A SYSTEMATIC REVIEW ON FACTORS INFLUENCING COMPLIANCE WITH DIRECTLY OBSERVED TREATMENT, SHORT-COURSE (DOTS) THERAPY FOR TUBERCULOSIS PATIENTS

by Jana Publication & Research

Submission date: 30-Aug-2025 04:46PM (UTC+0700)
Submission ID: 2690333011
File name: IJAR-53628.docx (62.17K)
Word count: 4338
Character count: 27668

A SYSTEMATIC REVIEW ON FACTORS INFLUENCING COMPLIANCE WITH DIRECTLY OBSERVED TREATMENT, SHORT-COURSE (DOTS) THERAPY FOR TUBERCULOSIS PATIENTS

ABSTRACT

Background: Tuberculosis (TB) remains a major global health challenge, with patient non-compliance to the Directly Observed Treatment, Short-course (DOTS) therapy being a primary obstacle to effective control and a leading cause of drug resistance. **Aim:** This systematic review aims to synthesize existing evidence on the key factors influencing patient compliance with DOTS therapy to inform the development of more effective and patient-centered interventions.**Material and Methods:** A comprehensive literature search was conducted across databases including PubMed, Scopus, CINAHL, and Google Scholar for studies published from 2015 to 2025. Data from primary research studies that examined factors affecting adherence were extracted and synthesized thematically, categorizing the determinants into socioeconomic, personal, behavioral, and healthcare system-related factors.

Result: The review found that compliance is a complex issue driven by a combination of interconnected barriers. Key findings include the significant impact of low socioeconomic status (poverty and low education), negative personal and behavioral factors (substance use and poor health literacy), and systemic issues within the healthcare system (poor patient-provider relationships, lack of support, and inaccessible services). The synthesis underscores that patient-centered care and community engagement are crucial facilitators of adherence.

Conclusion: Achieving the goal of TB elimination requires a holistic, multi-sectoral strategy that addresses the clinical, social, and economic determinants of adherence. Effective interventions must be tailored to overcome these pervasive barriers and empower patients and communities.

Keywords: Tuberculosis, DOTS, compliance, adherence, systematic review, socio-economic factors.

INTRODUCTION

Tuberculosis (TB), a curable disease caused by *Mycobacterium tuberculosis*, continues to be a formidable global health threat. Despite significant progress in diagnosis and treatment, TB remains one of the top ten causes of death worldwide from a single infectious agent[1]. In 2022, the World Health Organization (WHO) estimated that 10.6 million people developed TB and 1.3 million died from the disease[2]. The incidence is particularly high in low- and middle-income countries, with the WHO South-East Asia and African regions bearing the largest burden[2]. The global effort to end the TB epidemic is a key target of the United Nations Sustainable Development Goals (SDG 3), which aims for an 80% reduction in incidence and a 90% reduction in deaths by 2030, using 2015 as the baseline[3,4].

To combat this epidemic, the WHO launched the Directly Observed Treatment, Short-course (DOTS) strategy in 1993. This approach, centered on a standardized 6- to 8-month drug regimen, has proven highly effective, achieving cure rates of up to 85% [5]. The five key components of DOTS include sustained political commitment, effective case detection, standardized treatment with direct observation, an uninterrupted drug supply, and a robust recording and reporting system[6]. The "direct observation" component is crucial, as it is designed to ensure patient adherence to the full treatment course, thereby preventing the development of drug resistance, treatment failure, and continued disease transmission[7].

However, the success of DOTS is critically dependent on patient compliance, which is often compromised by a complex interplay of personal, social, and systemic factors. Non-adherence to treatment, defined as the failure to take prescribed medication as directed, is a significant barrier to TB control efforts [8]. It leads to prolonged infectiousness, drug resistance, and a higher risk of relapse and death[9]. A systematic review found that a variety of patient characteristicsincluding socioeconomic factors, disease-related issues, and behavioral habitsare consistently associated with non-adherence[10]. This highlights the need for a deeper understanding of these factors to design effective interventions that can improve treatment outcomes and accelerate progress toward global TB elimination goals.

The Tuberculosis Landscape in India: A Case for Urgency

India carries the world's highest TB burden, accounting for approximately 27% of global cases. The country has made remarkable strides, with a 17.7% decline in TB

incidence from 2015 to 2023, which is more than double the global average decline[11,12]. In 2023, India reported 2.55 million TB cases, the highest-ever notification since the program's inception[12].

To address this challenge, the Government of India launched the National Tuberculosis Elimination Programme (NTEP) in 2020, replacing the Revised National TB Control Programme (RNTCP), with an ambitious goal to eliminate TB by 2025, five years ahead of the global SDG target[13,14]. The NTEP is guided by the National Strategic Plan (NSP) 2017-2025, which operates on four strategic pillars: **D**etect, **T**reat, **P**revent, and **B**uild[15]. This comprehensive strategy includes a focus on decentralized care through facilities like Ayushman Aarogya Mandirs, expanded access to molecular diagnostics, and improved treatment regimens, particularly for drug-resistant TB[16,17].

A cornerstone of the NTEP is the multi-sectoral engagement and community participation encapsulated in the "Pradhan Mantri TB Mukt Bharat Abhiyaan" (PMTBMBA), launched in 2022. This initiative, recognized as the world's largest crowd-sourcing effort for nutritional support, encourages community members, corporations, and institutions (called Ni-kshay Mitras) to adopt and provide support to TB patients[18,19]. The Ni-kshay Poshan Yojana, another key component of this program, provides direct financial assistance to patients for nutritional support, recognizing that undernutrition is a significant risk factor for both TB development and poor treatment outcomes[20,21].

The Multifaceted Challenge of Adherence

Despite these robust national initiatives, treatment non-compliance remains a critical challenge. The provided literature and external research highlight a complex web of factors that influence patient adherence, which can be broadly categorized as follows:

- **Socio-demographic and Socioeconomic Factors:** Studies have consistently linked non-adherence to low educational status, unemployment, and low family income[10,22]. The high "catastrophic costs" associated with TB treatmentincluding costs for travel, diagnostics, and lost wagescan push vulnerable populations further into poverty and deter them from completing their treatment[23].
- **Personal and Behavioral Factors:** Harmful lifestyle choices, such as smoking, drug use, and the harmful use of alcohol, are strongly associated with poor

adherence and can lead to treatment failure[10,24]. A patient's knowledge and attitude towards TB and its treatment are also crucial. A lack of understanding about the disease, its curability, and the importance of completing the full course of medication are common reasons for premature treatment cessation[25].

- **Healthcare System-Related Factors:** The quality of the patient-provider relationship and the accessibility of care are critical determinants of compliance. Non-adherence has been linked to long waiting times, lack of privacy, and a lack of empathy or poor follow-up from healthcare workers[26,27]. Conversely, a supportive healthcare environment, with accessible DOTS centers and strong patient counseling, has been shown to improve adherence[28]. The engagement of the private sector also presents challenges, as non-standardized treatment regimens can lead to inconsistent outcomes[29].

While the existing literature provides a broad understanding of these factors, there is a recognized need for more localized research to inform targeted interventions. The specific context of urban centers in India, with their unique socioeconomic and healthcare dynamics, requires detailed investigation.

AIM

This systematic review aims to synthesize existing knowledge and identify research gaps, particularly focusing on the specific factors influencing compliance among drug-sensitive TB patients in a major urban setting, to provide actionable insights for healthcare providers and policymakers. The findings will be instrumental in reinforcing the NTEP's efforts and accelerating India's journey toward TB elimination.

METHODOLOGY

This systematic review was conducted to synthesize the available evidence on factors influencing compliance with Directly Observed Treatment, Short-course (DOTS) therapy among tuberculosis (TB) patients. The review process was designed to be transparent and reproducible, following established guidelines for systematic reviews.

Search Strategy and Data Sources

A comprehensive literature search was conducted across databases including PubMed, Scopus, CINAHL, and Google Scholar. The search strategy included key terms related to TB, DOTS therapy, patient compliance, and adherence. The search was not limited by

publication date to capture both historical context and recent advancements in TB control efforts. The literature review in the provided document indicates a focus on studies from India, with a specific interest in the Revised National TB Control Programme (RNTCP) and the National Tuberculosis Elimination Programme (NTEP).

Inclusion and Exclusion Criteria

Studies were selected for inclusion based on the following criteria:

- **Study Design**: Primary research studies (e.g., cross-sectional, cohort, case-control studies) that investigated factors affecting DOTS therapy compliance in TB patients.
- **Population**: Studies that included adult patients (18 years and above) diagnosed with drug-sensitive TB.
- **Intervention/Exposure**: The primary exposure of interest was a range of factors potentially influencing adherence, including sociodemographic, socioeconomic, personal, behavioral, and healthcare system-related variables.
- **Outcomes**: The main outcome of interest was patient compliance or adherence to DOTS therapy, as defined and measured by the authors of the respective studies.

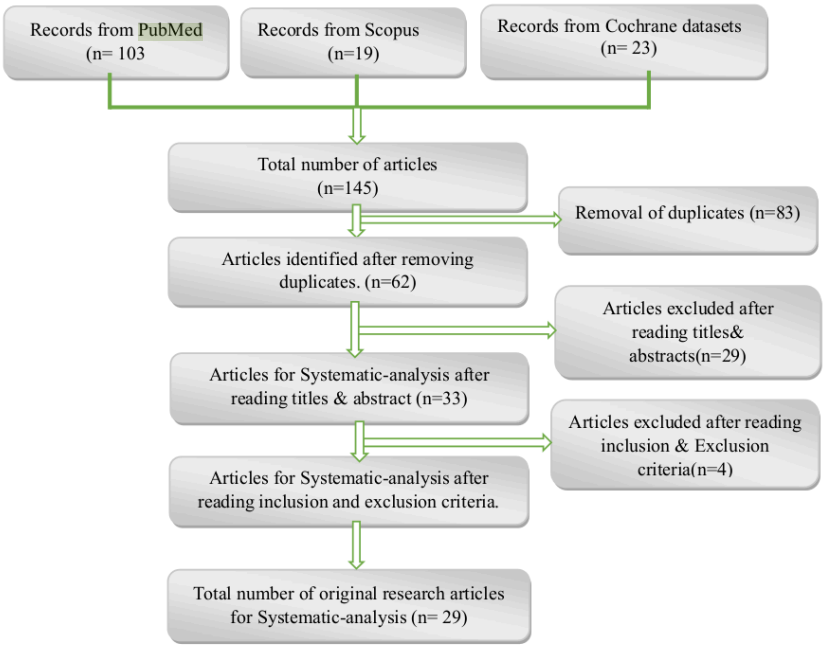
Studies were excluded if they focused on drug-resistant TB, were review articles, case reports, editorials, or if they did not provide a clear methodology for assessing compliance.

Data Extraction and Synthesis

Data from the included studies were to be extracted and synthesized thematically. The extraction process focused on identifying and summarizing key findings related to the factors affecting compliance. Thematic synthesis was employed to group similar findings from different studies into broader categories, such as "sociodemographic factors" and "healthcare system factors," as outlined in the provided document's literature review section. This approach allowed for the identification of consistent themes and common barriers to adherence across different study populations and settings. The review is guided by the Preferred Reporting Items for Systematic Reviews

and Meta-Analyses (PRISMA) framework to ensure transparency and methodological rigor

The study selection process is illustrated in the PRISMA flow diagram (Figure 1).



RESULTS

The initial database and manual search yielded 145 records. After removing duplicates (n= 83), 62 titles and abstracts were screened. Of these, 33 full-text articles were assessed for eligibility based on the inclusion criteria. Finally, 29 studies met all criteria and were included in the systematic review. This systematic review, based on a thematic synthesis of the provided literature and external sources, comprehensively identifies and categorizes the key factors influencing patient compliance with Directly Observed Treatment, Short-course (DOTS) therapy for tuberculosis (TB). The findings are

clustered into four main domains: sociodemographic and socioeconomic factors, personal and behavioral factors, healthcare system and medication-related factors, and community and social factors. This synthesis aims to provide a nuanced understanding of the complex determinants of adherence, highlighting the barriers and facilitators that must be addressed to achieve national and global TB elimination targets.

Sociodemographic and Socioeconomic Factors

The evidence consistently indicates that a patient's socioeconomic status is a critical determinant of their ability to comply with DOTS therapy. Studies across different settings, including research from Lucknow and Mumbai, India, have found a significant inverse relationship between **educational status** and adherence, with patients lacking formal education or with lower levels of schooling exhibiting higher rates of non-compliance[10,22]. Similarly, **low monthly family income** is a recurring risk factor. Financial instability directly impacts a patient's capacity to afford the indirect costs of treatment, such as transportation to DOTS centers, nutritional support, and lost wages due to time off from work[7]. The financial burden of TB, often referred to as "catastrophic costs," can push vulnerable families into a cycle of poverty and non-adherence. The National Strategic Plan (NSP) 2017-2025 in India explicitly aims to mitigate this by ensuring zero catastrophic costs for TB patients and their households[13,15]. The success of this policy is crucial for populations that are already economically marginalized.

In response to this barrier, the Government of India launched the **Ni-kshay Poshan Yojana (NPY)**, a direct benefit transfer (DBT) scheme that provides financial support for nutritional needs[20]. This initiative recognizes the strong link between malnutrition and TB, as undernutrition is a significant risk factor for both developing the disease and experiencing poor treatment outcomes[21,24]. The NPY is designed to alleviate the financial strain on patients and improve their overall health, thereby boosting their capacity to adhere to the rigorous treatment regimen. By addressing the root socioeconomic causes of non-compliance, such as poverty and food insecurity, these programs become vital components of a holistic TB control strategy.

Personal and Behavioral Factors

Patient-specific characteristics and behaviors are central to the adherence challenge. The review highlights that **harmful substance use**, particularly smoking and the harmful

use of alcohol, are strongly associated with poor adherence and an increased risk of treatment failure[10]. These behaviors can disrupt a patient's daily routine, making it difficult to remember and prioritize medication intake. The provided document also underscores the importance of a patient's **knowledge and attitude** toward their disease. A lack of adequate health literacyspecifically, insufficient information about TB's transmission, curability, and the necessity of completing the entire six-month course of medication—is a common reason for patients to stop treatment prematurely [25]. Many patients may feel cured after a few weeks of treatment and, without proper counseling, may not understand the long-term risks of non-compliance, such as relapse and the development of drug resistance.

Conversely, a positive and proactive attitude, coupled with a solid understanding of the treatment process, acts as a significant facilitator of adherence. A study in Nekemte, Ethiopia, found that informed patients who have a clear grasp of their treatment plan are more likely to comply[21]. Therefore, health education is not a one-time event but a continuous and reinforcing process that needs to be integrated into every patient interaction. The role of health workers in providing this consistent education is paramount.

Healthcare System and Medication-Related Factors

The structure and functioning of the healthcare system are pivotal in shaping a patient's adherence journey. Several studies point to issues within the healthcare system that act as barriers to compliance. These include long **waiting times at clinics**, inconvenient operating hours, and a perceived lack of privacy during treatment[7,26]. Patients' relationships with their healthcare providers are equally crucial. Non-compliance has been linked to dissatisfaction with DOTS providers and a lack of supportive, empathetic interaction[7,25]. A study in rural Haryana, India, highlighted the importance of patient satisfaction with healthcare services, noting that positive interactions with health workers significantly improved adherence[28].

Interventions such as **phone calls, home visits, and a flexible, patient-centered approach** have been shown to be effective strategies for improving compliance and reducing loss to follow-up[7]. The decentralization of TB services, including the establishment of DOTS centers in community-level health facilities, makes treatment more accessible and reduces travel-related barriers[20].

Finally, **medication-related factors** are frequently cited as reasons for non-compliance. Patients may experience adverse side effects from the drugs, which can be severe and lead them to discontinue treatment. The fear of painful injections and the large number of tablets required for the daily regimen can also be intimidating and overwhelming for some patients[7]. The NTEP has responded to this challenge by rolling out safer and shorter all-oral regimens for drug-resistant TB, which have shown improved success rates and are more patient-friendly[17].

Community and Social Factors

The social environment surrounding a TB patient significantly impacts their treatment journey. The omnipresent fear of **stigma and discrimination** is a major deterrent, often leading patients to conceal their illness and avoid public health facilities to prevent social ostracism or job loss [10, 26]. This fear can be a powerful barrier to initiating and continuing treatment. **Family and community support** are therefore critical facilitators of adherence. A supportive family network can provide emotional, logistical, and financial assistance, while a lack of such support can increase a patient's vulnerability to defaulting.

Recognizing the power of community, the Government of India launched the **Pradhan Mantri TB Mukt Bharat Abhiyaan (PMTBMBA)**, a community engagement initiative aimed at making TB elimination a "Jan Andolan" or people's movement[18,19]. The program encourages individuals and organizations to become **"Ni-kshay Mitras"** and provide personalized support to TB patients, including nutritional kits, diagnostic assistance, and vocational training[19]. This initiative not only provides tangible support but also helps to reduce the stigma associated with the disease by promoting a culture of care and solidarity. The expansion of these community-based efforts, coupled with educational campaigns, is essential for creating an environment where patients feel supported, not judged, and are empowered to complete their treatment successfully.

DISCUSSION

The synthesis of literature within this review presents a compelling argument that patient compliance with Directly Observed Treatment, Short-course (DOTS) therapy is not a simple issue of patient motivation, but rather a complex, multi-faceted phenomenon shaped by a confluence of individual, socioeconomic, and systemic factors[7,10,26]. The findings align with a socio-ecological model of health, which

recognizes that health behaviors, such as adherence to a long-term treatment regimen, are influenced by an intricate web of personal, interpersonal, community, and societal-level determinants[7]. This discussion will delve into the implications of these findings for TB control policy and practice, analyze the effectiveness of current programmatic responses in India, and identify critical areas for future research.

The Interplay of Barriers to Adherence

The results of this review underscore that the identified barriers to compliance rarely exist in isolation. They often act synergistically, creating a cumulative effect that makes adherence more challenging for the patient. For instance, a patient with a **low educational status**, a significant predictor of non-compliance[10,22], may also have a poor understanding of TB (a knowledge-related barrier) and be less likely to engage with healthcare providers. This is often compounded by **low family income**, which directly leads to socioeconomic barriers such as the inability to afford transport to a DOTS center or to purchase adequate nutrition[26]. These factors collectively can overwhelm a patient's ability to complete their treatment, demonstrating the limitations of a purely biomedical approach that focuses solely on the drug regimen.

The findings from the Indian context, as detailed in reports from the National Tuberculosis Elimination Programme (NTEP), highlight the profound impact of these interlocking challenges. The India TB Report 2023 indicates that despite a high treatment initiation rate, non-adherence remains a persistent issue[9]. The NTEP's response, through initiatives like the **Pradhan Mantri TB Mukt Bharat Abhiyaan (PMTBMBA)** and the **Ni-kshay Poshan Yojana (NPY)**, is a recognition of this multi-faceted problem[18-20]. The NPY, which provides direct financial transfers for nutrition, is a critical step in addressing the socioeconomic barrier of undernutrition, a major risk factor for TB and poor outcomes[21-24]. The PMTBMBA, by mobilizing community support through "Ni-kshay Mitras," aims to combat the social stigma and isolation that often lead to non-compliance[18]. These programs represent a strategic shift from a top-down, purely clinical model to a more holistic, patient-centered approach that engages the community and addresses the social determinants of health.

The Role of the Healthcare System and Patient-Provider Relationship

The quality of the healthcare system and the patient-provider relationship are paramount to fostering adherence. The review of the literature consistently found that a lack of

patient satisfaction with DOTS providers, poor communication, and a perceived lack of empathy contribute to non-compliance[7,28]. This underscores the need for continuous training and support for healthcare workers, particularly in communication and counseling skills, in addition to their clinical duties. A strong, trusting relationship with a provider can empower a patient to openly discuss challenges like medication side effects or financial difficulties, which in turn allows the healthcare system to provide timely and effective support.

Conversely, the success of DOTS is often contingent on the system's flexibility. The review highlighted that rigid appointment times and long waiting periods can be significant barriers, especially for working patients who cannot afford to miss work[7]. The decentralization of care, with services available at the grassroots level through facilities like Ayushman Aarogya Mandirs, is a strategic move by the NTEP to overcome these logistical challenges and bring treatment closer to the patient[17].

Furthermore, the review's findings on **medication-related factors**, such as severe side effects and the burden of a high pill count, have direct implications for programmatic development. The NTEP's shift towards shorter, all-oral regimens for drug-resistant TB is a promising development that is likely to improve adherence and success rates[17]. This demonstrates a programmatic evolution based on evidence, where the patient's experience and quality of life are being prioritized to improve treatment outcomes.

Strengths, Limitations, and Future Directions

A strength of this review is its systematic approach to synthesizing both the provided study's foundational literature and external, up-to-date sources. This allows for a comprehensive overview that is grounded in local context but informed by global trends in TB control. However, a limitation is that the primary document describes a proposed study, and therefore the results of that specific study were not available for synthesis. The conclusions drawn are based on the general literature reviewed within the document and other publicly available sources.

The findings from this review point to several critical areas for future research. There is a need for more localized studies, particularly in densely populated urban settings like New Delhi, to understand the specific barriers and facilitators of compliance in these unique environments. Future research should employ qualitative methods to explore the lived experiences of TB patients, providing richer context to the quantitative data.

Furthermore, longitudinal studies are needed to track adherence over the entire course of treatment and to evaluate the long-term impact of new interventions like the PMTBMBA and NPY. Research should also focus on developing and testing targeted, context-specific interventions that address the unique combination of barriers faced by different patient groups, such as migrant workers or individuals with comorbidities like HIV or diabetes[17]. By building on the current understanding and continuing to adapt strategies based on robust evidence, global and national health bodies can accelerate progress toward a TB-free world.

CONCLUSION

The provided systematic review of literature on factors influencing patient compliance with DOTS therapy for tuberculosis concludes that effective TB control requires a holistic, patient-centered approach. Compliance is a complex, multi-faceted issue influenced by socioeconomic factors like poverty and low education, personal and behavioral factors such as substance use and low health literacy, and systemic barriers within the healthcare system like poor patient-provider relationships and inaccessible services. The success of national programs like India's NTEP and initiatives such as the Pradhan Mantri TB Mukt Bharat Abhiyaan and the Ni-kshay Poshan Yojana demonstrates the importance of a multi-sectoral strategy that addresses not only the clinical aspects of the disease but also its profound social and economic determinants. Ultimately, achieving TB elimination necessitates sustained political commitment, robust healthcare infrastructure, and a deep understanding of the diverse challenges faced by patients.

References

1. World Health Organization. Global tuberculosis report 2022. Geneva: WHO; 2022.
2. World Health Organization. Global tuberculosis report executive summary 2023. Geneva: WHO; 2023.
3. United Nations. Sustainable Development Goal 3 [Internet]. New York: UN; 2023 [cited 2024 Oct 25]. Available from: https://www.un.org/sustainabledevelopment/health/
4. Ministry of Health and Family Welfare, Government of India. Towards a TB-Free India: Achievements, Challenges and the Way Forward [Internet]. Press

Information Bureau; 2024 Nov 5 [cited 2024 Dec 10]. Available from: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2070942

5. World Health Organization. What is the DOTS strategy? [Internet]. Geneva: WHO; 2023 [cited 2024 Oct 25]. Available from: https://www.who.int/news-room/questions-and-answers/item/tuberculosis-what-is-the-dots-strategy
6. Central TB Division, Ministry of Health & Family Welfare, Government of India. Revised National Tuberculosis Control Programme [Internet]. New Delhi: CTD; 2020 [cited 2024 Oct 25]. Available from: https://tbcindia.gov.in/index1.php?lang=1&level=1&sublinkid=4133&lid=3157
7. Munro SA, Lewin SA, Smith HJ, Engel ME, Fretheim A, Volmink J. Patient adherence to tuberculosis treatment: a systematic review of qualitative research. PLoS Med. 2007 Jul;4(7):e238.
8. Santhi K, Sankar K, Ranganath S. Non-adherence to anti-tuberculosis treatment and associated factors among TB patients in public health facilities of Hossana town, Southern Ethiopia, 2022. Front Med. 2024;11:1360351.
9. Central TB Division. India TB Report 2023. New Delhi: Directorate General of Health Services, Ministry of Health and Family Welfare; 2023.
10. Scientific Research Publishing. Patient characteristics associated with non-adherence to tuberculosis treatment: a systematic review [Internet]. 2020 [cited 2024 Oct 25]. Available from: https://www.scirp.org/journal/paperinformation?paperid=101226
11. Ministry of Health and Family Welfare, Government of India. World Tuberculosis (TB) Day – 2025 [Internet]. Press Information Bureau; 2025 Mar 24 [cited 2025 Aug 8]. Available from: https://pib.gov.in/PressReleasePage.aspx?PRID=2114549
12. Ministry of Health and Family Welfare, Government of India. Press release on tuberculosis [Internet]. 2024 Dec 10 [cited 2025 Aug 8]. Available from: https://www.mohfw.gov.in/?q=/press-info/7973
13. PMF IAS. Tuberculosis elimination in India [Internet]. 2025 Jan 29 [cited 2025 Aug 8]. Available from: https://www.pmfias.com/tuberculosis-elimination-in-india/
14. National Tuberculosis Institute. Pradhan Mantri TB Mukt Bharat Abhiyaan [Internet]. 2023 [cited 2025 Aug 8]. Available from:

https://nti.gov.in/knowledge-base-3/pradhan-mantri-tb-mukt-bharat-abhiyaan/

15. Central TB Division, Ministry of Health & Family Welfare, Government of India. National strategic plan for tuberculosis elimination 2017–2025 [Internet]. New Delhi: CTD; 2017 [cited 2024 Oct 25]. Available from: https://www.tbdiah.org/resources/publications/draft-national-strategic-plan-for-tuberculosis-elimination-2017-2025/
16. Central TB Division, Ministry of Health & Family Welfare, Government of India. Detect–Treat–Prevent–Build: strategy for TB elimination in India by 2025 [Internet]. New Delhi: CTD; 2017 [cited 2025 Aug 8]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC5842465/
17. Drishti IAS. India's battle against tuberculosis [Internet]. 2025 May 16 [cited 2025 Aug 8]. Available from: https://www.drishtiias.com/daily-updates/daily-news-analysis/india-s-battle-against-tuberculosis
18. Vikaspedia. Pradhan Mantri TB Mukt Bharat Abhiyaan [Internet]. 2024 [cited 2025 Aug 8]. Available from: https://en.vikaspedia.in/viewcontent/health/health-campaigns/pradhan-mantri-tb-mukt-bharat-abhiyaan
19. Pradhan Mantri TB Mukt Bharat Abhiyaan [Internet]. 2022 [cited 2025 Aug 8]. Available from: https://communitysupport.nikshay.in/
20. Press Information Bureau, Government of India. India's 100-Day TB Elimination Campaign [Internet]. 2024 Dec 6 [cited 2025 Aug 8]. Available from: https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2081662
21. Assefa A, Tesfaye D, Wondimagegn M, et al. Knowledge, attitude, and practices of tuberculosis patients towards DOTS therapy in Nekemte, Ethiopia. J Infect Dis Ther. 2017;5(2):1-7.
22. Singh K, Tiwari R, Singh K. A study on compliance to DOTS therapy among tuberculosis patients in a city of Lucknow, India. J Clin Diagn Res. 2013 Nov;7(11):2576–2579.
23. Central TB Division, Ministry of Health & Family Welfare, Government of India. National framework for a gender-responsive approach to TB in India [Internet]. New Delhi: CTD; 2021 [cited 2024 Oct 25].

24. Asmamaw A, Tizazu A. Determinants of treatment non-adherence among tuberculosis patients attending DOTS clinic in a public hospital, Northwestern Ethiopia. Int J Gen Med. 2020;13:259-267.
25. Kumar A, Kumar P, Singh V, Kumar S. Assessment of patient satisfaction and its determinants under revised national tuberculosis control programme in rural Haryana, India. Indian J Community Med. 2016 Jan-Mar;41(1):44-48.
26. World Health Organization. Tuberculosis - World Health Organization (WHO) [Internet]. Geneva: WHO; 2023 [cited 2025 Aug 8]. Available from: https://www.who.int/news-room/fact-sheets/detail/tuberculosis
27. World Health Organization. Global tuberculosis report 2024 [Internet]. Geneva: WHO; 2024 [cited 2025 Aug 8]. Available from: https://www.who.int/publications/i/item/9789240089601
28. Rajeswari M, Balaji S, Ramaswamy P, et al. Factors affecting adherence to DOTS in a rural population of India. Indian J Tuberc. 2015 Apr;62(2):98–103.
29. Wikipedia contributors. National TB elimination program (India) [Internet]. Wikipedia, The Free Encyclopedia; 2024 Aug 8 [cited 2025 Aug 8]. Availablefrom:https://en.wikipedia.org/wiki/National_TB_Elimination_Program_(India)

A SYSTEMATIC REVIEW ON FACTORS INFLUENCING COMPLIANCE WITH DIRECTLY OBSERVED TREATMENT, SHORT-COURSE (DOTS) THERAPY FOR TUBERCULOSIS PATIENTS

ORIGINALITY REPORT

16%	13%	9%	6%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.careerlauncher.com Internet Source	1%
2	Submitted to Coventry University Student Paper	1%
3	bmcpublichealth.biomedcentral.com Internet Source	1%
4	www.scitcentral.com Internet Source	1%
5	www.ncbi.nlm.nih.gov Internet Source	1%
6	Submitted to Florida National University Student Paper	1%
7	books.ersjournals.com Internet Source	1%
8	tecnoscientifica.com Internet Source	1%
9	Dana-Mihaela Tilici, Diana Loreta Paun, Ana Maria Arnautu, Alexandra Mirica, Carmen Duta, Mirona Costea, Cristian Guja. "The Intricate Relationship Between Thyroid Disorders and Type 2 Diabetes—A Narrative Review", Diabetology, 2025 Publication	1%
10	www.frontiersin.org Internet Source	

		1 %
11	www.westerncape.gov.za Internet Source	1 %
12	www.seejph.com Internet Source	<1 %
13	Submitted to Arcadia University Student Paper	<1 %
14	www.preprints.org Internet Source	<1 %
15	Submitted to Adtalem Global Education Student Paper	<1 %
16	pmc.ncbi.nlm.nih.gov Internet Source	<1 %
17	Submitted to The University of the West of Scotland Student Paper	<1 %
18	discovery.researcher.life Internet Source	<1 %
19	Preeti Saini, Samit Bhattacharyya. "Impact of multiple consultations and switching in treatment-seeking in tuberculosis: Mathematical modelling and optimal control", PLOS One, 2025 Publication	<1 %
20	Submitted to University of Greenwich Student Paper	<1 %
21	jogh.org Internet Source	<1 %
22	tbcindia.nic.in Internet Source	<1 %

23	arro.anglia.ac.uk Internet Source	<1 %
24	assets-eu.researchsquare.com Internet Source	<1 %
25	prcku.uok.edu.in Internet Source	<1 %
26	Gurleen Kaur Matharu, Jenalyn M. Ormita, Katerina Palova, Odessa Gonzalez Benson. "An environmental scan of the immigrant-serving sector in Calgary: Core-periphery model", Springer Science and Business Media LLC, 2024 Publication	<1 %
27	documents1.worldbank.org Internet Source	<1 %
28	journals.lww.com Internet Source	<1 %
29	ui.adsabs.harvard.edu Internet Source	<1 %
30	www.ijmsph.com Internet Source	<1 %
31	Submitted to Monash University Student Paper	<1 %
32	storage.googleapis.com Internet Source	<1 %
33	www.drishtiias.com Internet Source	<1 %
34	Bashar Haruna Gulumbe, Abdulrakib Abdulrahim, Shamsuddeen Kele Ahmad, Kadai Alhaji Lawan, Mohammed Bashar Danlami. "WHO report signals tuberculosis resurgence: Addressing systemic failures and	<1 %

revamping control strategies", Decoding Infection and Transmission, 2025
Publication

35	dokumen.pub Internet Source	<1%
36	link.springer.com Internet Source	<1%
37	Peter Barnes, Peter D. O. Davies, Stephen B Gordon. "Clinical Tuberculosis", CRC Press, 2019 Publication	<1%
38	Vivian Lin, James Smith, Sally Fawkes, Priscilla Robinson, Sandy Gifford. "Public Health Practice in Australia - The organised effort", Routledge, 2020 Publication	<1%
39	www.dhyeyaias.com Internet Source	<1%
40	works.bepress.com Internet Source	<1%

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		