THE ROLE OF FAMILY SUPPORT IN IMPROVING TREATMENT ADHERENCE AMONG PULMONARY TUBERCULOSIS PATIENTS: A SCOPING REVIEW

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ABSTRACT

Background: Pulmonary tuberculosis (TB) remains a major global health challenge, with poor treatment adherence hindering effective disease control. Family support has been identified as a key factor in promoting adherence, though evidence on its effectiveness varies across settings.
Objective: This scoping review aims to identify and synthesize recent scientific evidence on the role of family support in improving treatment adherence among pulmonary TB patients across various healthcare contexts.
Methods: The review followed the Joanna Briggs Institute (JBI) framework and PRISMA-ScR guidelines. A systematic search of PubMed, ScienceDirect, ProQuest, and Google Scholar identified 383 articles published between January 2020 and April 2025. After screening, 22 studies met the inclusion criteria and were analyzed thematically to explore forms of family support, factors affecting their effectiveness, and research gaps.
Results: The review found that family support positively influences treatment adherence in pulmonary TB patients. Common forms include emotional (e.g., empathy, motivation), instrumental (e.g., daily assistance, medication management), informational (e.g., disease education), and motivational support. Families often serve as reminders, attend appointments with patients, and offer psychological encouragement. The effectiveness of this support is shaped by socio-cultural factors such as stigma, gender norms, and health literacy. Programs integrating family support within DOTS and health education show improved outcomes. However, challenges persist in families with limited resources or insufficient knowledge about TB. The review also identifies a lack of longitudinal and structured intervention studies.
Conclusion: Family support is a vital and strategic approach to enhancing TB treatment adherence. Incorporating family-based interventions into national TB programs and developing context-specific strategies are essential for reducing non-adherence and improving treatment success.

Keywords: Family AND Social Support; Medication adherence; Tuberculosis Pulmonary; Scoping review.

Introduction

Pulmonary tuberculosis (TB) remains one of the most significant public health challenges globally. According to the World Health Organization's Global Tuberculosis Report (2023), an estimated 10.6 million new TB cases were reported worldwide in 2022, with approximately 1.3 million deaths. One of the major obstacles in TB management is patients' poor adherence to treatment, which contributes to therapeutic failure, disease relapse, and the emergence of drug resistance (Tola et al., 2021).

TB treatment requires a prolonged regimen of at least six months, often imposing psychosocial and economic burdens on patients. These challenges can diminish patients' motivation to complete therapy, especially in settings with limited resources and inadequate social support (Rezapour et al., 2021). In this context, family support plays a critical external role in improving patient adherence to treatment. Family support includes emotional, instrumental, informational, and appraisal support, all of which have been shown to reinforce healthy behaviors and improve clinical outcomes among TB patients (Q. Liu et al., 2021).

Several studies indicate that strong family support significantly increases patients' motivation to adhere to treatment regimens and reduces the risk of treatment interruption. A study by Narasimhan et al. (2021) confirmed that family-based interventions significantly enhance TB treatment adherence across diverse settings, including both high- and low-income countries. Similarly, Wang et al. (2022) reported that family-focused intervention programs in China substantially improved treatment completion rates.

However, despite growing evidence supporting the beneficial role of family support, these studies vary in methodology, the type of support measured, and cultural contexts. Therefore, a more systematic mapping of the literature is required to comprehensively understand how family support influences TB treatment adherence. Such a review is also essential to identify research gaps that could inform the future development of family-centered intervention strategies (S. Tadesse et al., 2023).

Accordingly, this scoping review aims to identify, map, and synthesize recent

empirical evidence on the role of family support in enhancing treatment adherence among patients with pulmonary tuberculosis. Through this review, we seek to gain an in-depth understanding of effective forms of family support, factors influencing their success, and recommendations for implementing family-based programs in TB control efforts. Although medication adherence in tuberculosis care has been extensively studied, only a few reviews have specifically focused on the multidimensional role of family support. This gap underlines the novelty and relevance of this work. Therefore, this review seeks to answer the main research question: "What is the role of family support in improving medication adherence among patients with pulmonary tuberculosis based on scientific evidence from the last five years?"

Methods

This scoping review was conducted in accordance with the methodological guidelines of the Joanna Briggs Institute (JBI) (Peters et al., 2020) and followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) reporting framework (Tricco et al., 2018) to ensure a systematic, transparent, and accountable research process.

The study's aim and research questions were developed using the Population, Concept, and Context (PCC) framework. The Population in this review refers to patients with pulmonary tuberculosis, the Concept is family support, and the Context is adherence to tuberculosis treatment across various healthcare settings.

Inclusion criteria consisted of articles published between 2020 and 2024, written in English or Indonesian, and focused on the influence of family support on treatment adherence in patients with pulmonary tuberculosis. Exclusion criteria included narrative reviews, commentaries, editorials, or articles that did not explicitly examine the relationship between family support and treatment adherence.

The literature search was carried out across several electronic databases, including PubMed, ScienceDirect, ProQuest, and Google Scholar. The keywords used were: "pulmonary tuberculosis" [Title] AND "family support" [Title] AND "adherence" [Title], along with relevant variations, adjusted using Boolean operators (AND, OR) (Munayco et al., 2023; Tola et al., 2021). To enhance the validity of the search strategy, consultations were

conducted with experienced librarians to optimize search techniques and documentation (Munn et al., 2022).

Article selection was performed in two stages. The first stage involved screening titles and abstracts to identify potentially relevant studies. Articles that met the initial criteria were then subjected to full-text review in the second stage. Each phase of the selection process was documented using a PRISMA-ScR flow diagram to maintain transparency (Tricco et al., 2018). Data extraction from the included studies was conducted using a standardized table format, encompassing details such as authorship, year of publication, research methods, type of family support examined, forms of adherence measured, and key findings. A descriptive analysis was employed to map key patterns in the literature, identify effective types of family support, determine influencing factors, and highlight existing research gaps (Chiang et al., 2022; X. Liu et al., 2021; A. Tadesse et al., 2023).

Ultimately, this scoping review aims to provide a comprehensive understanding of the role of family support in enhancing treatment adherence among patients with pulmonary tuberculosis and to serve as a foundational basis for the future development of family-based intervention strategies.

Inclusion Criteria

The article search process in this study was guided by the Population, Concept, and Context (PCC) framework. The specific inclusion criteria are detailed as follows:

Component	Description
Population	Adult patients with pulmonary tuberculosis undergoing TB treatment across various healthcare settings.
Concept	Family support in its various forms—including emotional, instrumental, informational, and appraisal support—and its influence on patients' adherence to TB treatment. The focus is on family-based interventions aimed at improving treatment adherence.
Context	Primary, secondary, and community healthcare settings across countries with diverse resource levels, aimed at exploring variations in family support and its impact on TB treatment adherence.

TYPES OF SOURCES

This scoping review will include a wide range of evidence sources to provide a comprehensive understanding of the research question. Various experimental and quasi-experimental study designs will

be considered, including randomized controlled trials (RCTs), non-randomized controlled trials, pre- and post-intervention studies, and interrupted time-series studies. Analytical observational designs, such as prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies, will also be included.

Descriptive observational designs—including case series, individual case reports, and descriptive cross-sectional studies—will be considered to provide additional contextual insights into the relationship between family support and treatment adherence among patients with pulmonary tuberculosis. Furthermore, qualitative studies focusing on the collection and analysis of qualitative data—including, but not limited to, phenomenology, grounded theory, ethnography, qualitative description, action research, and feminist research—will be included to capture the diverse perspectives and lived experiences of TB patients within the context of family support.

By incorporating a variety of study designs and sources of evidence, this scoping review aims to comprehensively map the existing body of literature, identify potential research gaps, and highlight the breadth of knowledge regarding the role of family support in improving treatment adherence among patients with pulmonary tuberculosis.

ELIGIBILITY CRITERIA

The eligibility criteria for this scoping review were carefully established to ensure the relevance and academic rigor of the included articles. The specific inclusion criteria are as follows: articles must explicitly report findings that discuss, evaluate, or apply the role of family support—whether emotional, informational, instrumental, or financial—in enhancing treatment adherence among patients with pulmonary tuberculosis. Eligible studies may employ quantitative, qualitative, or mixed-method research designs. The target population must include patients with pulmonary tuberculosis (both adults and children) who are undergoing anti-tuberculosis treatment. Additionally, included articles must be available in full-text format to allow for comprehensive data analysis, published between January 2020 and April 2025 to ensure up-to-date information, and written in either English or Indonesian.

Conversely, the exclusion criteria are defined as follows: articles that do not

address or directly explore the role of family support in treatment adherence among pulmonary tuberculosis patients will be excluded, as this review specifically aims to map and synthesize the unique contributions of family support. Articles categorized as narrative reviews, systematic reviews, other scoping reviews, editorials, commentaries, or opinion pieces are also excluded to maintain the focus on original empirical evidence. Furthermore, duplicate publications that appear in two or more journals will be excluded to preserve the integrity, originality, and distinctiveness of the findings presented in this review.

These criteria are applied to ensure that only high-quality, relevant, and empirically grounded studies are included in the scoping review.

DATABASES

The literature search was conducted systematically across several relevant academic databases to ensure broad and comprehensive coverage of the literature related to preceptorship in nursing, particularly those that incorporate the use of theoretical frameworks. The databases used included:

PubMed(https://pubmed.ncbi.nlm.nih.gov),a primary resource for evidence-based medical and nursing articles;

ScienceDirect(https://www.sciencedirect.com), which provides access to publications in health sciences, nursing, and applied social sciences;

ProQuest (https://www.proquest.com), a multidisciplinary database encompassing nursing, health psychology, and clinical education literature;

GoogleScholar(https://scholar.google.com), which was utilized to identify recent publications, including grey literature and non-traditional academic sources.

The selection of these databases was based on their capacity to provide access to current scientific literature, peer-reviewed studies, and publications that facilitate the exploration of theory and nursing practice in an integrated manner (Peters et al., 2020; Tricco et al., 2023).

Search Strategy

The literature search strategy for this scoping review was designed to identify studies that examine the relationship between family support and treatment adherence among patients with pulmonary tuberculosis. A systematic approach was adopted to ensure both inclusivity and

transparency throughout the identification of relevant literature.

A combination of keywords and Boolean operators was employed to broaden the search while refining it to match the research topic. The primary keywords used included: ("pulmonary tuberculosis"[Title]) AND ("family support"[Title])AND("adherence"[Title]). The search was conducted across four major academic databases commonly used in health research: Google Scholar, PubMed, ScienceDirect, and ProQuest. In addition, grey literature was explored via Google Scholar and institutional repositories to identify supplementary sources not published in peer-reviewed journals.

The search targeted publications released between January 2020 and April 2025 to ensure data relevancy and currency. Articles considered for inclusion were required to be written in either English or Indonesian and available in full-text format. The initial search yielded a total of 383 articles, distributed as follows: 348 from Google Scholar, 1 from PubMed, 5 from ScienceDirect, and 29 from ProQuest.

The entire search process was systematically documented to ensure replicability, and the strategy was developed in consultation with academic librarians to optimize coverage of relevant literature.

Additionally, reference tracking was performed on the selected articles to identify secondary sources that may not have appeared in the initial search results. Through this comprehensive search strategy, the study aims to provide a robust understanding of how family support contributes to improving treatment adherence among patients undergoing therapy for pulmonary tuberculosis.

Article Screening

The article screening process in this study followed the workflow recommended by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), structured in a flow diagram consisting of four main stages: identification, screening, eligibility assessment, and inclusion. The process began with the identification of all articles retrieved from the selected databases, followed by the removal of duplicates based on similarities in title, author names, or publication sources—both within and across databases. This step was essential to ensure the uniqueness and originality of the data to be analyzed (Tricco et al., 2023).

After duplicate removal, the screening phase was conducted based on titles and abstracts, with a focus on the relevance of each article to the topic of family support in improving treatment adherence among patients with pulmonary tuberculosis. Articles categorized as literature reviews, scoping reviews, or systematic reviews without direct empirical data were excluded in order to maintain focus on primary empirical studies.

The next stage involved full-text screening to confirm each article's alignment with the inclusion criteria, particularly regarding the clarity of population (pulmonary TB patients), concept (family support), and methodological relevance. This procedure was carried out systematically to ensure the validity, transparency, and accountability of the article selection process (Peters et al., 2020; Fischer et al., 2021).

Data extraction was conducted using a standardized template that included key elements such as study design, population characteristics, type of family support analyzed, research context, and main findings. The extraction process was performed independently by two reviewers to ensure objectivity and minimize potential bias. Any discrepancies were resolved through discussion or, when necessary, by involving a third reviewer (Peters et al., 2020; Tricco et al., 2023). This approach ensured that the data collected were accurate, systematic, and aligned with the study's objective to explore the role of family support in enhancing treatment adherence among patients with pulmonary tuberculosis.

Results

Following a rigorous process of identification and screening of 98 articles sourced from four major academic databases (ProQuest, ScienceDirect, Google Scholar, and PubMed), a total of 22 articles were selected for in-depth analysis in this scoping review. These articles reflect a diverse range of geographical and methodological contexts, with most studies originating from high TB burden countries such as India, Indonesia, Ethiopia, and Bangladesh. All included studies employed primary research designs, including qualitative, quantitative, and mixed-method approaches.

The majority of studies demonstrated that family support plays a significant role in enhancing treatment adherence among patients with pulmonary tuberculosis. The types of support identified included emotional support, supervision of

medication intake, logistical assistance, and accompaniment to healthcare facilities (Shiferaw et al., 2023; Sudrajat et al., 2022). For instance, in a study by Puspitasari et al. (2021), patients who consistently received family support were found to be twice as likely to complete their treatment regimens compared to those without such support.

Family support is not homogeneous; studies reported a range of supportive actions, including reminders to take medication, provision of nutritious meals, and psychosocial encouragement during times when patients felt discouraged or fatigued with the treatment process (Ahmed et al., 2021; Tadesse &Bisetegn, 2020). Immediate family members—such as spouses, parents, and adult children— were found to have the most substantial influence. In collectivist cultures like those in Indonesia and India, extended family structures often play an essential role in maintaining patient morale and providing social oversight (Putri & Yuliana, 2023).

Despite its importance, family support also faces several barriers, particularly among families with limited economic resources or poor knowledge about TB. Hossain et al. (2020) noted that internal stigma within the family could undermine patient motivation

and even lead to social isolation. Additionally, a lack of understanding among family members regarding the importance of treatment adherence can also hinder the support process (Rahayu et al., 2023).

Several studies examined the effectiveness of family-based interventions, such as health education and home-based counseling. Programs involving family members in TB patient monitoring showed a significant increase in adherence rates, as evidenced by experimental studies (Debela et al., 2022). Such interventions were found to be effective in raising family awareness and strengthening support systems throughout the extended course of TB treatment.

Findings from this scoping review underscore that the role of the family is not only supportive but also strategic in TB control interventions. The integration of family-centered approaches within DOTS (Directly Observed Treatment, Short-course) programs is critically important to enhance treatment success rates. Moreover, community-based programs could be expanded to include training for family members as active partners in TB case management (WHO, 2021).
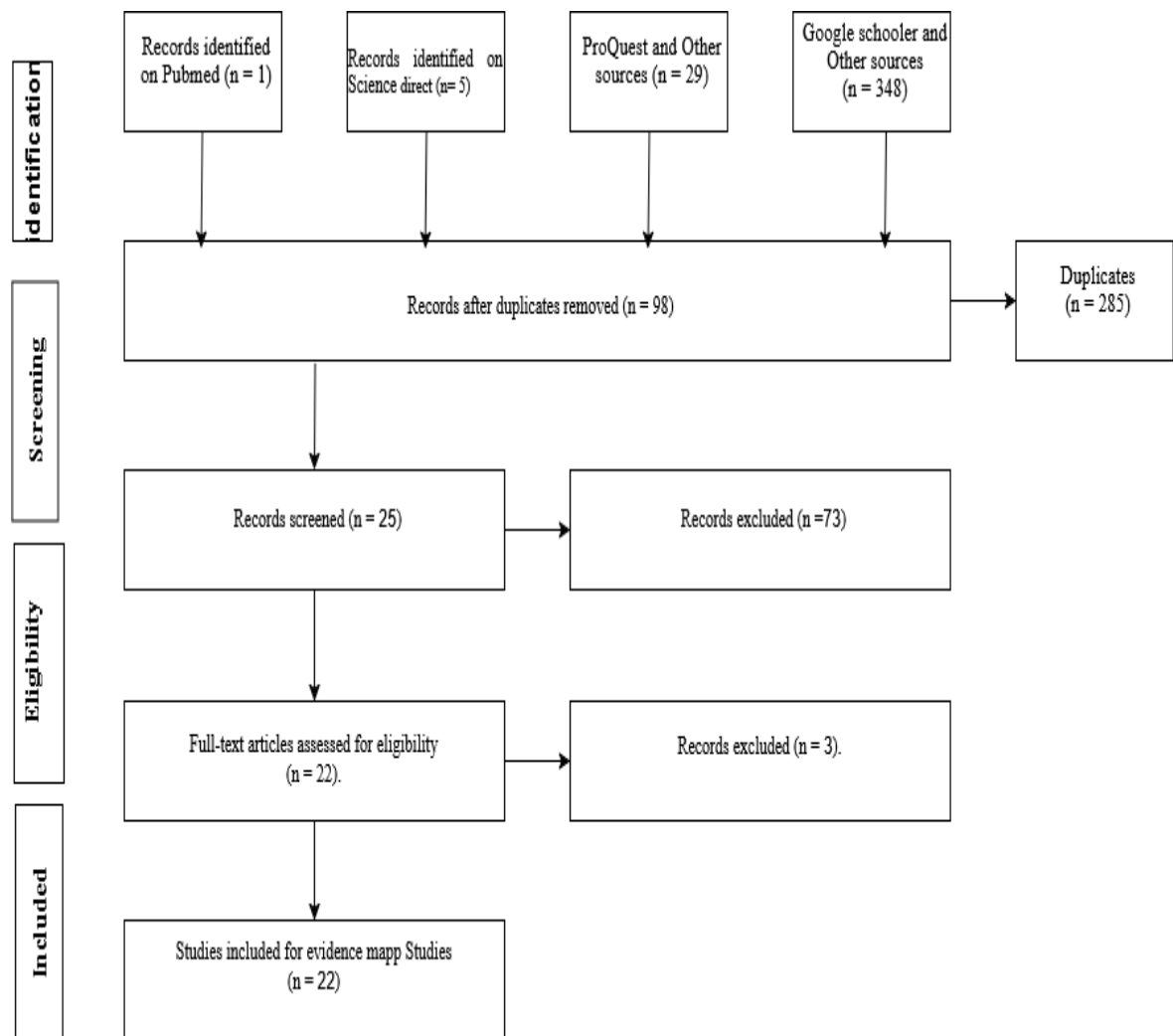
The literature search in this study utilized four main databases: PubMed, Science Direct, ProQuest, and Google Scholar. During the identification phase, a total of 383 articles were retrieved across all databases.

After initial screening based on predetermined criteria—publication date between 2020 and 2025, full-text availability, and language (English or Indonesian)—the number of eligible articles was reduced to 98. Further screening was conducted based on the relevance of titles and abstracts. Articles categorized as literature reviews, scoping reviews, or systematic reviews, as well as duplicate entries, were excluded. Ultimately, 22 articles were selected and subjected to detailed evaluation to confirm their alignment with the inclusion criteria. The complete PRISMA flow diagram illustrating this process is presented below.

Identification

Records identified on Pubmed (n = 1)

Records identified on Science direct (n= 5)

ProQuest and Other sources (n = 29)

Google schooler and Other sources (n = 348)

Screening

Records after duplicates removed (n = 98)

Duplicates (n = 285)

Records screened (n = 25)

Records excluded (n =73)

Eligibility

Full-text articles assessed for eligibility (n = 22).

Records excluded (n = 3).

Included

Studies included for evidence mapp Studies (n = 22)

Picture 1. PRISMA Flowchart

Critical Appraisal Results

The initial appraisal was conducted independently by two reviewers, followed

by discussions to resolve any discrepancies and reach a final consensus. In this study, the 2020 version of the Joanna Briggs Institute (JBI) Critical Appraisal Tools was employed to evaluate a range of study designs. These included qualitative studies (n = 4), quantitative studies (n = 8), cross-sectional studies (n = 7), one meta-synthesis study (n = 1), one conceptual analysis study (n = 1), and one clinical practice study (n = 1).

Articles Included in the Literature Review

Based on the initial analysis, further screening, and final identification process, a total of 22 articles were included in this review. The following table provides detailed information on the critical appraisal of each article:

Table 3 Summary of Critical Appraisal Scores for Included Articles

Study ID	Title	Criteria												Score
		1	2	3	4	5	6	7	8	9	10	11	12	
JBI Qualitative Studies														
FS TB1	Living withTuberculosis	✓	✓	✓	–	–	✓	✓	✓	✓	✓	-	-	76.9%
FS TB11	Health Seeking Behaviors	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	–	–	84.6%
FS TB15	Masculinities Inducing Deviant Sick-Role	✓	–	✓	✓	–	✓	✓	✓	✓	–	–	–	76.9%
FS TB24	Delayed sputum conversion	✓	✓	–	✓	–	✓	✓	✓	✓	✓	–	–	84.6%
JBI Quantitative Studies														
FS TB3	Correlation of Family Affective Function	✓	✓	–	✓	✓	✓	–	✓	–	✓	✓	✓	84.6%
FS TB6	Efforts to Improve Family Health Management	✓	✓	✓	✓	✓	✓	–	✓	✓	–	✓	–	84.6%
FS TB9	Overview of Anxiety Levels	–	✓	–	✓	–	✓	✓	✓	–	✓	–	✓	69.2%
FS TB12	Family Support in Increasing Adherence	✓	–	✓	✓	✓	–	✓	✓	✓	✓	–	–	84.6%
FS TB16	Treatment outcomes and support groups	✓	✓	✓	✓	✓	✓	✓	–	✓	–	✓	–	84.6%
FS TB20	Family Support Relationship	✓	–	✓	✓	✓	–	✓	✓	✓	✓	–	–	84.6%
FS TB22	Adherence to Pulmonary TB Medication	✓	✓	✓	✓	✓	✓	–	✓	✓	–	✓	–	84.6%
FS TB25	Relationship of Family Support	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓	–	92.3%
JBI Cross-Sectional Studies														
FS TB2	SMS reminders for monitoring tuberculosis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	100%
FS TB7	Health counseling support	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓	–	92.3%

Study ID	Title	Criteria												Score
		1	2	3	4	5	6	7	8	9	10	11	12	
	medication adherence													
FS TB8	Enhance the Health Status of Nomadic Pastoralists	✓	✓	✓	–	✓	✓	–	✓	✓	–	✓	✓	84.6%
FS TB10	Factors Related To Patient	✓	✓	✓	✓	✓	–	✓	✓	✓	–	✓	–	84.6%
FS TB13	Determinants of TreatmentInterruption	✓	✓	✓	–	✓	✓	–	✓	✓	–	✓	–	84.6%
FS TB17	Family And Social Support	✓	✓	✓	–	✓	–	✓	✓	✓	–	✓	✓	84.6%
FS TB21	Quality of Life and Compliance Level	✓	✓	✓	–	✓	✓	✓	–	✓	–	✓	✓	84.6%
JBI Meta-Synthesis Study														
FS TB14	Facilitators and barriers to TB diagnosis	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓	92.3%
JBI Conceptual Analysis														
FS TB19	Conceptual Analysis of Family Support	✓	✓	–	✓	–	✓	–	✓	✓	✓	✓	✓	84.6%
JBI Clinical Practice Study														
FS TB18	How We Treat Drug-Susceptible TB	✓	✓	✓	✓	–	✓	–	✓	✓	–	✓	–	84.6%

Tabel 4. Literature Analysis Results

ID Number	Author and Journal	Journal Title	Objective	Population and Sample	Method	Summary of Results
FS TB1	Addo, J. et al. (2022), BMC Public Health	Living with tuberculosis: a qualitative study of patients' experiences with disease and treatment	To explore patients' experiences related to TB illness and treatment.	20 TB patients in Ghana	Qualitative study with in-depth interviews	Patients experienced social and emotional challenges; stigma and drug side effects significantly shaped their experiences.
FS TB2	Badzi, C. D. et al. (2024), Digital Health	SMS reminders for monitoring tuberculosis treatment among women	To assess the effectiveness of SMS reminders for TB treatment monitoring among women.	128 women with TB in Greater Accra, Ghana	Quantitative study using surveys and monitoring	High acceptance of the intervention; SMS reminders helped reduce forgetfulness and improved adherence.
FS TB3	Chandra Tri &Mandasari, E. (2023), JurnalKeperawatan WidyaGantari	Correlation of Family Affective Function and Self-Efficacy with TB Medication Adherence	To analyze the relationship between family affective function and self-efficacy with TB medication adherence.	82 pulmonary TB patients in Puskesmas in Java	Quantitative correlational study	There was a significant positive correlation between family support, self-efficacy, and medication adherence.
FS TB6	DwiYuningsih et al. (2022), JurnalIlm	Efforts to Improve Family Health Management for TB	To analyze the role of family support in	32 TB patient families	Action research	Family support played an important role in improving adherence and

	iahKedok teran dan Kesehata n		TB managem ent.		treatment management effectiveness.
FS TB7	Efendi, S. et al. (2022), Clinical Epidemio logy and Global Health	Health Counseling Support Medication Adherence	To evaluate the effect of health counselin g on TB medicatio n adherence .	120 pulmon ary TB patients in South Sulawes i	Quantitativ e pre-post test study	Health counseling significantly improved patient adherence.
FS TB8	Getnet, F. et al. (2017), BMC Research Notes	Enhance the Health Status of the Nomadic Pastoralists	To improve the health status of nomadic pastoral communit ies in Somali Region, Ethiopia.	Pastoral ist populati on in Filtu Woreda	One Health operational research	Community engagement and integrated health services improved TB program outcomes in vulnerable populations.
FS TB9	Ibn, U. et al. (2025), Info Kesehata n	Overview of Anxiety Levels in Pulmonary Tuberculosis Patients	To assess anxiety levels in pulmonar y TB patients.	100 TB patients in Pekaum an, Banjarm asin	Descriptive quantitative	Most patients showed moderate to high anxiety levels; psychosocial approaches are needed.
FS TB10	Indriyani, Y. et al. (2021), Science Midwifer y	Factors Related To Patient Adherence To Anti Tuberculosis Drug Treatment	To identify factors affecting adherence to TB drug treatment.	120 TB patients at Mekar Jaya Health Center	Cross- sectional design	Key factors: family support, disease understanding, and education.
FS TB11	Makgopa, S. et al. (2022), IJERPH	Pre-Diagnosis Health Seeking Behaviors and Experiences	To explore health- seeking behaviors before	18 men with TB in Gauteng , South Africa	Qualitative study with in-depth interviews	Masculinity and stigma contributed to delays in treatment seeking and post-

		Post-Diagnosis	diagnosis and post-diagnosis experiences.			diagnosis anxiety.
FS TB12	Manurung, N. et al. (2022), The Seybold Report	Family Support in Increasing Adherence	To analyze the impact of family support on TB patient adherence.	50 TB patients in North Sumatra	Descriptive quantitative design	There was a positive correlation between family support and adherence levels.
FS TB13	Mwai, M. et al. (2022), IJ Current Aspects	Determinants of Treatment Interruption	To analyze determinants of pulmonary TB treatment interruption.	112 TB patients in Embu County, Kenya	Mixed-methods study	Contributing factors: stigma, healthcare access, non-adherence, and cost.
FS TB14	Oga-Omenka, C. et al. (2021), BMC Public Health	Meta-synthesis of Facilitators and Barriers to TB Diagnosis and Treatment	To synthesize the facilitators and barriers to TB diagnosis and treatment.	28 qualitative studies in Nigeria	Qualitative meta-synthesis	Barriers: stigma, lack of awareness, limited access. Facilitators: social support, health awareness.
FS TB15	Phiri, C. et al. (2024), IJAMRS	Masculinities Inducing Deviant Sick-Role Behaviour	To examine the impact of masculine norms on TB care behaviors.	25 men with TB in Zambia	Qualitative study	Masculine gender norms led to rejection of the sick role and delayed treatment initiation.
FS TB16	Potty, R. S. et al. (2023),	Tuberculosis Treatment Outcomes and	To evaluate the	150 TB patients in	Retrospective cohort study	Participation in support groups improved

	WHO Bulletin	Patient Support Groups	impact of patient support groups on TB treatment outcomes.	Southern India		treatment outcomes and program retention.
FS TB17	Rahmadhani V. et al. (2024), CNJ	Family and Social Support on Successful Treatment	To analyze the role of family and social support on TB treatment success.	80 pulmonary TB patients	Cross-sectional design	Family and social support significantly improved treatment success.
FS TB18	Riccardi, N. et al. (2023), Antibiotics	How We Treat Drug-Susceptible Pulmonary Tuberculosis	To provide practical guidelines for managing pulmonary TB.	Not an empirical study, clinical guideline	Narrative review	Offers updated treatment protocols and a multidisciplinary approach to pulmonary TB.
FS TB19	Roc, R. et al. (2024), Hindawi	Conceptual Analysis of Family Support	To construct a theoretical definition of family support in the TB context.	Conceptual literature analysis	Theoretical analysis	Defines family support as a key element in adherence and patient well-being.
FS TB20	Safari, G. & Chandra, A. (2017), Healthy Journal	Family Support and TB Medication Adherence	To analyze the relationship between family support and TB medication	60 pulmonary TB patients	Correlational study	Significant positive relationship between family support and TB medication adherence.

			adherence.			
FS TB21	Sely, S. &Peristio wati, Y. (2024), IJMSPH	Quality of Life and Compliance Level of Pulmonary TB Patients	To analyze the relationsh ip between quality of life, adherence , and BMI among TB patients.	70 post-hospital TB patients	Analytical descriptive	Patients with low quality of life tended to be non-adherent and had lower BMI.
FS TB22	Siagian, D. &Rambe, M. (2021), FIBERK ESMAS	TB Medication Adherence at Gunting Saga Health Center	To investigat e factors influencin g TB medicatio n adherence at Gunting Saga Health Center.	95 pulmon ary TB patients	Observatio nal study	Education and drug understanding influenced adherence.
FS TB24	Wardani, D. et al. (2023), Journal of Public Health Research	Risk Factors for Delayed Sputum Conversion	To explore factors contributi ng to delayed TB sputum conversio n.	Intervie ws with TB program officers	Qualitative case study	Patient awareness, medication consistency, and stigma were key delay factors.
FS TB25	Yanuarti, T. (2023), Jurnal Keperawa tan Kompreh ensif	Relationship of Family Support to Medication Compliance	To analyze the relationsh ip between family support	70 pulmon ary TB patients	Quantitativ e correlation al study	Positive correlation between family support and adherence to TB medication.

			and TB medicatio n adherence .			

Findings from the Literature Analysis

The findings of this literature analysis summarize key thematic insights from the reviewed studies, which collectively highlight the significant role of family support in improving treatment adherence among patients with pulmonary tuberculosis. Based on the thematic mapping of the literature, the findings are categorized into five major domains: (1) forms of family support, (2) sociocultural factors, (3) psychological factors, (4) health system factors, and (5) challenges and research gaps.

1. **Forms of Family Support**
a. *Emotional and Motivational Support*: Emotional support from family members has been shown to strengthen patients' commitment to completing the long and side-effect-prone TB treatment regimen. Encouragement and attentiveness from family help patients cope with stigma and psychological stress during the course of treatment (Acharya et al., 2021).
b. *Instrumental and Financial Support*: Practical assistance from family members, including transportation costs, medication reminders, and escorting patients to healthcare facilities, plays a crucial role in improving adherence (Amere et al., 2022; Fekadu et al., 2023).
c. *Informational Support*: Sharing information about the importance of treatment completion and the risks of drug resistance—particularly when delivered by family members with health literacy—can significantly improve patient compliance (Lestari et al., 2021).

2. **Sociocultural Factors**
a. *Gender Roles and Family Structure*: Several studies indicate that women tend to receive more tangible support from family members, whereas men are often more vulnerable to social rejection following a TB diagnosis (Yunus et al., 2022).

b. *Social Norms and Stigma*: Family support becomes increasingly vital when patients face social stigma. Research from various regions reveals that TB-related stigma remains high, posing a barrier to treatment continuation in the absence of family support (Addo et al., 2022).

3. **Psychological Factors**

a. *Support and Mental Health:* Mental health plays a pivotal role in treatment adherence among TB patients. Emotional support from family serves as a protective factor against stress and depression, which are commonly experienced during TB treatment (Fekadu et al., 2023; Habtegiorgis et al., 2020).

b. *Diagnosis Acceptance and Internal Motivation:* The acceptance of a TB diagnosis is often facilitated by open family communication, helping patients comprehend the necessity of long-term therapy and encouraging adherence (Amere et al., 2022).

4. **Health System Factors**

a. *Family Involvement by Healthcare Providers:* Studies emphasize that family-centered treatment approaches, where family members are actively involved in education and monitoring, are more effective in promoting adherence (Du et al., 2020).

b. *Availability of Community Support and DOTS Programs:* The implementation of Directly Observed Treatment Short-course (DOTS), which includes family members as treatment supporters, has proven successful in improving adherence in various low- and middle-income countries (Lestari et al., 2021).

5. **Challenges and Research Gaps**

a. *Cultural and Social Variability:* The nature and extent of family support are shaped by cultural values, social structures, and local norms. Cross-cultural research is essential to better understand these dynamics (Yunus et al., 2022).

b. *Lack of Structured Family-Based Interventions:* Most of the reviewed studies are observational in design, with limited interventions specifically structured to position the family as an active therapeutic agent (Addo et al., 2022).

c. *Insufficient Longitudinal Studies:* The predominance of cross-sectional research limits understanding of the long-term impact of family support on treatment success. Longitudinal

studies are needed to provide more robust evidence (Fekadu et al., 2023).

Table 5. Emerging Key Issues.

Main Issue	Specific Aspect	Source	Quotation
Role of Family Support	Emotional and motivational support strengthens treatment adherence	Acharya et al. (2021); Amere et al. (2022)	"Emotional attention from family increases TB patients' motivation to undergo treatment." (Acharya et al., 2021, p. 726).
Role of Family Support	Instrumental and financial support from family facilitates access to services	Fekadu et al. (2023); Lestari et al. (2021)	"Family assistance with transportation costs and medication reminders helps patients complete treatment." (Fekadu et al., 2023, p. 127).
Sociocultural Factors	Social stigma impedes adherence in the absence of family support	Addo et al. (2022); Yunus et al. (2022)	"TB patients face severe stigma, and the family plays a crucial role in providing social protection." (Addo et al., 2022, p. 6).
Sociocultural Factors	Cultural norms influence how families support patients	Yunus et al. (2022); Lestari et al. (2021)	"Family support is heavily influenced by cultural values and local social structures." (Yunus et al., 2022, p. 221).
Patient Mental Health	Family support reduces depression and enhances motivation	Habtegiorgis et al. (2020); Fekadu et al. (2023)	"Family support reduces stress and the risk of depression during TB therapy." (Habtegiorgis et al., 2020, p. 5).
Family Involvement in Services	Family as observers in DOTS program improves adherence	Du et al. (2020); Lestari et al. (2021)	"Family participation in directly observed treatment programs increases patient adherence." (Du et al., 2020, p. 1121).
Family Involvement in Services	Health worker-led family education enhances support roles	Acharya et al. (2021); Amere et al. (2022)	"Education that directly involves family members positively impacts adherence to TB therapy." (Acharya et al., 2021, p. 725).

Implementation Challenges	Lack of family-based interventions in TB treatment systems	Addo et al. (2022); Yunus et al. (2022)	"There remains a lack of structured interventions that integrate families into the TB treatment system." (Addo et al., 2022, p. 7).
Implementation Challenges	Family support is suboptimal in socioeconomically disadvantaged environments	Fekadu et al. (2023); Acharya et al. (2021)	"Patients from low-income families are at higher risk of not completing treatment." (Fekadu et al., 2023, p. 128).
Research Gaps	Need for longitudinal studies on the impact of family support on treatment success	Amere et al. (2022); Lestari et al. (2021)	"There is a need for long-term studies on the effectiveness of family support in TB therapy." (Amere et al., 2022, p. 10).

Discussion

The Role of Family Support in Enhancing Treatment Adherence

The literature consistently demonstrates that family support plays a critical role in improving adherence to treatment among patients with pulmonary tuberculosis. This support manifests in various forms, including emotional, instrumental, informational, and motivational dimensions. Emotional support from family members offers a sense of security and encouragement, enabling patients to cope with the long and often adverse treatment process (Acharya et al., 2021; Addo et al., 2022).

Informational support—particularly when provided by family members with an understanding of tuberculosis—enhances patients' awareness and commitment to treatment (Lestari et al., 2021). In addition, families play a practical role in reminding patients to take medication, accompanying them to healthcare facilities, and assisting with daily needs throughout the treatment process. This is especially critical for patients experiencing side effects or mobilitylimitations (Fekaduetal., 2023). Consistent emotional support from family also contributes to increased self-confidence and motivation to complete therapy.

Sociocultural Factors

Sociocultural contexts significantly influence the effectiveness of family support. In many communities, stigma surrounding TB remains a substantial barrier, and family presence serves as a key buffer against social pressure (Yunus et al., 2022). Cultural norms also shape how

families express support, including gender-based differences in the giving and receiving of care.

Understanding local cultural contexts is essential for designing relevant interventions. Studies show that culturally sensitive, family-based approaches enhance the impact of interventions on treatment adherence (Lestari et al., 2021).

Family Support and Mental Health

Family support is closely tied to the mental well-being of TB patients. Strong familial support has been shown to reduce the risk of stress and depression—both of which are major risk factors for non-adherence (Habtegiorgis et al., 2020). When patients feel emotionally supported and cared for, they are more likely to stay motivated and complete their treatment (Fekadu et al., 2023).

Family Involvement in Healthcare Programs

Service delivery models such as DOTS (Directly Observed Treatment, Short-course), which include family members as treatment supervisors, have proven effective in improving adherence (Du et al., 2020). Furthermore, family-focused education delivered by health professionals enhances the success of such interventions by equipping family members to serve as consistent reminders and motivators.

The integration of families into healthcare systems should be formalized through structured training and guidance. Educated family members are better prepared to support patients throughout the treatment process (Acharya et al., 2021).

Challenges and Research Gaps

Despite strong evidence on the benefits of family support, implementing family-based interventions faces challenges—particularly in resource-limited or socially disadvantaged settings. Some patients come from families unable to provide sufficient support due to economic hardship or a lack of TB-relatedknowledge (Fekaduetal., 2023).

Moreover, there are clear gaps in the literature, especially the lack of longitudinal studies assessing the long-term effects of family support on treatment success. Future research should consider sociocultural variations and develop sustainable, context-specific intervention strategies (Addo et al., 2022; Amereetal., 2022).

Therefore, family support must be recognized as an integral component of pulmonary tuberculosis care. Integrating family-based approaches into national

health policies and treatment programs will enhance therapeutic outcomes and contribute to long-term patient well-being. However, this study has certain limitations that should be acknowledged. The analysis may be constrained by the limited number of studies included, the variability in methodologies across sources, and the predominance of cross-sectional data, which limits causal inference. Additionally, the lack of standardized measures for assessing family support and adherence may affect the comparability of findings. These limitations highlight the need for more rigorous and longitudinal research to further validate the role of family support in TB care.

Conclusion

This scoping review confirms that family support is a key determinant of treatment adherence in patients with pulmonary tuberculosis. Emotional, instrumental, and informational support significantly assist patients in navigating the prolonged and complex treatment process. The inclusion of family members in service delivery models such as DOTS, combined with structured family education, has been shown to strengthen treatment outcomes. Nevertheless, the implementation of family support continues to face various challenges, particularly in communities with high levels of stigma, limited resources, and social inequities. Research gaps are evident, particularly the limited number of longitudinal studies exploring the sustained impact of family support on TB treatment success.

Therefore, the following recommendations are proposed to strengthen tuberculosis control efforts. First, family support should be systematically integrated into national tuberculosis control policies, recognizing its vital role in enhancing patient adherence and treatment outcomes. Second, large-scale educational and training programs should be developed and implemented for the families of TB patients, equipping them with the knowledge and skills to effectively support their loved ones throughout the treatment process. Third, further research—particularly long-term studies—is necessary to evaluate the sustained impact of family support on treatment success and relapse prevention. Lastly, all family-based interventions must be culturally sensitive and adapted to the socioeconomic conditions of the targeted populations to ensure relevance, acceptance, and effectiveness. With an inclusive, evidence-based approach, family support can

become a foundational pillar in reducing treatment non-adherence and enhancing

the overall success of pulmonary tuberculosis management.

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