Family Support and Medication Adherence to Anti-Tuberculosis Drug Therapy: A Cross-Sectional Study

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ABSTRACT

Introduction: Tuberculosis (TB) continues to pose a significant public health challenge worldwide, particularly in high-burden countries like Indonesia. Medication adherence is critical for the success of TB drug therapy, yet non-adherence remains a major obstacle to disease control. Family support has been recognized as a key factor in improving adherence to tuberculosis drug therapy. This study investigates the relationship between family support and medication adherence among TB patients in the Talun Health Center working area.

Objective: This study aims to analyze the association between family support and adherence to tuberculosis drug therapy.

Methods: A cross-sectional study was conducted involving 42 TB patients selected through total sampling. Data collection utilized a validated family support questionnaire and the Medication Adherence Report Scale-10 (MARS-10) to assess adherence levels. The Spearman Rank correlation test was applied for statistical analysis.

Results: The findings revealed that 83.3% of TB patients received strong family support, while 16.7% experienced insufficient support. Among those with strong family support, 83.3% demonstrated adherence to tuberculosis drug therapy, whereas 16.7% did not. Statistical analysis indicated a significant positive correlation between family support and medication adherence ($p < 0.001$).

Conclusion: The study highlights the crucial role of family support in enhancing medication adherence in tuberculosis drug therapy.

Implications: Healthcare professionals should integrate family-centered approaches in TB management and develop targeted interventions to strengthen family involvement. Further research with a larger sample size and diverse settings is recommended to explore additional determinants of adherence.

Keywords : anti-tuberculosis drug therapy, family support, medication adherence,

INTRODUCTION

Tuberculosis (TB) remains a major global health priority, ranking as the second most infectious disease after COVID-19 in 2021 (Siallagan et al., 2023). Caused by *Mycobacterium tuberculosis*, TB continues to pose a significant public health challenge due to both biological and social determinants (Miggiano et al., 2020). The World Health Organization (WHO) estimates that more than 10 million people contract TB annually, with approximately 90% of cases occurring in adults, predominantly among men (WHO, 2023).

In response to the global TB burden, the WHO launched the End TB Strategy, aligned with the Sustainable Development Goals (SDGs), aiming to significantly reduce TB cases by 2030 and 2035 (WHO, 2023). Despite these efforts, Indonesia remains one of the high-burden countries, ranking third globally after India and China. In 2021, the WHO reported approximately 824,000 TB cases and 93,000 TB-related deaths in Indonesia, equating to an alarming rate of 11 deaths per hour.

TB treatment typically involves a six-month regimen, divided into an intensive phase (two months) and a continuation phase (four months or more). However, non-adherence remains a significant challenge, particularly during the continuation phase when patients may discontinue medication as symptoms improve (Mekonnen, 2018). This non-adherence can result in treatment failure, drug resistance, and increased transmission.

Medication adherence is influenced by various factors, including patient perceptions, healthcare access, and social support systems. Among these, family support has been identified as a crucial factor in maintaining adherence to anti-tuberculosis drug therapy (ATDT) (Barik et al, 2020). Family members can provide not only emotional encouragement but also practical assistance, such as reminding patients to take medication, helping with transportation to healthcare facilities, and providing financial support. These roles become especially vital given the long duration and potential side effects of TB treatment.

Despite the recognized importance of family support, adherence rates among TB patients remain suboptimal, particularly in settings where healthcare resources are limited. Understanding the specific aspects of family support that most effectively contribute to medication adherence can help inform more targeted interventions. By exploring the relationship between family support and medication adherence among TB patients in the Talun Health Center working area, this study aims to provide evidence-based insights that can enhance TB control strategies at the community level.

MATERIALS AND METHODS

This cross-sectional study employed a quantitative approach to examine the relationship between family support and medication adherence in tuberculosis drug therapy. Conducted at the Talun Health Center, Cirebon, from March to May 2024, the study included all tuberculosis patients undergoing treatment at the center, using a total sampling method that resulted in 42 respondents meeting the inclusion criteria. The independent variable, family support, was assessed using a validated questionnaire adapted from Nurwulan (2017), with a reliability score of 0.75, measuring four key dimensions: emotional, informational, instrumental, and appraisal support provided by family members. The dependent variable, medication adherence, was evaluated using the Medication Adherence Report Scale-10 (MARS-10), which demonstrated a reliability score of 0.747. The data collection instrument consisted of 20 items designed to comprehensively assess both family support and medication adherence. Data were collected through structured interviews after obtaining written informed consent from each participant, ensuring confidentiality and anonymity throughout the study. Ethical approval was granted by the Ethics Committee of the Mahardika Institute of Technology and Health. Data analysis was performed using the Spearman Rank correlation test to determine the relationship between family support and medication adherence, with the significance level set at $\alpha = 0.05$.

RESULTS

This study involved 42 tuberculosis (TB) patients from the Talun Health Center working area. The results highlight the distribution of family support and medication adherence among the participants.

Family Support among TB Patients

Table 1 presents the distribution of family support levels among respondents

Family Support Level	Frequency (n)	Percentage (%)
Strong	35	83,3
Moderate	1	2,4
Low	6	14,3
Total	42	100

The majority of TB patients (83.3%) reported receiving strong family support, while 14.3% had low family support, and 2.4% received moderate support. This suggests that family involvement plays a critical role in the treatment process.

Medication Adherence among TB Patients

Table 2 summarizes the distribution of medication adherence among respondents.

Medication Adherence	Frequency (n)	percentage (%)
Adherent	35	83,3
No-adherent	7	16,7
Total	42	100

A total of 83.3% of patients adhered to their anti-TB drug regimen, while 16.7% were non-adherent. The findings indicate that most patients followed their prescribed treatment, aligning with the high level of family support observed in this study.

Correlation Between Family Support and Medication Adherence

Spearman Rank correlation analysis demonstrated a significant positive relationship between family support and medication adherence, with a p-value of 0.000 ($\alpha < 0.05$). This result confirms that higher family support is associated with better adherence to anti-TB medication.

DISCUSSION

This study highlights the crucial role of family support in enhancing medication adherence among TB patients. The significant correlation between family support and adherence ($p < 0.001$) reinforces existing literature emphasizing the importance of social and emotional support in treatment adherence.

The results indicate that 83.3% of TB patients with strong family support adhered to their medication regimen, whereas 16.7% of patients with low support were non-adherent. These findings align with prior research, which underscores the role of family encouragement, emotional reassurance, and daily reminders in promoting treatment compliance (Silalahi, 2021).

Families function as a primary support system in healthcare, ensuring patients receive adequate care and supervision. Friedman (in Putra, 2019) states that family involvement is essential in monitoring health status, preventing complications, and encouraging long-term adherence. Additionally, Sofiana et al. (2022) highlight that family support reduces feelings of isolation, which can improve patient motivation to complete their treatment regimen.

Non-adherence to TB treatment increases the risk of bacterial resistance, complicating disease management and leading to multidrug-resistant tuberculosis (MDR-TB) (Amining, 2021). Studies have shown that various factors contribute to adherence, including patient knowledge, motivation, and healthcare provider support (Abadi, 2021). However, the findings of this study suggest that family support serves as a protective factor, potentially mitigating the negative impact of other adherence barriers.

The findings also resonate with studies on chronic disease management. For instance, Azizah et al. (2023) found that family support significantly influenced adherence in diabetes mellitus patients, further reinforcing the broader impact of interpersonal relationships on health outcomes.

Considering the strong correlation between family support and medication adherence, healthcare providers should incorporate family-centered interventions into TB treatment programs. These interventions may include several programs. First, *educational programs* aimed at increasing family awareness regarding the importance of TB treatment adherence and its impact on recovery. Second, *family engagement strategies*, such as actively involving caregivers in treatment planning, follow-up consultations, and medication monitoring. Third, *community-based initiatives* that facilitate peer support groups, allowing TB patients and their families to share experiences, provide encouragement, and strengthen adherence behaviors. By reinforcing family support systems, healthcare professionals can enhance patient adherence, minimize TB transmission, and prevent the development of drug-resistant strains, ultimately contributing to more effective TB control strategies.

CONCLUSIONS

This study confirms that family support is a crucial determinant of medication adherence among tuberculosis (TB) patients. The findings indicate that patients with strong family support exhibit significantly higher adherence to anti-TB treatment, whereas those with low support are more likely to be non-adherent.

A key contribution of this study is the emphasis on family involvement as a critical factor in the success of TB treatment. Strengthening family engagement in patient care can enhance adherence, improve treatment outcomes, and reduce the risk of drug resistance and disease relapse. Therefore, healthcare interventions should incorporate family-centered strategies to optimize TB management and control efforts.

Availability of Data and Materials

The datasets generated and analyzed during this study are available from the corresponding author upon reasonable request.

Authors' Contributions

N.K and A.M conceptualized the study and designed the methodology. Y.K and U.W collected and analyzed the data. A.M and V.L.A wrote the original draft, and all authors contributed to

reviewing and editing the manuscript. All authors have read and approved the final version of the manuscript.

Conflict of Interest

There is no conflict of interest in this researches.

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