

Physician Encounters with Transgender Patients at a Tertiary Care Centre in India: A Cross-Sectional Survey of Frequency, Comfort, Barriers, and Training Needs

Vijay K Chavada^{1*}, Shivasakthy Manivasakan²

¹Institute of Health Professions Education, Sri Balaji Vidyapeeth (Deemed-to be-University), Pondicherry, India

²Institute of Health Professions Education; Indira Gandhi Institute of Dental Sciences, Sri Balaji Vidyapeeth, Pondicherry, India

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ABSTRACT

Background: Transgender individuals in India face significant healthcare disparities due to stigma, discrimination, and inadequate provider preparedness. Despite legal reforms mandating inclusive care, systematic data on physician encounters with transgender patients in tertiary care settings remain scarce. This study assessed how often physicians at a tertiary care centre in Pondicherry encountered transgender patients, their comfort levels, perceived barriers, and training needs, and examined factors associated with these outcomes.

Methods: A cross-sectional survey was conducted among 150 physicians using a structured questionnaire on encounter frequency, comfort (5-point Likert scale), barriers, and interest in further training. Data were analysed using chi-square tests, Spearman correlation, and logistic regression.

Results: Most physicians (43.3%) reported seeing 1-2 transgender patients monthly, while 22% had no encounters. Comfort levels were high in 40%, moderate in 43.3%, and low in 16.7%. The main barriers were lack of training (70%) and limited experience (63.3%); half expressed interest in additional training. Specialists reported significantly higher encounter frequency than non-specialists ($\chi^2=7.11$, $p=0.029$). Greater clinical experience was positively associated with comfort ($rs=0.32$, $p<0.001$). High comfort was predicted by specialist status (OR=1.75), more than 10 years' experience (OR=1.90), and age 36-45 years versus 25-35 years (OR=1.42).

Conclusion: Physician preparedness for transgender healthcare remains inadequate, highlighting the need for mandatory training, institutional support, and culturally competent medical education.

Keywords: Transgender persons, Physicians, Healthcare disparities, Tertiary care, Medical education, Cultural competence

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***Correspondence:** Dr. Chavada Vijay Kantilal (Email: drvchavada2000@gmail.com)

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INTRODUCTION

Transgender persons are a diverse population whose gender identity differs from sex assigned at birth. International evidence consistently shows that transgender persons experience disproportionate burdens of mental health conditions, violence, and HIV/STIs, and face barriers to routine and preventive healthcare because of stigma and discrimination in healthcare settings.¹⁻⁴

In India, these barriers are compounded by gender-affirming services being available only through mandatory mental health assessments, in which limited provider training, pathologising attitudes, and gatekeeping by mental health professionals further restrict timely access to transgender-affirming care.⁵⁻⁷

Over the last decade, India has introduced important legal and policy measures, including the Supreme Court's NALSA judgement (2014), which recognised transgender persons as a 'third gender' and affirmed their right to self-identified gender and the Transgender Persons (Protection of Rights) Act (2019), which prohibits discrimination in education, employment, healthcare and access to public services and mandates transgender-sensitive welfare measures.^{8,9} However, the translation of these protections into consistent, inclusive clinical practice remains uneven. Physicians' preparedness and cultural competence are central to building trust, improving patient experience and ensuring timely access to appropriate care.^{3,4,7}

Despite growing attention to transgender health, Indian data on clinicians' real-world interactions with transgender persons and their preparedness to support gender-affirming pathways remain scarce.⁵ Evidence from urban India highlights how mental health assessment practices can gatekeep access to gender affirming care,⁵ while international work underscores persistent gaps in transgender health training among medical students and residents⁷ reinforcing the need to characterise encounter frequency, barriers and training needs.⁷

Many facilities do not routinely record gender identity, leading to under recognition of transgender patients and constraining service planning. In India, access to gender-affirming interventions is often mediated by mental health assessments and provider gatekeeping⁵, highlighting the need for institution level data on encounters, barriers and training needs.^{3-5,7}

The study aimed to determine the frequency of transgender patient encounters reported by physicians working in a tertiary care centre in Puducherry, India. It also sought to assess physicians' self-reported comfort in providing healthcare services to transgender patients. In addition, the study explored the perceived barriers faced by physicians while delivering care to transgender individuals and evaluat-

ed their interest in receiving additional training on transgender health issues. Furthermore, the study examined the association of physician characteristics, including age, gender, specialty, and years of professional experience, with the frequency of transgender patient encounters and the level of comfort in providing care to this population.

METHODOLOGY

Study design and setting: A cross-sectional survey was conducted from October 2024 to December 2024 at a 750-bed tertiary care centre in Puducherry, India. The survey included physicians from clinical and allied specialties that routinely provide outpatient or inpatient care.

Participants: Eligible participants were physicians employed at the institution for at least six months and providing independent patient care. Interns and undergraduate students were excluded. Participation was voluntary and anonymous.

Sample size and sampling: In the absence of prior institutional prevalence estimates, the sample size was calculated using Cochran's formula with $p=50\%$ (maximum variability), 95% confidence level and 8% absolute precision, yielding a computed minimum sample of 150.1, rounded to 151 participants. Due to practical recruitment constraints, 150 physicians were enrolled, representing a marginal difference of one participant below the calculated minimum, which is unlikely to materially affect the validity of the findings.¹⁰ Convenience sampling was used to recruit eligible physicians across departments until the required sample was reached. As a limitation, convenience sampling may not fully represent all physicians at the institution and may affect generalizability of findings. Participant recruitment and inclusion are summarised in Figure 1.

Study tool and variables: A pre-tested structured, self-administered questionnaire collected information on socio-demographic and professional variables (age, gender, specialty and years of experience), frequency of transgender patient encounters (none, 1-2, 3-5, ≥ 6 per month), comfort in providing care (5-point Likert scale; 1=very uncomfortable to 5=very comfortable, categorised as low [1-2], moderate [3], and high [4-5] comfort, defined a priori by the authors), perceived barriers (multiple responses) and interest in additional training. The questionnaire was pre-tested on 10 physicians not included in the final sample; minor wording adjustments were made based on feedback. Face validity was assessed by two subject-matter experts. No externally validated instrument was used for this specific construct; this is acknowledged as a limitation. Reporting of this cross-sectional study follows STROBE guidelines. The completed STROBE checklist with page and line number references is submitted as Supplementary File 1.

Statistics: Data were analysed using standard descriptive statistics (mean with standard deviation; frequency with percentage). Associations between categorical variables were assessed using chi-square test. Correlation between years of experience and comfort score was assessed using Spearman’s rank correlation. Binary logistic regression was used to identify predictors of high comfort (Likert score 4-5) and results are presented as odds ratios (OR) with 95% confidence intervals (CI). Age was treated as a categorical variable (25-35 [reference], 36-45, 46+); due to the small size of the 46+ group (n=40), it was merged with the 36-45 category for regression modelling, and results are reported for the combined 36-45/46+ vs. 25-35 comparison. A second multivariable logistic regression model examined which perceived barriers were independently associated with high comfort level (the dependent variable); adjusted odds ratios (AOR) represent each barrier’s association with high vs. low/moderate comfort. A p-value <0.05 was considered statistically significant.

Ethical considerations: The study protocol was approved by the Institutional Ethics Committee of the institution No. 263/IEC-40/IGMC&RI/PP-7/2024, and was conducted in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection. No personal identifiers were collected; completed questionnaires were coded and stored securely with access limited to the investigators.

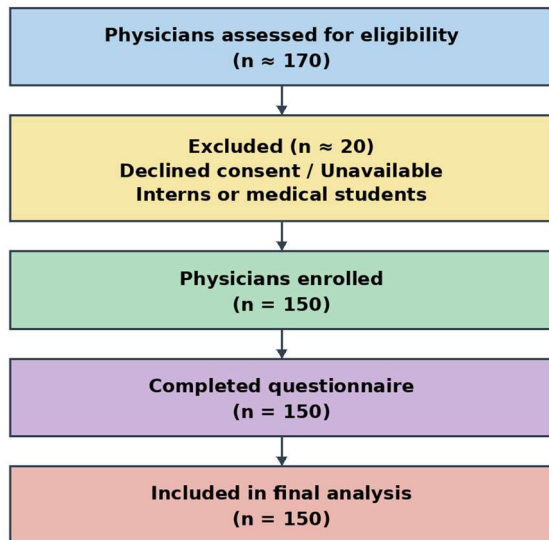


Figure 1: Flow chart of physician participation

RESULTS

A total of 150 physicians from a single tertiary care centre in Pondicherry, India, participated in this cross-sectional study.

A total of 150 physicians from a single tertiary care center in Pondicherry, India, participated in this cross-sectional study [Table 1]. The sample was fairly

balanced by gender, with males representing 54.7% of participants [Table 1]. The largest age group comprised physicians aged 36-45 years (38.0%), with a mean age of 39.13 ± 7.83 years overall (males: 40.21 ± 7.90 years; females: 37.76 ± 7.65 years) [Table 1]. Specialists constituted 56.7% of the sample, while primary care physicians comprised 43.3% [Table 1]. Experience distribution was relatively even, with 30.0% having 0-5 years, 36.7% having 6-10 years, and 33.3% having 11 or more years of professional experience [Table 1].

Regarding clinical encounters, the majority of physicians (43.3%) reported encountering 1-2 transgender patients monthly, while 22.0% reported no encounters [Table 2]. Approximately 28.0% reported 3-5 encounters, and 6.7% reported 6 or more monthly encounters [Table 2].

Table 1: Demographic and Professional Characteristics of Participating Physicians (N=150)

Characteristic	Physicians (%)
Gender	
Male	82 (54.7)
Female	68 (45.3)
Age Group (years)	
25-35	53 (35.3)
36-45	57 (38.0)
46+	40 (26.7)
Specialty	
Primary Care	65 (43.3)
Specialist	85 (56.7)
Years of Experience	
0-5	45 (30.0)
6-10	55 (36.7)
11+	50 (33.3)
Mean Age ± SD (years)	
Overall	39.13 ± 7.83
Male	40.21 ± 7.90
Female	37.76 ± 7.65

Table 2: Transgender Patient Encounters, Comfort Levels, Training Barriers, and Interest in Additional Training (N=150)

Measure	Patients (%)
Frequency of Encounters per Month	
None	33 (22.0)
1-2	65 (43.3)
3-5	42 (28.0)
6+	10 (6.7)
Comfort Level in Providing Care	
Low (1-2)	25 (16.7)
Moderate (3)	65 (43.3)
High (4-5)	60 (40.0)
Perceived Barriers (Multiple responses)	
Lack of training	105 (70.0)
Limited experience	95 (63.3)
Cultural/language barriers	65 (43.3)
Lack of institutional support	55 (36.7)
Personal discomfort	35 (23.3)
Interest in Additional Training	
Very interested	75 (50.0)
Somewhat interested	55 (36.7)
Not interested	20 (13.3)

Table 3: Predictors of High Comfort in Transgender Patient Care: Logistic Regression, Spearman Correlation, and Chi-Square Analysis

Variable- Analysis	Statistic	95% CI / Coefficient	p-value
Specialty and Encounter Frequency			
Primary Care vs. Specialist	$\chi^2 = 7.11$	-	0.029*
Specialists (3+ encounters)	37/85 (43.5%)	-	-
Primary Care (3+ encounters)	15/65 (23.1%)	-	-
Experience and Comfort Level			
Correlation (rs)	0.32	-	<0.001**
Logistic Regression (High Comfort)			
Age (36-45 vs. 25-35)	OR = 1.42	1.01-2.00	0.04*
Specialist vs. Primary Care	OR = 1.75	1.12-2.72	0.01*
Experience (>10 vs. <10 years)	OR = 1.90	1.22-2.96	<0.01**
Gender (Male vs. Female)	OR = 1.25	0.85-1.83	0.26

*p<0.05 (significant); **p<0.01 (highly significant)

Table 4: Association Between Specialty, Encounter Frequency, Years of Experience, and Barriers to Transgender Patient Care

Variable- Analysis	n (%) or Statistic	Test Statistic	95% CI	p-value
Perceived Barriers and Multivariate Analysis				
Lack of Training	105 (70.0%)	AOR = 2.50	1.60-3.90	<0.001**
Limited Experience	95 (63.3%)	AOR = 1.85	1.20-2.85	0.008**
Lack of Institutional Support	55 (36.7%)	AOR = 1.55	1.001-2.40	0.041*
Cultural/Language Barriers	65 (43.3%)	AOR = 1.30	0.85-2.00	0.210
Personal Discomfort	35 (23.3%)	NI	-	-
Specialty and Encounter Frequency				
Primary Care - 0 encounters	18 (27.7%)	$\chi^2 = 7.11$		0.029*
Primary Care - 1-2 encounters	32 (49.2%)			
Primary Care - 3+ encounters	15 (23.1%)			
Specialist - 0 encounters	15 (17.6%)			
Specialist - 1-2 encounters	33 (38.8%)			
Specialist - 3+ encounters	37 (43.5%)			
Years of Experience and Comfort Level				
Spearman correlation coefficient (rs)	0.32	-		<0.001**

*p < 0.05; **p < 0.01; NI = not included in regression. Contingency table totals (Specialty vs. Encounter Frequency): Primary Care (n=65): None=18 (27.7%), 1-2=32 (49.2%), ≥3=15 (23.1%); Specialist (n=85): None=15 (17.6%), 1-2=33 (38.8%), ≥3=37 (43.5%); Column totals: None=33 (22.0%), 1-2=65 (43.3%), ≥3=52 (34.7%); Total N=150. $\chi^2=7.11$, p=0.029.

Comfort levels in providing care to transgender patients demonstrated a relatively balanced distribution, with 40.0% reporting high comfort levels (4-5 on the Likert scale), 43.3% reporting moderate comfort (3), and 16.7% reporting low comfort (1-2) [Table 2]. Notably, 50.0% of physicians expressed strong interest in receiving additional transgender healthcare training, with 36.7% somewhat interested and only 13.3% uninterested, indicating overall receptiveness to professional development in this domain [Table 2].

A statistically significant association was identified between physician specialty and frequency of transgender patient encounters ($\chi^2 = 7.11$, p = 0.029) [Table 4]. Specialists demonstrated substantially higher encounter frequencies, with 43.5% reporting three or more encounters compared to 23.1% of primary care physicians [Table 4]. Conversely, primary care physicians reported higher proportions of no encounters (27.7%) versus 17.6% for specialists, whereas moderate encounter frequencies (1-2 encounters) were most common in primary care (49.2%) compared to specialists (38.8%) [Table 4].

Regarding perceived barriers to providing transgender patient care, lack of training emerged as

the most commonly reported obstacle (70.0%), followed by limited experience (63.3%) [Table 2]. Cultural and language barriers were identified by 43.3% of participants, while 36.7% cited lack of institutional support, and 23.3% reported personal discomfort [Table 2]. A weak positive correlation was identified between years of professional experience and comfort levels in providing transgender patient care (rs = 0.32, p < 0.001) [Table 3 and Table 4], indicating that accumulated experience significantly enhances provider confidence. Multivariate logistic regression analysis revealed several significant predictors of high comfort levels [Table 3]. Physicians aged 36-45 years were 1.42 times more likely to report high comfort compared to those aged 25-35 years (95% CI, 1.01-2.00; p = 0.04) [Table 3]. Specialists were 1.75 times more likely than primary care physicians to report high comfort (95% CI, 1.12-2.72; p = 0.01) [Table 3]. Most significantly, physicians with more than 10 years of experience were 1.90 times more likely to report high comfort compared to those with 10 years or fewer (95% CI, 1.22-2.96; p < 0.01) [Table 3]. Gender showed no statistically significant association with comfort levels (odds ratio = 1.25; 95% CI, 0.85-1.83; p = 0.26) [Table 3]. No statistically significant interaction between gender and specialty or

years of experience was detected, suggesting the absence of a meaningful gender effect on comfort levels in this sample.

Multivariate analysis of barriers to providing transgender patient care revealed that lack of training represented the strongest independent barrier, with affected providers being 2.50 times more likely to face care provision challenges (95% CI, 1.60-3.90; $p < 0.001$) [Table 4]. Limited experience also emerged as a significant barrier, increasing the likelihood of encountering challenges by 1.85 times (95% CI, 1.20-2.85; $p = 0.008$) [Table 4]. A lack of institutional support demonstrated statistical significance, with an adjusted odds ratio of 1.55 (95% CI, 1.001-2.40; $p = 0.041$) [Table 4]. In contrast, cultural and language barriers, although reported by 43.3% of participants, were not statistically significant independent predictors (adjusted odds ratio = 1.30; 95% CI, 0.85-2.00; $p = 0.210$) [Table 4], suggesting these factors may be secondary to knowledge and experiential deficits. Collectively, these findings demonstrate that clinical specialization, accumulated professional experience, and targeted training represent critical determinants of physician competence and comfort in providing affirming and equitable care to transgender patients within tertiary care settings.

DISCUSSION

The present study provides institution-level evidence on how physicians in a tertiary care centre in Puducherry encounter and respond to transgender patient care. Most physicians reported seeing only 1-2 transgender patients per month and nearly one-fifth reported no encounters at all, suggesting that routine clinical exposure remains limited. Even so, a considerable proportion reported only moderate comfort in providing care, indicating that contact alone may not be sufficient unless accompanied by appropriate education, structured guidance and institutional support. These findings are broadly consistent with earlier literature showing that transgender persons continue to face important barriers in healthcare because many providers feel unprepared to address their specific needs.¹⁻⁴

A key finding of this study was that only 40% of physicians reported high comfort in caring for transgender patients, while the remainder reported moderate or low comfort. This pattern is in line with prior studies showing that healthcare professionals and trainees often express willingness to provide care, but not always adequate preparedness or confidence in doing so.^{11,12} In particular, evidence from medical education studies suggests that LGBT-related curricular exposure and direct patient exposure are associated with better preparedness, knowledge, and cultural competency among healthcare providers.^{13,14} Similarly, prior studies have shown that transgender-health training and greater clinical exposure are associated with more

positive attitudes, improved provider confidence, and more comprehensive clinical practice, which is consistent with the present finding that greater clinical experience may be associated with higher comfort in caring for transgender patients.^{15,16}

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The most frequently identified barriers in the present study were lack of training and limited clinical experience. This is one of the most important messages of the study and closely reflects the wider literature. Prior reviews have repeatedly shown that inadequate provider education is a major barrier to quality transgender healthcare, often leading to uncertainty, avoidance or over-referral rather than confident, affirming care.^{3,7,17} More recent work has also shown that training in transgender care is associated with better provider competence and confidence, suggesting that these gaps are modifiable rather than fixed.¹⁶ This strengthens the argument that structured educational interventions should be treated as a practical solution rather than only a theoretical recommendation.

In India, the NALSA judgment recognised transgender persons as a third gender and affirmed the right to self-identified gender.⁸ Another important finding was the significant association between specialty and encounter frequency, with specialists reporting higher exposure than primary care physicians. This pattern is consistent with international evidence showing that general practitioners may report comparatively lower confidence in working with transgender people, while prior transgender-health training is associated with greater perceived competence and confidence.¹⁶ These observations suggest that training strategies should be tiered: all physicians require foundational skills in respectful communication and inclusive routine care, whereas selected specialties may need more intensive, transgender-specific clinical training to deliver gender-affirming interventions and make appropriate referrals.¹⁶

The observed positive relationship between years of experience and comfort also deserves attention. More experienced physicians may develop greater ease in communicating with diverse patient groups and handling unfamiliar consultations. However, experience alone should not be assumed to guarantee competence. Some physicians may become more comfortable over time simply through exposure, while others may continue to lack formal knowledge regarding terminology, hormone-related issues, referral pathways, and culturally sensitive communication. This distinction is important because comfort

without competence may still leave gaps in care quality.^{17,18} The present findings therefore support a balanced approach in which experience is valued, but formal training remains essential.

It is encouraging that most physicians expressed interest in receiving additional training. This suggests that the institutional environment may be receptive to change. Similar findings from prior studies indicate that healthcare learners and professionals generally support more teaching on LGBT and transgender health when such opportunities are made available.^{7,19} In addition, cross-sectional evidence suggests that training can improve both confidence and self-perceived competence, which directly supports the feasibility of implementing faculty development programs, CME modules, case-based teaching, and mentorship-based learning in this setting.^{16,19}

The present study is also important in the Indian context. While legal recognition and policy protections for transgender persons have advanced in India, the translation of these protections into day-to-day clinical practice remains uneven.^{8,9} The inclusion of transgender health within medical education in India is still evolving, and recent commentary has highlighted the need for curriculum reform that moves beyond tokenistic inclusion toward meaningful, practice-oriented competency building.²⁰ The findings of the current study fit well within that context and suggest that institutional training, inclusive documentation systems, clear referral pathways, and visible administrative support are all necessary if legal inclusion is to result in real clinical inclusion.

Taken together, the study adds useful local evidence to the growing literature on transgender healthcare preparedness. Its findings suggest that physicians are not uniformly resistant; rather, many appear willing but insufficiently equipped. This is an important distinction because it points toward actionable solutions. Strengthening undergraduate and postgraduate teaching, offering targeted continuing education, establishing supportive institutional policies, and normalising respectful, gender-affirming care practices may substantially improve physician readiness and patient experience.^{16,17,20} Future studies should move beyond self-reported comfort and assess whether training interventions improve observable clinical competence, referral appropriateness, and patient-centred outcomes over time.

LIMITATIONS

This study has a few important limitations. Since it was carried out in only one tertiary care centre and used convenience sampling, the findings may not reflect physicians in other settings. The responses were self-reported, so some participants may have overestimated their comfort levels. Because the study was cross-sectional, it can only show associations, not cause-and-effect relationships. In addition, actual

clinical competence and patient outcomes were not assessed, and the questionnaire used was not a formally validated tool.

CONCLUSION

Overall, the study shows that while many physicians had some exposure to transgender patients, their confidence in providing care was still only moderate in most cases. Lack of training, limited hands-on experience, and insufficient institutional support emerged as the main challenges. At the same time, the strong interest in additional training is encouraging. Taken together, these findings suggest that transgender healthcare needs greater attention within medical education and hospital systems, so that physicians can provide more confident, respectful, and inclusive care.

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Individual Authors' Contributions: CVK conceptualised the study, coordinated data collection, conducted analysis and drafted the manuscript. SM supervised study design and interpretation and critically revised the manuscript. Both authors approved the final version.

Availability of Data: De-identified participant-level data and the study questionnaire can be shared on reasonable request to the corresponding author, subject to institutional policies and ethics approval conditions.

Declaration on use of AI: The authors declare that artificial intelligence-based language assistance was used only for improving grammar, readability, and language clarity during manuscript preparation. The authors critically reviewed, edited, and verified all AI-assisted content and take full responsibility for the accuracy, integrity, and final content of the manuscript. No AI tool was used for study design, data collection, statistical analysis, interpretation of results, or generation of primary scientific conclusions.

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