



## The Effect Of Home Visits By Nurses On Increasing Compliance With Taking Medication In Pulmonary TB Patients

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### ABSTRACT

Pulmonary tuberculosis (TB) is a chronic infectious disease that requires long-term treatment and high adherence to achieve recovery. Non-adherence to medication is a major cause of treatment failure and the emergence of drug resistance. Home visits by nurses are a community nursing intervention aimed at improving patient adherence through education, monitoring, and psychosocial support.

This study aimed to determine the effect of home visits by nurses on medication adherence in pulmonary TB patients. The study used a quasi -experimental design with a one-way approach. group Pretest - posttest. The sample consisted of 30 pulmonary TB patients selected using a purposive sampling technique. Medication adherence was measured using a compliance questionnaire. Data were analyzed using the Wilcoxon test. Signed Rank Test. The results of the study showed an increase in medication adherence after home visits with a *p value* = 0.000 (<0.05).

The conclusion of this study is that home visits by nurses have a significant effect on increasing adherence to taking medication in pulmonary TB patients.

**Keywords:** Home Visits, Medication Compliance, Pulmonary TB

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## 1. Introduction

Pulmonary tuberculosis (TB) remains a global public health problem, including in Indonesia. This disease is caused by *Mycobacterium tuberculosis. tuberculosis* and requires long-term treatment for at least six months. The success of TB therapy depends heavily on patient compliance in taking medication regularly and completing the prescribed regimen.

In practice, many pulmonary TB patients still do not adhere to their medication. Factors contributing to non-compliance include a lack of knowledge about TB, drug side effects, low motivation, insufficient family support, and low socioeconomic status. This non-compliance can lead to treatment failure, relapse, and even the emergence of drug-resistant TB.

Nurses play a crucial role in TB control through promotive and preventive approaches. One effective form of community nursing intervention is home visits. Home visits allow nurses to directly monitor medication adherence, provide health education, and involve families in the patient's treatment process.

Through home visits, nurses can build therapeutic relationships with patients and families, identify treatment barriers, and provide solutions tailored to the patient's condition. Therefore, this study was conducted to determine the effect of home visits by nurses on improving medication adherence in pulmonary TB patients.

## 2. Research Methods

### a. Research Design

This study uses a quasi -experimental design with a one-way approach. group pretest – posttest This design aims to determine changes in the level of medication adherence of pulmonary TB patients before and after home visits by nurses.

### b. Location and Time of Research

The research was conducted in the working area of Community Health Center X in May - June 2025. The location was selected based on the continued presence of pulmonary TB patients with low levels of medication adherence.

### c. Population and Sample

The population in this study was all pulmonary TB patients who were registered and undergoing treatment at Community Health Center X.

The research sample consisted of 30 pulmonary TB patients, which were determined using a purposive sampling technique.

#### Inclusion Criteria

- 1) Pulmonary TB patients in the intensive phase and advanced phase
- 2) Aged  $\geq 18$  years
- 3) Can communicate well
- 4) Willing to be a respondent by signing the informed consent consent

#### Exclusion Criteria

- 1) Resistant TB (MDR-TB) patients





- 2) Patients with mental disorders or severe cognitive impairment
- 3) Patients with physical conditions that do not allow home visits

**d. Research Variables**

- Independent variable: Home visits by nurses
- Dependent variable: Compliance with taking medication in pulmonary TB patients.

**e. Operational Definition of Variables**

Variables	Operational Definition	Measuring instrument	Scale
Home visit	Nurse visits to patient's home for SOP for home education, monitoring, and motivation	visits	Nominal
Compliance taking medication	The level of patient compliance in taking TB medication according to the rules	Compliance questionnaire	Ordinal

**f. Research Instruments**

The research instrument was a TB medication adherence questionnaire which included:

- Timeliness of taking medication
- Dosage compliance
- Consistency in taking daily medication
- Attendance of control to health facilities

The instrument has been tested for validity and reliability previously.

**g. Research Procedures**

- 1) Researchers take care of research permits.
- 2) Respondents were given an explanation and signed an informed consent form consent.
- 3) Medication compliance measurement before intervention (pretest).
- 4) Home visits by nurses are carried out once a week for 4 weeks.
- 5) Each visit includes education, medication monitoring, and patient motivation.
- 6) Medication compliance measurement after intervention (posttest).

**h. Data collection technique**

Data is collected through:

- Structured interview
- Direct observation during home visits
- Completing the medication adherence questionnaire

**i. Data Analysis Techniques**

- Univariate analysis to determine the distribution of respondent characteristics and level of compliance





- Bivariate analysis using the Wilcoxon test Signed Rank Test because the data is ordinal and paired

The significance level was set at  $\alpha = 0.05$ .

#### j. Research Ethics

The research was conducted in accordance with the ethical principles of health research, including:

- Ethical approval from relevant institutions
- Informed consent
- Confidentiality of respondent identity
- Respondent's right to withdraw at any time

### 3. Research Results And Discussion

#### a. Results

##### 1) Respondent Characteristics

This study involved 30 pulmonary TB patients undergoing treatment in the working area of Community Health Center X. Respondent characteristics included age, gender, education level, and treatment phase.

**Table 1. Respondent Characteristics (n = 30)**

Characteristics	Category	f	%
Age	18–35 years	9	30.0
	36–55 years	15	50.0
	>55 years	6	20.0
Gender	Man	18	60.0
	Woman	12	40.0
Education	Base	10	33.3
	Intermediate	14	46.7
	Tall	6	20.0
Treatment Phase	Intensive	17	56.7
	Advanced	13	43.3

#### Interpretation:

Most respondents were aged 36–55 years, male, had a secondary education, and were in the intensive phase of treatment. These characteristics influence the need for education and monitoring of medication adherence.

##### 2) Level of Medication Compliance Before Home Visit (Pretest)

Initial measurement results show that most pulmonary TB patients have low levels of medication compliance.





**Table 2.**  
**Level of Medication Compliance Before Home Visit**

Compliance	f	%
Tall	6	20.0
Currently	7	23.3
Low	17	56.7
<b>Total</b>	<b>30</b>	<b>100</b>

**Interpretation:**

More than half of the respondents had low compliance, which indicates that nursing interventions are still needed to improve compliance with pulmonary TB treatment.

**3) Medication Compliance Level After Home Visit (Posttest)**

After home visits by nurses for 4 weeks, there was an increase in the level of medication compliance in pulmonary TB patients.

**Table 3.**  
**Level of Medication Compliance After Home Visit**

Compliance	f	%
Tall	21	70.0
Currently	6	20.0
Low	3	10.0
<b>Total</b>	<b>30</b>	<b>100</b>

**Interpretation:**

The majority of respondents experienced an increase in compliance to the high category after a home visit by a nurse.

**4) Comparison of Medication Compliance Levels Before and After Home Visits**

To determine the difference in compliance levels before and after the intervention, an analysis was carried out using the Wilcoxon test. Signed Rank Test.

**Table 4.**  
**Results of the Wilcoxon Test for Medication Compliance**

Variables	Z	p- value	Information
Pretest – posttest compliance	-4,865	0,000	Significant





### Interpretation:

The p value = 0.000 ( $< 0.05$ ) shows that there is a significant difference in the level of compliance in taking medication for pulmonary TB patients before and after home visits by nurses.

### 5) Average Compliance Score

**Table 5.**

**Average Medication Compliance Score**

Measurement	Mean	Elementary School	Difference
Pretest	54.8	7.62	–
Posttest	81.9	6.95	+27.1

### Interpretation:

There was an increase in the average medication adherence score of 27.1 points, which indicates a clinically meaningful increase in adherence after the home visit.

### 6) Field Findings (Supporting Qualitative Data)

During the home visit, the nurse found several important things:

- Patients are more disciplined in taking medication after receiving direct supervision.
- Families become more involved in reminding people to take their medication.
- Patients better understand the side effects of drugs and no longer stop taking them unilaterally.

These findings reinforce the quantitative results that home visits not only improve adherence, but also increase patient understanding and motivation.

### Summary of Research Results

Based on the results of statistical analysis and field observations, it can be concluded that home visits by nurses significantly increase adherence to taking medication in pulmonary TB patients, both statistically and practically.

### b. Discussion

The study results showed that home visits by nurses significantly improved medication adherence in pulmonary TB patients. Home visits provide nurses with the opportunity to directly monitor patient compliance, provide ongoing education, and involve families in treatment supervision.

Education provided during home visits increases patients' understanding of the importance of taking their medications regularly and the risks of not completing their treatment. Emotional support and motivation from nurses also boost patients' confidence in undergoing long-term treatment.





The results of this study are in line with the theory of health behavior which states that social support and assistance from health workers can increase patient compliance with treatment.

#### 4. Conclusion And Suggestions

##### a. Conclusion

Based on the results of research on the influence of home visits by nurses on increasing adherence to taking medication in pulmonary TB patients, the following conclusions can be drawn:

- 1) Before the home visit by the nurse, most of the pulmonary TB patients in the working area of Health Center X had a low level of compliance with taking medication, especially in terms of timeliness and consistency in taking medication.
- 2) After conducting regular home visits for four weeks, there was a significant increase in the level of adherence to taking medication for pulmonary TB patients, as indicated by the increase in adherence scores and the dominance of the high adherence category.
- 3) The results of statistical analysis using the Wilcoxon test Signed Rank The test shows a  $p \text{ value} = 0.000 (< 0.05)$ , which means there is a significant influence of home visits by nurses on increasing adherence to taking medication in pulmonary TB patients.
- 4) Home visits by nurses have been shown to be effective as a community nursing intervention in improving adherence in pulmonary TB patients through education, direct monitoring, and ongoing psychosocial support.

Thus, it can be concluded that home visits by nurses are an effective and appropriate strategy to increase the success of pulmonary TB treatment.

##### b. Suggestion

Based on the research results and conclusions above, the researcher provides several suggestions as follows:

- 1) For Community Health Centers
  - Community health centers are expected to optimize home visit programs as part of the pulmonary TB control strategy.
  - It is necessary to develop a structured and ongoing home visit schedule for pulmonary TB patients, especially during the intensive phase of treatment.
- 2) For Nurses
  - Nurses are expected to be more active in providing education, monitoring, and assistance to pulmonary TB patients through home visits.
  - Nurses are advised to involve the patient's family as medication supervisors (PMO) to improve medication compliance.
- 3) For Patients and Families





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- Pulmonary TB patients are expected to increase their awareness and commitment to complete treatment.
  - Families are expected to play an active role in reminding and supporting patients to take their medication regularly according to schedule.
- 4) For Further Researchers
- Further research is recommended to use an experimental design with a control group so that the research results are methodologically stronger.
  - It is necessary to add other variables such as family support, knowledge, and patient attitudes to see the factors that influence medication adherence.
  - It is recommended to use a larger sample size and a wider research location to increase the generalizability of research results.

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