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## Stigma and discrimination by healthcare providers towards patients diagnosed with HIV and tuberculosis: A study from India

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### Abstract

**Background.**—High levels of human HIV and tuberculosis (TB) stigma have been reported among healthcare workers (HCWs).

**Methods.**—We compared HIV and TB stigma scores reported by nursing students and ward staff from hospitals across India. Transmission worry (TW) and intent to discriminate (ID) for HIV and TB were captured using a validated stigma scale.

**Results.**—A total of 3733 individuals were interviewed. Nursing students and ward staff expressed higher TW while carrying out high- and low-risk tasks on patients with HIV compared to TB. Mean scores were 2.1 and 1.86 among nursing students; 1.82 and 1.79 among ward staff (all  $p < 0.001$ ). Both groups expressed a significantly higher ID against patients with HIV compared to TB (mean percentage: 75.6 and 70.3 among nursing students; and 81.8 and 78.8 among ward staff; all  $p < 0.001$ ).

**Conclusion.**—TB stigma has implications for providing quality TB care. Training of HCWs regarding transmission dynamics, the importance of standard precautions during patient care, regardless of diagnosis is essential.

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*Conflicts of interest.* None declared

## INTRODUCTION

Globally, multiple efforts have been made to reduce HIV-related stigma.<sup>1,2</sup> As per the HIV data released by the National AIDS Control Programme, the estimated adult HIV prevalence in India was 0.22% (0.17%–0.29%) in 2019.<sup>3</sup> By 2014, 64% of countries, including India, had legislation to protect people living with HIV (PLWH) from discrimination.<sup>4</sup>

Similar legal provisions do not exist for tuberculosis (TB) in India, even though TB attracts stigma. TB stigma often occurs due to misconceptions.<sup>5,6</sup> In high-burden settings, patients with TB and HIV share social characteristics and HIV stigma is often generalized to patients with TB.<sup>7</sup> Migrants, people with substance abuse and with multidrug-resistant (MDR) TB avoid seeking healthcare due to fear of discrimination.

Research suggests that family and healthcare settings are the most conspicuous contexts for HIV-related discrimination, stigmatization, and denial of care globally.<sup>8–10</sup> Similarly, TB-related stigma among physicians, nurses and ward staff working in both governmental and non-governmental healthcare settings has been noted in a study from India.<sup>11</sup> Most studies have focused on measuring TB stigma among the general population.<sup>11,12</sup> Few studies that reported TB stigma among Indian healthcare workers (HCWs) have attributed this to a lack of knowledge, transmission misconceptions, prejudice, lack of occupational safety standards, institutional policies, and broader societal beliefs.<sup>2,12–14</sup> There is scant research into the assessment of the contribution of health systems towards TB-related stigma.

We did a cluster randomized controlled trial (cRCT) designed to evaluate the efficacy of an HIV stigma reduction intervention (DriSti) among nursing students and ward staff in India. Nursing students were included since previous studies reported high levels of stigma among them. Also, if our intervention worked, we wanted to see the feasibility of integrating this intervention into the nursing curriculum to change the culture of stigma in healthcare facilities in the future. In this article, we compare stigma and intent to discriminate against patients diagnosed with TB and those with HIV by ward staff and nursing students.

## METHODS

The cRCT was designed to evaluate the efficacy of an intervention to reduce HIV-related stigma among nursing students and ward staff from hospitals/nursing schools across India.<sup>15</sup> Assessments were done at baseline, 1, 6 and 12 months following the intervention. We present secondary analyses of the baseline data.

The trial was conducted in 48 hospitals and nursing colleges in Bengaluru, Mysuru, Mangalore and Delhi. Participants included second- and third-year nursing students and ward staff from private, non-profit, and government-run nursing schools and hospitals. Eligibility criteria for nursing students included second- and third-year students who were 18 years or above in age. For ward staff, the eligibility criteria were 18 years, 1 year of work experience and involvement in patient care. Potential participants were approached by the project staff in person in their workplace or college to screen for eligibility. Those who were willing to participate were explained about the study and the consent form in detail. Participants were enrolled after providing written informed consent. Assessments were done

on computer tablets using face-to-face interviews in Kannada, Hindi or English by a trained interviewer.

### Outcome variables

Nursing students were presented with 10 tasks and ward staff with eight routine tasks. These were categorized as high or low risk for HIV and TB transmission separately for the two groups (Table I).

1. *Transmission worry (TW) score:* Participants were asked how they would feel about performing these tasks if it was (i) a patient with HIV and (ii) a patient with TB. Responses were captured using a 4-point Likert scale ranging from 'not at all worried' (1) to 'very worried' (4). Responses were averaged over all items. Higher scores indicate higher levels of worry.
2. *Intent to discriminate (ID) score:* Participants were asked how they would perform these tasks if it was (i) a patient with HIV and (ii) a patient with TB. Options included refuse/try to get someone else to do it; do it but avoid touching the patient; do it but with extra precautions (e.g. double gloving); do it like any other patient. The first three options were categorized as discriminatory (score 1), and the fourth option as non-discriminatory (score 0). Responses were summed and then transformed into the percentage of items with an ID response to allow comparisons between nursing students and ward staff.

For both worry (TW-HIV and TW-TB) and intent (ID-HIV and ID-TB), scores were calculated for low- and high-risk tasks separately.

### Analyses

Frequencies and percentages were used to describe the samples demographically and means with standard deviations (SD) to describe level of TW and percentage of items showing ID for the two types of tasks and the two types of patients. Paired *t*-test was used to compare the difference on these outcomes between the two types of patients. Pearson correlations were used to examine the association between TW and ID. To test the difference between the two correlations Fisher *r*-to-*z* transformation was used. A *p* value of <0.05 was considered significant. Analysis was done using Stata version 16.

### Ethical considerations

The field work of the trial was funded through a sub-contract from the University of California, San Francisco (USCF) to St John's Research Institute. Therefore, ethical approval was obtained from the Institutional Ethics Review Committee of St John's Medical College Hospital, Bengaluru, and the Committee on Human Research at the UCSF.

## RESULTS

Among all participants screened, 94 nursing students were excluded since they did not complete the baseline survey and 280 ward staff were excluded because they declined to participate or did not complete the baseline survey. This resulted in a total of 1874 nursing students and 1859 ward staff who completed baseline assessments. The number of colleges/

hospitals selected from each site are as follows: Bengaluru (28 institutions; 1008 nursing students and 773 ward staff), Mysuru (8 institutions, 315 nursing students and 383 ward staff), Mangalore (8 institutions, 302 nursing students and 401 ward staff), and Delhi (4 institutions, 249 nursing students and 302 ward staff). The mean (SD) age of the nursing students was 20.4 (1.5) years and for ward staff it was 39.6 (9.6) years (Table II).

Both nursing students and ward staff, on an average, expressed significantly greater TW while caring for HIV patients than TB patients. The mean scores were 2.1 and 1.86 among nursing students; 1.82 and 1.79 among ward staff (all  $p < 0.001$ ). Both groups also expressed significantly higher ID against HIV patients than TB patients. The mean percentage of all tasks with a discriminatory response was 75.6 for HIV and 70.3 for TB among nursing students; and 81.8 and 78.8 among ward staff ( $p < 0.001$ ). Differences in ID were driven by the high-risk tasks. For the low-risk tasks, we found higher ID for TB patients than HIV patients among nursing students (64.8 v. 61.5,  $p < 0.001$ ; Table III).

The mean TW scores for TB among nursing students positively correlated with ID in both high-risk and low-risk tasks (0.334 and 0.380,  $p < 0.001$ ). The same was true for the ward staff ( $r = 0.061$ ,  $p = 0.009$ ;  $r = 0.076$ ,  $p = 0.001$ , respectively), though correlations were significantly lower for the ward staff than for nursing students.

## DISCUSSION

Both nursing students and ward staff reported stigmatizing attitudes while caring for patients with HIV and patients with TB, with generally higher scores for HIV than TB. Overall, nursing students reported higher TW for both TB and HIV than ward staff. Among nursing students, we found an association between worry of TB transmission and ID in both high- and low-risk situations. The HCWs in our study reported levels of stigma towards these patients that were consistent with results from previous studies.<sup>9,16</sup> Such high rates of stigmatizing attitudes among HCWs could be due to misconceptions regarding the transmission of HIV and TB, inexperience in handling such patients, or lack of adequate training. Fear of infection is a commonly reported reason for both HIV- and TB-related stigma<sup>16</sup> and transmission misconceptions were a consistent driver for HIV stigma.<sup>13</sup> Some HCWs may be unaware of their stigmatizing attitudes,<sup>16</sup> necessitating interventions targeting both awareness and stigma drivers.

Nursing students and ward staff reported stigmatizing attitudes while caring for patients with TB. Unlike ward staff, nursing students reported a slightly higher ID towards patients with TB than HIV even during low-risk tasks. One possible reason could be that TB has long been recognized as an important occupational hazard for HCWs due to the perceived risk of contagion, especially in low- and middle-income countries with poor infection control practices.<sup>17</sup> Also, nursing students were still in training with less clinical exposure than ward staff and may have more transmission misconceptions. The inclusion of stigma in nursing curricula can reduce stigma in healthcare settings.

It is important to note that rates of HIV stigma were greater than TB stigma among both nursing students and ward staff. However, research has shown greater stigmatization of TB

in areas with a high prevalence of HIV and HIV-TB co-infection.<sup>7</sup> Therefore, research on intersectional stigma and discrimination is needed to understand its impact on patient care, and interventions to reduce stigma need to simultaneously target HIV and TB.

We found an association between TW-TB and ID-TB among nursing students. Worry of transmission and misconceptions were important drivers of discrimination in healthcare settings.<sup>16,18–20</sup> Further research is needed to understand the relationship between TB stigma and discrimination.

### Limitations

Data were collected face-to-face and hence might have been affected by social desirability bias. But as levels of stigma reported were high, especially for HIV, we believe such bias was minimal. Limited variables assessed for correlation is another limitation. Lastly, the cross-sectional nature of these analyses limited the causal attribution and possibility of a bi-directional relationship between TW and ID.

### Implications of the study

There is a growing recognition that there should be a sustainable response to reduce stigma in healthcare settings. Incorporating training programmes that target transmission dynamics and adherence to standard precautions into the existing infection control practices can help to reduce TB stigma among HCWs. While HIV stigma has received considerable attention, TB stigma has been somewhat neglected and such training assumes importance in low- and middle-income countries due to high rates of TB infection, including MDR TB.

### Conclusions

This study showed that both ward staff and nursing students reported HIV and TB stigma and intent to discriminate. Health systems need to increase efforts to reduce stigma and discrimination by HCWs who are essential for quality patient care and improved health outcomes.

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**Table I.**

Operational definition of high-risk and low-risk tasks included in the study

Professional task and risk	Nursing students	Ward staff
<p><i>High-risk tasks for HIV</i></p> <p>Activities that involved potential exposure to blood/body fluids</p>	<ol style="list-style-type: none"> <li>1. Draw a patient's blood</li> <li>2. Start an i.v. line for a patient</li> <li>3. Dress a patient's wound</li> <li>4. Assist in the operating theatre, including with labour and delivery, on a patient</li> <li>5. Assist a patient with his/her personal hygiene needs such as bathing</li> </ol>	<ol style="list-style-type: none"> <li>1. Cleaning up a patient's bodily fluids like blood and contaminated linen</li> <li>2. Dress a patient's wound</li> <li>3. Assist in the operating theatre, including with labour and delivery, on a patient.</li> <li>4. Assist a patient with his/her personal hygiene needs, such as bathing</li> </ol>
<p><i>High-risk tasks for tuberculosis (TB)</i></p> <p>Activities that involved exposure to respiratory droplets or involved spending more time with patient were considered high-risk for transmission of TB</p>	<ol style="list-style-type: none"> <li>1. Dress a patient's wound</li> <li>2. Assist in the operating theatre, including with labour and delivery, on a patient</li> <li>3. Assist a patient with his or her personal hygiene needs, such as bathing</li> <li>4. Transport a patient</li> </ol>	<ol style="list-style-type: none"> <li>1. Dress a patient's wound</li> <li>2. Assist in the operating theater, including with labour and delivery, on a patient</li> <li>3. Assist a patient with his or her personal hygiene needs, such as bathing</li> <li>4. Transport a patient</li> </ol>
<p><i>Low-risk tasks for HIV/TB</i></p> <p>Activities that did not carry increased risk of HIV</p>	<ol style="list-style-type: none"> <li>1. Transport a patient</li> <li>2. Take a patient's blood pressure</li> <li>3. Give medication to a patient</li> </ol>	<ol style="list-style-type: none"> <li>1. Transporting a patient's laboratory specimens or samples</li> <li>2. Taking care of the dead body of a patient</li> </ol>
<p>Activities that did not carry increased risk of transmission of TB</p>	<ol style="list-style-type: none"> <li>1. Draw a patient's blood</li> <li>2. Start an i.v. line for a patient</li> <li>3. Take a patient's blood pressure</li> <li>4. Give medication to a patient</li> <li>5. Transporting a patient's laboratory specimens or samples</li> <li>6. Taking care of the dead body of a patient</li> </ol>	<ol style="list-style-type: none"> <li>1. Transporting a patient's laboratory specimens or samples</li> <li>2. Taking care of the dead body of a patient</li> </ol>



**Table II.**Sociodemographic characteristics of the study population ( $n=3733$ )

Variable	Nursing students ( $n=1874$ )	Ward staff ( $n=1859$ )
	$n$ (%)	$n$ (%)
<i>Mean (SD) age</i>	20.4 (1.5)	39.6 (9.6)
<i>Gender</i>		
Men	94 (5.0)	649 (34.9)
Women	1780 (95.0)	1210 (65.1)
<i>Religion</i>		
Hindu	857 (45.7)	1556 (83.7)
Christian	887 (47.3)	239 (12.9)
Muslim	35 (1.9)	60 (3.2)
Others	95 (5.1)	4 (0.2)
<i>Marital status</i>		
Currently married	11 (0.6)	1312 (70.6)
Single	1863 (99.4)	222 (11.9)
Formerly married	0 (0)	325 (17.5)
<i>Income per month (in ₹)*</i>		
10 000	556 (29.8)	627 (33.8)
10 001–20 000	640 (34.3)	767 (41.3)
>20 000	672 (36.0)	465 (25.0)
<i>Education</i>		
Up to primary	0 (0)	795 (42.7)
High school	0 (0)	823 (44.3)
College and above	0 (0)	241 (13.0)
<i>Nursing programme</i>		
BSc	1555 (83.0)	0 (0)
General nurse midwife	319 (17.0)	0 (0)

\* For nursing students,  $n=1686$

Mean scores for worry of transmission and intent to discriminate when treating patients with HIV and TB among nursing students and ward staff in high- and low-risk situations

**Table III.**

Variable	HIV mean (95% CI)	TB mean (95% CI)	Difference	p value*
<i>Nursing students (n=1874)</i>				
<i>Overall worry of transmission (1-4 scale)</i>	2.1 (2.03-2.08)	1.86 (1.83-1.89)	0.19 (0.17-0.21)	<0.001
High risk	2.46 (2.32-2.49)	2.02 (1.88-2.00)	0.43 (0.4-0.46)	<0.001
Low risk	1.66 (1.64-1.79)	1.67 (1.64-1.70)	-0.01 (0.02-0.01)	0.35
<i>Overall intent to discriminate (per cent of items with discriminatory intent)</i>				
High risk	75.6 (74.6-76.6)	70.3 (68.9-71.6)	5.4 (4.4-6.4)	<0.001
Low risk	90.3 (89.4-91.1)	75.0 (73.4-76.5)	15.3 (13.8-16.7)	<0.001
<i>Ward staff (n=1859)</i>				
<i>Overall worry of transmission (1-4 scale)</i>	1.82 (1.79-1.87)	1.79 (1.76-1.84)	0.02 (0.01-0.04)	<0.001
High risk	1.96 (1.89-2.01)	1.91 (1.87-1.95)	0.05 (0.02-0.07)	<0.001
Low risk	1.71 (1.67-1.75)	1.71 (1.67-1.75)	-0.004 (-0.01-0.02)	<0.001
<i>Overall intent to discriminate (per cent of items with discriminatory intent)</i>				
High risk	81.8 (80.8-83.1)	78.8 (77.4-80.2)	3.0 (2.25-3.82)	<0.001
Low risk	86.4 (85.1-87.7)	80.3 (78.8-81.9)	3.9 (2.91-4.97)	<0.001
	77.3 (75.8-78.8)	77.1 (75.6-78.9)	2.1 (1.22-3.10)	0.5

\* Paired t-test