, healthcare workers act as comforters by ensuring patient comfort and safety, as protectors and advocates by safeguarding patient rights and obligations in healthcare services, and as communicators by serving as a liaison between patients and other members of the healthcare team. Second, as educators, healthcare workers provide health education and counseling to patients under their responsibility. Third, as managers, healthcare professionals are responsible for monitoring and ensuring the quality of nursing care, as well as organizing and controlling nursing service systems. Fourth, as researchers, healthcare workers are expected to have the ability to conduct research within their respective fields.

Based on the above background, the researcher is interested in conducting a study entitled “An Overview of Pulmonary Tuberculosis Patients’ Knowledge Regarding Interruption of Anti-Tuberculosis Drug (OAT) Treatment at Batang Beruh Community Health Center, Sidikalang.”.

2. Methods

Type of Study

This study employed a descriptive research method, which aimed to describe the level of knowledge of pulmonary tuberculosis patients regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment at Vita Insani Hospital, Pematangsiantar. A cross-sectional approach was used, in which data were collected at a single point in time. Descriptive research is applied to identify, describe, and address problems that occur in the current situation. This study was conducted through systematic steps including data collection, classification, processing, conclusion drawing, and report preparation (Setiadi, 2017).

Population, Sample, and Sampling

The population is defined as the entire group of objects to be studied, which may include individuals, objects, events, or areas of interest to the researcher (Setiadi, 2017). The population in this study consisted of 40 patients with pulmonary tuberculosis treated at Batang Beruh Community Health Center, Sidikalang.

A sample is a subset of the population selected to represent the population (Setiadi, 2017). The sample in this study was determined based on the following criteria:

Inclusion Criteria

1. Patients who were willing to participate as respondents.
2. Patients who were able to read and write.
3. Patients who were hospitalized at Batang Beruh Community Health Center, Sidikalang.
4. Patients diagnosed with pulmonary tuberculosis.

Exclusion Criteria

1. Patients who were unwilling to participate as respondents.
2. Patients who were unable to read and write.
3. Patients who were not hospitalized at Batang Beruh Community Health Center, Sidikalang.
4. Patients who were not diagnosed with pulmonary tuberculosis.

Based on these criteria, the total number of samples collected in this study was 40 patients at Batang Beruh Community Health Center, Sidikalang.

Sampling Technique

Sampling is the process of selecting a portion of the population to represent the entire population. The sampling method used in this study was probability sampling, which provides equal opportunities for all members of the population to be selected as samples. The specific technique applied was total sampling, in which all members of the population were included as samples due to the relatively small population size (Setiadi, 2017). This technique was chosen because of the researcher's limited time and financial resources.

Data Collection Techniques

Primary data were collected directly from respondents through questionnaires distributed to patients who met the sample criteria. The respondents in this study consisted of 40 hospitalized pulmonary tuberculosis patients at Batang Beruh Community Health Center, Sidikalang. Secondary data were obtained from nursing textbooks, internet-based sources, and previous studies related to pulmonary tuberculosis patients' knowledge regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment. Tertiary data were obtained from published data provided by institutions or other parties, including tables, graphs, and research reports.

Research Variable

The variable examined in this study was the knowledge of pulmonary tuberculosis patients regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment. Data analysis in this study was conducted through the following steps:

1. Editing
Reviewing the completed questionnaires to ensure completeness of responses, legibility of writing, and relevance of answers.
2. Coding
Classifying respondents' answers into categories by assigning numerical codes to each response.
3. Sorting
Organizing and grouping data according to the desired categories.
4. Data Entry
Entering coded data into tables by calculating frequencies. Data entry was performed either manually or using computer-based data processing.

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5. Cleaning
 Rechecking the data to ensure accuracy and consistency before analysis.
 (Setiadi, 2017).

3. Results and Discussion

Research Results

After conducting the study involving 40 respondents entitled “An Overview of Pulmonary Tuberculosis Patients’ Knowledge Regarding the Interruption of Anti-Tuberculosis Drug (OAT) Treatment at Batang Beruh Community Health Center, Sidikalang”, the results are presented in the following tables.

General Data

Table 1. of Frequency Distribution of Respondents by Age Pulmonary Tuberculosis Patients Regarding OAT Interruption

No.	Age (Years)	Frequency (f)	Percentage (%)
1	25–29	23	57.5
2	30–34	10	25.0
3	35–39	4	10.0
4	40–44	3	7.5
Total		40	100

Based on the table above, it can be concluded that the majority of respondents were aged 25–29 years, totaling 23 patients (57.5%), while the minority were aged 40–44 years, totaling 3 patients (7.5%).

Table 2. of Frequency Distribution of Respondents by Education Level Pulmonary Tuberculosis Patients Regarding OAT Interruption

No.	Education Level	Frequency (f)	Percentage (%)
1	Elementary School	18	45.0
2	Junior High School	11	27.5
3	Senior High School	10	25.0
4	Diploma/Bachelor (D-III/S-1)	1	2.5
Total		40	100

Based on the table above, the majority of respondents had elementary school education, totaling 18 patients (45%), while the minority had Diploma/Bachelor (D-III/S-1) education, totaling 1 patient (2.5%).

Table 3. of Frequency Distribution of Respondents by Occupation Pulmonary Tuberculosis Patients Regarding OAT Interruption

No.	Occupation	Frequency (f)	Percentage (%)
1	Housewife	–	–
2	Fisherman	5	12.5
3	Entrepreneur	27	67.5
4	Trader	6	15.0
5	Civil Servant	2	5.0
Total		40	100

Based on the table above, the majority of respondents worked as entrepreneurs, totaling 27 patients (67.5%), while the minority worked as civil servants, totaling 2 patients (5%).

Table 4. of Frequency Distribution of Respondents by Source of Information Pulmonary Tuberculosis Patients Regarding OAT Interruption

No.	Source of Information	Frequency (f)	Percentage (%)
1	Health workers	6	13.0
2	Other patients	22	55.0
3	Mass media	7	18.5
4	Electronic media	5	13.5
Total		40	100

Based on the table above, the majority of respondents obtained information from other patients, totaling 22 patients (55%), while the minority obtained information from electronic media, totaling 5 patients (13.5%).

Specific Data

Specific data refer to patients' knowledge regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment, as presented in the following table.

Table 5. of Frequency Distribution of Respondents by Knowledge Level Pulmonary Tuberculosis Patients Regarding OAT Interruption

No.	Knowledge Category	Frequency (f)	Percentage (%)
1	Good	12	30.0
2	Fair	28	70.0
3	Poor	–	–
Total		40	100

Based on the table above, the majority of respondents had fair knowledge, totaling 28 patients (70%), while the minority had good knowledge, totaling 12 patients (30%).

Discussion

Knowledge of Pulmonary Tuberculosis Patients Regarding OAT Interruption

Based on the results of the study involving 40 respondents, it was found that the majority of pulmonary tuberculosis patients had fair knowledge regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment, totaling 28 patients (70%), while a smaller proportion had good knowledge, totaling 12 patients (30%).

These findings indicate that knowledge is the result of human sensory perception or an individual's response to a particular object, which may be influenced by limited information received by pulmonary tuberculosis patients regarding OAT interruption. Limited knowledge may also be associated with lower educational levels (elementary and junior high school), which can affect patients' ability to absorb and understand health-related information. This is consistent with the opinion of Notoatmodjo (2007), who stated that most human knowledge is obtained through education, personal experience, experiences of others, mass media, and the surrounding environment.

Research Limitations

This study had several limitations, including:

a. Time Limitations

The researcher had limited time to complete this study because, during the research period, the researcher was also involved in various academic activities at Efarina University, Pematangsiantar,

such as mid-semester examinations, final semester examinations, and final practical examinations as requirements for completing the Bachelor of Pharmacy program.

b. Financial Limitations

During the research process, the researcher experienced financial constraints, as funding was solely provided by the parents and was limited. This limitation may have affected the optimal execution of the study.

c. Reference Limitations

The researcher encountered difficulties due to limited references available at the Efarina University library related to pulmonary tuberculosis and Anti-Tuberculosis Drugs (OAT). Additionally, limited skills in accessing electronic references also posed challenges during the research process.

4. Conclusion

Based on the data analysis of this study, it can be concluded that the majority of pulmonary tuberculosis patients had a fair level of knowledge regarding the interruption of Anti-Tuberculosis Drug (OAT) treatment, accounting for 28 patients (70%), while a smaller proportion demonstrated good knowledge, accounting for 12 patients (30%). Most respondents were aged 25–29 years (57.5%), had an elementary school educational background (45%), and were predominantly self-employed (67.5%). In terms of information sources, most respondents obtained information from other patients (55%), whereas only a small proportion relied on electronic media (12.5%). These findings indicate that patient knowledge regarding OAT interruption is influenced by demographic characteristics and sources of information, highlighting the importance of targeted health education to improve treatment adherence among pulmonary tuberculosis patients..

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