

Perception and Experience of Gender Based Discrimination Among Medical Undergraduates: A Cross-Sectional Observational Study

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Abstract

Background: Gender-based discrimination (GBD) in medical education can significantly impact students' academic performance, mental well-being, and career progression. Understanding the prevalence and nature of GBD among medical undergraduates is crucial for developing inclusive policies. This study aims to assess the perception and experiences of GBD among medical students at a tertiary care hospital, in capital city of North India. **Materials and methods:** A cross-sectional study was conducted among MBBS students from first to final year between September and December 2024. The sample size was calculated as 434, based on a previously reported GBD prevalence of 78%. A total of 476 students participated. Data were collected using a structured questionnaire and analyzed using Epi Info version 7.2.6. Chi-square tests were used to assess statistical significance. **Results:** The study included 276 (58%) female and 200 (42%) male students, with a mean age of 23 ± 2.72 years. GBD was reported by 78% of participants. While both genders faced GBD in academics and social interactions, females reported significantly higher discrimination in hostel facilities (56.5%, $p=0.0001$) and from college staff (30%, $p=0.04$). Discrimination in practical classes (20.2%) and examinations (20.6%) was more frequent among males ($p=0.017$, $p=0.013$). Female students experienced greater mental distress (47% vs. 26%, $p=0.0001$). **Conclusion:** GBD is prevalent among medical undergraduates, with notable gender-specific disparities. Addressing institutional biases, ensuring equitable facilities, and fostering awareness can help create an inclusive educational environment.

Keywords: Gender-based discrimination (GBD), Medical education, Undergraduate students, Mental health, Academic performance.

Introduction

Gender-based discrimination (GBD) refers to any form of unequal treatment based on gender. In other words, it can be defined as a perception or enforcement of superiority or inferiority within society by one group over another due to gender differences [1]. GBD is a common phenomenon observed in various subtle forms across higher education institutions worldwide. Students in professional colleges, such as medical institutions, often experience gender biases, prejudices, and discrimination, making them vulnerable to issues such as anxiety, depression, sleep disturbances, reduced job

opportunities, career stagnation, strained relationships, social isolation, and psychosomatic illnesses [2].

In India, deeply rooted societal norms and cultural practices contribute to a higher prevalence of gender-based discrimination compared to Western countries. India ranks 108 out of 189 countries with a score of 0.437 in the UNDP Gender Inequality Index (GII) 2022 and 140 out of 156 countries in the Global Gender Gap Index (GGI) 2021. Over the past decade, India's ranking in the GII has steadily improved, indicating progress toward gender equality. This improvement is the result of decisive government initiatives, along with advocacy by NGOs, aimed at empowering women through long-term socio-economic and political policies [3].

In professional education, hierarchical structures can create unwanted and sometimes inevitable gender-based discrimination. In many developing countries, professional students often struggle with lower academic achievements due to the discrimination they face throughout their studies ^[4]. Given this context, we aimed to conduct a study on the experiences of gender-based discrimination among undergraduate medical students in the central region of Uttar Pradesh.

Methodology

We conducted this cross-sectional study among first- to final-year MBBS students at a tertiary care hospital, in capital city of North India, between September and December 2024. The sample size was calculated to be 434, based on a reported gender bias discrimination prevalence of 78% from a study by Hashmi AM et al. ^[5] The actual number of students who participated was 476.

Table 1: Age profile of the participants

Age (in years)	Count
17	4
18	33
19	48
20	68
21	73
22	89
23	76
24	56
25	19
26	3
27	5
28	1
29	1

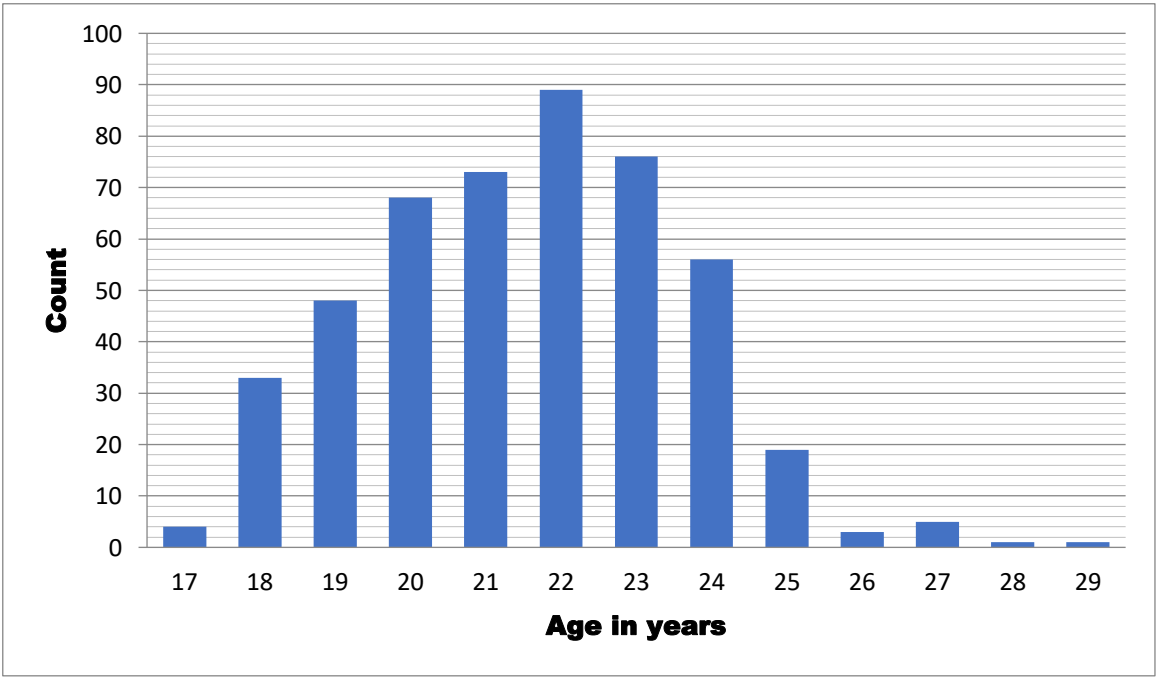


Figure 1: Age profile of the participants

Table 2: Gender-wise profile of the participants

Gender	Count	Percentage
Male	200	42.02%
Female	276	57.98%

Proper informed consent was obtained from all participants. Students who did not wish to participate were excluded. A well-structured and carefully designed questionnaire was distributed to the students to collect information regarding their experiences of gender-based discrimination. The collected data were analyzed using Epi Info version 7.2.6. Statistical analysis was performed using the Chi-square test, and p-values were calculated to determine statistical significance.

Results

The study included 476 MBBS students from various academic years. Table 1 and Figure 1 show that participants ranged in age from 17 to 29 years, with most (61.7%) falling within the 21-25 age group (294/476). The mean age was 23±2.72 years. Among the participants, 276 (58%) were female and 200 (42%) were male (Table 2).

Figure 2 illustrates that 78% of participants reported experiencing GBD in some form. A total of 103 out of 476 students (22%) stated that they had never faced any discrimination during their studies.

This included 26% (73/276) of male students and 15% (30/200) of female students.

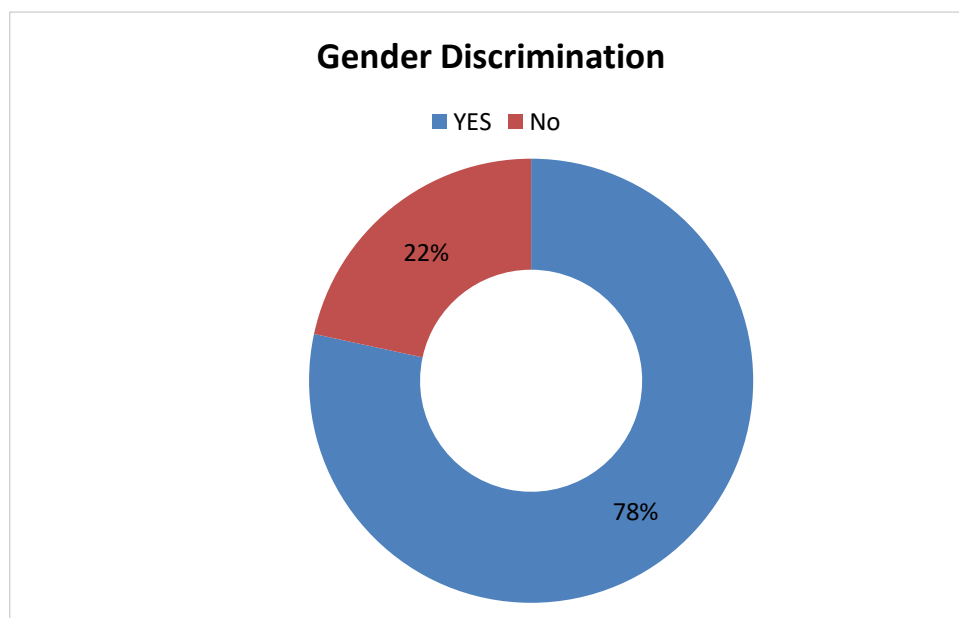


Figure 2: Gender based discrimination status of the participants

Regarding the types of GBD encountered, Table 3 shows no significant differences between male and female students in terms of limited opportunities to showcase talent, lower expectations from faculty, unethical remarks, negative impacts on academic performance, or social exclusion in groups. However, 56.5% of female students reported discrimination in terms of hostel facilities, with a statistically significant difference compared to males (p-value: 0.0001).

Regarding the individuals responsible for GBD, male and female students reported equal discrimination from faculty members, senior students, and batch-mates. However, female students faced significantly higher discrimination from college staff (30%, p-value: 0.04). Additionally, 48.5% of female students reported experiencing discrimination from male staff, faculty

members, seniors, or batch-mates, which was significantly higher compared to male students (p-value: 0.0001).

Regarding the location of discrimination, males experienced it most frequently during practical classes (20.2%) and examinations (20.6%), compared to 12% each for females (p-values: 0.017 and 0.013, respectively). Meanwhile, the majority of female students (49.5%) reported experiencing discrimination in the hostel.

Table 4 details students' responses regarding the impact of GBD on academic performance, mental health, and well-being. About 20% of males and 25% of females felt that GBD had negatively affected their academic performance. Additionally, 47% of female students and 26% of male students reported that GBD caused mild to moderate mental distress, with significantly higher distress levels among females (p-value: 0.0001).

Table 3: Pattern of gender-based discrimination among MBBS student

		Male	Female	P-value
Type of gender-based discrimination	Less chance for showing talent	64/276 (23.1%)	55/200 (27.5%)	0.283
	Less expectation from faculties	72/276 (26%)	40/200 (20%)	0.112
	Unethical talk	59/276 (21.3%)	56/200 (28%)	0.095
	Effect on academic performance	62/276 (22.4%)	35/200 (17.5%)	0.184
	Getting neglected in groups	63/276 (22.8%)	56/200 (28%)	0.198
	Having different hostel facilities	88/276 (31.8%)	113/200 (56.5%)	0.0001
Person involved in the discrimination	Faculty members	40/276 (14.5%)	23/200 (11.5%)	0.341
	College Staffs	60/276 (21.7%)	60/200 (30%)	0.040
	Senior Students	66/276 (23.9%)	38/200 (19%)	0.200
	Batchmates	63/276 (22.8%)	48/200 (24%)	0.764
Experiencing discrimination from	Male	58/276 (21%)	97/200 (48.5%)	0.0001
	Female	73/276 (26.4%)	67/200 (33.5%)	0.095
Place of discrimination	Lecture class	34/276 (12.3%)	19/200 (9.5%)	0.334
	Practical class	56/276 (20.2%)	24/200 (12%)	0.017
	During clinical rounds	68/276 (24.6%)	57/200 (28.5%)	0.344
	During examination	57/276 (20.6%)	24/200 (12%)	0.013
	Academic events like CME/ Seminars/Workshops	36/276 (13%)	25/200 (12.5%)	0.862
	Extracurricular Events	56/276 (20.2%)	45/200 (22.5%)	0.560
	Hostel	55/276 (20%)	99/200 (49.5%)	0.0001

Table 4: Affect of GBD on Academic/mental well being

	Response	Male	Female	P-value
How has Gender-Based Discrimination affected your academic performance?	Not at all	220/276 (79.7%)	150/200 (75%)	0.222
	Mild to moderate	52/276 (18.8%)	50/200 (25%)	0.106
	Extreme	4/276 (1.4%)	0/200 (0%)	0.087
How has Gender-Based Discrimination affected your mental health and well being?	Not at all	196/276 (71%)	102/200 (51%)	0.0001
	Mild to moderate	72/276 (26%)	95/200 (47.5%)	0.0001
	Extreme	8/276 (2.8%)	3/200 (1.5%)	0.316

Discussion

Gender-based discrimination in medical education has significant consequences, shaping student’s confidence, academic success, and career opportunities. This study aimed to explore the prevalence and nature of gender-based discrimination among MBBS students. Our findings revealed that 78.36% (373/476) of students had faced GBD during their medical education, while 21.64% (103/476) reported no such experiences.

Previous studies have reported similar findings. A study conducted in Pakistan by Hashmi AM et al. found that 78% of medical students experienced gender discrimination, with both male and female students affected (p-value: 0.20) [5]. A Brazilian study by Isabella F et al. reported that 66% (625/953) of medical students faced GBD, with female students experiencing it more frequently than males (77% vs. 22%; p < 0.001) [6]. Similarly, a Swedish study by Velin L et al. found that 83% of medical students faced GBD [7]. In the UK, Skan et al. (2024) reported that females experienced significantly more GBD (p < 0.0001), often perpetrated by men and that too by consultants [8]. A study in Germany by Tameling et al. found that 75% of female medical students and physicians reported experiencing GBD [9].

In our study, the primary perpetrators of GBD were college staff, differing from studies by Das et al., where faculty members were the primary offenders [4]. However, Hashmi et al. found that clerical staff and female faculty members were the main perpetrators [5]. Similar to other studies, we found that both male and female students faced discrimination, but female students were disproportionately targeted by male perpetrators (p-value: 0.0001).

While both male and female students experienced similar forms of discrimination, a significant difference was observed in hostel facilities, with 56.5% of female students reporting disparities (p-value: 0.0001). Regarding the location of discrimination, males predominantly faced it in practical classes and examinations, while females reported mistreatment in hostels (p-value < 0.05). Both genders faced GBD in lecture classes and clinical rounds. Our findings on the locations of discrimination differed from those of Hashmi et al., who identified offices and lecture halls as the most common locations, whereas Das et al. cited examination halls [4,5]. Bruce et al. reported clinical rounds as the most common setting for GBD [10].

Gender-based discrimination in medical education can significantly impact students' academic performance, mental well-being, and career aspirations. Choudhary and Yadav highlighted the role of physiological and psychological factors in medical students, emphasizing the need for holistic well-being [11]. Tripathi et al. explored fabricated injuries in sexual assault cases, underscoring gender-based biases in forensic investigations [12]. Singh et al. analyzed acid attacks, emphasizing the extreme consequences of gender-based violence [13]. Understanding these issues in medical education is crucial for fostering an equitable learning environment. Addressing gender discrimination through institutional reforms and

awareness programs can promote inclusivity and professional growth.

These findings challenge the widespread belief that gender discrimination primarily affects females in contrast to results of previous studies. The study highlights the importance of a broader perspective on gender-related challenges in professional education, taking into account the distinct experiences of both male and female students.

Conclusion

This study reveals that gender-based discrimination is a prevalent issue in undergraduate medical education, affecting over 75% of students. GBD impacts students' academic experiences, professional growth, and well-being. While female students are often the focus of discussions on gender discrimination, our findings suggest that male students also face unique challenges due to gender biases. Addressing these issues requires an inclusive approach that promotes equal opportunities, fosters a supportive learning environment, and challenges ingrained biases within medical education. By implementing policies that ensure fairness and equity, institutions can create a more diverse, respectful, and empowering atmosphere for all students, ultimately improving the future of healthcare.

Declarations

Acknowledgements

We acknowledge the administration of our institute for permitting us to conduct this study.

Conflict of interest

Authors declared no conflict of interest.

Source of funding

The research is not funded by any funding agency.

Ethical Statement

This study was conducted following ethical guidelines and received approval from the Institutional Ethics Committee (IEC) of the Institute on October 16, 2024, with IEC approval number 216/24. Informed consent was obtained from all participants before data collection, and strict confidentiality and anonymity were maintained throughout the study.

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