

THE RELATIONSHIP BETWEEN KNOWLEDGE AND MOTIVATION AND COMPLIANCE TAKING ANTI-TUBERCULOSIS MEDICATIONS IN PULMONARY TB PATIENTS IN THE WORK AREA KLASAMAN COMMUNITY HEALTH CENTER, SORONG CITY

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Abstract

Pulmonary tuberculosis is an infectious disease that can be cured if treatment is carried out diligently. Pulmonary tuberculosis is caused by the bacterium *Mycobacterium tuberculosis*. It is a lower respiratory tract infection. Most bacteria enter the lung tissue through airborne infection and then undergo a process known as primary focus of Ghon. (2) Approximately 10 million people worldwide suffer from pulmonary tuberculosis. The three countries with the highest TB prevalence are India, China, and Indonesia. The 2018 Riskesdas research showed that the number of TB cases was estimated at around 845,000, with a mortality rate of 35 per 100,000 population. **The purpose of this study** was to determine the relationship between knowledge and motivation with adherence to taking anti-tuberculosis medication in pulmonary TB patients in the Klasaman Community Health Center Working Area of Sorong City. **Research Methods;** This type of observational study is a quantitative study with a cross-sectional approach. This study aims to determine the relationship between the level of knowledge and motivation with adherence to taking anti-tuberculosis medication in pulmonary TB patients. The population of this study was all pulmonary TB patients undergoing treatment in the Klasaman Community Health Center working area totaling 32 cases, while the sample was carried out using a purposive sampling technique. Data collection techniques were by direct interviews and observation. Univariate analysis is a statistical technique that functions to describe the characteristics of each variable in the study. The test used in this bivariate analysis used the chi-square test. **The results** of the Chi-Square statistical test showed a p-value of 0.0317, indicating a significant relationship between knowledge and adherence to TB medication ($p < 0.05$). The results also showed a significant relationship between motivation and adherence to TB medication, with a p value of 0.0158 ($p < 0.05$). This means that a positive motivational attitude can influence adherence to TB medication in tuberculosis patients. **Conclusion:** Most respondents had good knowledge about preventing TB transmission, and a positive motivational attitude can influence adherence to TB medication in tuberculosis patients at the Klasaman Community Health Center in Sorong City.

Keywords: Knowledge, Motivation, Adherence to TB Medication

1. INTRODUCTION

Approximately 10 million people worldwide suffer from pulmonary tuberculosis. India, China, and Indonesia have the three highest TB prevalence rates. The 2018 Basic Health Research (Riskesdas) estimated the number of TB cases at around 845,000, with a mortality rate of 35 per 100,000. Acute respiratory failure is a contributing factor to the high TB mortality rate (4). First-line pulmonary tuberculosis treatment consists of two stages: the intensive phase, which lasts for two months, and the continuation phase, which lasts for four to six months. Pulmonary tuberculosis patients can be cured if treatment is followed diligently. The failure to achieve treatment for pulmonary tuberculosis is due to the

high rate of non-compliance with treatment, which leads to treatment failure. Patient non-compliance with treatment results in low cure rates, the development of drug resistance, making pulmonary tuberculosis very difficult to cure, and increasing mortality. (4) Basic Concepts of Health Policy in TB Control

Tuberculosis (TB) is a direct infectious disease that remains a public health problem in Indonesia. Globally, TB control strategies are guided by the World Health Organization's End TB Strategy, which targets TB elimination by 2030. Indonesia, as a country with a high TB burden, has aligned its national policies with this global strategy.

- Government policies in TB management aim to:
- Reduce morbidity and mortality from TB
- Breaking the chain of transmission
- Improve treatment success
- Prevent drug resistance (MDR-TB)

Based on an initial survey conducted by researchers in April 2024, interviews with officers responsible for pulmonary TB in the Klasaman Community Health Center, Sorong City, revealed that there were 35 TB cases in 2025 (January to September) in the Klasaman Community Health Center, Sorong City, Southwest Papua. TB treatment aims to cure patients, prevent death, prevent recurrence, break the chain of transmission, and prevent the development of resistance to Anti-Tuberculosis Drugs (OAT) (Ministry of Health, 2011). Knowledge of tuberculosis is crucial for curing the disease. Efforts to combat tuberculosis must be accompanied by sound knowledge.

1. The success of TB treatment is supported by adherence to taking anti-tuberculosis medications at the prescribed dosage. Patients who are repeatedly hospitalized are often the result of non-compliance with regular anti-tuberculosis medication (OAT) consumption (Manalu, 2010). This will certainly have an impact on dropout, which is one of the causes of treatment failure and this has the potential to increase the possibility of drug resistance, or what we call Multi-Drug Resistance (MDR). (1). Family support significantly influences tuberculosis patients by providing attention, always being loved, making them feel happy and not lonely. This form of support can make patients feel motivated in undergoing the treatment process and influence patient behavior, such as reducing anxiety, helplessness, and hopelessness, ultimately improving the patient's health status (5).

The purpose of this study is to determine the relationship between knowledge and motivation and adherence to taking anti-tuberculosis medication in pulmonary TB patients in the Klasaman Community Health Center Work Area, Sorong City. The benefits of this study include theoretical benefits. The results of this study are expected to add to the body of knowledge in the field of nursing, especially regarding factors that influence medication adherence in pulmonary TB patients. It can serve as a reference material for other researchers in conducting similar studies, particularly regarding the relationship between knowledge, motivation, and adherence to tuberculosis treatment. Practical Benefits for Pulmonary TB Patients: Provides important information about the importance of knowledge and motivation in improving medication adherence to support treatment success and prevent drug resistance. For Families: Provides an understanding of the role of families in supporting and motivating patients to adhere to OAT therapy. For Health Workers/Community Health Centers: Serves as input in developing educational strategies and mentoring for pulmonary TB patients to improve medication adherence. Institutional Benefits For educational institutions, this research can be used as teaching material or additional literature in the fields of public health and nursing related to pulmonary TB treatment management.

2. RESEARCH AND METHODS

Research Type and Design

This observational study is quantitative with a cross-sectional approach. This study aims to determine the relationship between knowledge and motivation levels on adherence to anti-tuberculosis medication in patients with pulmonary tuberculosis.

Research Time and Location: This study was conducted from August to September 2025 in the Klasaman Community Health Center (Puskesmas), Sorong City, Southwest Papua Province.

Population and Sample

Population

The study population consisted of all 32 patients with pulmonary tuberculosis undergoing treatment in the Klasaman Community Health Center (Puskesmas), including patients medically diagnosed and enrolled in an active treatment program. This study aimed to assess knowledge and motivation regarding adherence to anti-tuberculosis medication.

Sample: The selection of research subjects will be conducted using a purposive sampling technique, where participants are selected based on specific criteria aligned with the study objectives, subject to the availability of eligible patients during the data collection period.

Inclusion criteria:

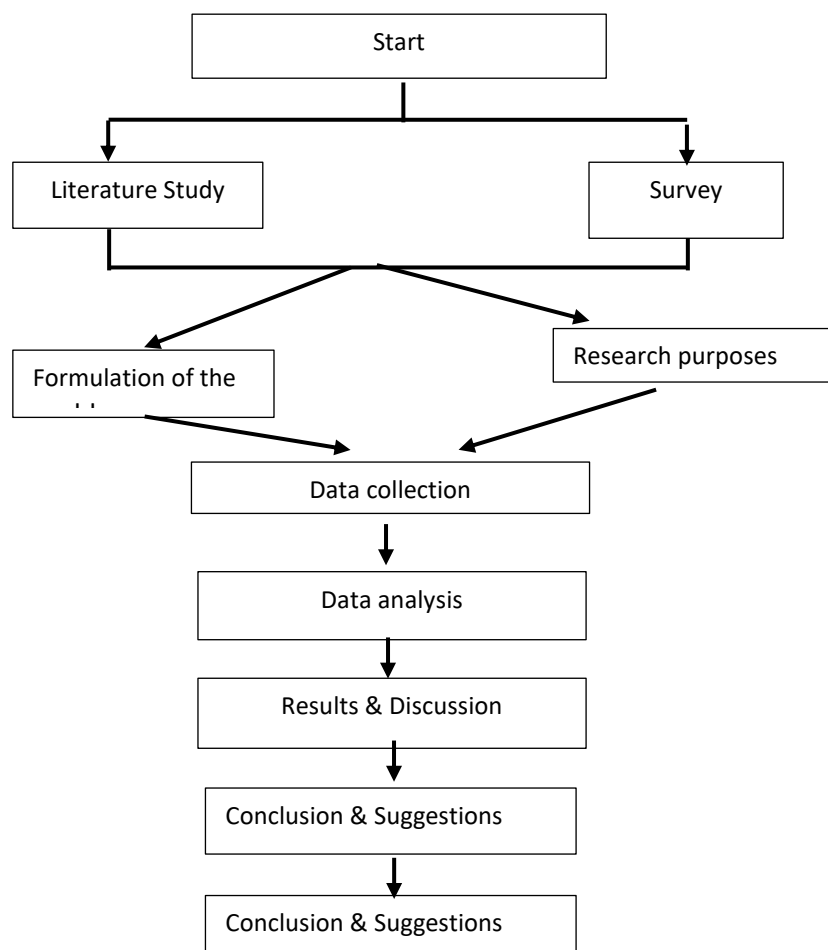
- 1) Patients with pulmonary tuberculosis diagnosed by a healthcare professional.
- 2) Willing to be a respondent by providing informed consent.
- 3) At least 10 years old.
- 4) Able to communicate well.

Exclusion criteria:

- 1) Patients with pulmonary tuberculosis with severe complications.
- 2) Physical disorders that hinder completion of the questionnaire.

Research Flow/Procedure

Figure 3.1 Research Flow/Procedure



Research Instruments

- a. Knowledge: Measured using a valid and reliable literature-based questionnaire covering the definition of TB, modes of transmission, side effects of anti-TB drugs, and the consequences of non-adherence.
- b. Motivation: Measured using a motivation scale (e.g., a 1–5 Likert scale) that encompasses both intrinsic and extrinsic aspects.
- c. Anti-TB Drug Adherence: Measured using the Morisky Medication Adherence Scale (MMAS-8) or other methods such as calculating remaining medication and adherence records from healthcare workers.

Data Collection Techniques: Data were collected through:

- a. Direct interviews using questionnaires. Observation of adherence records from healthcare workers.

Data Analysis

Univariate Analysis According to (Notoatmodjo, 2018), univariate analysis is a statistical technique that describes the characteristics of each variable in a study. This analysis process is carried out using a descriptive approach to observe the frequency distribution of all variables, both independent and dependent. As stated (Arifin, Fahdhienie, and Ariscasari, 2022). The results of this univariate analysis are presented in a frequency table format. In this study, the data will be presented in the form of frequency distribution tables and percentages to obtain an overview of the respondents' characteristics.

Bivariate Analysis

Bivariate analysis is a statistical technique that tests the relationship or correlation between two related variables (Notoatmodjo, 2018). In this study, this analysis was applied to evaluate the relationship between the independent variables (knowledge and attitudes) and the dependent variable (preventive behavior).

The test used in this bivariate analysis was the chi-square test (χ^2). If the calculated chi-square value is greater than the table value ($\chi^2_{\text{calculated}} > \chi^2_{\text{table}}$), the relationship is significant, meaning that H_0 is rejected and H_a is accepted. (Rochmawati, 2020). Non-parametric statistics do not require such assumptions and are suitable for categorical data. One frequently used non-parametric method is the chi-square test, which is very effective for testing the relationship between two categorical variables (Afrianda et al., 2024).

The data used in the Chi-Square test is either categorical or frequency data (Ayuni, Zuliani, and Zamroni, 2023). The basis for making decisions in the Chi-Square test is as follows:

- 1) If the Asymp.Sig value is <0.05 , there is a significant relationship between the rows and columns.
- 2) If the Asymp.Sig value is >0.05 , there is no significant relationship between the rows and columns.

Research Ethics

This research will undergo Ethics Committee approval and obtain informed consent from respondents before data collection. Data confidentiality is maintained by not including patient identities in the research report.

3. RESEARCH RESULTS

Univariate Analysis

a. Respondent Characteristics

The respondent characteristics below represent the characteristics of the research sample based on age, gender, and education.

Distribution of Respondent Characteristics by Age

Age	N	%
10-20 Year	5	15,6%
21-40 Year	8	25 %
41-60 Year	7	21,9%
61-80 Year	12	37,5%
Total	32	100%

Gender	N	%
Man	22	68,8
Woman	10	31,3
Total	32	100 %

Distribution of Respondent Characteristics by Gender***Table 4.3 Distribution of Respondent Characteristics by Last Education***

Last education	N	%
SD	7	21,9 %
SMP	4	12,5 %
SMA	14	43.8 %
College	7	21,9 %
Total	32	100 %

Table 4.1 Distribution of Respondent Characteristics by Age

Shows that the majority of respondents were in the 61-80 age group, representing 12 (37.5%). Eight (25.0%) were aged 21-40, seven (21.9%) were aged 41-60, and five (15.6%) were aged 10-20. This indicates that the majority of pulmonary TB patients in this study were elderly.

Table 4.2 Distribution of Respondent Characteristics by Gender

Table 4.2 shows that the majority of respondents were male (22 respondents, 68.8%), while 10 respondents were female (31.3%). This finding aligns with global TB epidemiological data, which shows a higher prevalence of TB among men.

Distribution of Respondent Characteristics by Last Education

Based on Table 4.3, the majority of respondents had a high school diploma (14 respondents (43.8%)), followed by a junior high school diploma (4 respondents (12.5%)), a bachelor's degree (7

respondents (21.9%), and a primary education (7 respondents (21.9%). This indicates that the majority of respondents have a secondary education, which may influence their level of knowledge regarding pulmonary TB prevention.

Distribution of Knowledge, Motivation, and Adherence to Anti-Tuberculosis Medication in the Klasaman Community Health Center Work Area, Sorong City

Distribution of Knowledge among Pulmonary Tuberculosis Patients in the Working Area of the Klasaman Community Health Center, Sorong City

Knowledge Category	N	%
Good Knowledge	17	53,12 %
Sufficient Knowledge	13	40,62 %
Knowledge Isn't Good	2	6,25 %
Total	32	100%

Distribution of Knowledge among Pulmonary Tuberculosis Patients in the Malawei Community Health Center Working Area, Sorong City

Based on Table 4.4, it is known that of the 32 pulmonary tuberculosis sufferers in the working area of the Klasaman Health Center, Sorong City, 17 people (53.12%) had a good level of knowledge, 13 people (40.62%) had sufficient knowledge and 2 (6.25%) had poor knowledge.

Distribution of Motivation in Pulmonary Tuberculosis Patients in the Working Area of the Klasaman Community Health Center, Sorong City

Attitude Category	N	%
High Motivation	26	81,25%
Moderate Motivation	2	6,25 %
Low Motivation	4	12,5 %
Total	32	100%

Meanwhile, in Table 4.5 in the Motivation aspect, as many as 26 people (81.25%) showed high motivation, 2 people (6.25%) had moderate motivation, and 4 people (12.5%) had low motivation.

Distribution of TB Medication Compliance in Pulmonary Tuberculosis Patients in the Klasaman Community Health Center Work Area, Sorong City

Attitude Category	N	%
Compliant	28	87,5 %
Disobey	4	12,5 %
Total	32	100%

Based on Table 4.6, it is known that of the total of 32 respondents with pulmonary tuberculosis in the working area of the Klasaman Community Health Center in Sorong City, the majority showed compliant behavior in taking medication, namely 28 people (87.5%). Meanwhile, 4 people (12.5%) had non-compliant behavior in taking anti-TB medication in Tuberculosis patients.

Bivariate Analysis

Bivariate analysis was used to examine the relationship between the independent variables, namely knowledge and motivation, and the dependent variable, namely adherence to taking anti-TB medication.

- Results of Chi-Square Analysis of the Relationship between Knowledge and Compliance in Taking Anti-TB Pulmonary Medication in Patients in the Working Area of the Klasaman Health Center, Sorong City.

Knowledge	TB medication compliance behavior				Total		<i>P Value</i>
	Compliant Behavior		Non-compliant behavior		N	%	
	N	%	N	%			
Good Knowledge	16	50	1	3,125	17	53,125 %	0,0317
Sufficient Knowledge	10	31,25	3	9,375	13	40,625	
Poor Knowledge	2	6,25	0		2	6,25	
Total	28	87,5%	4	12,5%	32	100 %	

Based on the analysis of the relationship between knowledge and adherence to anti-TB medication at the Klasaman Community Health Center in Sorong City, the results showed that of the 16 respondents with good knowledge, the majority (50%) demonstrated adherence, while one respondent (3.125%) demonstrated non-adherence.

Meanwhile, of the 10 respondents with sufficient knowledge, 31.25% demonstrated adherence, while three respondents (9.375%) demonstrated non-adherence. In the group with poor knowledge, two respondents (87.5%) demonstrated adherence, while none of the respondents with poor knowledge demonstrated non-adherence.

The results of the Chi-Square statistical test showed a p-value of 0.0317, indicating a significant relationship between knowledge and adherence ($p < 0.05$). Therefore, higher knowledge tends to be followed by better motivation to take anti-TB medication.

- b. Results of Chi-Square Analysis of the Relationship between Motivation and Compliance in Taking Anti-TB Pulmonary Medication in Patients in the Working Area of the Klasaman Health Center, Sorong City.

Motivation	TB medication compliance behavior				Total		P Value
	Compliant Behavior		Non-compliant behavior		N	%	
	N	%	N	%			
Low	3	9,375	1	3,125	4	12,5	0,0158
Currently	1	3,125	1	3,125	2	6,25	
Tall	24	75	2	6,25	26	81,25	
Total	28	87,5%	4	12,5%	32	100 %	

4. DISCUSSIONS

Berdasarkan hasil analisis Chi-Square, ditemukan korelasi yang signifikan antara tingkat pengetahuan dan kepatuhan minum obat anti-TB di Puskesmas Klasaman (nilai $p = 0,0158 < 0,05$). Hasil ini menunjukkan bahwa semakin tinggi tingkat pengetahuan pasien tentang TB, semakin baik kepatuhan mereka terhadap pengobatan anti-TB.

Temuan ini sejalan dengan penelitian yang dilakukan oleh T. Widianingrum (2018) yang menemukan korelasi yang kuat antara pengetahuan dan kepatuhan minum obat anti-TB.

The Relationship Between Tuberculosis Motivation and Anti-TB Medication Adherence.

The results of this study indicate that motivation is related to anti-TB medication adherence in TB patients in the Klasaman Community Health Center, Sorong City. Based on the data obtained, most respondents had high motivation to achieve recovery, while others had moderate motivation. Respondents with high motivation tended to be more compliant with anti-TB medication. This finding is also supported by research conducted by Nurwidji & Fajri (2013), which found that the motivation of pulmonary TB patients to achieve recovery is related to medication adherence. Research by Prasetya (2009) also demonstrated a significant relationship between motivation and adherence to treatment and taking anti-TB medication.

5. CONCLUSION AND SUGGESTIONS

Conclusion

Most respondents (16 respondents) had good knowledge about preventing pulmonary TB transmission, and of these, the majority demonstrated adherence to TB medication.

Based on the chi-square test, there was a significant relationship between knowledge and adherence to pulmonary TB medication, with a p-value of 0.0317 ($p < 0.05$). This indicates that higher knowledge leads to better adherence to TB medication.

Most respondents (24 respondents) had high motivation, and among them, the majority demonstrated adherence to pulmonary TB medication.

The chi-square test also showed a significant relationship between motivation and adherence to pulmonary TB medication, with a p-value of 0.0158 ($p < 0.05$). This means that good motivation can influence adherence to pulmonary TB medication in tuberculosis patients.

Based on the research results, it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, meaning there is a significant relationship between the level of knowledge and motivation on adherence to taking pulmonary TB medication in the Klasaman Community Health Center, Sorong City.

Recommendations

1. For Patients

It is hoped that pulmonary TB patients will be more proactive in seeking information and participating in TB education, and will adopt a behavior of adherence to taking pulmonary TB medication according to the schedule provided by the Community Health Center on a regular and consistent basis.

2. For Families

Families are expected to provide support to family members with TB and help maintain a clean and well-ventilated home environment to prevent transmission.

3. For the Malawei Community Health Center

It is recommended to improve routine TB education and counseling programs and integrate the results of this study into health promotion activities to increase adherence to taking pulmonary TB medication regularly for TB prevention and control in the work area.

4. For Future Researchers

Further research is recommended to include other variables such as socioeconomic factors, family support, and access to health services to provide a more comprehensive picture of the relationship between pulmonary TB and the prevalence of pulmonary TB.

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