

The Relationship Between Family Support and Treatment Adherence in Tuberculosis Patients: A Systematic Review.

Hubungan Dukungan Keluarga Dengan Kepatuhan Pengobatan Pada Pasien Tuberkulosis: Tinjauan Sistematis.

Putu Dyah Ayu Sekar Nindita ^a, Anna Wahyuni Widayanti ^b, Niken Nur Widyakusuma ^{b*}

^a Magister of Pharmacy Management Study Program, Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia.

^b Department of Pharmaceutics, Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia.

*Corresponding Authors: niken.nur.w@ugm.ac.id

Abstract

Tuberculosis (TB) remains a serious global health threat. The success of therapy depends heavily on patient adherence to long-term treatment. In this context, family support plays a crucial role. Families not only provide emotional support but also ensure adherence to routine treatment and provide support to ensure patients complete their treatment. This systematic review was conducted to identify commonly used research instruments to measure the relationship between family support and treatment adherence. A literature search was conducted using ScienceDirect, PubMed, and Scopus data from December 2025 to February 2026, using the keywords "tuberculosis," "family support," and "treatment adherence." The study selection process was conducted using the Rayyan application and based on a standard PRISMA diagram. The search identified eleven studies using a cross-sectional design. Nine of these studies found a positive association between strong family support and patient adherence, while two studies indicated that a lack of family support was a contributing factor to patient non-adherence to treatment. The use of various instruments in this study, such as the MSPSS, MMAS, MARS, WHOQOL-BREF, PHQ-9, and EQ-5D-5L, reflects a high degree of heterogeneity in the measurement approaches used. Therefore, although this argument confirms a relationship between family support and improved adherence to treatment, the strength of the existing evidence remains limited due to variations in study designs and instruments used. To improve conclusions and comparability between future studies, longitudinal or intervention-based studies using more standardized and consistent measurement instruments are needed.

Keywords: Tuberculosis; Family support; Medication adherence; Questionnaire; Systematic review.

Abstrak

Tuberkulosis (TB) masih menjadi ancaman kesehatan global yang serius. Keberhasilan terapi sangat bergantung pada kepatuhan pasien terhadap pengobatan jangka panjang. Dalam konteks ini, dukungan keluarga memainkan peran penting. Keluarga tidak hanya memberikan dukungan emosional tetapi juga memastikan kepatuhan terhadap pengobatan rutin dan memberikan dukungan untuk memastikan pasien menyelesaikan pengobatannya. Tinjauan sistematis ini dilakukan untuk mengidentifikasi instrumen penelitian yang umum digunakan untuk mengukur hubungan antara dukungan keluarga dan kepatuhan pengobatan. Pencarian literatur dilakukan berdasarkan data ScienceDirect, PubMed, dan Scopus dari Desember 2025 hingga Februari 2026, menggunakan kata kunci "tuberkulosis," "dukungan keluarga," dan "kepatuhan pengobatan." Proses seleksi studi dilakukan menggunakan aplikasi Rayyan dan berdasarkan diagram PRISMA standar. Pencarian mengidentifikasi sebelas studi yang menggunakan desain studi potong lintang. Sembilan dari studi ini menemukan hubungan positif antara dukungan keluarga yang kuat dan kepatuhan pasien, sementara dua studi menunjukkan bahwa kurangnya dukungan keluarga merupakan faktor yang berkontribusi terhadap ketidakpatuhan pasien terhadap pengobatan. Penggunaan berbagai instrumen dalam penelitian ini, seperti MSPSS, MMAS, MARS, WHOQOL-BREF, PHQ-9, dan EQ-5D-5L, mencerminkan tingkat heterogenitas yang tinggi dalam pendekatan pengukuran yang digunakan. Oleh karena itu, meskipun argumen ini menegaskan hubungan antara dukungan keluarga dan peningkatan kepatuhan terhadap pengobatan, kekuatan bukti yang ada tetap terbatas karena variasi dalam desain penelitian dan instrumen yang digunakan. Untuk meningkatkan kesimpulan dan perbandingan antar penelitian mendatang, diperlukan penelitian longitudinal atau berbasis intervensi yang menggunakan instrumen pengukuran yang lebih terstandarisasi dan konsisten.

Kata Kunci: Tuberkulosis; Dukungan keluarga; Kepatuhan pengobatan; Kuesioner; Tinjauan sistematis.



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<https://doi.org/10.36490/journal-jps.com.v9i3.1549>

Article History:

Received: 04/05/2026,
Revised: 27/08/2026
Accepted: 27/08/2026,
Available Online: 13/09/2026.

QR access this Article



Introduction

Tuberculosis (TB) is a preventable and usually curable disease. However, in 2023, TB once again became the leading cause of death worldwide, after being replaced by coronavirus disease (COVID-19) for three years. More than 10 million people contract TB every year, and that number has been increasing since 2021. TB is caused by the bacterium *Mycobacterium tuberculosis*, which spreads when a person with TB releases the bacteria into the air (for example, through coughing). Some people will recover from the infection[1,2]. TB is caused by the bacterium *Mycobacterium tuberculosis*, which spreads when a person with TB releases the bacteria into the air (for example, through coughing). Some people will recover from the infection. Of the total number of people who contract TB each year, about 90% are adults, with more cases in men than women[3]. Although TB is curable, the complexity of treatment with a long duration (at least two months) and the potential side effects of medication often pose a major challenge in control efforts. The success of TB treatment is not only measured by the cure rate, but also by the prevention of transmission, drug resistance, and the restoration of patients' function and quality of life[4]. Regardless of the condition experienced by TB patients, they reported almost no social support from family and community members[5]. Where they were made to believe that they were loved, cared for, and valued.

Previous studies have shown that social support improves adherence to TB treatment and better psychological conditions by changing affective conditions, reducing stress, increasing self-efficacy, and encouraging positive behavior[6,7]. A key challenge in achieving successful therapy is ensuring patient adherence to treatment. Non-adherence to regular anti-tuberculosis (ATB) medication can lead to treatment failure, relapse, and the emergence of drug-resistant TB (DR-TB)[8]. Social support, especially from family, can play an important role for tuberculosis patients. Among other things, it can serve as a reminder to adhere to anti-tuberculosis medication, provide positive stigma, give support, affection, and confidence in the patient's recovery[9,10]. Factors influencing patient compliance are not only medical but also psychosocial. Family support is often cited as a crucial factor in successful therapy[11,12]. This support can include monitoring medication intake, emotional support, practical assistance, and reducing negative stigma. This chronic disease, coupled with the intensive treatment process and social stigma, significantly affects quality of life (QoL)[13]. Poor quality of life can lead to anxiety, depression, social isolation, and ultimately, worsen noncompliance with treatment. Conversely, good family support correlated with improved quality of life in TB patients[14].

Methods

Study Design and Search Strategy

A systematic review was conducted from December 2025 to February 2026. The PICO framework was used to guide the selection of articles. The population (P) included patients aged ≥ 17 years diagnosed with pulmonary tuberculosis and undergoing anti-tuberculosis treatment. The exposure (I) focused on family support and social support received by tuberculosis patients during treatment. The comparison (C), when applicable, involved patients receiving low or inadequate social support. The primary outcome (O) assessed in this review was medication adherence during tuberculosis treatment. The strategy for searching for articles used three online databases, namely Science Direct, PubMed, and Scopus. This search used a combination of Boolean operators (AND, OR) to ensure comprehensive coverage. A comprehensive search was conducted in three electronic databases: Science Direct, PubMed, and Scopus. Boolean operators were applied to maximize

sensitivity and specificity of the search. Science Direct: ("family support" OR "social support") AND ("tuberculosis" OR "TB") AND ("adherence" OR "compliance") AND ("quality of life" OR "QoL") AND (2015-2025) for Scopus (basic query):TITLE-ABS-KEY ("family support") AND TITLE-ABS-KEY (tuberculosis) AND TITLE-ABS-KEY (adherence OR compliance) AND PUBYEAR > 2015 AND PUBYEAR < 2025 Scopus (advanced query with filters): TITLE-ABS-KEY("family support") AND TITLE-ABS-KEY(tuberculosis) AND TITLE-ABS-KEY(adherence OR compliance) AND PUBYEAR > 2015 AND PUBYEAR < 2025 AND (LIMIT-TO(LANGUAGE, "English")) AND (LIMIT-TO(EXACTKEYWORD, "Tuberculosis") OR LIMIT-TO(EXACTKEYWORD, "Human") OR LIMIT-TO(EXACTKEYWORD, "Medication Compliance") OR LIMIT-TO(EXACTKEYWORD, "Quality Of Life") OR LIMIT-TO(EXACTKEYWORD, "Social Support") OR LIMIT-TO(EXACTKEYWORD, "Medication Adherence")) AND (LIMIT-TO(SUBJAREA, "SOC") OR LIMIT-TO(SUBJAREA, "MEDI") OR LIMIT-TO(SUBJAREA, "IMMU")) and for PubMed (comprehensive query): ("family support" OR "social support" OR "family involvement" OR "caregiver support") AND ("treatment adherence" OR "medication adherence" OR "treatment compliance") AND ("tuberculosis" OR "pulmonary tuberculosis" OR "TB patients") PubMed (simplified query): ("family support" OR "social support") AND ("treatment adherence" OR "medication adherence") AND ("tuberculosis" OR "pulmonary tuberculosis") The search was limited to articles published between 2015 and 2025, in English, and involving human subjects. Reference lists of included studies were also screened to identify additional relevant articles.

Eligibility Criteria and Selection Process

All articles that are identical in the three databases will be excluded, then screened for titles and abstracts in each article using the Rayyan application, until a comprehensive and final review is obtained. The inclusion criteria used were: 1) original studies aiming to see the relation of family support on TB medication adherence, 2) using questionnaires/interviews; 3) English-language articles; 4) published between 2015-2025. Subscribed articles or inaccessible full text were excluded. The initial search yielded 2,877 articles from three databases (Fig. 1). The Rayyan application was used to screen the articles. This platform, accessible through <https://rayyan.ai>, is designed to simplify screening by using machine learning to analyze the data, starting with data duplication and ending with the final data extraction results. In this case, it does not mean that the Rayyan application does not have limitations[15]. This application is only capable of carrying out meta data analysis, including screening titles, abstracts, and keywords. This means that the author must read one by one the methods used in the article to find out whether the article falls into the inclusion or exclusion criteria[16].

Study Selection

Three independent reviewers screened titles and abstracts using the Rayyan app. Discrepancies were resolved through discussion until a final decision was reached. Full texts of potentially eligible studies were retrieved and assessed against the inclusion criteria. The selection process is documented in a PRISMA flowchart[17].

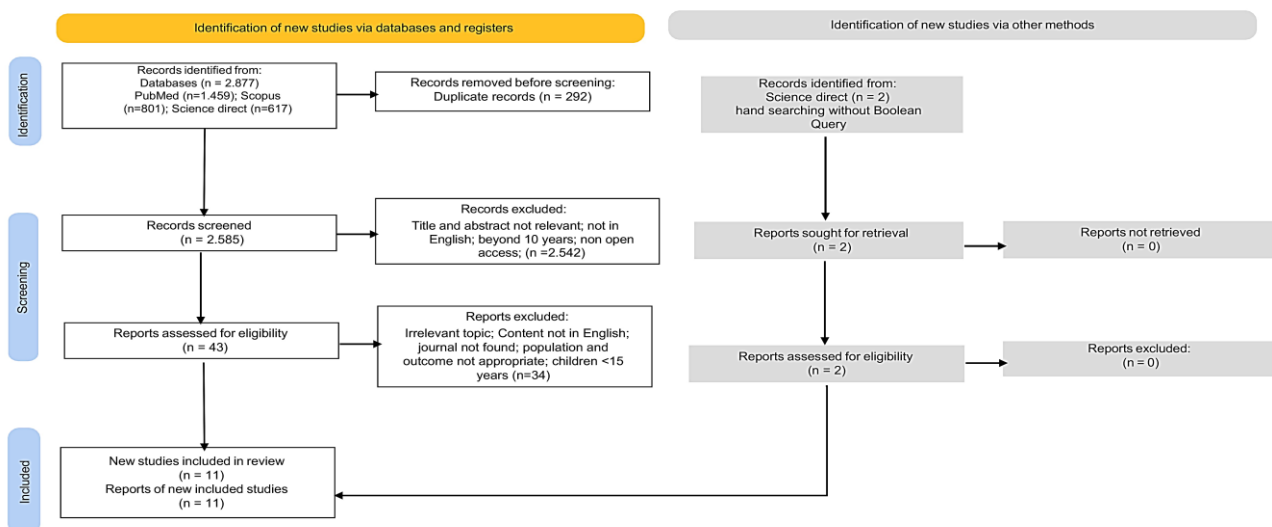


Figure 1. PRISMA Diagram flowchart.

Data Extraction

Data were extracted independently by three reviewers using Microsoft Excel. Information extracted included: study design, country, sample size, participant characteristics, instruments used to measure family support and adherence, and key findings. Any disagreements were resolved through discussion.

Quality Assessment

The methodological quality of included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies. Each study was scored across domains such as clarity of inclusion criteria, validity of measurement tools, and strategies to reduce bias. These quality ratings are then incorporated into the interpretation of the research results

Table 1. Quality assessment checklist by JBI (Cross-sectional)[18].

No	Question
1.	"Were the criteria for inclusion in the sample clearly define?"
2.	"Were the study subjects and the setting described in detail?"
3.	"Was the exposure measured in a valid and reliable way?"
4.	"Were objective, standard criteria used for measurement of the condition?"
5.	"Were the confounding factors identified?"
6.	"Were strategies to deal with confounding factors stated?"
7.	"Were the outcomes measured in a valid and reliable way?"
8.	"Was an appropriate statistical analysis used?"

Result and Discussion

This systematic review confirms a consistent association between family support and treatment adherence in tuberculosis patients. From the available literature, emotional support, medication monitoring, and practical assistance are the most significant forms of support. This also emphasizes the importance of psychosocial aspects in TB treatment management. By analyzing eleven selected articles that met the eligibility criteria, this review provides a comprehensive overview of the influence of family support on treatment adherence and patient quality of life. Eleven original, full-text articles in English meet the inclusion-exclusion criteria; therefore, a systematic review was conducted on the influence of family support on treatment adherence and quality of life in tuberculosis patients. The articles were obtained between 2015 and 2025, although the authors inclusion criteria stated that the articles selected were from the last ten years, from 2015 to 2025. The selection of the 2015–2025 period was based on methodological considerations aimed at capturing a decade of literature to identify research developments and trends while maintaining currency. This ten-year span allows the authors to compare earlier studies which emphasized the importance of family support with more recent research that employs increasingly standardized and validated measurement instruments.

The studies reviewed various countries with diverse health system characteristics, meaning that social and local contexts could influence the research findings. In Uganda and Tanzania, family support tended to focus on financial aspects due to limited access and the cost of treatment. Meanwhile, in Indonesia, social stigma and emotional support were more prominent factors. In China, instrumental support and participation in social groups played a significant role, whereas in Zimbabwe, family support primarily helped alleviate the psychological barriers faced by patients. Thus, the differences in outcomes stemmed not only from variations in research instruments but also from differences in healthcare systems, social conditions, and cultural characteristics across the respective countries.

After getting the screening results of eleven articles, a quality assessment was then carried out again to review systematic and research synthesis, providing a fast and efficient way to evaluate research methodology and identify efforts made by authors to reduce bias using a checklist by The Joanna Briggs Institute Critical Appraisal tools for use in JBI Systematic Reviews (JBI) [19].

Eleven cross-sectional studies were analyzed in this study. The main findings reveal association between family support whether in the form of emotional support, medication supervision, or daily assistance and medication adherence among tuberculosis patients. However, two of the eleven studies reported non-significant findings, underscoring that treatment adherence is a multifactorial phenomenon also influenced by individual circumstances and the quality of the healthcare system. This support is a crucial element for

patients undergoing long-term treatment, as it helps reduce stress and boost motivation. However, treatment adherence does not depend on a single factor; it is also influenced by individual characteristics, the challenges of social stigma, and barriers within the healthcare system. After the articles were selected based on the inclusion criteria, the next step was to examine the main findings of each study. This process aimed to provide a comprehensive overview of the role of family support in tuberculosis treatment adherence, while highlighting the diversity of results emerging from different research contexts. while highlighting the diversity of results arising from different research contexts due to the variety of instruments used.

Table 2. Quality assessment result

Author(year)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Score
Alinaitwe., et al (2025)[9].	1	1	1	1	1	1	1	1	8
Chen., et al, (2020)[20].	1	1	1	1	1	1	1	1	8
Alinaitwe., et al (2024)[21]	1	1	1	1	1	1	1	1	8
Gurusinga., et al (2024)[22].	1	1	1	1	1	1	1	1	8
Kilima., et al (2024)[23]	1	1	1	1	1	1	1	0	7
Fuady., et al (2024)[24]	1	1	1	1	1	1	1	1	8
Zarova., et al (2018)[25]	1	1	1	1	1	1	1	1	8
Nursasi.,et al (2022)[26]	1	1	1	1	1	1	1	1	8
Fang., et al (2022)[27]	1	1	1	1	0	1	1	1	7
Yadav., et al (2021)[28]	1	1	1	1	1	1	1	1	8
Polat et al., (2024)[29]	1	1	1	1	1	1	1	1	8

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The use of the JBI checklist can help evaluate the methodological quality of each study, although potential biases cannot be entirely avoided. Most studies rely on self-reported data, which can lead to reporting bias. In addition, selection bias may arise because participant recruitment is limited to specific healthcare facilities. To minimize these risks, independent assessments were conducted by three reviewers, triangulation was employed using multiple instruments, and discussions were held to resolve discrepancies in interpretation.

Table 3. Summary of the included studies

No	Author, year & country	Setting	Design study	Instrument	Effect of family support on adherence
1	Alianitwe., et al, 2025. Uganda [9]	Five TB treatment centers in Jinja, Southeastern Uganda. Included JRRH found in Jinja City, Bugembe, Walukuba, and HCIV also found in Jinja City, and BGH found in Jinja District local government	Cross Sectional	• MARS-10 for Adherence Instrument • 8 items rated on a 4-point Likert scale for MSPSS for family support	This shows a significant relationship between family support and compliance. This means that the higher the level of family support, the higher the patient's compliance in taking medication. Family support acts as a reminder, motivator, and supervisor of therapy.
2	Chen., et al, 2020. China.[20]	TB patients undergoing outpatient visits at Dalian Tuberculosis Hospital from September 2019 to January 2020	Cross Sectional	• MMAS-8 for Adherence Instrument • 6 questions for sociodemographic • 4 questions, including supervision of medication, for family support instrument • 11 questions social support from friends, neighbors, colleagues and doctors and the patient's participation in group activities and acquired knowledge of TB for social support	There is a significant relationship between emotional and instrumental support from the family and improving patient well-being. Family involvement helps patients undergo long-term therapy.
3	Alinaitwe., et al, 2025. Uganda[21].	At 5 TB treatment centers in Jinja, Eastern Uganda. recruited 147 pTB patients on the first line of treatment.	Cross Sectional	• face-to-face interviews. Patient responses were entered directly into a mobile data collection application known as kobocollect. • Perceived family support was assessed using eight items, adapted from the Multidimensional Scale of Perceived Social Support (MSPSS)	There is a significant relationship between patients with good family support for social activities and the threat of dropping out of school, making them more likely to comply with treatment.
4	Gurusinga., et al, 2024. Indonesia[22]	Involving 150 TB patients who were randomly selected from Deli Serdang Regency, Indonesia, in 2022	Cross Sectional	A questionnaire was developed by the researchers, consisting 35 items across four main dimensions or subscales • Emotional support (7 items) - evaluates the emotional encouragement and empathy provided by family members. • Appreciation support (4 items) - assesses recognition and positive reinforcement given to patients for adhering to treatment. • Informational support (8 items) - measures the extent to which families provide relevant information and guidance about tb treatment. • Instrumental support (10 items) - evaluates the practical assistance offered by family members	The results of the study show a significant correlation between noncompliance and low levels of emotional support and appreciation. This confirms that comprehensive family support, whether emotional, informational, or instrumental, plays an important role in improving compliance and treatment success.

5	Kilima., et al. 2024. Tanzania[23]	In two regions in the southern highlands of Tanzania, namely; Mbeya and Songwe.	Cross Sectional	Face-to-face interviews were conducted with the three aforementioned groups, between October 2020 and March 2021 (Each guide targeted one of the three categories of the respondents.)	The results of the study showed a significant relationship that non-compliance was more common in patients with low family financial support, resulting in TB patients failing to pay for treatment costs and experiencing rejection.
6	Fuady., et al, 2024, Indonesia[30]	part of the CAPITA research program, conducted from February to November 2022 (cross-sectional survey of adults with TB at primary health facilities in seven provinces of Indonesia	Cross Sectional	- Indonesian-validated version of the Patient Health Questionnaire-9 (PHQ-9) For symptoms depression 2 culturally adapted, and validated an Indonesian version of the TB-Stigma scale. Form A (Patient Perspective) with 11 questions and Form B (Community Perspective) with 10 questions EQ-5D-5L for QoL instrument	This shows that there's a significant relationship between family support and compliance. This support includes informational support, emotional support, and instrumental support, so families play a role in successful treatment.
7	Zarova., et al, 2018. Zimbabwe[25]	Adult patients with TB in Harare, Zimbabwe. Participants were conveniently recruited from one low-density suburb primary care clinic and two infectious disease hospitals.	Cross Sectional	Social support and HRQoL using the Multidimensional Scale of Perceived Social Support (MSPSS) and the EQ-5D for QoL	That family support has a significant influence in helping to reduce psychological barriers and increase the consistency of drug consumption, so that social support optimizes the patient's HRQoL.
8	Nursasi., et al., 2022. Indonesia[26]	Inviting participants to come to the PHC and complete questionnaires	Cross Sectional	MMAS-8	The results indicated that more than half the participants received instrumental support from their families. There is a significant relationship between patients with good family support for social activities
9	Fang., et al, 2022. China[27]	pulmonary TB patients in Anhui Province, China. Five counties (districts) in Anhui Province, China were selected by simple random sampling method.	Cross Sectional	The structured questionnaire was designed to collect information. (SDS) and (SSRS) SDS: 20 items and each item include 4 categories: always, often, sometimes, or rarely SSRS: scale consists of three dimensions for social support	The results revealed that there was no significant relationship between high family support and medication adherence. This indicates that family support is not the only determining factor that can ensure patient discipline in undergoing treatment.
10	Yadav., et al. 2021. Nepal[28]	180 tuberculosis patients registered under DOTS and receiving treatment more than or equal to 60 days.	Cross Sectional	WHOQOL-BREF and quality of life questionnaire MMAS-8 for medication adherence	There was no significant relationship between family support and adherence. This indicates that adherence is more influenced by individual or health care system factors, favorable timing at the DOTS center, and the absence of infection, and is associated with the patient's quality of life.
11	Polat et al.,2024 Turkey[29]	The population of the study consists of 97 patients who checked in the Tuberculosis Dispensary affiliated to Erzurum Public Health Directorate between 2015 and 2016. The data are collected by the researcher using the face-to-face interview technique	Cross Sectional	33 items and 4 Likert 15 SSPT by Sert and Olgun for stigma 12 items MSPSS for social support	The results of the study showed that family support was significantly related to the level of stigmatization in patients. Higher levels of stigma were found in individuals with low family support. Given that stigma can affect a patient's psychological state and motivation to undergo treatment, family support has the potential to play an indirect role in achieving therapy goals.

Table 4. Summary of the instrument

Instrument	The construct being measured	Dimension/aspect	Number of items	Response scale	Evidence of validity & reliability (2016–2020)
MSPSS (Multidimensional Scale of Perceived Social Support)	Perceived social support	Family; Friends; Significant Others.	12	Likert 7 poin (1–7).	Widely validated across cultures. The MSPSS demonstrates good validity and reliability as an instrument for measuring social support. This is evidenced by high Cronbach's alpha values: 0.91 for the "significant other" subscale, 0.87 for the "family" subscale, and 0.85 for the "friends" subscale [31]
MMAS-8 (8-item Morisky Medication Adherence Scale)	Medication adherence	Patient adherence behavior	8	Dichotomous (Yes/No) + Likert	Validated in chronic disease populations; In the study titled "Self-Efficacy and Medication Adherence among Elderly Patients with Hypertension at the Dau Community Health Center, Malang Regency," the reliability test for the MMAS-8 yielded a Cronbach's alpha score of 0.898, indicating high reliability. The validity test for the MMAS-8 resulted in a value of 0.824, while the test-retest reliability test yielded a value of 0.881 [32]
MARS-10 (Medication Adherence Rating Scale)	Medication adherence	Drug-taking behavior	10	5-point Likert	Validated in clinical settings; acceptable reliability. Internal consistency reliability was good, with Cronbach's alpha of 0.80 and 0.798 in the test-retest evaluation [33]
WHOQOL-BREF	Quality of life	Physical, psychological, social, environmental	26	5-point Likert	WHO-validated; strong reliability across countries. Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. The study can serve as evidence of the validity and reliability of the EQ-5D-5L and WHOQOL-BREF instruments in measuring quality of life within the Indonesian population. The findings indicate that both instruments demonstrate good reliability and can be validly used to assess the quality of life of the Indonesian people [34]
PHQ-9	Depression symptoms	Psychological distress	9	4-point Likert (0 = not at all, 3 = nearly every day)	Internationally validated. Previous research has demonstrated that the Indonesian version of the PHQ-9 is a valid and reliable instrument. Its validity was supported by a Spearman correlation analysis between the PHQ-9 and BDI, which yielded a correlation coefficient ($Rho = 0.53$). Furthermore, the instrument demonstrated high internal consistency, as indicated by a Cronbach's alpha of 0.84 [35,36]
EQ-5D-5L	Health-related quality of life	Mobility, self-care, usual activities, pain/discomfort, anxiety/depression	5 dimensions	5-level categorical scale	Validated in Europe and Asia, reliable and widely used. The study can serve as evidence of the validity and reliability of the EQ-5D-5L and WHOQOL-BREF instruments in measuring quality of life within the Indonesian population. The findings indicate that both instruments demonstrate good reliability and can be validly used to assess the quality of life of the Indonesian people [34]
Researcher-developed instruments	Family support (emotional, instrumental, stigma)	Context-specific dimensions	20–35	4–5 point Likert	Limited validation; reliability often unreported

This review identifies significant variations in the instruments used to measure family support and treatment adherence among tuberculosis patients. This review demonstrates the predominant use of the MMAS-8 and MSPSS as standard instruments for assessing adherence and family support. However, the reliance on other measurement tools, including researcher-developed instruments, indicates that the measurement approaches employed remain inconsistent. This reflects methodological heterogeneity in existing studies on the influence of family support on treatment adherence among tuberculosis patients. The quality and validity of the instruments have a direct impact on the strength of the reported associations, as evidenced by the fact that studies using standardized instruments tend to yield more consistent and robust findings, whereas studies using self-administered questionnaires often produce weaker or even insignificant results. A methodological quality assessment using the JBI Critical Appraisal Checklist showed that most studies received high scores, ranging from 7 to 8 out of a total of 8 points. These results were achieved due to clear inclusion criteria, sufficiently detailed descriptions of the study subjects, and the use of valid instruments. However, there were general weaknesses, namely limited efforts to identify and control confounding variables and a reliance on self-report data. This reliance on self-reports has the potential to introduce bias.

The instruments used in the studies differ in terms of construct focus, number of items, and levels of validity; consequently, the research findings cannot always be directly compared. Validity in this context refers to the extent to which an instrument consistently measures the intended concept (such as adherence or family support) in accordance with scientific standards.

Differences in the measurement instruments used across various studies are a factor that can explain the variation in findings. Standardized instruments such as the MSPSS and MMAS-8 are supported by evidence of robust validity and reliability; consequently, the results obtained tend to be more consistent and allow for cross-study comparisons. Conversely, instruments like the MARS-10, WHOQOL-BREF, PHQ-9, and EQ-5D-5L focus on different constructs such as medication adherence, quality of life, and psychological status—which in turn influence the interpretation of research findings. For instance, the MSPSS emphasizes the social and emotional support received by the patient, whereas the MMAS-8 focuses on the patient's adherence behavior regarding treatment. Meanwhile, instruments such as the WHOQOL-BREF and EQ-5D-5L provide a broader perspective on quality of life, indicating that family support may benefit not only medication adherence but also the patient's overall well-being. Additionally, the PHQ-9 incorporates a psychological dimension by identifying the potential role of depressive symptoms in influencing patient adherence, even when family support is present. Thus, the choice of instrument plays a crucial role in shaping the direction and interpretation of research findings. Differences in constructs and instrument characteristics can lead to variations in both results and conclusions.

This limitation restricts the ability to draw causal conclusions, so the findings should be understood more accurately as an association rather than as evidence of a cause-and-effect relationship. Overall, the findings of this review confirm that family support plays a crucial role in improving adherence to TB treatment, but the quality of the evidence remains limited by study design and variations in assessment tools. The limitations of this study fall into two categories. First, the limitations of the included primary studies include cross-sectional designs, the use of self-report data, instrument heterogeneity, and a lack of control for confounding variables (such as stigma and comorbid conditions). Second, the limitations of this systematic review include the absence of a meta-analysis, meaning the results are presented only in the form of a descriptive synthesis, the absence of a meta-analysis limits the generalizability of the findings regarding the overall research outcomes. Furthermore, variations in national characteristics, healthcare systems, and socio-cultural backgrounds can increase the heterogeneity of the findings. Nevertheless, a descriptive approach still contributes to identifying consistent trends and patterns across studies particularly concerning the role of emotional and instrumental support in improving treatment adherence. These limitations should be transparently acknowledged so that the observations are understood as exploratory in nature. Such findings can serve as a foundation for future research employing more homogeneous designs and comprehensive quantitative analyses to generate more robust evidence.

Conclusion

Of the eleven studies analyzed, nine (81.8%) showed a positive association, while the remaining two studies (18.2%) found no association. This systematic review confirms that family support plays a crucial role in improving adherence to tuberculosis treatment. Studies using standardized instruments such as the MMAS-

8 and MSPSS yielded more consistent and robust results, whereas studies using self-administered questionnaires tended to produce weak or nonsignificant findings. Methodological assessment using the JBI checklist indicates generally good quality however, limitations such as cross-sectional design, reliance on self-reports, and insufficient control of confounding variables restrict causal conclusions.

Recommendations for future research include not only employing a longitudinal design but also establishing a more specific research focus. The MMAS-8 could be considered as an instrument to measure medication adherence, while the MSPSS could be used to assess social support including family support given their widespread use and established validity and reliability across various research contexts. A follow-up period of approximately 6–12 months is recommended to allow for the observation of changes and consistency in patient adherence over the long term. Future studies should also consider and control for various factors, such as social stigma, psychological conditions (particularly depression), family economic status, and the quality of healthcare services received by the patient. Regarding study design, longitudinal cohort studies and family-based interventions could strengthen evidence concerning the potential causal relationship between family support and medication adherence.

Conflict of Interest

The authors report no financial or any other conflicts of interest in this work

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