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Original Research Article

Assessment of knowledge and perception about LGBTQ+ community in Indian medical students

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ABSTRACT

Background: The LGBTQ+ community in India is underrepresented and face significant social challenges. The medical students and graduates in the country have limited educational material and training on the community's healthcare needs. This can lead to bias in treatment and substandard patient care. The objective of this study was to assess the knowledge, education, and training, and perception of the LGBTQ+ community among Indian medical students and graduates.
Methods: A three-month cross-sectional survey-based study was conducted among Indian medical students and graduates using a Google form questionnaire to assess their knowledge, training, and perceptions about the LGBTQ+ community. The data were collected using Google sheets and analysed using Microsoft excel.
Results: Only 43% of the 546 participants had read about LGBTQ+ health in their medical school; however, 90% had used online platforms for learning. The majority agreed that more educational material was necessary, and nearly 90% perceived a need to bridge the knowledge gap on LGBTQ+ health concerns in the medical curriculum. Additionally, almost 90% of participants also felt that social support groups for the LGBTQ+ community were necessary, and educational institutions should provide sexual education for all orientations. Participants who had poor self-perceived knowledge about LGBTQ+ health had a significantly lower mean score on the knowledge assessment questionnaire than those who perceived their knowledge to be good.
Conclusions: Medical students and graduates in India need to receive adequate training and educational material on LGBTQ+ related health to improve their confidence in addressing healthcare issues and reduce bias towards the healthcare needs of the LGBTQ+ community.

Keywords: LGBTQ+, Medical Students, India, Knowledge, Perception, Curriculum

INTRODUCTION

The term LGBTQ+ stands for Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, and the '+' includes sexual identities other than the first five. Although the depiction of same-sex relationships dates to ancient times, the LGBT community prevailed in the 1900s.[1] Currently, 32 countries have legalized same-sex marriages, and in

2018, the Indian Supreme Court passed a ruling decriminalizing same-sex, consensual relations between adults.

The Transgender persons (Protection of Rights) Rules 2020 states that when a transgender person undergoes sex reassignment surgery, they can legally change their gender, provided they have proof of surgery from the medical institution.[2] Despite the recent legal changes, the consensus among Indians is that changing one's gender is against nature and is deemed a psychological/neurological disorder. The LGBTQ+ community is often stigmatized as a sexual and gender minority and faces discrimination and degrading behavior in many aspects of their life, including when seeking medical care.[3] Transgenders have resorted to quacks for gender-affirming surgery, which is dangerous, as they do not have the proper qualifications or training to perform them. However, plastic surgeons, who are qualified to perform gender-affirming surgeries, never receive such training in their medical course either.[2] The fear of discrimination might lead to alcohol, tobacco, illegal drug abuse, and mental health issues.[3] The practicing physicians and medical personnel are not comfortable approaching and are not educated to understand the needs of this community.[4] The Indian medical curriculum deems lesbianism and sodomy as sexual perversions, as mentioned in a recommended Forensic Medicine textbook. Medical students' perceptions have been shaped based on the information provided in these books.[2]

The prevalence of the LGBTQ+ community in India is yet to be known; however, it is identified as a less-represented group in health equity.[4] With the current awareness and rise in the number of LGBTQ+ individuals, it is the need of the hour to assess our medical curriculum, which presently lacks a way to cater to the medical and psychological needs of this community.

METHODS

This cross-sectional survey-based study was conducted between November 2022 and January 2023 among 546 medical students and graduates across multiple medical colleges and hospitals across India. Participants (medical students and graduates) who voluntarily consented to participate were included, whereas those who did not provide consent were excluded. A structured questionnaire was developed using Google Forms to assess participants' knowledge of LGBTQ+ terminology, perceptions toward the LGBTQ+ community, access to LGBTQ+ educational materials, and challenges faced in medical practice. The questionnaire included multiple-choice, Likert-scale, and true/false questions. The survey link was circulated online via social media platforms, including WhatsApp and Facebook. Participation was voluntary, and responses were anonymized to maintain confidentiality. Responses collected through Google forms were recorded in Google sheets and subsequently transferred to Microsoft excel for analysis. Descriptive statistics, including means, percentages, and standard deviations, were calculated. A two-sample t-test was used to compare knowledge scores between groups with differing self-perceived knowledge levels. The study was approved by the Independent Ethics Committee, GeneBandhu, New Delhi. Informed electronic consent was obtained from all participants prior to data collection. The ethics committee confirmed there were no ethical concerns and that the study operates in compliance with Indian GCP guidelines and ICH regulations.

RESULTS

The study involved 546 participants, with age groups ranging from 19-28 years, and the average age being 22.5 years (SD=2.12). Among them, males were 184 (33.7%), and females were

362 (66.3%). Medical graduates were 216 (39.56%), interns were 71 (13.00%), and medical students were 259 (47.44%). The patients were asked questions about whether they had access to LGBTQ+ material in their medical school and what their current mode of accessing educational material on LGBTQ+ health was (Table 1).

The participants were asked how much they thought they knew about LGBTQ on an 11-point scale. This was followed by 15 questions to assess the knowledge of the participants. These questions included expanding the 6 characters of the acronym "LGBTQ+" and nine questions to be answered as True or False (Table 2). The participants were asked five questions on the accessibility of education in their medical school. These were to be answered on a Likert scale of 5 points (Table 3). Ten questions were asked to assess the perception of participants, which were answered as True or False (Table 4). When the data was compared between the genders, it was found that males had a higher knowledge of LGBTQ+ (74.38%, SD=0.26) than females (71.62%, SD=0.25). This pattern was constant on the perception assessment; males were found to be more perceptive to the LGBTQ+ community (79.78%, SD=0.25) than females (75.55%, SD=0.21) (Figure 1). The participant's responses to the Knowledge assessment were calculated as a numerical score. For the first question, if the participants could correctly answer 3 or more of the 6 components of the term "LGBTQ+," they were given 1 point. Thereafter, 1 point was given to each correct answer. The 546 participants were divided into groups A and B. Group A (n=290) consisted of participants who answered less than or equal to 5 when asked about how much they thought they knew about LGBTQ+. Group B (n=56) consisted of participants who answered more than 6 for the same. The mean score on the Knowledge assessment of Group A was M=6.91 (SD=1.56), and the mean score for Group B was numerically higher, M=7.65 (SD=1.69) (Table 5). A two-sample t-test was performed to test the hypothesis that participants who thought they knew more about LGBTQ+ scored higher in the knowledge assessment questionnaire, with a significant difference. There was a significant difference in the mean score between the 2 groups; t statistic=5.319; DF=544;

Standard Error=0.139; (95% CI=0.4667 to 1.0133); p=<0.0001 (Table 6). The participants' responses to the perception assessment were analyzed based on their educational status (Figure 2). The mean number of medical graduates who answered correctly was 178 (82.41%) (SD=0.27), interns were 56.4 (79.44%) (SD=0.20), and medical students were 185.9 (71.78%) (SD=0.21). Therefore, medical students were the least perceptive of the needs of LGBTQ+, and these results warrant a change in the medical curriculum.

Table 1: General characteristics of participants (n=560).

Participants	N	%
Males	184	33.70
Females	362	66.30
Graduate	216	39.56
Intern	71	13.00
Medical student	259	47.44
Read about LGBTQ in medical school	236	43.22
Received medical school or hospital conduct educational classes on LGBTQ+	90	16.48
Attended the class	90	31.57
Read about LGBTQ from any source in the last year	436	79.85
Sources		
Textbook	35	7.71
Online	407	89.65
Newspaper	12	2.64
WHO website	120	27.46
UpToDate	33	7.55
Instagram	231	52.86
Facebook	15	3.43
LinkedIn	14	3.20
Other	24	5.49
Kept themselves updated about the latest information on LGBTQ+	267	48.90
Suggested a need for more educational materials to be provided	519	95.05

Table 2: Knowledge assessment of participants.

Variables	Number of participants who answered correctly	Percentage of participants who answered correctly (%)
Lesbian	498	91.21
Gay	534	97.8
Bisexual	513	93.96
Transgender	474	86.81
Queer	449	82.23
“Others”	57	10.44
Bisexual is attracted to more than one gender (TRUE)	496	90.84
Demisexual is someone who can feel sexual attraction after developing an emotional connection (true)	464	84.98
Cisgender is someone who identifies differently to what they were assigned at birth (false)	496	90.84
Queer is word used by people whose sexual orientation is not heterosexual exclusively (true)	473	86.63
LGBTQ was legalized in India on 6 September 2019 (false)	211	38.64
Pride month is celebrated in September (false)	266	48.72
HPV vaccination is not recommended in LGBTQ (false)	432	79.12

Continued.

Variables	Number of participants who answered correctly	Percentage of participants who answered correctly (%)
STD's are more common in heterosexual than homosexual (false)	307	56.23
For LGBTQ patients, physical examination for screening of cancer should be dictated by anatomy of patient and not gender identity (true)	473	86.63

Table 3: Access to education in medical school.

Variables	Responses	Number of responses	Percentage of responses (%)
Received LGBTQ+ related education and training via medical college curriculum/books	Strongly agree	63	11.54
	Agree	147	26.92
	Neutral	156	28.57
	Disagree	39	7.14
	Strongly disagree	141	25.82
Received LGBTQ+ related education and training via medical school teaching faculty	Strongly agree	80	14.65
	Agree	146	26.74
	Neutral	147	26.92
	Disagree	24	4.40
	Strongly disagree	149	27.29
Received LGBTQ+ related education and training via clinical rotations in medical school	Strongly agree	66	12.09
	Agree	168	30.77
	Neutral	141	25.82
	Disagree	36	6.59
	Strongly disagree	135	24.73
Received LGBTQ+ related education and training via educational websites	Strongly agree	237	43.41
	Agree	48	8.79
	Neutral	147	26.92
	Disagree	69	12.64
	Strongly disagree	45	8.24
Received LGBTQ+ related education and training via social media platforms like Facebook, Instagram, and Twitter	Strongly agree	256	46.89
	Agree	15	2.75
	Neutral	98	17.95
	Disagree	163	29.85
	Strongly disagree	14	2.56

Table 4: Access to education in medical school.

Variables	Number of participants who answered correctly	Percentage of participants who answered correctly (%)
Being a part of the LGBTQ community is a choice (false)	116	21.25
LGBTQ is a wrong concept (false)	498	91.21
A person identifying themselves as part of the LGBTQ community needs psychological assessment and counselling (false)	345	63.19
LGBTQ community has the same health concerns as the non-LGBTQ community (true)	398	72.89
A person belonging to the LGBTQ community can be identified by their appearance (false)	432	79.12
There is a need to bridge the knowledge gap on LGBTQ and their health concerns in the medical curriculum (true)	502	91.94

Continued.

Variables	Number of participants who answered correctly	Percentage of participants who answered correctly (%)
There is a need for more social support groups for the LGBTQ community (true)	516	94.51
Educational institutions should aim to provide sexual education for all sexual orientations (true)	507	92.86
A person's gender assigned at birth and their sexual orientation cannot be different (false)	400	73.26
There is a need for a physician to be more inclusive of LGBTQ needs and preferences when taking history/examining (true)	489	89.56

Table 5: Group statistics.

Groups	Number (N)	Mean score (M)	Standard deviation (SD)
Group A (1-5)	290	6.91	1.56
Group B (1-6)	256	7.65	1.69

Table 6: Two sample t-tests result.

Scores	t	df	Mean difference	Standard error	95% CI		P value
					Lower	Higher	
	5.319	544	0.74	0.139	0.4667	1.0133	Score

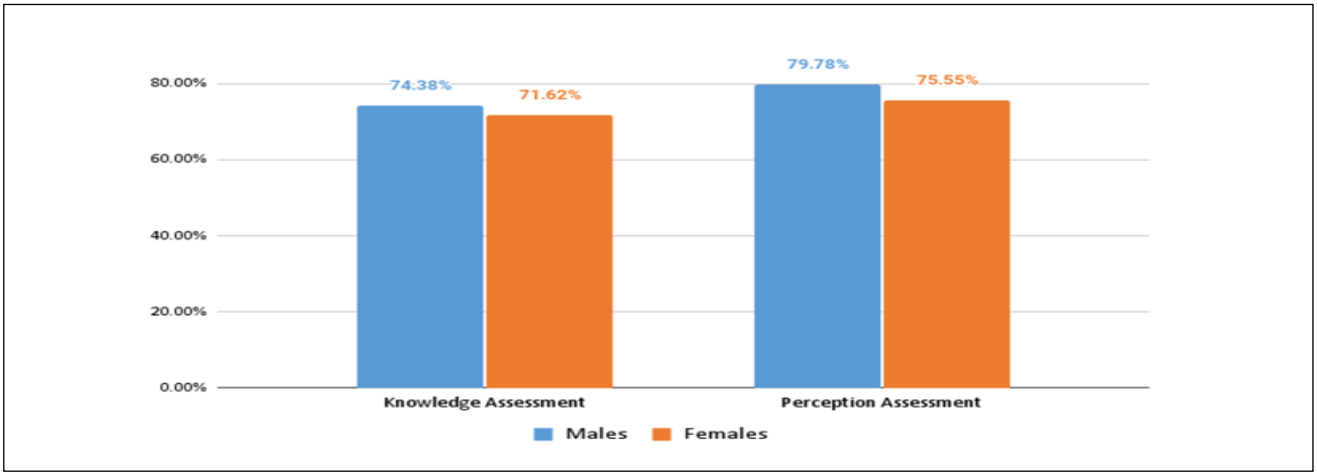

Figure 1: Comparison of assessments between genders.

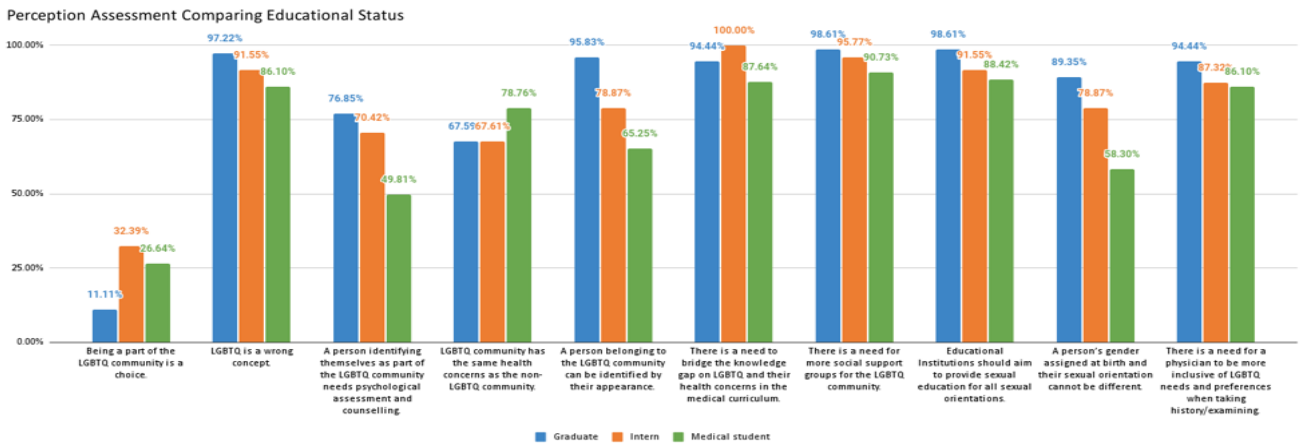

Figure 2: Perception assessment comparing educational status.

DISCUSSION

Knowledge

Numerous studies of medical schools in Canada and the United States reveal that a concerning number of curricula dedicate little to no time to themes related to LGBT healthcare.[5] In our survey, we find similar results. 56.78 of the respondents reported not having any education regarding LGBTQ+ in their medical school. However, 90 of respondents have also read about LGBTQ+ through textbooks or online media, the majority being Instagram and the WHO website. 95.05 of students also felt the need to include LGBTQ+ in their medical school curriculum. The medical students were also tested on the full form of LGBTQ+, and all could correctly name at least 3 terms. In the event of being tested about their knowledge regarding LGBTQ+, on a scale of 1-10, those who perceived to have knowledge between 6-10 scored an average of 7.65 out of 10, and those who perceived to have knowledge between 1-5 scored an average of 6.91. The Paired T-test was used to identify any differences between the two groups, and with a P value of less than 0.0001, it can be said that there is a significant difference between the two groups. Overall, both groups showed a decent amount of knowledge of LGBTQ+. Similarly, a study done by Wahlen indicates that most students at medical school already have positive attitudes toward LGBT individuals and a basic understanding of their healthcare needs.[6] In contrast, a study done by Nowaskie with primary care physicians revealed poor knowledge, with only 4 out of 12 questions having an accuracy of 50.[5] A study conducted by Banwari with Indian students about knowledge and attitudes towards homosexuality revealed contrasting results to our survey, in which out of 32 questions, 28 questions had less than 50 accurate responses.[7] This difference in results could be due to the increased awareness and more exposure online in recent years. The difference between male and female knowledge and attitudes were outlined by two studies, Banwari and Dunjić-Kostić, in which participants who are males demonstrated a lower level of awareness about homosexuality and a greater propensity to stigmatize those who identify as homosexual.[7,8] Unlike other studies, we found no substantial difference in knowledge levels, with mean correct responses of 74.38 for males and 71.62 for females.

Perception

Coming to the perception, 78.75 of students believed that being part of the LGBTQ+ community was a choice. However, 90.25 believed that LGBTQ+ is not a wrong concept. 63.19 of the responders believed that psychological assessment of LGBTQ+ people was not necessary. When asked about whether LGBTQ+ people have the same health concerns as other people, 72.89 agreed. A majority of 79.12 of students also believed that the members of the LGBTQ+ community cannot be identified by their appearance. This can be concluded as an overall positive perception. However, there was a perception gap between men and women, with men having a slightly more optimistic outlook and properly responding to our survey questions at a rate of 79.78 vs 75.55 for women, which contrasts with studies

by Banwari and Dunjić-Kostić.[7,8] The medical students, interns, and graduates also responded positively to the physicians' need to be more inclusive of LGBTQ+ needs while taking history and conducting examinations, with 89.56 agreeing to it. 94 of the respondents also indicated a need for support groups for LGBTQ+, and almost 93 agreed that there was a need to provide LGBTQ+-related education by educational institutions.

Correlation between exposure and perception

This positive change can be loosely attributed to social media, as most of the responders have read at least something about the topic on the internet. It was also corroborated in a study conducted in Israel, which showed that exposing LGBTQ+ related information on social media and online news had a positive effect on people's attitudes toward the LGBTQ+ community.[9] Having LGBTQ friends or family members, or previous experiences treating gender minority patients, has been found to be linked with medical students' knowledge about them.[3] This exposure can be directly translated to the perception about them.

NEED for LGBTQ+ education

A recurrent failing of the medical education system is represented by decades of physicians who have received inadequate training in LGBTQ+ health.[10] A concerning number of programs, according to studies of medical schools in Canada and the United States, spend little to no time on LGBT-specific healthcare issues.[2] Quite a few other studies conducted prior proved that providing LGBTQ+-related education was highly beneficial in changing medical students' perceptions and improving the health care service.[11,12] A study conducted by Lien K, with Canadian Emergency care physicians, revealed that they faced challenges in history taking and doing examinations. The contributing factors to this were unfamiliarity of anatomical differences i.e., gender reaffirmation surgery, and stigma related to it. More than half of the respondents also revealed that they observed discrimination towards the LGBTQ+ community in their workplace by other members of the workforce.[13] To improve this, a university in Taiwan used a case study approach to teach, and also called members of the LGBTQ+ community to share their experiences with students. The results were an improved understanding of the community's social issues and an interest in learning more about the health issues of LGBTQ+.[11] A similar program was conducted by Salkind et al. in a medical school in London to address this, including a ninety-minute case-based activity on clinical vignettes, a 45-minute conversation with a patient visit from the transgender community, and a 45-minute lecture on LGBT+ terminology and health.[14] Significant gains

were reported in the knowledge of LGBT+ health disparities among the medical students who took part in this program. Use of appropriate language and assurance in their ability to evaluate LGBTQ+ patients clinically. The study conducted by Zsuzsanna Szél in Hungarian medical schools, in which medical students were asked to fill out two questionnaires, one before and one after a lecture on LGBTQ+, showed that before the lecture, students already had a good amount of knowledge. This is consistent with our research. However, after the lecture, there was a substantial increase in knowledge after a month of lectures.[3]

Other institutions that have effectively integrated LGBTQ health teaching within their undergraduate medical program are examples. These include Columbia University Vagelos College of Physicians and Surgeons, Baylor College of Medicine, and The University of Louisville School of Medicine. Following the intervention, there was an improvement in the knowledge, attitudes, and confidence of participants at the schools that evaluated their programs.[15]

All these instances about teaching LGBTQ+ issues demonstrate that including such material in the curriculum of medical schools is not just advantageous but also something that students support and see as vital. Additionally, it is crucial to consider medical students' opinions towards LGBTQ+ individuals because young people are more adaptable and may be stronger advocates for anti-stigma initiatives.[8] Medical colleges in India should also introduce this in their curriculum, which would result in less discriminatory attitudes and a further increase in the quality of care received by the LGBTQ+ community. Some might contend that changing practices cannot be influenced by education alone. For enhancing the effectiveness of the education, there is a frequent need for demand in the learning capacity of the learner, such as statutory requirements, social pressures, or monetary rewards.[10]

Limitations

In our research, most respondents were females, comprising about 66.3 and only 43.7 were males, which could lead to skewed or inaccurate results. The self-reporting nature of the survey can lead to response bias, social desirability bias, and some questions may not be completely understood by the respondents due to limited context, which may lead to incorrect answers.

CONCLUSION

Due to prejudice and medical professionals' ignorance, the LGBTQ+ population has a difficult time getting access to healthcare. In our survey, most of the respondents had an overall positive view of the LGBTQ+ community, and most of them agreed that there was a need to inculcate LGBTQ+ education in the official curriculum. With the development of social media and the abundance of information available, incoming medical students have an overall good opinion of LGBTQ+-related topics. It is crucial to close the knowledge gap among healthcare professionals, beginning with medical students, to realize the vision of a more open and secure healthcare system. The inclusion of LGBTQ+ related themes in medical curricula has been shown to be highly effective in reducing misconceptions, altering students' attitudes towards the community, and ultimately resulting in better healthcare services for the LGBTQ+ community. Hence, every medical school in the world should implement this to provide better treatment for LGBTQ+ people.

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