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## THE FACTOR AFFECTING MEDICATION ADHERENCE IN TUBERCULOSIS PATIENTS: A LITERATURE REVIEW

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### ABSTRACT

*Medication adherence is crucial for the successful treatment of tuberculosis (TB), a persistent global health issue that demands prolonged and rigorous therapy to achieve cure, prevent drug resistance, and reduce transmission rates within communities. Recent studies highlight predictors of effective treatment outcomes such as being a new TB case and being HIV-negative. There is a significant relationship between various psychosocial factors that influence treatment adherence, particularly among elderly TB patients, where adherence is characterized by complexity and multidimensionality. Factors like depression, anxiety, income levels, social support, patient status, and TB classification play critical roles in adherence. Understanding these factors is essential for optimizing treatment strategies and improving outcomes in TB management.*

**KEYWORDS** Tuberculosis, Adherence, Medication, Factor.



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### INTRODUCTION

Medication adherence is crucial for the successful treatment of tuberculosis (TB), a persistent global health issue that requires prolonged and rigorous therapy (WHO, 2022). Adherence to TB medication is essential to achieve cure, prevent drug resistance, and reduce transmission rates within communities (WHO, 2022). However, achieving optimal adherence among TB patients remains a significant challenge worldwide (Munro et al, 2007).

Understanding the factors influencing medication adherence in TB patients is essential for developing effective strategies to enhance treatment outcomes (Sagbakken et al, 2012). These factors are multifaceted and can be categorized into individual, socioeconomic, healthcare system-related, and disease-specific

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dimensions (Sagbakken et al, 2012). Individual factors include patient knowledge, beliefs about TB, and attitudes towards treatment (Muture et al, 2011). Socioeconomic factors encompass income levels, employment status, and access to healthcare services (Muture et al, 2011). Healthcare system-related factors involve the quality of care, availability of medications, and support from healthcare providers (WHO, 2010). Disease-specific factors include the severity of TB symptoms, side effects of medications, and complexity of treatment regimens (WHO, 2010).

A comprehensive literature review provides insights into the diverse factors influencing medication adherence among TB patients across different geographical and socio-cultural contexts (Nglazi, 2015). This review synthesizes findings from various studies to identify common challenges and opportunities for interventions aimed at improving adherence rates (Nglazi, 2015).

### RESEARCH METHODS

This study used a literature review method with a systematic approach to analyze factors that influence treatment adherence in tuberculosis (TB) patients. Data were collected from scientific articles published between 2010 and 2023, using databases such as PubMed, Scopus, and Google Scholar. Searches were conducted using keywords such as “medication adherence,” “tuberculosis,” and “psychosocial factors.” The screening process involved identifying articles by title and abstract, followed by selection using inclusion criteria. Articles selected were studies in English that focused on TB medication adherence, used both quantitative and qualitative methods, and addressed individual, psychosocial, socioeconomic, and health system factors. Article quality assessment was conducted using PRISMA guidelines to ensure validity and relevance of the data. The results of the data analysis were presented in tabular form to facilitate identification of patterns of factors influencing treatment adherence and relevant implications.

### RESULT AND DISCUSSION

**Table 1.** Main finding and limitations each study

<b>Year</b>	<b>Journal</b>	<b>Main Finding</b>	<b>Limitations</b>	<b>References</b>
2023	Hindawi	a new TB case and being HIV-negative were both predictors of effective treatment outcomes.	Retrospective secondary data	Debash et al
2022	Frontiers	an important relationship between different psychosocial factors which may	only pulmonary TB patients	Pradhan et al

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		affect treatment adherence.		
2020	BMC Public Health	Patient's unwillingness to visit the hospital daily due to long distances, financial constraints, and lack of support from family and friends during treatment	these study findings do not represent the whole population; could not interview other health workers of BHU-I and hospitals who managed the same TB patients during part of the treatment. And mode of assessment by questionnaires filled out by TB patients, which is subject to recall and social desirability biases.	Dorji Et al
2014	Public Health Action	Less favourable treatment outcomes were more common in cases that were male, had a weight of less than 45 kg at the time of diagnosis, and exhibited inadequate adherence to oral medications.	Additional efforts should be directed towards enhancing record-keeping practices, as there were instances where clinical folders lacked complete data.	Elliot et al

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2023	<i>Canadian Journal of Infectious Diseases and Medical Microbiology</i>	The adherence to medication among elderly tuberculosis patients was a phenomenon characterized by complexity and multiple dimensions.	inability to access certain relevant texts, particularly full texts, and the requirement for studies in English. Sampling for the study was conducted during the COVID-19 pandemic, which restricted interviews	Hassani et al.
2023	<i>BJPsych Open</i>	The factors significantly linked to both depression and anxiety included income levels, extent of social support, patient status, and the classification of tuberculosis.	Only evaluated the likely occurrence of anxiety and depression because we employed a screening tool rather than a diagnostic tool.	Anye et al
2015	<i>BMC Research Notes</i>	Significant predictor factors associated with unsuccessful treatment outcomes include positive human immunodeficiency virus (HIV) infection, pulmonary tuberculosis cases with positive sputum, pulmonary tuberculosis cases without positive sputum (SNPTB),	Adherence to treatment was evaluated using information collected over the previous month and through self-reports from patients	Tesfahuneygn et al

		and re-treatment cases.		
2018	<i>PLoS ONE</i>	The conclusive model indicated that treatment non-adherence was linked to economic conditions, infrastructure, and the quality of tuberculosis surveillance control.	Using neighborhoods as the unit of analysis could pose a limitation due to the internal heterogeneity within these units, which may influence the study results depending on the indicators examined	De Seixas Maciel et al.

Study from Pradhan et al. has identified a significant relationship between various psychosocial factors that impact medication adherence. It was observed that internal and perceived stigma have a greater impact on TB patients, especially those undergoing MDR-TB treatment. Many of these individuals experience depression, which subsequently hinders their ability to adhere to medication. There is an urgent necessity to incorporate mental health services into existing TB control initiatives and to include awareness programs in formal education. If left unaddressed, the cycle of internalized stigma, depression, and poor adherence could lead DS-TB patients to develop MDR-TB. Countries like India, facing an increase in MDR-TB cases, must integrate mental health support into their national TB control programs to maximize effectiveness (Pradhan et al., 2022)

Debash et al. identified The TB treatment success rate in the study area was generally favorable compared to other research conducted in Ethiopia, surpassing the targets set by Ethiopia's national TB and leprosy control program. Being newly diagnosed with TB and testing negative for HIV were both factors predicting successful treatment outcomes. Early detection of TB and prompt initiation of effective anti-TB drug therapy, along with enhanced efforts in HIV prevention and health education, play crucial roles in enhancing TB treatment outcomes (Debash et al., 2023)

Patient adherence to Directly Observed Treatment (DOT) was only partially implemented, and providers' compliance with DOT guidelines was similarly incomplete in two hospitals. The coverage and duration of DOT were also very low. Therefore, there is a need to revise and enhance the DOT model and structure using a patient-centered approach, such as community-based DOT. Key factors contributing to poor adherence to DOT included patients' unwillingness to visit the hospital daily due to long distances, financial constraints, and lack of support from family and friends during treatment. While patient satisfaction proportions were

high, improvements are still required in the quality dimensions of TB care service delivery, such as reducing patient waiting times and enhancing family and friends' support (Dorji et al., 2020)

Efforts are needed to enhance adherence and mitigate the prevalence of unfavourable treatment outcomes in drug-resistant tuberculosis (DR-TB). Strategies should include social and economic support, nutritional enhancements, and the adoption of shorter, more efficient treatment regimens. Specific focus should be directed towards groups at higher risk of poor outcomes, such as male patients, those with a weight under 45 kg at diagnosis, and individuals with challenges in adhering to oral medications (Elliott et al., 2014).

Despite numerous efforts, a significant number of tuberculosis patients, particularly the elderly, still struggle with incomplete medication adherence. Therefore, identifying factors influencing medication adherence and implementing appropriate interventions within this age group will be crucial for maintaining and enhancing the health of tuberculosis patients and the broader community. The findings of this qualitative study highlight that medication adherence among elderly tuberculosis patients is not solely influenced by physical and biological factors; rather, it is a multidimensional phenomenon affected by a wide range of individual, interpersonal, healthcare provider-related, and external factors. As such, it is essential for society, policymakers, and healthcare providers to take a comprehensive approach to understanding the factors impacting medication adherence in this patient group to develop and implement more effective interventions (Hassani et al., 2023).

In this study, 47.7% of participants were identified with depression, while 29.9% experienced anxiety. Factors such as income levels, social support, patient status, and tuberculosis classification were significantly associated with both conditions. This underscores the importance of addressing the mental health of tuberculosis patients, especially those with known risk factors. Treatment centres should establish protocols for screening and managing depression, anxiety, and potentially other mental health issues among tuberculosis patients. Further research is needed to explore the factors contributing to depression and anxiety in this population, enhancing and expanding upon the current study's findings (Anye et al., 2023)

Study from Tesfahuneygn et al, the level of adherence (88.5%) observed in the current study area is relatively high, and the treatment success rate (90%) is also notable. These achievements reflect good practices in the study area, as effective treatment is crucial not only for optimal patient care but also for public health responses to TB. However, additional efforts such as health education for patients and families are necessary to mitigate factors that impact adherence and treatment success rates, aiming to achieve even higher levels of adherence and treatment success in the study area (Tefahuneygn et al., 2015)

Non-adherence to antituberculosis treatment in the municipality of Rio de Janeiro is influenced by social development, human development, as well as social, economic, and environmental conditions. These factors help identify populations that are more likely to experience non-adherence to treatment (De Seixas Maciel et al., 2018).

## CONCLUSION

This review reveals that treatment adherence in TB patients is a complex phenomenon that is influenced by various multidimensional factors, including individual, social, and health system. Psychosocial factors, such as internalized stigma, depression, and anxiety, have a significant impact on patient adherence, particularly those undergoing treatment for drug-resistant TB. In addition, socio-economic factors such as low income, limited access to health services, and lack of family support also affect treatment success. On the other hand, the health system, including distance to health facilities, quality of care, and therapy supervision models, such as Directly Observed Treatment (DOT), are important elements in treatment success. To improve TB adherence and treatment success, it is critical to integrate mental health services in national TB control programs. Community-based interventions involving social support and health education should be implemented to address key barriers faced by patients. These overall findings emphasize the importance of a holistic approach to TB management to prevent drug resistance and improve overall treatment outcomes.

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