Why Bias Matters in Medicine: Qualitative Insights from Anonymous, Online Reports

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Abstract: Purpose: Bias has been shown to influence the experience and mental health of healthcare professional trainees and faculty in academic medicine. The authors investigated the character and impact of self-reported bias experiences sustained in the academic medical arena that were submitted anonymously online to the website SystemicDisease.com.

Method: This qualitative study analyzed 22 narratives submitted online to SystemicDisease.com between September 2015 and March 2017. Both deductive and inductive content analysis was performed, using a combination of *a priori* axial and open coding.

Results: The most commonly reported biases occurred on the basis of race and/or gender. Multiple submitters indicated this bias had influenced or threatened their intended career trajectory. Healthcare professional trainees also expressed altruistic concerns toward other underrepresented individuals as well as toward patients from disadvantaged backgrounds.

Conclusion: Racial and gender bias constitute a considerable barrier for trainees and professionals in academic medicine. Institutional awareness of these impacts can inform interventions designed to foster a more inclusive professional climate.

Keywords: Racism■Sexism■Bias■Discrimination■Academic medicine■Healthcare

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INTRODUCTION

Despite growing diversity of the U.S. population, representation of people from diverse backgrounds remains a challenge for academic medicine and the medical professional workforce. Medical school matriculation rates for individuals who are underrepresented in medicine (URiM), including Black, Latinx, and Native persons, have increased only modestly since 1980 and Black students are consistently admitted at lower rates relative to peers of other racial backgrounds.[1] These trends persist at the faculty level: in 2015 women represented just 39% of faculty in academic medicine and URiM individuals represented 5.5%. As further evidence of this inequity, only 22% of full professors are women and only 3% are URiM.[2,3] URiM faculty are less likely to be satisfied with their careers and more likely to report experiencing harassment and bias.[4–7]

Bias has been shown to adversely affect the experience of healthcare professional trainees and faculty in academic medicine, particularly among members of subordinate groups (e.g., racial and ethnic minorities, sexual and gender minorities). In a study of 3,080 medical students, minority students were more likely to report that their race/ethnicity had adversely affected their medical school experience, citing discrimination, prejudice, feelings of isolation, and different cultural expectations as causes.[8] Such racial stereotyping and lack of social support has been described as a barrier to professional success among minority medical students.[9] Further, the Medical Student Cognitive Habits and Growth Evaluation Study (CHANGES) has found associations between depressive symptoms and harboring a minority identity, including racial,[10] gender,[10] and sexual minorities.[11] These findings are especially significant given the context of high prevalence of depression among medical students[12,13] and resident physicians,[14] and increasing concerns about physician burnout.[15,16]

In addition, women and minority faculty in academic medicine have been found to experience discrimination, feelings of isolation, harassment, limited mentorship, and lower rates of promotion.[7,17–21]

Emerging studies have qualitatively documented the experiences of minorities in academic medicine.[7,20,22] However, none to date have examined the specific impact of bias-related incidents, or as "a behavior or act—verbal, written or physical—which is personally directed against or targets an individual or group based on perceived or actual characteristics such as race, color, religious belief, sex, marital status, sexual orientation, gender identity or expression, national or ethnic origin, disability, veteran status, or age."[23]

In this study, we sought to characterize bias-related incidents occurring in academic medical settings and assess their impacts. Our goals were (1) to describe patterns among bias-related incidents reported to the online site, SystemicDisease.com and (2) to identify key themes related to bias-related experiences that may inform institutional efforts to foster a more supportive climate, particularly for members of subordinate groups.

METHOD

Data source

Twenty-two narratives were submitted online to SystemicDisease.com between July 9, 2015 and February 3, 2017. SystemicDisease.com is an online webpage launched by the authors J.C. and T.R. with the aim of raising awareness about bias in medicine and fostering an online community dedicated to support and advocacy for individuals who have experienced bias. The submission page is modeled after bias-reporting systems of universities and the website also provides additional resources around bias in medicine. Although the project was not originally intended for academic dissemination, many of the incidents reported revealed concerning patterns of behavior that may be of interest to members of the academic medical community. This prompted the authors (J.C., T.R., and R.H.) to conduct the qualitative analysis described here.

Most visitors to SystemicDisease.com find the site through the project's Facebook or Twitter pages. Visitors may submit anonymous narratives detailing events in which they have "acted on a bias" or "experienced an injustice" in the academic medical arena. Submitters (henceforth called "narrators") are then prompted to answer four additional questions. The first prompts the narrator identify the "basis of this bias or injustice" and may select as many of 16 options including race, gender identity, sexual orientation, socioeconomic status, ability, and "other." The second question asks the identities of the parties involved, including interviewer/interviewee, research mentor/mentee, and physician/patient. The third question asks about the location of the incident and the final yes/no question asks, "Do you feel that the experience you have described here reflects the general climate of your institution or practice setting?"[24] Because these questions are optional, data are not available for each respondent and results reported may reflect a subset of respondents.

Since these narratives are anonymous and available publicly, Institutional Review Board support was deemed unnecessary by the Yale Human Subjects Committee.

Analysis

We used descriptive statistics to calculate frequencies of identities targeted. We relied on conventional qualitative methods to analyze the transcripts and define codes and themes from the data.[25] Prior to content review and analysis, three of us (J.C., T.R., R.H.) collectively generated 22 *a priori* codes were through literature review. Additional codes were generated through open coding by J.C. T.R. and R.H. reviewed the preliminary coding and any disagreements were reconciled. The finalized codes were developed into four themes, including "racism," "sexism," "healthcare bias," and "minority experience". Racism and sexism were found to operate at multiple levels and were coded accordingly. Incidents were coded as "interpersonal" corresponds when occurring between individuals (e.g., a bigoted remark, sexual harassment), as "institutional" when related to policies or practices of an institution (e.g., hiring practice at a particular medical school), and as systemic when the incident related to policies, practices, cultural representations, and social norms that perpetuate racial group inequity (e.g., stereotype threat). These levels of operation were developed into subthemes.

RESULTS

Twenty-two narratives were included in our analysis (all submissions between May 9, 2017 and February 3, 2017). The self-reported basis of the bias witnessed or experienced is included in Table 1 below. None of the narratives were classified as being based on sex assigned at birth, criminal history, or weight.

The prevalence of self-reported relationships among parties involved in the bias-related incident is included in Table 2. Of note, "other relationship" was used in four of the narratives (18.2%), and these included staff, student/resident, student/shadowing physician, and the generic term "supervisor."

Descriptive findings

Through our content analysis, we noted that ten incidents (45.5%) occurred in a clinical setting and six incidents (27.3%) occurred during a medical school interview. Three narratives (13.6%) reported that the incident had occurred at a "top school." Given the anonymous nature of the reports, it was impossible to identify the specific locations of these bias-related incidents; however, content analysis and responses to the optional questions suggest that all incidents took place in U.S. medical schools and were distributed throughout the country.

Table 1. Identities targeted in bias-related incidents.

	Number	Percent
Race	11	50.0
Gender Identity	10	45.5
Cultural Values	5	22.7
Socioeconomic Status	4	18.2
Ethnic Identity	4	18.2
Nationality	4	18.2
Gender Expression	3	13.6
Religion	3	13.6
Sexual Orientation	2	9.1
Ability	2	9.1
Sexual Behavior	1	4.5
Immigration Status	1	4.5

Table 2. Relationships among parties in bias-related incidents.

	Number	Percent
Student/Professor	7	31.8
Interviewer/Interviewee	6	27.3
Other Relationship	4	18.2
Physician/Patient	3	13.6
Coworkers	3	13.6
Classmates	2	9.1
Strangers	2	9.1
Research Mentor/Mentee	1	4.5
Advisor/Advisee	1	4.5
Student/Patient	1	4.5
Roommates	1	4.5
Friends	1	4.5

Three-quarters (75.0%) of those who responded to the question "Do you feel that the experience you have described here reflects the general climate of your institution or practice setting?" chose the option "Yes, this is not surprising."

Qualitative analysis

We identified four major themes that characterized the bias-related incidents reported on SystemicDisease.com: (1) racism; (2) sexism; (3) healthcare bias; and (4) minority experience. We describe each theme, with corresponding subthemes and representative quotes (Table 3), below.

Theme 1: Racism. We identified evidence of racism operating at multiple levels, including interpersonal and institutional or systemic. The Black/African-American racial group was most commonly named as a target of racism; however targeted race was not always included in individual narratives.

Interpersonal racism most commonly emerged as experiences of exclusion and stereotyping, often relative to a White majority or a White person in a senior position such as an attending physician or medical school interviewer. These also include microaggressions, or "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative… slights and insults toward people of color."[26]

In one report, a medical student describes being stereotyped as a member of the cleaning staff while their White classmate was presumed to be the student, despite both students wearing traditional signifiers of clinical professionals (i.e., hospital badge, stethoscope). In another episode, a student of color relates with the "Black and Brown" scrub technicians and other staff and is ignored by the White attending surgeon when he enters the operating room. These episodes perceptually pattern racialized power dynamics in the hospital.

Institutional racism is evident in reports about teaching materials and hiring practices. For instance, one medical student's description of their school's problem-based learning cases, a form of pedagogy based on clinical scenarios, reveals harmful stereotypes against people of color. This includes characterizing a White child as "brave" and a Black child as "combative." This student reports that when they expressed concern over the racialized patterns of describing patients, they were told to "suck it up and stop being so sensitive."

In another narrative, a Black female faculty member characterizes an institutional climate as inhospitable toward women and people of color. She reports being perceived as "overly aggressive" or uncooperative when addressing diversity issues and refusing to engage in unprofessional jokes with the "old boys network," which refers to a social group of high status white men through which social capital is exchanged and labor market opportunities are distributed.[27] Here, she is confronted with stereotype threat, or the risk of conforming to the image of an "angry Black woman"[28] as well as underrepresentation of women and people of color in leadership. Following this observation, the narrator also describes inequitable promotional evaluations of White women relative to underrepresented minorities. This report is consistent with

Table 3. Themes and representative quotes.

Theme	Illustrative Quotes
Racism	
Interpersonal	• "Before I could get the words out of my mouth, she turned to me and asked if I was one of the cleaning staff and looked at my classmate (not a person of color) and ask if he was the medical student on for that shift. We were both dressed the same, with the same hospital badges and stethoscopes around our necks and based skin tone, she labeled me."
	• "As I sat down at a table across from him [my medical school interviewer], before I had a chance to settle in, he launched his first question: 'So you were an illegal?'"
Institutional or Systemic	• "The case presented the white child [with Legg Calve Perthes disease] as a brave 'trooper' in dealing with his pain. On the other hand, our black female patient with diabetic ketoacidosis was described as 'combative' in a tone that was clearly racially biased."
	• "As a black female, I am hardworking, very productive, professional. However, if I do not engage in unprofessional jokes with the 'old boys network', it is perceived as not being a team player. When I bring up issues of stakeholder diversity, it is perceived as being "overly aggressive." When promotional decisions are made, I am informed that they are diversifying by hiring a [C]Caucasian female when highly eligible underrepresented minorities are present in the application."
Sexism	
Interpersonal (harassment)	• "'Have you ever seen an uncircumcised penis?' the urologist asked me, a playful smirk on his face… 'You know, in your... experience.' He looked at me, again with that goofy, teenage grin. 'What kinds of penises?' He gripped two fingers of one hand with the fingers of his other, and motioned a glans penis protruding from a thick foreskin."
	• "I didn't want to move closer to him. But I was afraid of what he would think. He was scheduled to be my attending and evaluator the next week. I survived assault before and I've learned to protect myself; but for a moment, I considered my grades before my safety."
	• "As [the medical school interviewer] tapped his foot and snapped his finger [to the music playing], he made eye contact with a nervous female interviewee and said: 'Honey, if I ask, will you dance with me to this song?' With a nervous gaze, she said: "No sir, but thank you." "Well, what if I said I would get you into this school if you dance with me" he replied. Laughing nervously, her eyes darting back and forth, she finally said "I... I guess.""
Institutional or Systemic	• "As I watch the subtle but unmistakable subjugation of both faculty and student women by the new owners [of the medical school] I am deeply appalled. The [Orthodox Jewish sect] is very aware and savvy at avoiding legal intervention into their practices and has thus far avoided prosecution."
Healthcare bias	• "The white doctors thought she was faking it. 'She's just pretending that she can't walk,' my resident said dismissively. We were caring for a little black girl with sickle cell anemia, and I had rushed to report that the usually peppy child couldn't walk, observing the girl's large eyes water as she struggled on the hospital floor. My team of doctors, all White, commented on how 'dramatic' the child was being, and that her worsening hip pain was simply a ploy to stay in the hospital longer… The little Black girl had to experience a near-stroke and temporary blindness before her doctors understood that her pain was not a lie, but a symptom of something very serious."

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Theme	Illustrative Quotes
	• "During my medicine rotation as a 3rd year medical student, I was receiving sign-out from a night intern about a patient. She was an older patient who was admitted for syncope. As the intern signed her out, he said, 'Oh, she's also complaining of pain, but, you know those elderly Latino women, they're always complaining about pain everywhere.' I didn't know how to respond, so I said nothing."
Minority experience	
Minority tax	• "But many times, I was working under White practitioners who I could see get visibly frustrated when a patient didn't understand English or make assumptions that I knew made the patients uncomfortable too. Sometimes patients would look to me to answer questions or facilitate the appointment just because I was the only other visible minority present and seemed to show some sense of understanding, even though I didn't have the full medical expertise."
	• "After telling the administration about my hopes for diversifying the student body and broadening admissions outreach, they told me that students of color would be more likely to come (to the university) if I were the face they were talking to… They also asked me to take on what seemed like an unreasonable amount of work to recruit students of color to this university… Can't I just be a student wanting to further my education, do I need to be the face of the university that doesn't support me?"
Altruism	• "[J]ust three years prior, as I was in the midst of fighting to stay in college as a Dreamer, I would have been paralyzed at just the thought of someone knowing my status. Fear of deportation and harming my family shackled me with fear. I remembered this, and thought of how awful this experience would be for someone who was still caught up in this struggle.
	• "I now wish I would have told him that his ableism hurts the trust his patients have in him, affects the treatments he prescribes, and contributes to health inequity. I wish I could go back in time and be more vocal to advocate for myself and those like me."

nationwide disparities in faculty promotion in academic medicine.[21]

Theme 2: Sexism. As with racism, we identified sexism operating at interpersonal, institutional, and systemic levels, with interpersonal interactions predominating among the narratives. Sexual harassment was especially common, appearing in six narratives (27.0%). In most cases, female gender was explicitly mentioned as being linked to the experiences of bias or harassment.

In multiple narratives, physician supervisors were described as harassing students in private spaces, including making sexually explicit comments or telling a female student to "quit medicine and marry rich." These experiences were associated with embarrassment, fear of repercussions, and doubts about pursuing a career in academic medicine. These episodes underscore the effect of power hierarchies in medicine and how these may overlay and intersect with gender or lend themselves to abuse.[29,30]

Sexism was also found to operate at institutional levels. This includes negative stereotyping and the exclusion of women from decision-making opportunities. In addition, four narratives described attempts to "act okay" or behave normally despite a bias-related or harassment incident, which may reflect a gendered response.

Theme 3: Healthcare bias. We define healthcare bias as instances in which bias emerged in the context of providing medical care to patients. This manifested as the minimization of symptoms expressed by female patients of color.

In one narrative, the residents caring for a young Black girl presume her impaired gait and hip pain are exaggerated and they implicitly accuse her of a factitious disorder. In another, a first-year resident minimizes the pain of a Latina woman and stereotypes elderly Latina women as "always complaining about pain everywhere."

Theme 4: Minority experience. A separate category emerged surrounding feelings of isolation and otherness related to being a minority. These include evidence of stereotype threat, particularly concerns of conforming to stereotypes of people of color being "overly sensitive, "overly aggressive," or "overly PC [politically correct]." Three narratives (13.6%) described moments in which members of a subordinate group were teach members of the dominant group about their experiences of oppression. In addition, two narratives included features that may be described as "minority tax," or the burden of extra responsibilities placed on minorities in the name of diversity.[31]

One particularly illustrative example of the minority tax emerged in a narrative about a student's experience addressing diversity issues with their administration. The student is tasked with recruiting other students of color without compensation. These experiences of isolation and insufficient support are often accompanied by a lack of mentorship and the expectation for increased clinical responsibilities to underserved populations.[32]

In another narrative, a student notes how their positionality as a person of color adds to their responsibilities in supervised clinical encounters. Patients of color—or with limited English proficiency—turn to this student to facilitate the clinical encounter instead of the White supervising physician.

Self-identified minority students also conveyed attitudes of altruism toward others in similar positions. Such evidence of concern for other marginalized individuals emerged in six narratives (27.2%). Seven narrators (31.8%) also expressed interest in issues of diversity and health equity, reflecting a broader orientation toward service (Table 3).

DISCUSSION AND CONCLUSIONS

Our findings reveal bias on the basis of multiple identity groups, particularly against Black people and women. These bias-related incidents are linked to negative emotions, such as fear and isolation, and may influence the career trajectories of those targeted by these incidents. This includes choosing not to matriculate at or opting to leave the institution at which the bias-related incident took place. Further, we present evidence that these bias-related incidents may impair mentoring relationships and may deter students from subordinate groups from pursuing careers in academic medicine. These findings add qualitative insight to the well-documented "broken pipeline" issue in academic medicine.[33–35]

We separately report a meaningful pattern of altruism and interest in health equity on part of students, particularly self-identified minority students. Although self-selection among visitors to SystemicDisease.com may contribute to this pattern, we believe this finding warrants further research to inform medical school curricula and co-curricular opportunities.

The accounts of racism analyzed in our study describe perceived race-based mistreatment, supporting previous studies which describe similar findings among medical students and physicians. We also identified evidence of racism operating at the interpersonal, institutional and systemic levels in the narratives. Primarily, racism in medical education has been discussed at the interpersonal level with a focus on implicit racial bias and micro-aggressions.[36] Accounts describing institutional and systemic racism such as those described in our study are critical for both bringing to light a clear understanding of

how racism operates at multiple levels in medicine. Additionally, illustrating how racism operates at systemic and institutional levels supports the recent calls for physicians and physician trainees to understand structural racism.[37,38] These narratives may also highlight how race intersects with professional hierarchies and healthcare attitudes, suggesting that racial bias may adversely impact the experiences and opportunities of underrepresented minorities in academic medicine at an institutional level as well.

Narratives of sexual harassment and discrimination suggest a professional precarity experienced by women and sexual minorities in academic medicine. Women may confront toxic [36]environments in which sexual harassment and exclusion characterize learning and work conditions. It is noteworthy that sexual harassment emerged in 27.0% of narratives submitted to SystemicDisease.com during the period studied; this finding points to the possibility that sexual harassment may be a more common form of abuse sustained by healthcare trainees and faculty in academic medicine, particularly women. Furthermore, multiple women reported minimizing or dismissing their experiences of harassment rather than seeking recourse, which may reflect processes of gender socialization and conflict aversity or mistrust of the judicial process.[39]

Healthcare bias, or bias which emerged in the context of providing medical care to patients, in the narratives was enacted on part of a resident, which may suggest that medical education must focus our efforts on negative role modeling for healthcare professional students. Indeed, the Medical Student CHANGE study has found that such negative role modeling is associated with an increase in implicit racial bias.[40] Another CHANGE study found that negative role modeling contributed to a negative racial climate and poor wellbeing for medical students in a national sample.[41] Our findings suggest that aspects of the informal, or "hidden" curriculum, may unintentionally promote racial bias, thereby influencing the attitudes of rising healthcare providers. Further examination of how the hidden curriculum promotes racial bias is sorely needed.

Findings that feelings of isolation and otherness related to being a minority are prevalent in medical education are not surprising. Previous studies show that minority students were more likely to report that their race or ethnicity had adversely affected their medical school experience citing racial discrimination, racial prejudice, feelings of isolation, and different cultural expectations as causes.[8] Additionally, our findings highlight the unique challenges experienced by medical students of color who are often put in the position of facilitating clinical encounters instead of their supervisor. This expectation of trainees of color, particularly Latinx students, has been previously documented and adversely impacts their experience.[42] Collectively, these may constitute barriers to professional success among minority medical students.[9] Additionally, study findings support the idea that students from diverse backgrounds may be more invested in efforts around equity and inclusion and may be more likely to practice with underserved populations. This latter possibility has been documented in the literature.[43,44]

Our study findings should be interpreted in light of several limitations. First, we used publicly available data and our respondents represent convenience rather than systematic or purposeful sampling. Second, although our use of 22 samples is consistent with standards in qualitative analysis,[45] our inability to obtain additional data through follow-up question probes limit the narrative detail of each sample. Third, we did not collect specific demographic data and, accordingly, we are unable to report how representative our sample is or how the themes described pattern across age, gender, race, and ethnicity.

Our findings call for increased attention to the impact of bias-related incidents in academic medical settings. Assessment of institutional climate should be an ongoing and iterative process that acknowledges and challenges harmful attitudes and behaviors.[46] Following the lead of several undergraduate institutions, medical schools would benefit from comprehensive bias-reporting and intervention policies that resolve intercultural conflicts in a way that respects the diversity within academic medicine.[23,47–49] Discipline policies should be restorative rather than punitive in order to build social awareness and reduce the likelihood of future bias-related incidents.[46] Anti-oppressive education,[50] implicit bias trainings,[51,52] and bias-intervention trainings[53] may assist in enhancing this social awareness and limiting the impact of bias-related incidents.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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