



THE IMPACT OF STIGMA ON THE MENTAL HEALTH OF ADOLESCENTS WITH TUBERCULOSIS: A SCOPING REVIEW

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ABSTRACT

Stigma toward adolescents with tuberculosis (TB) is a significant psychosocial issue that negatively affects their mental health. Adolescents are emotionally vulnerable, and the experience of stigma can exacerbate psychological distress and hinder treatment adherence. Objective: This study aims to review the scientific literature on the impact of stigma on the mental health of adolescents with tuberculosis and to identify the affected domains of mental well-being. Method: A scoping review was conducted in accordance with the PRISMA-ScR guidelines. Literature searches were performed in three major databases (Scopus, PubMed, and ScienceDirect) using the keywords “stigma,” “tuberculosis,” and “adolescent.” Articles were selected based on inclusion criteria: published between 2021 and 2025, written in English, open access, and directly relevant to the research, data extraction from the selected articles was conducted using a matrix format in Microsoft Word. The domains used for data extraction included the researcher’s name and year of publication, article title, research objectives, research methodology, research instruments, and key findings. Results: Out of 1,233 initially retrieved articles, 10 met the eligibility criteria and were analyzed. The synthesis of findings revealed that stigma has a detrimental impact on adolescent mental health, particularly in the forms of anxiety, depression, social withdrawal, and feelings of hopelessness. Stigma was also identified as a contributing factor to poor treatment adherence among adolescents with TB. Stigma significantly contributes to mental health challenges in adolescents diagnosed with tuberculosis. These findings highlight the urgent need for the development of multidisciplinary interventions that address psychosocial aspects to support treatment success and enhance the quality of life among adolescent TB patients.

Keywords: adolescent; impact; mental health; stigma; TB

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INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* and is transmitted through airborne particles. The disease primarily affects the lungs, although it can also involve other organs in the body (Hidayat et al., 2022). Its impact extends beyond the physical domain, encompassing significant psychological consequences. A substantial number of patients experience anxiety related to treatment, as well as fears of social rejection and discrimination (Dewi et al., 2022). Such anxiety may exacerbate physical symptoms and lead to decreased adherence to treatment protocols (Khoerunisa et al., 2023). Empirical studies indicate that anxiety symptoms—such as vague fears, social withdrawal, sleep disturbances, and even panic attacks—are most prevalent at the onset of treatment and tend to diminish over time (Jones-Patten et al., 2023; Lara-Espinosa & Hernández-Pando, 2021).

In addition to anxiety, tuberculosis (TB) patients are also vulnerable to other psychological disorders, such as depression, hopelessness, and a loss of meaning in life (Irawan et al., 2024). One of the primary factors that exacerbates these conditions is social stigma. Stigma associated with TB can impose severe psychological stress, disrupt interpersonal relationships, and intensify disparities in access to healthcare, education, and employment opportunities (Chen et al., 2023). Global reports indicate that between 42% and 82% of TB

patients experience some form of stigma, manifesting in rejection, verbal abuse, social isolation, or structural discrimination (Liu et al., 2024).

The issue becomes increasingly complex when tuberculosis (TB) affects adolescents who are undergoing a critical phase of biological, psychological, and social development. Adolescent mental health is strongly influenced by factors such as hormonal changes, identity exploration, and social pressures from their environment. According to the World Health Organization, family structure, school environment, experiences of discrimination, and peer pressure are key determinants of adolescent psychological well-being (Rahma et al., n.d.). Within this context, TB-related stigma can serve as a significant risk factor that exacerbates adolescents' mental burden and hinders the recovery process.

Although various studies have explored the impact of TB on overall quality of life, the literature specifically addressing the effects of stigma on the mental health of adolescents with TB remains limited and fragmented. This highlights a gap in the current scientific understanding that must be bridged through a systematic approach. Therefore, this study is conducted in the form of a scoping review to identify and synthesize scientific literature on the impact of stigma on the mental health of adolescents living with TB, and to provide a foundation for the development of more targeted interventions.

METHOD

Research Design

This study employs a scoping review approach to comprehensively map and describe the scientific literature addressing the impact of stigma on the mental health of adolescents with tuberculosis. This method is particularly appropriate for exploring emerging topics that have not yet been extensively investigated. The scoping review was conducted following systematic steps, including the formulation of the research question, identification of relevant studies, selection of articles, data extraction, and narrative synthesis of the findings. The primary focus of this study is to answer the research question: "What is the impact of stigma on the mental health of adolescents with tuberculosis according to the available scientific evidence?"

Data Collection

The literature was collected from three international scientific databases: Scopus, PubMed, and ScienceDirect. The search was conducted for publications within the time frame of January 1, 2021, to December 31, 2025. The search keywords used were "stigma," "TB," and "adolescent," combined using the Boolean operator AND. On certain platforms, such as ScienceDirect and PubMed, keyword variations using semicolon separators (e.g., "stigma;tb;adolescent") were also applied to align with each database's search system.

Inclusion and Exclusion Criteria

Articles included in this review are primary research studies, encompassing quantitative, qualitative, and mediation analysis approaches. Only studies focusing on adolescent populations with tuberculosis that explicitly address the dimension of stigma and its association with mental health were considered for analysis. Eligible articles must be published in English and available in full-text format. Excluded from the review were non-research articles (such as editorials and opinion pieces), studies that did not include adolescents as the primary population, articles that did not examine the relationship between stigma and mental health, or those that were not available in full text.

Article Selection Process

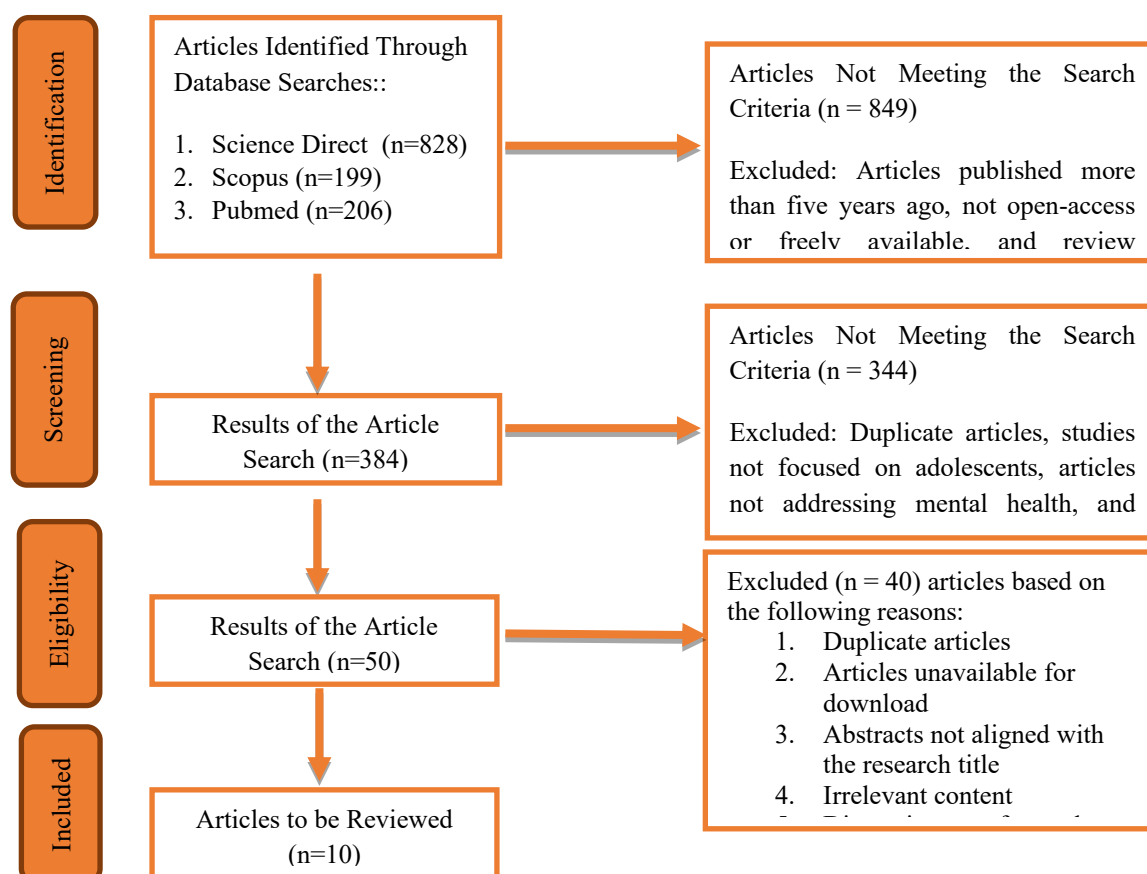
The article selection process followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines, as illustrated in Figure 1. The authors developed a search strategy by querying databases and completing the screening process. The authors also reviewed the search strategy and assessed the eligibility of articles at each stage of screening. The inclusion criteria for this review were articles written in English that focused on the impact of stigma on the mental health of adolescents with tuberculosis. Exclusion criteria included studies involving individuals not affected by stigma and sources that were not peer-reviewed journal articles. Once the final set of articles was identified, each was summarized by mapping relevant information, including the author(s), article title, publication date, study location, identified methods, research design, study objectives, and a summary of key findings.

Data Extraction and Synthesis

Data from the selected articles were extracted using a matrix developed in Microsoft Word. The extracted information included the authors' names, year of publication, article title, research objectives, study methods and design, instruments used, study location, and key findings related to stigma and the mental health of adolescents with tuberculosis. The data were then analyzed descriptively and thematically categorized to identify patterns, impacts, and relevant contextual factors. The article selection process and the number of studies screened at each stage are illustrated in the PRISMA flow diagram (Figure 1), providing a visual representation of the transparency and clarity of the review process.

RESULT

The presentation of maps in this study is visualized by color gradation, where color determination is based on the score obtained for each region in each research variable. Darker colors indicate a higher level of score.



Data Extraction from Selected Literature

Data extraction from the selected articles was conducted using a matrix format in Microsoft Word. The domains used for data extraction included the researcher's name and year of publication, article title, research objectives, research methodology, research instruments, and key findings (see Table 1). The data selection process involved several stages, beginning with the identification of articles aligned with the research objective, namely The Impact of Stigma on the Mental Health of Adolescents with Tuberculosis. Initial screening was based on article titles and abstracts retrieved from various search engines, including ScienceDirect, Scopus, and PubMed. Articles deemed relevant were then subjected to an in-depth analysis by reviewing their full content, including the article title, publication year, study location and period, research design, population characteristics, findings, and conclusions. The collected literature was analyzed in accordance with the predetermined inclusion and exclusion criteria, and subsequently mapped based on article characteristics.

Study Characteristics

The initial search yielded a total of 1,233 articles across three databases: 828 from ScienceDirect, 199 from Scopus, and 206 from PubMed. Articles excluded from this review included those published more than five years ago, those without free or open access, and review articles, totaling 849 exclusions. This left 384 articles for further screening. Subsequently, these articles were screened, re-reviewed, and fully read to identify those not meeting the inclusion criteria, such as duplicates, studies not focused on adolescents, articles unrelated to mental health, or those not centered on tuberculosis, resulting in a reduction to 334 articles. After a second round of screening focused on removing duplicates and assessing relevance, 50 articles remained. All remaining articles were carefully re-evaluated considering the relevance and clarity of their findings, leading to the selection of 10 articles deemed appropriate for inclusion in this review.

Summary of Findings in the Literature

All analyzed articles reported various impacts of stigma on the mental health of adolescents with tuberculosis. These articles generally examined the influence of stigma on mental health. These articles generally examined the influence of stigma on mental health. The review of the 10 selected articles revealed that stigma significantly affects the mental health of adolescents living with tuberculosis

Tabel 1.
Summary analysis of selected articles

No	Author and year	Title	Objective	Method	Instrument	Result
1	Dillon et al., 2024	Psychosocial Experiences of Adolescents with Tuberculosis in Cape Town	To explore adolescents' experiences with tuberculosis within their psychosocial context, to describe the impact of tuberculosis on adolescent well-being, and to elucidate how tuberculosis and its treatment affect their social and familial environments.	A prospective observational cohort study was conducted involving 50 adolescents (aged 10–19 years) newly diagnosed with microbiologically confirmed pulmonary tuberculosis (including both drug-resistant TB [MDR-TB] and drug-susceptible TB), with or without HIV coinfection, who were within the first 14 days of treatment initiation. Participants were followed for a duration	Participants were interviewed using a semi-structured, activity-based interview guide.	Findings included loss of social relationships, severe psychological distress, and suicidal ideation.

No	Author and year	Title	Objective	Method	Instrument	Result
of 12 months.						
2	Patricia et al., 2024	Individual-centered and youth-oriented interventions are essential to improve tuberculosis care for adolescents and young adults.	To enhance TB outcomes within this population, tailored interventions are necessary.	Two participatory workshops were conducted with 16 adolescents and young adults (AYA). Through interviews with the same 15 AYA participants and two additional key stakeholder groups—healthcare providers (n = 11) and policymakers (n = 9)—areas of convergence and divergence were identified regarding youth-oriented services and policies that would be effective in Zimbabwe.	Qualitative interview data were analyzed iteratively and thematically.	Findings revealed a lack of mental health literacy, high levels of stigma during the early phase of treatment, and the need for adolescent-based interventions.
3	Xiangmin et al., 2024	Symptom Network Analysis of Stigma, Insomnia, Depression, and Anxiety in Patients with Tuberculosis	To identify central and bridge symptoms and to explore the role of stigma within the insomnia-depression-anxiety-stigma symptom network.	A cross-sectional study was conducted at West China Hospital and the Fourth People's Hospital in Guangxi from November 2023 to June 2024. The study assessed the levels of insomnia, depression, anxiety, and stigma among patients with tuberculosis.	The questionnaires used included the PSQI, PHQ-9, GAD-7 and TRSS.	Stigma exacerbates insomnia, depression, and anxiety, with negative perceptions from family members playing a significant role.
4	Pauline et al., 2024	Facilitating and hindering factors in initiating and completing tuberculosis preventive treatment among children and adolescents living with HIV in Uganda.	To explore the facilitators and barriers to initiating and completing tuberculosis preventive treatment (TPT) among children and adolescents living with HIV (CALHIV), specifically among adolescents aged 10–19 years.	A qualitative study was conducted from February 2022 to March 2023 at three pediatric and adolescent HIV care centers in Uganda. In-depth interviews were carried out at the initiation and completion of tuberculosis preventive treatment (TPT) with purposively selected healthcare providers, adolescents aged 10–19 years living with HIV.	Qualitative	TB/HIV-related stigma hinders treatment initiation and completion, and reduces social support from family members.
5	Tarryn et al., 2024	The experiences of South African adolescents who	To describe the lived experiences of South African adolescents with hearing loss acquired	This study employed a descriptive phenomenological design, with in-depth semi-structured interviews conducted	Qualitative	Social stigma exacerbates emotional distress and isolation among

No	Author and year	Title	Objective	Method	Instrument	Result
		developed hearing loss following treatment for multidrug-resistant tuberculosis.	following aminoglycoside treatment for multidrug-resistant tuberculosis.	in English, isiZulu, and Afrikaans. The data were managed and analyzed using a modified version of Hycner's framework.		adolescents following treatment side effects. .
6	Nan et al., 2024	A qualitative exploration of the presence of TB stigmatization in three districts of South Africa.	To explore the presence of TB stigma within communities across South Africa.	Conducted 43 in-depth interviews with 31 individuals diagnosed with tuberculosis and 12 household contacts, as well as five focus group discussions involving 40 ward-based team members and 11 community stakeholders across three districts in South Africa.	Qualitative	Internalized and anticipated stigma impede the pursuit of healthcare services and contribute to the formation of social isolation.
7	Victoria et al., 2022	The Impact of Prolonged Isolation on Adolescents with Drug-Resistant Tuberculosis in Lima, Peru.	Tuberculosis (TB) patients are generally instructed to self-isolate at the beginning of treatment to prevent disease transmission.	This study was conducted from 2018 to 2019 in Lima, Peru, where the Ministry of Health mandated that TB patients are prohibited from attending educational institutions for a minimum of two months. Using semi-structured guidelines, we conducted individual in-depth interviews with adolescents undergoing treatment for drug-susceptible TB, their primary caregivers, and healthcare providers. The transcribed interviews were then analyzed thematically.	Interviews and DOT for TB were conducted at health centers nearest to the patients' homes. DOT was supervised by registered nurses and nursing technicians.	Isolation reinforces social stigma, impacting the education and mental well-being of adolescents.
8	Juliet et al., 2022	Living with Tuberculosis: A Qualitative Study on Patients' Experiences with the Disease and Its Treatment	To understand the general perspectives of tuberculosis patients in Brazil, Russia, India, China, and South Africa throughout their disease journey, including the emotional, psychological, and practical challenges encountered by the patients and	This qualitative market research study was conducted between July 2020 and February 2021. Eight tuberculosis patients from each country participated. They completed health questionnaires, video/telephone interviews, and diaries documenting their experiences with TB. Additionally, 52 household members were interviewed. The	Qualitative	Stigma is widespread, exacerbating emotional distress and familial relationships.

No	Author and year	Title	Objective	Method	Instrument	Result
			their families.	anonymized data underwent triangulation and thematic analysis with coding of recurring statements.		
9	M. Strauss et al., 2023	TB Preventive Therapy Preferences Among Children and Adolescents	To understand preventive tuberculosis therapy (TPT) preferences among children, adolescents, and caregivers.	A discrete choice experiment was conducted among 131 children, 170 adolescents, and 173 caregivers, along with 17 in-depth interviews across 25 clinics in Cape Town, South Africa. The design incorporated attributes such as location, waiting time, treatment duration, dosing frequency, formulation/size, side effects, packaging, and taste. Mixed-effects logistic regression models were used for the analysis.	Two types of qualitative data were incorporated to enhance the explanatory power of the discrete choice experiment.	Concerns regarding stigma influence service choices and preferences among adolescents.
10	David et al., 2024	are for Adolescents with Drug-Susceptible Pulmonary Tuberculosis in Lima, Peru.	To identify barriers and facilitators to adolescent-friendly tuberculosis (TB) services among adolescents with drug-susceptible TB (DS-TB), as defined by the World Health Organization's Adolescent-Friendly Services (AFS) framework, in Lima, Peru.	A qualitative study conducted at 32 public health centers operated by the Ministry of Health of Peru. In-depth interviews were conducted with 34 adolescents who either completed or discontinued treatment for drug-susceptible pulmonary tuberculosis (DS-TB) within the previous 12 months, their primary caregivers during treatment, and 15 nurses or nurse technicians with at least six months of experience supervising TB treatment.	The in-depth interviews were conducted using a semi-structured interview guide. Data were analyzed employing the framework method.	Lack of support and stigma serve as barriers to accessing appropriate services for adolescents.

The results of the scoping review of ten articles indicate that stigma towards adolescents with tuberculosis (TB) has a significant impact on their mental health and psychosocial well-being. Thematically, these impacts can be classified into four main categories:

1. Disruption of Social Relationships and Isolation

Stigma disrupts adolescents' social relationships and triggers isolation. Several studies report that adolescents lose friendships and experience rejection from family members, leading to feelings of loneliness and social alienation (Wademan et al., Rapoport et al., Addo et al.).

2. Increase in Psychological Disorders

Stigma exacerbates psychological symptoms such as anxiety, depression, sleep disturbances, and even extreme despair. In some cases, adolescents report severe mental distress, including suicidal ideation (Liu et al., Sparg et al.).

3. Stigma as a Barrier to Access and Adherence

Stigma constitutes a major barrier to seeking healthcare services and adherence to treatment. Fear of discrimination causes adolescents to be reluctant to access services or openly participate in treatment programs. Furthermore, stigma worsens disparities in access to adolescent-friendly services and adequate psychosocial support (Amuge et al., Wang et al., Arango et al.).

4. Need for Specific Interventions and Mental Health Literacy

There is an urgent need for adolescent-centered psychosocial interventions that can enhance mental health literacy and reduce the impact of stigma. A lack of understanding among adolescents about TB and mental health increases their psychological burden, especially during the early phases of treatment (Nyamayaro et al., Strauss et al.).

DISCUSSION

Based on the 10 selected literature sources, it was found that stigma has a significant impact on the mental health of adolescents with tuberculosis. These articles generally examine the influence of stigma on mental health. Stigma causes patients to avoid contact and interaction with others and to self-isolate in response to social attitudes and behaviors, which adversely affects both their mental and physical health. Individuals experiencing higher levels of stigma are more likely to suffer from severe depression compared to those who do not (Chen et al., 2021). Tuberculosis-related stigma is a highly sensitive issue, often associated with feelings of guilt and fear, which hinders affected individuals from disclosing their illness to others in an appropriate, dignified, and acceptable manner within their communities and healthcare systems (Wingfield et al., 2024). TB-related stigma—including discrimination, shame, and feelings of worthlessness—results in various harmful and long-lasting consequences. This stigma has been linked to significant medical and social repercussions that can jeopardize TB treatment (Stanikzai et al., 2024). Enacted and anticipated stigma—ranging from expectations and fears of discrimination to experiences of stigmatizing behaviors by others—can exacerbate delays in seeking healthcare services and TB diagnosis, as well as reduce treatment adherence and success. Enforced and internalized stigma, along with its economic consequences, may trigger or worsen mental health disorders (Fuady et al., 2024).

Tingkat kecemasan yang lebih tinggi dikaitkan dengan temuan yang telah didokumentasikan sebelumnya. Selain itu, stigma yang dirasakan memiliki hubungan positif yang signifikan dengan stres yang dirasakan. Hubungan signifikan antara stigma yang dirasakan dan stres dapat dijelaskan sebagian oleh fakta bahwa perasaan malu atau canggung yang meliputi stigma yang dirasakan dapat menghambat adaptasi individu terhadap stresor dengan mempertahankan fokus pada aspek negatif dari stresor tertentu (Mohammedhussein et al., 2023). The psychological impact and stigma experienced by tuberculosis (TB) patients can render them vulnerable to depression. Depression is a common mental disorder characterized by persistent sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbances in sleep or appetite, fatigue, and impaired concentration. Evidence indicates that individuals with tuberculosis frequently suffer from depression. Factors significantly associated with depression include TB coinfection, poor social support, and perceived TB-related stigma. It is hypothesized that individuals experiencing perceived stigma may have low self-image and social isolation, which can contribute to the development of depression (Amri et al., 2022).

Improved understanding and management of mental health disorders in TB patients can enhance TB control efforts. Given the chronic nature of TB, patients' lives are affected physically, psychologically, and economically, which may lead to physiological problems such as weakness, psychogenic somatic pain, dyspnea, decreased libido, and weight loss. The perception of being infected or a source of infection is also burdened by social stigma, leading to reduced social interaction and prolonged hospitalization that may result in job loss, feelings of worthlessness, and despair. Many of these symptoms resemble those of unrecognized mental health disorders. This study indicates that depression is prevalent among TB patients and should be addressed by treating physicians. Routine mental health screening in chronic infectious diseases such as tuberculosis is likely to have an indirect positive effect on treatment outcomes (Panati et al., 2023).

CONCLUSION

Stigma contributes significantly to the mental health challenges faced by adolescents diagnosed with tuberculosis. These findings underscore the urgent need for the development of multidisciplinary interventions that address psychosocial aspects to support treatment success and improve the quality of life among adolescent TB patients. Stigmatization exacerbates issues related to tuberculosis, depression, and anxiety, and may substantially contribute to treatment discontinuation. By considering the factors affecting individuals with tuberculosis, policies and interventions can be designed to more effectively address these challenges and reduce stigma among adolescents with tuberculosis.

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