

## Factors Affecting the Compliance of Pulmonary TB Patients in Drug Consumption at the Batumarta II Health Center, Lubuk Raja District, Ogan Komaring Regency, Ulu, South Sumatra in 2024

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### ABSTRACT

Pulmonary tuberculosis (TB) is a direct infectious disease and is a major threat to human resource development, the World Health Organization (WHO) said the number of people diagnosed with tuberculosis in 2021 globally was 10.6 million cases, plus treatment failure was also a major contributor to the incidence of pulmonary tuberculosis in the community. The purpose of this study is to analyze the factors that affect the compliance of TB patients in drug consumption at the Batumarta II Health Center. This type of research is an analytical survey with a retrospective design. The research was conducted at the Batumarta II Health Center in 2024. By using the total sampling technique, which is as many as 50 respondents. To analyze the data, a logistic regression test was used. Based on the results of the study, it was found that there was a relationship between drug consumption compliance and variables, namely knowledge ( $p=0.000$ ), attitude ( $P=0.000$ ), health workers ( $p=0.021$ ), family support ( $p=0.001$ ) and culture ( $p=0.000$ ), but there was no effect on the availability of OAT with drug consumption compliance because of the P value ( $p=1,000$ ) at the Batumarta II Health Center, South Sumatra. Based on the results of the study, it can be concluded that the factors that affect drug consumption compliance at the Batumarta II Health Center are knowledge, attitudes, health workers, family and cultural support. The most dominant factor affecting drug consumption compliance at the Batumarta II Health Center is knowledge that has an Exp(B) or Odd Ratio value of 37,200. Suggestions for making counseling programs on factors affecting patient compliance in drug consumption both to families of patients and pulmonary TB patients to increase public knowledge about the correct TB treatment methods and patterns in order to maximize healing outcomes.

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**INTRODUCTION**

Tuberculosis (TB) is an infectious infectious disease caused by Mycobacterium tuberculosis and can attack the lungs as well as other organs of the body. The spread of TB occurs through nuclei droplets from the patient's cough, while the main symptoms include prolonged cough, fever, weight loss, and chest pain. According to data from the World Health Organization (WHO), TB is one of the highest causes of death globally. In 2022, about 10 million people worldwide were reported to have TB, with 1.5 million of them dying. Multidrug-resistant Tuberculosis (TB MDR) is a major challenge in TB control, with around 206,030 cases detected in 2019.

Indonesia ranks third in the number of global TB cases, with a high incidence rate. The year 2022 showed a significant spike in the number of cases, reaching 700 thousand, with the highest prevalence in productive age. South Sumatra is one of the provinces with a high number of TB cases, showing an increase in cases from year to year. In 2023, TB cases in South Sumatra will reach 23,256 with 276 deaths. At the UPTD Batumarta II Health Center, the number of TB cases has increased dramatically, reflecting a major challenge in controlling this disease.

Adherence to TB treatment is essential for successful therapy, but many patients experience non-compliance for a variety of reasons, including lack of knowledge, family support, and cultural factors. This study aims to analyze the factors that affect the compliance of TB patients in drug consumption at the UPTD Batumarta II Health Center, to provide insights and recommendations to improve the effectiveness of TB treatment in the region.

**RESEARCH METHODS**

Types and Design of Research

This study uses a quantitative approach with analytical survey methods and cross-sectional design. This method was chosen to evaluate the factors that affect the compliance of pulmonary TB patients in taking medication at the UPTD Batumarta II Health Center. With a cross-sectional design, this study aims to analyze data obtained from the research population at one specific time point, namely during 2024. Through analytical surveys, researchers can identify and measure the relationship between independent variables, such as knowledge, attitudes, and family support, and dependent variables, namely medication adherence.

Location and Time of Research

Research Location

This research was carried out at the UPTD Batumarta II Health Center which covers four villages: Batumarta I, Batumarta II, Batumarta III, and Batumarta IV. This health center is located on Jalan H.M. Soeharto, Baturaja Permai Village, Lubuk Raja District, Ogan Komering Ulu Regency, South Sumatra, with a postal code of 32152. This location was chosen because it is an area with a significant concentration of pulmonary TB patients and has a centralized treatment system that facilitates data collection.

Research Time

This research will be carried out for three months, from May to July 2024. The research stages include initial survey, proposal preparation, data collection, data analysis, and preparation of the final thesis report. This time span allows researchers to conduct in-depth observations and data collection and allow enough time for analysis and preparation of reports.

Research Population and Sample

Research Population

The population of this study consisted of pulmonary TB patients registered at the UPTD Batumarta II Health Center, which amounted to 50 people. The details of the distribution of pulmonary TB patients per village are as follows:

It	Village Name	TB Positive Patients
1	Batumarta I	17
2	Batumarta II	8
3	Batumarta III	10
4	Batumarta IV	15
TOTAL		50

### Research Sample

Using the total sampling technique, the entire population of 50 people was used as a research sample. The inclusion criteria include patients with pulmonary TB who have been diagnosed, are of adult age (over 18 years old), are willing to be respondents, are in the intensive and advanced phase of treatment, are able to communicate with researchers, and do not have severe sensory impairment. Exclusion criteria include patients with other infections, kidney failure, being outside the health center area at the time of the study, and patients who have only started treatment in the last two months.

### Research Tools and Instruments

The instruments used in this study consist of several components:

1. Documentation: Collection of data and documents available at the Batumarta II Health Center to obtain additional information about pulmonary TB patients.
2. Questionnaire: The main tool for collecting data from respondents regarding knowledge, attitudes, and other factors that affect compliance.
3. Interview: Used to obtain in-depth qualitative information about the experiences and perceptions of pulmonary TB patients towards treatment.

### Data Collection

#### Data Source

1. Primary Data: Data collected directly from respondents through questionnaires and interviews.
2. Secondary Data: Data taken from documents and reports available at the Batumarta II Health Center and the South Sumatra Health Office.
3. Tertiary data: Additional data obtained from literature, research journals, and papers relevant to the research topic.

#### Data Collection Methods

1. Field Research:
  - Observation: Conduct direct observations to collect information related to medication adherence.
  - Documentation: Collecting and managing data from documents in the health center.
2. Literature Research: Review the literature related to pulmonary TB treatment adherence to support the research findings.

#### Data Collection Procedure

1. Prepare a research proposal and obtain permission from the Helvetia Health Institute Medan and the Batumarta II Health Center.
2. Set schedules for surveys and data collection.
3. Create and distribute questionnaires to respondents.
4. Carry out interviews and observations in accordance with the established procedures.
5. Collect and analyze the data obtained.
6. Prepare a final report based on the results of data analysis.

#### Validity and Reliability Test

- Validity Test: Conducting instrument validity testing using the Pearson correlation formula. The instrument is considered valid if the value of Sig. (2-tailed)  $< 0.05$  or Pearson correlation  $> 0.514$ .
- Reliability Test: Measures the consistency of the instrument with Cronbach's Alpha method. The instrument is declared reliable if Cronbach's Alpha  $> 0.444$ .

### Data Processing and Analysis

#### Data Processing

1. Editing: Checking and correcting the collected data.
2. Coding: Providing code to data to facilitate analysis.
3. Tabularization: Organizing data in the form of tables for further analysis.

#### Data Analysis

1. Univariate Analysis: Describe the characteristics of the research variables separately.
2. Bivariate Analysis: Analyze the relationship between two variables to determine the factors that affect medication adherence.

## Operational Definition and Measurement Aspects

### Operational Definition

#### 1. Independent Variables:

- Knowledge: The level of understanding of pulmonary TB.
- Attitude: Response to pulmonary TB treatment.
- OAT Availability: Availability of drugs at health centers.
- Health Officers: The quality of services provided.
- Family Support: Support provided by the family during the treatment process.
- Culture: Cultural views and practices that influence the treatment of pulmonary TB.

#### 2. Dependent Variables:

- Medication Compliance: Consistency of patients in following the treatment schedule according to medical recommendations.

### Measurement Aspects

- Knowledge, Attitudes, OAT Willingness to Staff, Health Workers, Family Support, Culture: Measured using a questionnaire based on the Guttman scale.
- Medication Adherence: Measured by a questionnaire based on the Guttman scale to determine the respondent's level of adherence.

### Data Analysis

#### Univariate Analysis

Describe the characteristics of each variable descriptively, such as frequency distribution and percentage.

#### Bivariate Analysis

Analyze the relationship between independent variables and dependent variables to identify factors that affect medication adherence, as well as test research hypotheses. The methods and procedures of this study are designed to provide in-depth insights into the factors influencing the adherence of patients with pulmonary TB to taking medication, which is expected to generate practical recommendations to improve treatment adherence.

## RESEARCH RESULTS

### Overview of the Research Location

The Baturanta II Health Center, located in Lubuk Raja District, Ogan Komering Ulu, plays a crucial role in health development in the region. With a working area covering 8 villages and a total area of 11,200 hectares, this health center seeks to improve health service standards through performance indicators from the Minimum Service Standards (SPM). Although the health center building has undergone significant rehabilitation in 2017, from the previous 80 m<sup>2</sup> to 1,700 m<sup>2</sup>, there is still a lack of facilities such as Pustu or Poskesdes which hinders the optimization of health services.

#### Univariate Analysis

Univariate analysis showed that respondents' knowledge of pulmonary tuberculosis (TB) was largely inadequate. For example, 60% of respondents answered incorrectly about the parts of the body that can be attacked by pulmonary TB germs, and 66% of respondents have insufficient knowledge. Respondents' attitudes towards the prevention and treatment of pulmonary TB also tended to be negative, with 68% of respondents showing attitudes that did not support effective preventive measures. In addition, although most respondents (98%) reported the availability of Anti-Tuberculosis Drugs (OAT) in health centers, 72% of them still showed non-compliance in taking medication as recommended.

#### Health Workers

The quality of service provided by health workers also affects patient compliance in the treatment of pulmonary TB. The data showed that 96% of respondents felt that health workers did not provide adequate information about pulmonary TB disease, and 58% felt that services from health workers were inadequate. This has an impact on patient compliance, where 72% of respondents do not adhere to the recommended treatment regimen. Statistical analysis showed that there was a significant relationship between the assessment of health workers and patient compliance, with a value of  $p = 0.021$ , which showed that the quality of service affected treatment compliance.

### Family Support

Family support for pulmonary TB treatment is also an important factor. The results showed that 70% of respondents felt that their families did not remind them enough to take medication regularly, and 68% did not receive adequate support from their families. This has a direct impact on medication adherence, with 72% of respondents not adhering to recommended treatment. Statistical tests indicated a significant relationship between family support and medication adherence with a value of  $p = 0.001$ , confirming the importance of family support in improving treatment adherence.

### Culture

Cultural aspects also influence patient treatment behavior. The majority of respondents (83%) believe that traditional medicine or shaman assistance is more effective in treating prolonged cough than medical drugs. This shows that there is a strong belief in traditional medicine, although the data also shows that 66% of respondents have a negative attitude towards medical treatment. These results suggest that traditional culture and beliefs still influence the treatment decisions of pulmonary TB patients.

### Relationship of Knowledge, Attitudes, and Compliance

Bivariate analysis revealed that respondents' knowledge and attitudes had a significant relationship with adherence to taking pulmonary TB drugs. Lack of knowledge and negative attitudes were closely related to non-adherence in treatment, with p-values of 0.000 and 0.000, respectively, indicating the large impact of both factors on patient adherence. In contrast, the availability of OAT did not show a significant relationship with adherence, with a value of  $p = 1,000$ , indicating that other factors may have more influence on patient adherence.

## DISCUSSION

### The Effect of Knowledge of Pulmonary TB Patients on Drug Consumption Compliance at the Batumarta II Health Center

The knowledge of pulmonary TB patients has a significant influence on drug consumption compliance, as shown by the results of research at the Batumarta II Health Center. Inadequate knowledge about pulmonary TB disease often causes patients not to follow treatment recommendations correctly. This can be seen from the fact that most respondents with low knowledge also show poor adherence to treatment. Better knowledge of the symptoms, transmission, and importance of pulmonary TB treatment has the potential to improve patient compliance. Previous research showing a significant link between knowledge and compliance supports these findings, suggesting that increased knowledge can help reduce rates of non-compliance.

### The Effect of Patient Attitudes on Drug Consumption Compliance

Patients' attitudes towards pulmonary TB treatment also play an important role in drug consumption compliance. Research shows that negative attitudes towards medication are often associated with low levels of adherence. Although some sufferers have a good attitude, non-compliance still occurs in most respondents. This is in line with Kelman's theory of attitude change which states that positive attitudes need to be internalized to change behavior. Previous research showing that attitudes in favor of drug control has a significant influence on compliance also supports the finding that attitudes have an important impact on compliance.

### The Effect of OAT Availability on Drug Consumption Compliance

The availability of Anti-Tuberculosis Drugs (OAT) is another factor that affects adherence to treatment. However, the results of the study showed that the availability of OAT at the Batumarta II Health Center did not have a significant effect on patient compliance. Although OAT is available, non-compliance still occurs, which indicates that other factors may be more dominant. Previous research has shown that the availability of medication alone is not enough to ensure compliance, but needs to be supported by other factors such as patient motivation and understanding of the importance of treatment.

### The Influence of Health Workers on Drug Consumption Compliance

Health worker services have a significant influence on drug consumption compliance at the Batumarta II Health Center. The results of the study showed that services that were considered inadequate were related to low patient compliance. Poor health care can reduce the effectiveness of treatment, even if patients have access to medicines. This research is in line with other studies that emphasize the importance of good health services, including counseling and support in treatment, to improve patient compliance.

### The Effect of Family Support on Drug Consumption Compliance

Family support plays an important role in pulmonary TB treatment adherence. Research shows that respondents who receive family support tend to be more compliant in drug consumption. Family support includes reminders of medication schedules and explanations of medication benefits. Previous research has also supported these findings by showing that emotional and practical support from the family contributes to patient compliance. Good support from the family can motivate patients to follow medication more consistently, speed up the healing process, and prevent non-compliance.

### CONCLUSION

Based on the results of the research that has been carried out, the conclusions that can be drawn are as follows:

1. The knowledge of pulmonary TB patients has a significant influence on drug consumption compliance. The lack of knowledge about the importance of adherence in medication consumption causes patients to often not follow the treatment schedule appropriately.
2. The attitude of pulmonary TB patients also affects adherence to drug consumption. Low confidence that regular treatment will speed up recovery makes patients inconsistent in taking medication.
3. The availability of Anti-Tuberculosis Drugs (OAT) does not significantly affect drug adherence. Although medicines are readily available at the Health Center, patient compliance remains low.
4. The role of health workers affects patient compliance. Lack of clear education from health workers causes patients' understanding of the correct treatment to be minimal, thus impacting their compliance.
5. Family support also affects drug consumption compliance. The lack of support and supervision from the family makes patients often forget or be lazy in following the treatment schedule.
6. The culture of pulmonary TB patients affects drug adherence. Public trust in traditional medicine over medical treatment causes patients to prefer alternative treatment methods and ignore recommended drugs.
7. Knowledge is the most influential factor in drug consumption compliance, with an Exp(B) or Odd Ratio value of 37,200. Lack of knowledge about the benefits of adherence in medication is the main cause of patient non-adherence.

### Suggestion

Based on the conclusions above, here are some suggestions that can be given:

1. For Students at Helvetia Health Institute:
  - This research can be used as a reading material and reference regarding factors that affect patients' compliance in drug consumption. This is expected to increase students' insight and knowledge about the importance of compliance in the treatment of infectious diseases such as TB.
2. For Academics:
  - The results of this study can be used as a reference and comparison for other studies that discuss similar topics. This will help in the development of further knowledge about the factors that affect treatment adherence.
3. For TB Patients:
  - It is hoped that TB patients can gain more insight into the importance of compliance in the consumption of anti-tuberculosis drugs. Understanding the benefits of compliance can help improve treatment success and speed up the healing process.
4. For Batumarta II Health Center:
  - Develop a more effective counseling program regarding factors that affect drug consumption compliance to families and patients with pulmonary TB. This includes increasing knowledge about the correct treatment of TB and providing alternatives for people who do not have health insurance such as BPJS.
5. For the next researcher:
  - The results of this study can be used as a reference for further research, especially in exploring the factors that affect patient compliance in drug consumption and ways to improve this compliance.



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