
Adherence Isoniazid Preventive Therapy Use Among Family Members of Patients with Tuberculosis: Systematic Literature Review

Nur Aima Siagian, Yossie Susanti Eka Putri, Yudi Ariesta Chandra, Novy H.C Daulima
Universitas Indonesia

Email: nur.aima@ui.ac.id, yossi@ui.ac.id, Yudi.chandra@ui.ac.id, novy_hc@ui.ac.id

Abstract:

In countries such as Indonesia, Tuberculosis (TB) is one of the most prevalent infectious diseases in the world. Active tuberculosis patients can prevent the evolution of tuberculosis through isoniazid preventive therapy (IPT). However, adherence to this regimen is particularly low among family members of tuberculosis patients. This study [A1] [A2] aims to explore the factors influencing compliance with IPT among family members of tuberculosis patients and assess the impact of family and community support on compliance. Various studies relating to IPT adherence were reviewed, especially in high TB burden areas such as Greater Jakarta. Socioeconomic status and education level, as well as awareness regarding TB prevention, were found to influence the level of adherence of respondents. Community and family involvement and education on TB, social stigma, and how to overcome it were found to significantly help in controlling medication adherence and the spread/transmission of TB. The results of this study support the strengthening of initiatives aimed at TB control, especially in households with high risk of TB exposure.

Key words: *Isoniazid, tuberculosis, adherence, family support, public health, Indonesia*

INTRODUCTION

Tuberculosis or TB is one of the many infectious diseases that can lead to death. The World Health Organization (2022) estimates from its 2022 report that approximately 10.6 million people were infected with TB in 2021 alone, of which 1.4 million died. The agency also estimates that major TB-affected countries such as India, Indonesia, and China are major contributors to this figure (World Health Organization, 2022). As of 2021, TB in Indonesia has become a serious illness with 969,000 cases and 144,000 deaths recorded (Ministry of Health Republic of Indonesia, 2021). TPT for high-risk household contacts, such as family members of active TB patients, is a strategic step in TB control (Chowdhury & others, 2017).

TPT has been shown to prevent TB in individuals who have been exposed to the disease. However, successful treatment relies heavily on patient adherence to the regimen (Sahu & others, 2019). This adherence is often low, especially among family members of TB patients (Kufa & others, 2018). Lack of access to health services, inadequate understanding of the importance of long-term therapy, and the social stigma attached to TB are some of the reasons for this low adherence (Sodeke & others, 2025). Adherence to TB treatment among household contacts of TB patients in Indonesia remains very low. However, several programmes have been initiated to increase community understanding of the importance of this treatment (Ministry of Health Republic of Indonesia, 2021).

Family and neighborhood play a significant role in improving adherence to TPT treatment. Several studies have suggested [A1] [A2] that family support for treatment can also reduce the rate of tuberculosis disease transmission within the family (Rubin & others, 2025). Therefore, it is necessary to understand the factors related to TPT treatment adherence, especially regarding the role of family in supporting the success of this therapy.

Previous research highlights the role of family support in improving treatment adherence. For instance, Li et al. (2021) found that structured family-based counseling improved adherence rates in TB

patients by 18%; however, their study focused on rural populations, leaving urban settings underexplored. Similarly, a study by Ayele et al. (2020) demonstrated that family involvement reduces TB transmission in household contacts; however, this research did not specifically examine preventive therapy adherence in high-risk urban areas. This study addresses these gaps by focusing on urban family dynamics in the Greater Jakarta area, a high-burden region, to explore factors influencing TPT adherence.

The focus of this study is to determine what influences IPT adherence among family members of tuberculosis patients, with particular attention to the Greater Jakarta area, which is known for its high tuberculosis burden. This study is expected to formulate strategies to improve efficiency in the implementation of TB prevention programmes, especially in high-risk areas such as *Jabodetabek* and Banten.

RESEARCH METHOD

This study applied a systematic literature review methodology to identify variables associated with family adherence to Isoniazid Preventive Therapy (IPT) among tuberculosis (TB) patients. The study focused on areas in Indonesia with high TB burdens, particularly the Greater Jakarta area, using international journals, WHO reports, and data from the Ministry of Health of the Republic of Indonesia as sources. Primary data were drawn from ten scientific articles published between 2015 and 2025, selected based on relevance, research methodology, and source quality, all focusing on factors influencing adherence to IPT among family members of TB patients. Articles were retrieved from academic databases including PubMed, ScienceDirect, and Google Scholar, and each was critically analyzed to identify determinants of adherence, such as family socioeconomic status, family education, accessibility to health services, and understanding of the importance of treatment.

Data were analyzed using thematic analysis to identify patterns and group findings by individual, family, and environmental factors related to IPT adherence. Results from high TB burden areas in Indonesia were compared with findings from other countries to contextualize the local situation. Reference management tools such as *EndNote* and *Mendeley* facilitated literature organization, while manual coding and programming techniques were used to extract and synthesize key themes. Each theme was examined to determine its impact on family adherence to IPT and to provide insights for improving TB prevention programs. The expected outcome of this research is a comprehensive understanding of the factors influencing adherence, offering evidence-based recommendations to strengthen the implementation of IPT and enhance TB control strategies in high-prevalence regions of Indonesia.

RESULTS AND DISCUSSION

Adherence to Isoniazid Preventive Therapy (IPT) instructions among family members of tuberculosis (TB) patients provided the rationale for conducting this study. Selected articles were read in depth and processed to obtain results based on ten articles that met the criteria for literature analysis.

This study finds out that the education level of the caregiver is an important component. According to the reviewed articles, caregivers with higher education tend to comply more with IPT treatment (Ouma, Muthusi, & Karanja, 2019). This can be scientifically explained with the idea that people who have higher levels of education tend to understand better the importance of long-term therapy and its impacts on TB prevention. Furthermore, there is evidence that younger caregivers demonstrate higher levels of compliance to IPT (Matteelli, Carvalho, & Centis, 2025). Previous research has shown that younger age is associated with greater receptivity to information and participation in preventive treatment (Sodeke & others, 2025) These findings support that.

This study revealed that caregiver education level is an important factor. In the reviewed article, it was reported that caregivers with higher education tended to be more adherent to IPT treatment (Ouma et al., 2019). This can be explained scientifically by the idea that individuals with higher education are likely to understand the importance of long-term therapy and its impact on tuberculosis (TB) prevention. Furthermore, there is evidence that younger caregivers have higher rates of adherence to IPT (Matteelli et al., 2025). Previous studies have shown that younger age is associated with a predisposition to receive information and participate in preventive treatment (Sodeke & others, 2025). This finding supports the previous findings.

According to the studies by (Matteelli et al., 2025; Ouma et al., 2019) caregivers with higher levels of education seem to adhere more closely to treatment regimens. This might be due to the fact that people with higher levels of education tend to appreciate the need for long-term therapies and their impact on disease prevention (Kumar, 2022). In addition, it has been shown that adherence to IPT was higher among younger caregivers (Matteelli et al., 2025). Earlier research suggests that young age tends to equate to greater receptiveness to information and participation in preventive treatment (Sharma, 2023) These findings support those.

One of the biggest challenges in following IPT treatment is the social stigma attached to TB patients. This stigma tends to deter family members of patients from supporting their treatment, especially in terms of therapy supportive care (Kufa & others, 2018). Research shows that stigma towards TB often leads people to avoid discussions about treatment at the household level, which in turn affects adherence rates to preventive therapy. Previous research has shown that social stigma reduces people's willingness to follow up on necessary treatment and complete therapy (Chowdhury & others, 2017).

It is evident that family support is very influential in improving adherence to IPT. Several articles have shown that family involvement during treatment can increase awareness of the importance of this therapy, as well as help ensure that treatment is carried out appropriately. Reminders to take medication and emotional support from family can reduce the likelihood of early discontinuation of therapy (Ministry of Health Republic of Indonesia, 2021). This supports research conducted by (Sodeke & others, 2025) who suggested that all family members should participate in TB prevention programmes to improve treatment success.

This study showed results that are consistent with previous research conducted in countries with a high burden of TB. For example, (Matteelli et al., 2025) in her work on primary MDR-TB patient household contact prophylactic therapy highlighted that societal understanding of treatment and the support received greatly affects adherence levels. This study also emphasizes the impact of awareness as well as access to health care facilities on the success rate of the therapy in question.

Table 1. Research Results

No.	Author	Study Design	Country	Results
1	Sodeke et al.	Cohort Retrospective	Ukraine	The use of IPT reduces the incidence of TB
2	Rubin et al.	Cohort Retrospective	Brassil	The prevalence of TBI is higher in MDR-TB contacts than in non-MDR-TB contacts.
3	Matteelli et al.	Narrative Literature	Global	The efficacy of levofloxacin as preventive therapy for household contacts of MDR-TB patients
4	Sumarno et al.	Cohort Longitudinal	Indonesia	The effectiveness of IPT in children with poor home environments affects compliance

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No.	Author	Study Design	Country	Results
5	Yuan et al.	Cohort Prospective	China	Rejection of preventive therapy among students related to knowledge and family background
6	Ouma et al.	Cross-sectional	Kenya	The prevalence of IPT initiation was 70.2%, influenced by caregiver education and place of residence.
7	Matteelli et al.	Narrative Literature	Global	Treatment strategy with Lfx for the prevention of MDR-TB shows a 60% reduction in incidence
8	Ranjan Singh et al.	Mixed-methods	India	Only 22% started IPT, with lack of information and drug shortages as the main reasons
9	Sodeke et al.	Cohort Retrospective	Ukraine	The decline in TB incidence was lower in the group that completed IPT than in those who did not.
10	Diarra et al.	Longitudinal	Mali	98.5% of children started therapy, but only 64.8% completed therapy successfully.

The review finds that although the effectiveness of Isoniazid Preventive Therapy (IPT) in reducing tuberculosis cases among household contacts of TB patients is striking, treatment adherence remains a major determinant of success. Treatment adherence is considered to be the outcome of the caregiver's educational level, socio economic status, and family support. The study also found that although many people start the IPT treatment, a considerable number are unable to complete it in the recommended timeframe, thereby diminishing the intended efficiency of the therapy. Therefore, in order to meet such challenges and guarantee success in the treatment, comprehensive preventive strategies are essential.

CONCLUSION

Family members of tuberculosis (TB) patients with higher levels of education, younger caregiver age, and lower levels of stigma associated with TB demonstrate better access to health services and treatment adherence. These results suggest that family members with higher education and younger age tend to be more adherent to the implementation of Isoniazid Preventive Therapy (IPT). It is evident that family support plays an important role in adherence to IPT. Participation of family members in the treatment process, such as reminding patients to follow therapy and providing emotional support, helps improve treatment effectiveness. Therefore, TB prevention programmes need to involve patients' families at all levels to improve their adherence to treatment. Results suggest that TB prevention programmes need to strengthen the role of families in supporting treatment adherence in high-burden areas such as Greater Jakarta. For better improvement of TB prevention programmes, it is equally important to raise awareness of the need for preventive therapy and address social stigma and its impact on patients.

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