POLICY REVIEW

SEPTEMBER 19, 2023

Gender Bias in Medical Education

Department of Population Science and Policy

Vistrit Choudhary, MPP; Emma Hughes, BS; Wiley Jenkins, PhD, MPH, FACE

KEY FINDINGS

- **The current medical education system may be inadequately prepared to identify and address barriers and gaps associated with gender-based biases in medical practice.**
- **Instructional faculty at medical schools may not adequately represent Sexual Orientation and Gender Identity (SOGI) diversity.**
- **Rural-focused medical education institutions have an opportunity to improve patient care by addressing gender biases during student education.**

Suggested citation: Choudhary V, Hughes E, Jenkins WD. Gender Bias in Medical Education. SIUSOM-PSP Policy Series. 2023 (2);11-20.

+1 217 545 7939
psp@siumed.edu
www.siumed.edu/popscipolicy

INTRODUCTION

It is widely known that clinical care delivery in the United States faces significant disparities, such as those based on race and gender.[1,2] It is also well established that rural areas face significant and growing disparities, especially in case of healthcare access and utilization.[3] However, this increased healthcare scarcity may engender additional barriers to equitable care due to lesser clinician diversity and fewer care options. With fewer selections from which to choose, the ability of rural physicians to provide affirming and equitable care becomes even more important, but the capability of medical education to identify and address biases may not be adequate. This brief will explore some of the factors that impact the prevalence of bias in medicine from a medical education perspective and how these biases impact rural populations.

THE CURRENT MEDICAL EDUCATION INFRASTRUCTURE MAY NOT BE ADEQUATE TO IDENTIFY AND ADDRESS GENDER-BASED BIASES IN MEDICAL EDUCATION AND PRACTICE.

Gender Diversity in Learners

Over the past four decades, the gender distribution in the national medical student body has changed significantly. According to a 2021 study published in the New England Journal of Medicine, percentages of women enrollees in medical schools grew from 24.4 percent in 1978 to 50.6 percent in 2019, with most of the increase occurring between 1978 and 2005, with gender parity being achieved in 2005 and 2019.[4] Increased representation is important, as 64.1 percent of all practicing physicians in the United States were male while only 35.8 percent were female in 2018, indicating an overrepresentation of male physicians when compared to the population sex ratio.[5]

Enrollment numbers for members of other gender identities is unclear due to uneven data collection. According to a 2021

study, 87.5 percent of allopathic schools allowed applicants to self-report a gender identity other than male or female as compared to 31.6 percent among osteopathic schools.[6] The study also found that only 20 percent of schools allowed applicants to report a sexual orientation, with allopathic schools more likely than osteopathic schools to allow applicants to report their sexual orientation.[7]

Studies have also found that students in medical schools who identify as a LGBTQ+ are less likely to disclose their sexual orientation and gender identity due to fear of discrimination and lack of support. According to a 2015 study conducted on MD and DO learners across 176 schools in the US and Canada 29 percent of non-heterosexual, and 60 percent of non-cisgender, individuals concealed their minority orientation and/or identity.[8] Some of the key factors driving such concealment included perceived irrelevance of sexual identity, fear of discrimination in medical school, lack of support (especially in cases of gender minority students) and social and cultural norms.

Inadequacy of LGBTQ+ population specific curriculum

It is well described in social sciences literature that medical discourse has historically been androcentric and the advent of feminist health movements in 1960s brought attention to women's healthcare inequalities.[9] However, while concerted effort to address gender-based health challenges in women have helped, there are still significant disparities which impact LGBTQ+ populations.

Medical residents in post graduate medical education spend an inordinately small amount of time learning LGBTQ+ issues or caring for these populations. A 2017 study of 522 post graduate year (PGY) 1- and 2- residents from 33 US states at Brigham and Women's Hospital and Massachusetts

General Hospital, assessed curricular times spent on 16 domains of LGBTQ+ health during pre-clinical and clinical years at medical school and found that only a median of 22 hours was spent on LGBTQ+ topics. The study also found that most of this time was spent on HIV, safe-sex practices and disorders of sex development, while topics such as coming out, LGBT adolescence, substance use, chronic disease and body image received <1 hour of training. [10] Almost 40 percent of these residents did not care for any transgender patients in medical school, while 67 percent of respondents had cared for at least 6 LGB patients.[11]

Additionally, many healthcare professionals and students remain biased, whether explicitly or implicitly, toward transgender, non-binary and other gender non-conforming individuals.[12] A large, 2015 study of first year medical students showed that 50 percent of respondents reported their own explicit bias toward the gay and lesbian individuals and 80 percent showed implicit bias, indicating substantial, individual-level gender biases that are not directly addressed by curriculum.[13]

CHALLENGES WITH FACULTY DIVERSITY

Between 1977 and 2019, gender parity in leadership roles of academic medicine has improved towards increasing representation of women, such as among clinical faculty, full professors, department chairs and deans. During this time, female representation grew from 14 percent to 43 percent among clinical faculty, five percent to 27 percent among full professors, 2 percent to 17 percent among department chairs, and 0 to 18 percent among deans.[14]

While gender parity has increased in medical school faculty and leadership, the predominance of White (63 percent) and male (58 percent) members in faculty positions continue to adversely impact workplace equity.[15] For example, 17 percent of women faculty reported experiencing an incident of disrespect based on their gender in the past year, as compared to one percent for men. Additionally, when asked if they believed their medical school offered equal opportunities to faculty regardless of gender, there was a 20-percentage point difference in male and female responses.[16]

Furthermore, an analysis of LGBTQ+ members across medical schools in the US reveals a significant deficiency of non-heterosexual orientation representation in faculty roles, which is important since 7.1 percent of US adult population identifies as LGBT+.[17] According to the AAMC, only four percent of faculty identified as LGB+, with White LGB+ men representing the largest proportion of LGB+ faculty.[18] While data around the distribution of LGB+ faculty was available, information about the proportion of transgender or gender non-binary faculty members was unavailable.

WHAT WE KNOW OF RURAL-FOCUSED MEDICAL SCHOOLS

The United States has medical education systems which are largely based in urban areas. This is demonstrated by the fact that only nine of 182 allopathic and osteopathic medical schools in the country were based in rural areas and only 39 schools had a training program specific to rural needs.[19] While a majority of US medical schools did not have rural specific training programs, nearly 65 percent of them provided rural clinical experience to their students.

In addition to the scarcity of rural focused medical education programs, much of the research available on bias mitigation training does not differentiate between rural and urban medical schools. However, a majority of medical schools did not have trainings to reduce or prevent anti- LGBTQ bias. A national review of 141 allopathic medical schools found that almost 60 percent of these schools did not have bias mitigations training pertaining to LGBTQ individuals.[20] Since 60 percent of federally designated Health Professionally Shortage Areas (HPSAs) are rural and rural areas have 58 percent less physicians per 100,000 of population, the impact of absence of bias mitigation training can be enormous, as patients may not have the ability to switch providers easily.[21,22] This may cause patients to disengage with the medical systems, and forego care entirely. Consequently, data around bias mitigation training practices specific to rural education programs needs significant further research.

IMPORTANCE AND IMPACT OF UNDERREPRESENTATION AND BIAS

The COVID-19 pandemic and the attendant demonstration of inequities within the US healthcare system has led to renewed conversation about recognizing and addressing challenges faced by minority groups in accessing healthcare, including sexual and gender minorities. It is a widely recognized fact that diversity, especially gender and racial diversity in leadership positively contributes towards mitigating the impact of biases in organizations. This is because diversity in organizations expose underlying unconscious biases by two-way communication, preventing these from becoming entrenched.

The lack of diversity in academic medicine can create an environment where sexual and racial minority faculty members feel 'othered' due to unintentional communication of who or what is valued, making them feel inadequate and preventing them from applying to leadership positions.[23] This is exacerbated by the fact that homogeneity within leadership has also been linked to poorer evaluations for gender minorities which contributes to creating a cycle where diversity in leade rship is stifled due to gender bias in evaluations and vice-versa.

Negative interactions with healthcare providers due to gender-based biases has been associated with increased incidences of poor care delivery and discrimination for women and LGBTQ+ patients. According to a survey of patients aged 16-64 years, 29 percent of women reported providers dismissing their health concerns as compared to 21 percent for male respondents, and 9 percent of women experienced discrimination during a healthcare visit as compared to 5 percent for their male peers.[24]

The challenge of provider bias and discrimination is more significant for LGBQ and transgender patients. According to a 2018 survey, 9 percent of non-heterosexual patients reported that healthcare providers using harsh or abusive language, and 8 percent of patients reported denial of care by providers due to actual or perceived sexual orientation. For transgender patients, 29 percent of survey respondents reported denial of care due to actual or perceived gender identity by providers.[25] In 2021, a similar survey found that 47 percent of transgender respondents experienced at least one form of discrimination or mistreatment from a health care provider.[26]

As a result of negative provider interactions, patients may mistrust the medical establishment and avoid care altogether. A 2015 study on factors contributing to healthcare avoidance found that negative interactions with physicians was one of the reasons why participants avoided healthcare (in addition to traditional barriers such as lack of health insurance, transportation difficulties and cost).[27]

Biases in medical education, and the possible downstream negative interactions with providers and healthcare systems can exacerbate some of the fundamental challenges which already impact rural healthcare delivery. As rural areas

are affected by an inadequate healthcare workforce and facilities, the switching costs for patients who seek new providers are significant, driven by lack of transportation, necessity to take time off work and establishing a new provider-patient relationship. Consequently, patients may avoid healthcare altogether, which can impede their ability to engage with both reactive and preventive healthcare services and education. This is already evidenced by a 2014 study which found that lack of trust in physicians and poor provider rapport were significant factors driving healthcare avoidance in rural areas.[28]

STRATEGIES AND APPROACHES

In the previous sections, we have described the scope, drivers and impact of the challenges which introduce biases in academic medicine such as lack of LGBTQ+ specific training, lack of faculty diversity and uneven data collection LGBTQ+ issues. However, there are examples of leadership in mitigating the impact of gender bias in medical education institutions. Here, we describe some of the programs which can serve as best practices for administrators and policy makers to mitigate gender bias in their own institutions.

STRATEGIES ADDRESSING BIASES IN MEDICAL EDUCATION

The challenges of bias in medicine also represent an opportunity for medical education institutions to study, develop and implement curriculum modalities which may mitigate the impact of gender bias in their student populations, especially for rural focused schools. This can be achieved through implicit bias trainings and increased focus on LGBTQ+ health issues, especially since less than 25 percent of medical schools in the US delivered implicit bias training to its students.[29]

One of the examples of integrated implicit bias training in medical education can be seen in case of Mayo Clinic Alix School of Medicine (MCASOM) which requires students to participate in an unconscious bias training program starting in year 1 and continuing through year 4.[30] The program consist of two Implicit Association Tests (IATs), case studies and group discussions. Additionally, students in year 3 discuss the impact of biases in diagnostic errors and year 4 students reflect on this training and its impact on providing care to patients after graduation.

STRATEGIES ADDRESSINGSOGI DIVERSITY IN INSTRUCTIONAL FACULTY

Medical schools and industry associations such as the AAMC have taken numerous steps to institute policies, practices and guidance to improve SOGI faculty diversity in their institutions. Some of the approaches adopted include changing faculty search policy, increased mentoring opportunities for SOGI faculty members, and affinity groups, amongst others.

An example is the Yale School of Medicine, which has developed a Diversity Strategic Plan for increasing diversity in its faculty recruitment and retention. The school has instituted recruitment policies such as standardized search processes, unconscious bias training for search committee members and staff, as well as including faculty from underrepresented groups to give Grand Rounds, seminars and named lectureships.[31] The school has also described policies such as modifying appointment and promotion policies that reward Diversity, Equity and Inclusion (DEI) work at an institutional level. Additionally, The Harvey Cushing/John Hay Whitney Medical Library has compiled resources related to DEI topics including LGBTQIA+ health resources.[32]

OPPORTUNITIES FOR RURAL FOCUSED MEDICAL SCHOOLS

Rural focused medical education institutions have implemented specific training tracks focused on rural LGBTQ+ care. One such example is at the University of Washington School of Medicine (UWSOM) in Seattle. The UWSOM has developed a 4-year LGBTQ Health Pathway which accepts first and second year medical students across the region to train on LGBTQ health issues through a set of pre-clinical and clinical training components, including 36 hours longitudinal community service/advocacy and clinical clerkship focused on LGBTQ health.[33, 34] In 2020, the Pathway program consisted of 43 students, with 37 percent of participants belonging outside Seattle in the WWAMI region.[35]

CONCLUSION

The pervasiveness of gender bias in medical school student and faculty demographics and curriculum represents both a challenge and opportunity for administrators and faculty members who are trying to mitigate the impact of biases through diversity and bias reduction initiatives. It is imperative that an increased focus be placed on these programs in rural areas to enable better healthcare delivery for rural populations.

REFERENCES

1. Center for American Progress. Health Disparities by Race and Ethnicity [Internet]. 2020 May 7 [cited 2023 September 19]. Available from: https://www.americanprogress.org/article/health-disparities-race-ethnicity/
2. Rapp KS, Volpe VV, Hale TL, Quartararo DF. State–level sexism and gender disparities in Health Care Access and quality in the United States [Internet]. Journal of Health and Social Behavior. 2022;63(1):2–18. doi:10.1177/00221465211058153
3. Rural Health Information Hub. Rural Health Disparities [Internet]. [cited 2023 September 19]. Available from: https://www.ruralhealthinfo.org/topics/rural-health-disparities
4. Morris DB, Gruppuso PA, McGee HA, Murillo AL, Grover A, Adashi EY. Diversity of the national medical student body - four decades of inequities [Internet]. The New England Journal of Medicine. 2021;384(17):1661–1668. doi:10.1056/NEJMsr2028487
5. Diversity in Medicine: Facts and Figures 2019 [Internet]. AAMC [cited 2023 May 11]. Available from: https://www.aamc.org/data-reports/workforce/report/diversity-medicine-facts-and-figures-2019
6. Gamble R, Pregnall A, Deng A, Ehrenfeld J, Talley J. U.S. medical school admissions and enrollment practices: status of LGBTQ inclusivity [Internet]. Journal of Osteopathic Medicine. 2021;121(10):787-793. doi.org/10.1515/jom-2021-0062
7. Ibid
8. Mansh M, White W, Gee-Tong L, Lunn, MR, Obedin-Maliver J, Stewart L, Garcia G. Sexual and gender minority identity disclosure during undergraduate medical education: "In the closet" in medical school [Internet]. Academic Medicine: Journal of the Association of American Medical Colleges. 2015;90(5):634–644. doi:10.1097/acm.0000000000000657
9. Parker R, Larkin T, Cockburn J. A visual analysis of gender bias in contemporary anatomy textbooks [Internet]. Social Science & Medicine. 2017 May;180:106–113. doi.org/10.1016/j.socscimed.2017.03.032
10. Honigberg MC, Eshel N, Luskin MR, Shaykevich S, Lipsitz SR, & Katz JT. Curricular time, patient exposure, and comfort caring for lesbian, gay, bisexual, and transgender patients among recent medical graduates [Internet]. LGBT Health. 2017;4(3):237–239. doi:10.1089/lgbt.2017.0029
11. Ibid
12. Morris M, Cooper RL, Ramesh A, et al. Training to reduce LGBTQ-related bias among medical, nursing, and dental students and providers: a systematic review [Internet]. BMC Med Educ. 2019;325(19). doi.org/10.1186/s12909-019-1727-3
13. Burke SE, Dovidio JF, Przedworski JM, Hardeman RR, Perry SP, Phelan SM, et al. Do contact and empathy mitigate Bias against gay and lesbian people among heterosexual first-year medical students? A report from the medical student CHANGE study [Internet]. Acad Med. 2015;90(5):645–51.
14. Kamran SC, Winkfield KM, Reede JY, Vapiwala, N. Intersectional analysis of U.S. medical faculty diversity over four decades [Internet]. The New England Journal of Medicine. 2022;386(14):1363–1371. doi:10.1056/nejmsr2114909
15. Diversity in Medicine: Facts and Figures 2019. AAMC: 2019 [cited 2023 May 11]. Available from: https://www.aamc.org/data-reports/workforce/report/diversity-medicine-facts-and-figures-2019
16. The State of Women in Academic Medicine. AAMC: [cited 2023 May 12]. Available from: https://www.aamc.org/data-reports/data/2018-2019-state-women-academic-medicine-exploring-pathways-equity
17. Jones JM. LGBT Identification in U.S. Ticks Up to 7.1% [Internet]. Gallup: 2022 February 17. Available from: https://news.gallup.com/poll/389792/lgbt-identification-ticks-up.aspx
18. Perceptions of diversity, equity, and inclusion of LGB+ faculty at U.S. medical schools. Association of American Medical Colleges: 2022 July. Available from: https://www.aamc.org/media/62091/download#:~:text=LGB%2B%20faculty%20felt%20less%20respected,straight%20counterparts%2C%20regardless%20of%20gender.&text=LGB%2B%20women%20felt%20the%20least,status%2C%20religion%2C%20and%20disability.
19. Longenecker RL, Andrilla CHA, Jopson AD, Evans DV, Schmitz D, Larson EH, Patterson DG. Pipelines to pathways: Medical school commitment to producing a rural workforce [Internet]. The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association. 2021;37(4):723–733. doi:10.1111/jrh.12542
20. Morris MC, Cooper RL, Ramesh A, Tabatabai M, Arcury TA, Shinn M, Matthews-Juarez P. Preparing medical students to address the needs of vulnerable patient populations: Implicit bias training in US medical schools [Internet]. Medical Science Educator. 2020;30(1):123–127. doi:10.1007/s40670-020-00930-3
21. Attracting the next generation of physicians to rural medicine [Internet]. American Medical Colleges: 2020 February [2023 September 15]. Available from: https://www.aamc.org/news/attracting-next-generation-physicians-rural-medicine
22. About Rural Health Care. National Rural Health Association [cited 2023 September 15]. Available from: https://www.ruralhealth.us/about-nrha/about-rural-health-care
23. Staats C, Dandar V, St. Cloud T, Wright RA. Proceedings of the diversity and inclusion innovation forum: Unconscious bias in academic medicine [Internet]. Association of American Medical Colleges: 2017. Available from: http://store.aamc.org/proceedings-of-the-diversity-and-inclusion-innovation-forum-unconscious-bias-in-academic-medicine.html
24. Long M, Frederiksen B, Ranji U, Diep K, Salganicoff A. Women's Experiences with Provider Communication and Interactions in Health Care Settings: Findings from the 2022 KFF Women's Health Survey [Internet]. KFF: 2023 February 22 [cited 2023 May 9]. Available from: https://www.kff.org/womens-health-policy/issue-brief/womens-experiences-with-provider-communication-interactions-health-care-settings-findings-from-2022-kff-womens-health-survey/
25. Discrimination Prevents LGBTQ People From Accessing Health Care [Internet]. Center for American Progress: 2018 January 18 [cited 2023 September 6]. Available from: https://www.americanprogress.org/article/discrimination-prevents-lgbtq-people-accessing-health-care/
26. Protecting and Advancing Health Care for Transgender Adult Communities [Internet]. Center for American Progress: 2021 August 18. Available from: https://www.americanprogress.org/article/protecting-advancing-health-care-transgender-adult-communities/
27. Taber JM, Leyva B, Persoskie A. Why do people avoid medical care? A qualitative study using national data [Internet]. Journal of general internal medicine. 2015;30(3):290–297. https://doi.org/10.1007/s11606-014-3089-1
28. Spleen AM, Lengerich EJ, Camacho FT, Vanderpool, RC. Health care avoidance among rural populations: results from a nationally representative survey [Internet]. The Journal of rural health. 2014;30(1):79–88. https://doi.org/10.1111/jrh.12032
29. Morris MC, Cooper RL, Ramesh A, Tabatabai M, Arcury TA, Shinn M, Matthews-Juarez P. Preparing medical students to address the needs of vulnerable patient populations: Implicit bias training in US medical schools [Internet]. Medical Science Educator. 2020;30(1):123–127. doi:10.1007/s40670-020-00930-3
30. Reddy S, Starr S, Hayes S, Balls-Berry J, Saxon M, Speer M, Wilson NA. Implicit Bias Curricula In Medical School: Student And Faculty Perspectives [Internet]. Health Affairs Forefront. 2020. doi:10.1377/hblog20200110.360375
31. Strategic Initiatives [Internet]. Yale School of Medicine: 2023 September 15. Available from: https://medicine.yale.edu/diversity/initiatives/
32. DEI Resources For Faculty & Staff [Internet]. Yale School of Medicine: 2023 September 15. Available from: https://medicine.yale.edu/diversity/facultystaff/
33. Gibson AW, Gobillot TA, Wang K, Conley E, Coard W, Matsumoto K, Letourneau H, Patel S, Merel SE, Sairenji T, Whipple ME, Ryan MR, Morales LS, Heinen C. A Novel Curriculum for Medical Student Training in LGBTQ Healthcare: A Regional Pathway Experience. Journal of Medical Education and Curricular Development [Internet]. 2020. doi.org/10.1177/2382120520965254
34. Olson D. LGBTQ Health Pathway [Internet]. Healthcare Equity: 2021 January 15 [cited 2023 August 22]. Available from: https://equity.uwmedicine.org/lgbtq-health-pathway/
35. Ibid

Design acknowledgement: Lauren Velten, BS, CHES