

Original Research Article

Social stigma among tuberculosis patients attending an urban health training centre in central India: a cross-sectional study

Aditya Patil*, Abhay Chavan

Department of Community Medicine, Indira Gandhi Government Medical College and Hospital, Nagpur, Maharashtra, India

Received: 23 July 2026

Accepted: 23 September 2026

*Correspondence:

Dr. Aditya Patil,

E-mail: adityapatil001@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Tuberculosis (TB) in India contributes a large share of the global burden. Beyond physical illness, patients often face emotional strain, discrimination and unfavourable community attitudes that hinder care-seeking and adherence. Knowing how common stigma is and what drives it, is important for TB control.

Methods: This cross-sectional study was conducted at an urban health training centre of a tertiary care teaching hospital in Central India between November 2025 and April 2026. Eighty diagnosed TB patients aged ≥ 18 years were recruited by convenience sampling. Data were collected using a semi-structured questionnaire and the Van Rie TB Stigma Scale. Statistical analysis used: Associations were examined using the Chi-square test or Fisher's exact test where expected cell counts were small, with statistical significance set at $p < 0.05$.

Results: Males predominated (48 vs 32); the commonest age group was 18–30 years. Pulmonary TB was present in 56 patients and extrapulmonary TB in 24. On the stigma scale, 18 (22.5%) had low, 38 (47.5%) moderate and 24 (30.0%) high stigma, thus 77.5% experienced moderate-to-high stigma. Stigma was significantly associated with socio-economic status ($p = 0.017$) but not education ($p = 0.59$) or occupation ($p = 0.68$).

Conclusions: A sizeable proportion of TB patients experienced moderate-to-high social stigma, a notable psychosocial burden in TB care. Community awareness, patient counselling and supportive training for health workers may help reduce stigma and improve treatment outcomes.

Keywords: Tuberculosis, TB-related social stigma, Urban health training centre, Van Rie TB stigma scale

INTRODUCTION

TB continues to rank among the foremost causes of illness and death globally, with India accounting for a disproportionately large share of the world's caseload.¹ Apart from its physical effects, the disease often exposes those affected to emotional strain, discriminatory treatment and unfavourable attitudes within their communities.

These pressures can drive patients to conceal their condition, withdraw socially, postpone seeking care and adhere poorly to therapy, thereby weakening TB control and diminishing quality of life.² Quantifying how

widespread stigma is and what drives it, is therefore a prerequisite for designing interventions that work.

METHODS

This cross-sectional study was carried out between November 2025 and April 2026 among tuberculosis patients attending the urban health training centre (UHTC) of a tertiary care teaching hospital in Central India. Eligibility was restricted to diagnosed TB patients aged 18 years or older who were enrolled for treatment and follow-up at the centre and consented to take part. Those who were severely ill, unable to complete the questionnaire or declined participation were not included. Eighty participants were recruited through convenience

sampling; eligible patients presenting at the UHTC over the study period were enrolled consecutively until the target sample size was reached. Information was gathered through a pre-tested, semi-structured questionnaire that captured socio-demographic details (age, sex, education, occupation and socio-economic status) alongside disease-related particulars (type of TB and phase of treatment). The level of social stigma was measured using the validated Van Rie TB Stigma Scale.^{3,4} Total scores were used to classify participants into low (0–14), moderate (15–29) or high (30–44) stigma categories.

Data were entered into Microsoft Excel and analysed in Jamovi. Results were summarised as frequencies and percentages, with means and standard deviations where appropriate. The Chi-square test or Fisher's exact test when expected cell counts were small, was used to examine associations between stigma category and socio-demographic variables; statistical significance was set at a *p* value below 0.05.

Approval was granted by the Institutional Ethics Committee and each participant provided written informed consent prior to enrolment.

RESULTS

A total of 80 tuberculosis patients participated. The majority belonged to the 18–30 years age group (27.5%), followed by 31–40 years (25.0%), 41–50 years (22.5%), 51–60 years (15.0%) and above 60 years (10.0%). Males constituted 60.0% (*n*=48) and females 40.0% (*n*=32).

Secondary school education was the commonest (30.0%) and unskilled workers formed the largest occupational group (32.5%), as detailed in table 1.

Nearly half of the participants (47.5%) belonged to the upper lower socio-economic class, while 25.0% belonged to the lower class (Table 2).

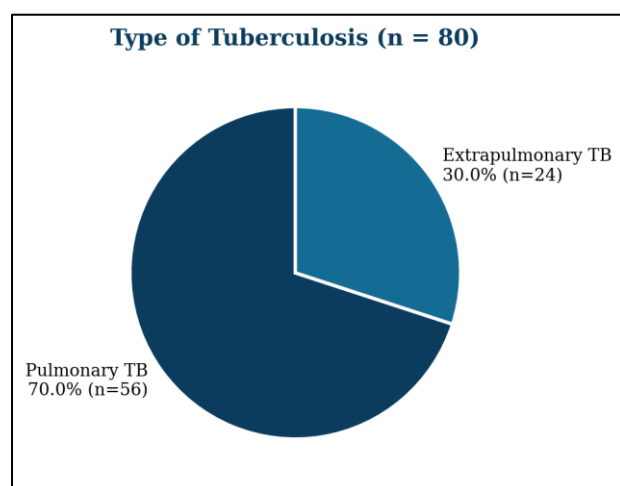


Figure 1: Distribution of study participants according to type of tuberculosis (n=80).

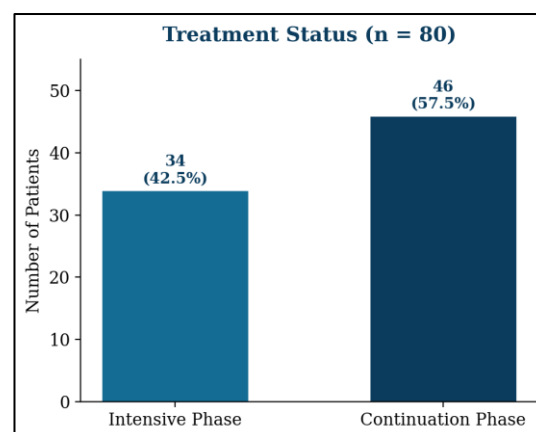


Figure 2: Distribution of study participants according to treatment status (n=80).

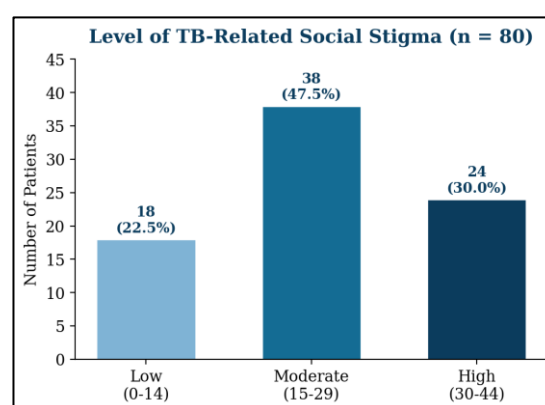


Figure 3: Distribution of study participants according to level of social stigma (n=80).

Pulmonary tuberculosis was observed in 70.0% (*n*=56) of participants and extrapulmonary tuberculosis in 30.0% (*n*=24) (Figure 1). With respect to treatment status, 57.5% (*n*=46) were in the continuation phase and 42.5% (*n*=34) in the intensive phase (Figure 2). Assessment using the Van Rie TB stigma scale revealed that 22.5% (*n*=18) had low stigma, 47.5% (*n*=38) moderate stigma and 30.0% (*n*=24) high stigma. Thus, more than three-fourths (77.5%) experienced moderate-to-high TB-related social stigma (Figure 3).

Item-wise responses to the stigma scale are presented in Table 3. A substantial proportion of participants perceived negative community attitudes towards individuals with TB; more than half agreed that people may avoid eating or drinking with TB patients, feel uncomfortable being near them, keep their distance, fear them or discourage their children from interacting with them. Association analysis showed that educational status (*p*=0.59) and occupation (*p*=0.68) were not significantly associated with stigma levels (Tables 4 and 5). However, socio-economic status was significantly associated with stigma (Fisher's exact test, *p*=0.017), with higher stigma among participants from lower socio-economic classes (Table 6).

Table 1: Distribution of study participants according to educational status and occupation (n=80).

Category	Frequency (N)	(%)
Educational status		
Illiterate	12	15.0
Primary school	20	25.0
Secondary school	24	30.0
Higher secondary	16	20.0
Graduate and above	8	10.0
Occupation		
Unemployed	10	12.5
Unskilled worker	26	32.5
Semi-skilled worker	18	22.5
Skilled worker	14	17.5
Professional	12	15.0
Total	80	100.0

Table 2: Distribution of study participants according to socio-economic status (Modified Kuppuswamy classification) (n=80).

Socio-economic class	Frequency (N)	(%)
Upper class	1	1.3
Upper middle class	6	7.5
Lower middle class	15	18.7
Upper lower class	38	47.5
Lower class	20	25.0
Total	80	100.0

Table 3: Distribution of responses to the Van Rie TB stigma scale (community level) among study participants (n=80).

No.	Scale item	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
1	Some people may not want to eat or drink with friends who have TB	14 (17.5%)	28 (35.0%)	8 (10.0%)	20 (25.0%)	10 (12.5%)
2	Some people feel uncomfortable about being near those with TB	18 (22.5%)	30 (37.5%)	6 (7.5%)	18 (22.5%)	8 (10.0%)
3	Some community members will behave differently towards a TB patient for the rest of their life	16 (20.0%)	24 (30.0%)	10 (12.5%)	20 (25.0%)	10 (12.5%)
4	Some people do not want those with TB playing with their children	20 (25.0%)	26 (32.5%)	8 (10.0%)	18 (22.5%)	8 (10.0%)
5	Some people keep their distance from people with TB	22 (27.5%)	28 (35.0%)	6 (7.5%)	16 (20.0%)	8 (10.0%)
6	Some people think that those with TB are disgusting	12 (15.0%)	20 (25.0%)	10 (12.5%)	24 (30.0%)	14 (17.5%)
7	Some people do not want to talk to others with TB	14 (17.5%)	24 (30.0%)	8 (10.0%)	22 (27.5%)	12 (15.0%)
8	Some people are afraid of those with TB	18 (22.5%)	28 (35.0%)	6 (7.5%)	18 (22.5%)	10 (12.5%)
9	Some people try not to touch others with TB	20 (25.0%)	26 (32.5%)	8 (10.0%)	16 (20.0%)	10 (12.5%)
10	Some people may not want to eat or drink with relatives who have TB	16 (20.0%)	26 (32.5%)	10 (12.5%)	18 (22.5%)	10 (12.5%)
11	Some people prefer not to have those with TB living in their community	14 (17.5%)	22 (27.5%)	12 (15.0%)	20 (25.0%)	12 (15.0%)

Table 4: Association between educational status and level of TB stigma (n=80).

Educational status	Low	Moderate	High	Total
Illiterate	2	6	4	12
Primary school	4	9	7	20
Secondary school	6	12	6	24
Higher secondary	4	8	4	16
Graduate	2	3	3	8
Total	18	38	24	80

$\chi^2=2.84$, $p=0.59$ (not significant).

Table 5: Association between occupation and level of TB stigma (n=80).

Occupation	Low	Moderate	High	Total
Unemployed	1	5	4	10
Unskilled worker	4	12	10	26
Semi-skilled worker	5	9	4	18
Skilled worker	4	7	3	14
Professional	4	5	3	12
Total	18	38	24	80

$\chi^2=3.11$; $p=0.68$ (not significant).

Table 6: Association between socio-economic status and level of TB stigma (n=80).

Socio-economic status	Low	Moderate	High	Total
Upper class	1	0	0	1
Upper middle class	4	2	0	6
Lower middle class	6	7	2	15
Upper lower class	6	21	11	38
Lower class	1	8	11	20
Total	18	38	24	80

Fisher's exact test; $p=0.017$ (significant).

DISCUSSION

This study examined the burden of social stigma among tuberculosis patients attending an UHTC in Central India. Moderate stigma was reported by 47.5% and high stigma by 30.0%, so that more than three-quarters (77.5%) carried a moderate-to-high stigma burden. The persistence of such levels, despite sustained public health efforts and therapeutic advances, indicates that stigma remains a substantial psychosocial obstacle in TB care.

These results sit comfortably alongside other Indian reports. Rajpal et al recorded moderate stigma in 66% of TB patients, whereas Kallepalli et al documented stigma in 59%, with a mean score of $31.1 \pm 3.25.7$ Rathod and Shetty noted a mean stigma score of 20.76 ± 6.40 in Gujarat and Baskaran et al, found stigma in 69.3% of patients in Puducherry.^{5,6,8} Taken together, these figures point to a problem that is widespread across the country. Item-level responses revealed that many participants sensed unfavourable community attitudes avoidance of social contact, fear of proximity, hesitation to share food or drink and unease about children mixing with affected persons. Perceptions of this kind can foster social isolation, encourage concealment of the diagnosis, delay

help-seeking and undermine adherence to treatment.^{9,10} Neither educational status nor occupation showed a significant relationship with stigma. Socio-economic status, by contrast, was significantly linked to it ($p=0.017$), with higher stigma concentrated among the lower socio-economic groups. This pattern may stem from restricted access to health information, poorer awareness of how TB spreads and is treated and the heightened exposure of economically disadvantaged groups to social discrimination.¹¹⁻¹³

Several limitations should be noted. Because the work was based at a single urban health training centre and used convenience sampling, its findings may not extend to all settings. Its cross-sectional nature does not permit conclusions about cause and effect and reliance on self-report leaves room for social-desirability bias. Even so, the results underline that TB stigma remains a real barrier to effective tuberculosis control.^{14,15}

Measures that raise community awareness, dispel misconceptions, reinforce patient counselling and nurture supportive attitudes will be central to reducing stigma and improving treatment outcomes.

CONCLUSION

A sizeable share of the TB patients studied carried a moderate-to-high stigma burden and stigma was greater among those of lower socio-economic standing. Strengthening focused community awareness, patient counselling and supportive TB services is needed to lessen stigma and improve treatment outcomes.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Global Tuberculosis Report 2023. Geneva: World Health Organization. 2023. Available at: <https://www.who.int/teams/global-tuberculosis-programme/tb-reports>. Accessed on 21 March 2026.
2. Courtwright A, Turner AN. Tuberculosis and stigmatization: pathways and interventions. Public Health Rep. 2010;125(4):34–42.
3. Van Rie A, Sengupta S, Pungrassami P, Balhithip Q, Choonuan S, Kasetjaroen Y, et al. Measuring stigma associated with tuberculosis and HIV/AIDS in southern Thailand: exploratory and confirmatory factor analyses of two new scales. Trop Med Int Health. 2008;13(1):21–30.
4. Saha A, Kumar A, Jain A, Pratibha, Ranjan R. Cross-cultural reliability of Van Rie TB perceived stigma scale among TB survivors in North India. Indian J Tuberc. 2024;71(2):221–4.
5. Rajpal S, Arora VK, Matta S, Chopra KK, Pawar S, Aggarwal N. TAI-NDTBC stigma assessment scale to assess stigma among TB patients. Indian J Tuberc. 2025;72(2):146–9.
6. Rathod N, Shetty R. Perceived stigma associated with tuberculosis among patients and attitude of caregivers towards affected persons in selected areas of Surat district, Gujarat. Int J Community Med Public Health. 2019;6(8):3457–62.
7. Kallepalli SK, Garapati S, Bhimarasetty D, Pethala S. Burden of stigma among tuberculosis patients: a cross-sectional study. Int J Community Med Public Health. 2022;9(3):1364–8.
8. Baskaran L, Vasudevan K, Anandaraj R. Prevalence of stigma among tuberculosis patients and associated factors: a community-based cross-sectional study in Puducherry. Natl J Community Med. 2021;12(9):274–9.
9. Weiss MG, Ramakrishna J, Somma D. Health-related stigma: rethinking concepts and interventions. Psychol Health Med. 2006;11(3):277–87.
10. Chang SH, Cataldo JK. A systematic review of global cultural variations in knowledge, attitudes and health responses to tuberculosis stigma. Int J Tuberc Lung Dis. 2014;18(2):168–73.
11. Somma D, Thomas BE, Karim F, Kemp J, Arias N, Auer C, et al. Gender and socio-cultural determinants of TB-related stigma in Bangladesh, India, Malawi and Colombia. Int J Tuberc Lung Dis. 2008;12(7):856–66.
12. Atre S, Kudale A, Morankar S, Gosoni D, Weiss MG. Gender and community views of stigma and tuberculosis in rural Maharashtra, India. Glob Public Health. 2011;6(1):56–71.
13. Sagili KD, Satyanarayana S, Chadha SS. Is knowledge regarding tuberculosis associated with stigmatising and discriminating attitudes of general population towards tuberculosis patients. Findings from a community-based survey in 30 districts of India. PLoS One. 2016;11(2):147274.
14. Dhingra VK, Khan S. A sociological study on stigma among TB patients in Delhi. Indian J Tuberc. 2010;57(1):12–8.
15. Mathew AS, Takalkar AM. Living with tuberculosis: the myths and the stigma from the Indian perspective. Clin Infect Dis. 2007;45(9):1247.

Cite this article as: Patil A, Chavan A. Social stigma among tuberculosis patients attending an urban health training centre in central India: a cross-sectional study. Int J Community Med Public Health 2026;13:5949-53.