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Equity in medical education: Addressing microaggressions and discrimination on the wards

Raquel Sofia Sandoval[a], Spencer Dunleavy[b], Titilayo Afolabi[a], Jordan Taylor Said[a], Jade Connor[a], Azfar Hossain[a], Bina Kassamali[a], Tamina Kienka[a], Maahika Srinivasan[a], Anita Cheng[c], Daniele Ölveczky[d] and Avik Chatterjee[a,e]

[a]Harvard Medical School, Boston, MA, USA; [b]Columbia University College of Physicians and Surgeons, New York City, NY, USA; [c]Department of Obstetrics, Gynecology and Reproductive Biology, Boston, MA, USA; [d]Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA, USA; [e]Boston University/Boston Medical Center, Boston, MA, USA

ABSTRACT

Purpose: Existing frameworks to address instances of microaggressions and discrimination in the clinical environment have largely been developed for faculty and resident physicians, creating a lack of resources for medical students.

Methods: We implemented a workshop to prepare pre-clinical medical/dental students to recognize and respond to microaggressions. Participants in three cohorts from 2018 to 2020 completed pre- and post-workshop surveys assessing the prevalence of exposure to clinical microaggressions and the workshop's effect on mitigating commonly perceived barriers to addressing microaggressions.

Results: Of 461 first-year medical and dental students who participated, 321 (69.6%) provided survey responses. Over 80% of students reported experiencing microaggressions, with women and URM students over-represented. After the workshop, participants reported significant reductions in barriers to addressing microaggressions and discrimination, including recognizing incidents, uncertainty of what to say or do, lack of allies, lack of familiarity with institutional policies, and uncertainty of clinical relevance. The workshop was similarly effective in-person and virtual formats.

Conclusions: Most medical/dental student respondents reported experiencing microaggressions in the clinical setting, particularly female and URM students. Our workshop mitigated most perceived challenges to responding to microaggressions. Future interventions across institutions should continue to equip students with the tools they need to address and respond to microaggressions.

KEYWORDS

Ethics/attitudes; medical education research; professionalism; medicine; instructional design

Introduction

Undergraduate medical education includes both the formal medical content and the 'hidden curriculum,' the implicit learning of the art of practicing medicine (Hafferty 1998). The impact of these paired curricula not only affects the individual learner, but can also create a culture of medicine that reinforces existing social inequities and structural oppressions (Sue et al. 2007; Freeman and Stewart 2018).

Discrimination and microaggressions are similar but distinct phenomena that shape the culture of the medical profession. Discrimination can be defined as a set of behaviors, policies, and actions that lead to differential treatment or creation of hostile settings for targeted individuals, often across racial and gender identities (Carr et al. 2000). Microaggressions – described by Sue et al. as 'brief and commonplace daily verbal, behavioral, and environmental indignities, whether intentional or unintentional' – are more casual debasements of any group, although marginalized groups are most often the target (Sue et al. 2007). Both discrimination and microaggressions can be intersectional and are manifestations of structurally and historically perpetuated values intended to marginalize identity-based minorities (Jones 2000; Bowen and Murshid 2016). Both of these behaviors can shape what students observe and later model during the critical period of professional identity formation throughout medical school (Cruess et al. 2015).

Practice points

- There are few resources available for medical students to learn to address instances of microaggressions and discrimination in the clinical environment.
- Over 80% of students, particularly women and people from backgrounds under-represented in medicine, experience microaggressions in the clinical environment.
- Workshops dedicated to addressing microaggressions can reduce students' perceived barriers to responding to these instances.
- Students continue to have a fear of retribution when responding to microaggressions, citing a need for further institutional change and reflection.

CONTACT Raquel Sofia Sandoval Raquelsofia_sandoval@hms.harvard.edu Harvard Medical School and Harvard Kennedy School of Government, Boston, MA, USA

Supplemental data for this article can be accessed here.

Microaggressions, in particular, are common in clinical encounters (Montenegro 2016; Ackerman-Barger et al. 2019; Wheeler et al. 2019). Espaillat et al. found that 54% of the 351 University of Florida medical students who responded to a survey had experienced microaggressions during medical school. Furthermore, they found that an overwhelming majority (73%) of those reporting microaggressions were female, who described such situations as being mistaken as nurses and receiving unwanted comments about their appearance (Espaillat et al. 2019). This disproportionate burden on women is even more striking in light of the fact that the majority of medical school matriculants are women, highlighting a pervasive inequity that is now affecting a majority group (Heiser 2017; Espaillat et al. 2019).

Prior research has characterized the impact of experiencing microaggressions on both patients and providers. In their seminal paper, Sue et al. implicated microaggressions as a manifestation of bias from healthcare providers toward patients, creating barriers to optimal clinical practice by infringing upon the creation of a therapeutic alliance (Sue et al. 2007; Freeman and Stewart 2018). Subsequent work has demonstrated that regular exposure to microaggressions adversely affects the psychological and physical health of recipients by lowering self-esteem, inducing depression and anxiety, and triggering systemic trauma responses (Torres et al. 2010, 2019; Nadal et al. 2014). Furthermore, patients who experience microaggressions or discrimination are more likely to delay or forego care; for example, 28% of transgender individuals report having avoided health care due to past discrimination in clinical settings (Grant et al. 2011; Alsan and Wanamaker 2018). Extending beyond the effects on patients, Hu et al. found that mistreatment, including discrimination and microaggressions, among surgical residents was associated with increased burnout and suicidal thoughts, particularly in women (Hu et al. 2019). Therefore, microaggressions have an impact not only on patients, but also on care providers, and may disproportionally affect specific gender groups.

As more data and research demonstrate the prevalence and impact of discrimination and microaggressions in the clinical setting, the need for intervention is unequivocal – particularly in order to ensure a healthy learning environment for trainees (Sue et al. 2007; Espaillat et al. 2019). Multiple useful frameworks exist for addressing discrimination and microaggressions in clinical contexts, emphasizing an assessment of illness acuity, building alliance through negotiation, and promoting trust across differences (Mostow et al. 2010; Paul-Emile et al. 2016; Whitgob et al. 2016; Wheeler et al. 2018). Most frameworks have been developed for faculty and resident physician use; more recently, frameworks have been created specifically for medical students (Mitchell et al. 2018; Acholonu et al. 2020; Sotto-Santiago et al. 2020). As medical students are often the most junior on a clinical team, they may have the least power to prevent and address such situations. Given this power differential, it is even more important to have targeted models for improving the ability of students to address microaggressions and discrimination (Elnicki et al. 2002; Hill and Vaughan 2013; Young et al. 2017; Espaillat et al. 2019).

In 2018, our team developed a workshop to prepare pre-clinical medical and dental students to recognize and respond to microaggressions in the clinical setting (Sandoval et al. 2020). Given the success of our initial study, we aimed to perform a follow-up analysis of three years of data from consecutive annual workshops – two in-person and one virtual – to determine if across cohorts and formats, student-specific microaggression intervention frameworks can reduce perceived barriers to addressing microaggressions and discrimination on the wards.

Methods

We created a two-hour workshop consisting of a 45-minute didactic lecture that defined and described examples of microaggressions, their clinical relevance, and frameworks for addressing them (Mitchell et al. 2018). The second portion of the workshop consisted of one hour of case-based scenarios in small groups, in which students practiced applying the frameworks. The cases were based on lived and witnessed experiences by our team, and touched on issues relating to racism, sexual harassment, the model minority myth, the minority tax, and internalized bias (Chou and Feagin 2011; Rodríguez et al. 2015). Small group faculty were recruited via informal networks within the medical school's affiliated hospitals. The workshop was part of the required professional development week at the end of the students' first year, just prior to the start of clinical rotations. A detailed description of the workshop as well as workshop materials can be found on MedEdPORTAL (Sandoval et al. 2020).

We made minor content and moderate structure modifications between the first and second versions of the workshop. In the second iteration of the workshop, the didactic portion contained a greater emphasis on the structural context of microaggressions and an additional framework – the 4 R's framework – to guide responses to microaggressions by those not directly targeted in these incidents. Furthermore, we reorganized the small group session into an interactive Microsoft PowerPoint presentation that allowed students to select responses (both reflections and actions) at various points in the cases in which microaggressions had transpired. Students' selections determined the next events and final outcomes in the cases, and discussion questions related to the workshop objectives were presented after each choice to provide students with the opportunity to reason through their decisions.

Between 2018 and 2020, we surveyed three cohorts of first-year dental/medical students – who spend four hours per week in clinic – before and after the workshop. In the week before the workshop, every student was contacted to fill out the survey, with multiple reminders to encourage participation. At the end of the workshop, students received the survey again to allow pre-post comparisons using a unique, anonymous identifier.

We asked participants if they had experienced a microaggression directed at themselves, witnessed a microaggression made toward a colleague, or witnessed a microaggression made toward a patient in their clinical experiences thus far in medical and dental school (excluding experiences prior to entering medical/dental school). To identify factors associated with potential exposures to

microaggressions, we also asked students to provide their gender and if they identified as 'under-represented in medicine' (URM) per the Association of American Medical Colleges definition of URM (Association of American Medical Colleges 2004). We asked students before and after the workshop to indicate how significant of a barrier each of the following factors was in preventing them from addressing microaggressions and discrimination: fear of retribution, difficulty recognizing them, uncertainty of what to say or do, lack of allies, lack of familiarity with institutional policy, and uncertainty of clinical relevance. Each of these challenges were rated on a five-point Likert scale ranging from 'not at all challenging' to 'extremely challenging.' We collected responses separately for challenges in addressing microaggressions and challenges in addressing discrimination. As we designed an original scale for assessing these challenges, we also evaluated the reliability of the inventory using Cronbach's α.

We utilized logistic regression to identify the associations between gender, URM status, and previous exposure to microaggressions. We assessed changes in perceived barriers toward addressing microaggressions and discrimination using dependent *t*-tests following checks of parametric assumptions. We evaluated differences in efficacy across years and in-person versus virtual deliveries by ANOVA and *t*-tests. Further, we used linear regression to assess how the workshop affected perceived barriers differentially across subgroups, including gender, URM status, and people with prior experience with microaggressions. Finally, we measured changes in each perceived barrier item across the workshop using Wilcoxon's signed-rank tests due to violations of parametric assumptions to identify the barriers the workshop most effectively addressed.

This study was determined to be exempt from review by the Harvard Medical School Institutional Review Board.

Results

Across three years, 461 first-year medical and dental students participated in the workshop, with 321 (69.6%) providing responses to the pre-workshop survey. We provide descriptive statistics in Table 1. Among respondents, 162 (50.8%) reported female gender, 141 (44.2%) reported male gender, six (1.9%) reported nonbinary gender, and 10 (3.1%) preferred not to answer. One hundred and eighteen students (37.1%) reported URM status. Using anonymous identifiers, we linked 193 (60.1%) pre-workshop surveys to post-workshop surveys. Respondents with linked pre-to-post surveys did not significantly differ with regard to gender identity ($p = .43$) or URM status ($p = .11$) from students who only completed pre-workshop surveys.

Prior exposures to microaggressions

Overall, 203 (63.2%) students reported having experienced a microaggression directed at them in a clinical educational setting. Similarly, 180 (56.1%) students reported witnessing a microaggression toward a patient. An even greater number of students, 240 (74.7%) in total, reported witnessing a microaggression toward a colleague. Overall, 262 (81.6%) reported experiencing or witnessing at least one of these microaggression events during their time in a clinical environment (Table 2). The microaggressions endorsed by students largely described racial, ethnic, or gender bias. Examples include commenting on female students' appearance, misgendering patients and students, asking non-White students where they are from, and making assumptions based on racist stereotypes.

Table 1. Baseline characteristics of 321 pre-medical and pre-dental student workshop participants who completed the pre-workshop surveys across three cohorts.

	n (%)
Gender	
Female	162 (50.8%)
Male	141 (44.2%)
Non-binary	6 (1.9%)
Prefer not to say	10 (3.1%)
Under-represented in medicine	
Yes	118 (37.1%)
No	197 (61.9%)
Prefer not to say	3 (0.9%)
Workshop year	
2018	119 (37.1%)
2019	86 (26.8%)
2020 (virtual)	116 (36.1%)

Female gender respondents reported personal experience of microaggressions at significantly higher rates than those of male gender (OR: 4.28, $p < .001$). Further, female gender respondents reported a significantly higher rate of witnessing microaggressions directed toward patients (OR: 1.93, $p = .005$) and toward colleagues (OR: 1.76, $p = .04$). In sum, female gender respondents reported a significantly higher rate of witnessing any of the types of microaggression (OR: 2.84, $p = .001$).

URM students reported higher rates of personally experiencing a microaggression compared to non-URM students (OR: 1.74, $p = .04$); however, URM students did not significantly differ in terms of witnessing microaggressions toward colleagues or patients.

Effect of workshop on challenges to addressing microaggressions and discrimination

Comparing pre- and post-workshop survey responses, students reported significantly decreased overall perceived barriers to addressing microaggressions (Cohen's $d = 0.96$, $p < .001$) and discrimination (Cohen's $d = 0.61$, $p < .001$) (Figure 1). Both scales were found to be reliable (Cronbach's $\alpha = 0.70$ and $\alpha = 0.73$, respectively, for microaggressions and discrimination in post-workshop responses). The reductions in perceived barriers for addressing microaggressions ($p = .11$) and discrimination ($p = .43$) were not significantly different across three years. Further, the in-person workshops and virtual workshop did not significantly differ in their effectiveness related to microaggressions ($p = .27$) or discrimination ($p = .28$). Together, these data suggest an overall beneficial effect of the workshop by reducing perceived barriers to addressing microaggressions and discrimination that was stable across years and replicable in both in-person and virtual settings.

The workshop reduced nearly every surveyed barrier in addressing microaggressions and discrimination (Figure 2). For addressing microaggressions, difficulty recognizing incidents, uncertainty of what to say or do, lack of allies, lack of familiarity with institutional policies, and uncertainty of clinical relevance were rated as significantly less

Table 2. Associations between experiences of microaggressions and URM and gender status for all respondents to the pre-workshop survey.

	n (%)	OR (95% CI)	*p*
Personal experience of a microaggression	203 (63.2%)		
URM (vs. non-URM)	82 (69.5%)	1.74 (1.03, 3.00)	.04*
Female (vs. male)	126 (77.8%)	4.28 (2.59, 7.21)	<.001***
Witnessed a microaggression directed toward a patient	180 (56.1%)		
URM (vs. non-URM)	70 (59.3%)	1.33 (0.82, 2.17)	.24
Female (vs. male)	101 (62.3%)	1.93 (1.21, 3.09)	.005**
Witnessed a microaggression directed toward a colleague	240 (74.7%)		
URM (vs. non-URM)	89 (75.4%)	1.08 (0.62, 1.89)	.79
Female (vs. male)	130 (80.2%)	1.76 (1.04, 3.02)	.04*
Ever experienced or witnessed any microaggressions	262 (81.6%)		
URM (vs. non-URM)	98 (83.1%)	1.22 (0.66, 2.34)	.53
Female (vs. male)	144 (88.9%)	2.84 (1.54, 5.4)	.001**

N (%) describe the number of URM or female students who have experienced the different types of microaggressions. OR represents the odds ratios comparing URM to non-URM students and female to male students. OR estimates calculated using binary logistic models. Non-binary gender identities were excluded from analysis due to low number and insufficient statistical power. *$p < .05$; **$p < .01$; ***$p < .001$.

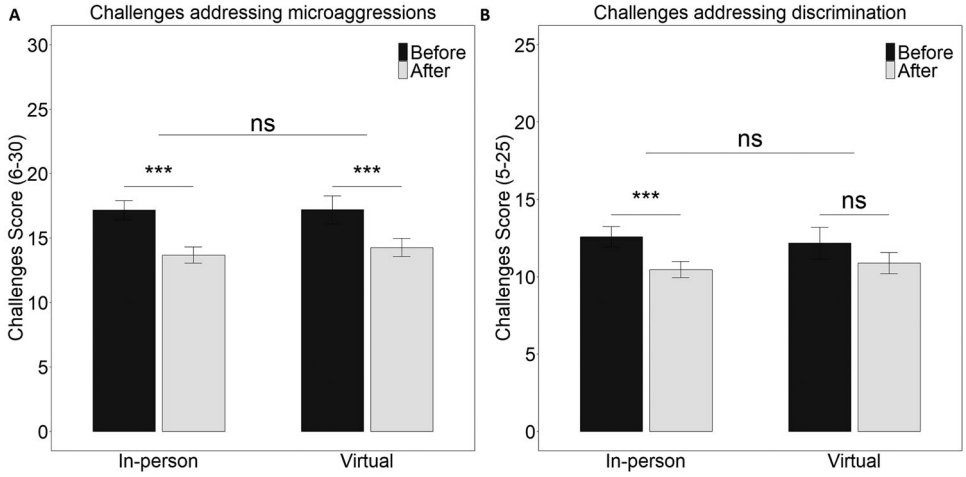

Figure 1. Changes in overall challenges for addressing microaggressions (a) and discrimination (b) after completing the workshop in both in-person and virtual settings. The workshop appears to significantly reduce challenges for addressing both microaggressions and discrimination. Bar heights represent mean scores within each time period. Error bars indicate 95% confidence intervals. Significance was estimated using dependent *t*-tests. As there was no significant overall difference between methods of delivery in effectiveness, the ns result for the efficacy of the virtual workshop for reducing challenges addressing discrimination should be interpreted with caution. ***$p<.001$, $^{ns}p>.05$.

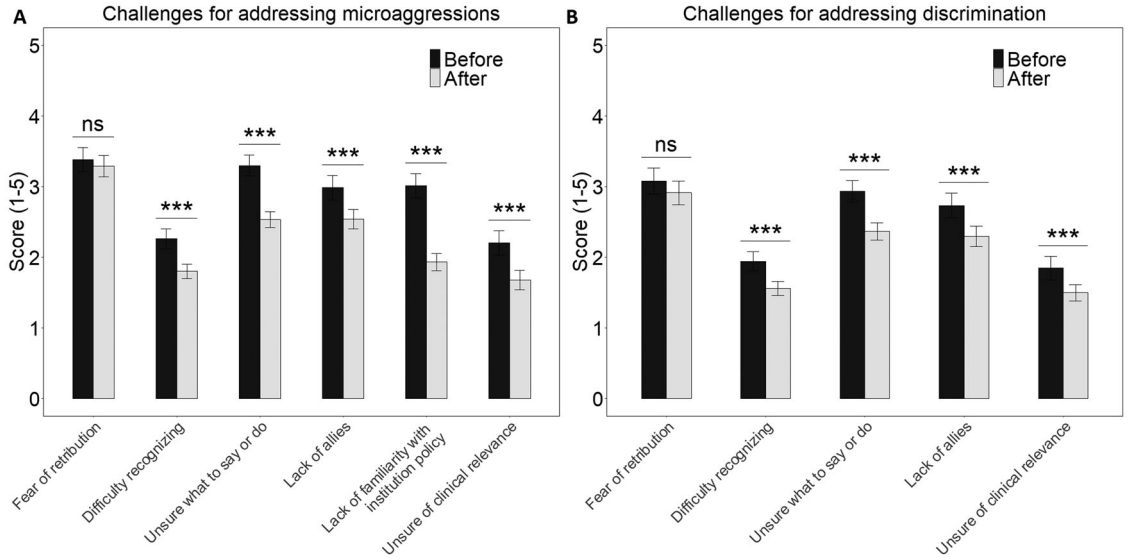

Figure 2. Changes in individual challenges for addressing microaggressions (a) and discrimination (b) after completing the workshop. The workshop appeared to significantly reduce nearly every challenge for addressing microaggressions and discrimination. Bar heights represent mean scores within each time period. Error bars represent 95% confidence intervals of the mean. Significance was estimated using Wilcoxon's signed-rank nonparametric tests. ***$p<.001$.

challenging as barriers after the workshop (all $p < .001$). Only fear of retribution did not significantly change after the workshop ($p = .67$). For addressing discrimination, the same pattern emerged: difficulty recognizing incidents, uncertainty of what to say or do, lack of allies, and uncertainty of clinical relevance were rated as significantly less challenging as barriers (all $p < .001$). In this case as well, fear of retribution ($p = .41$) was not reported as significantly

less challenging after the workshop. Of note, data were only collected on the barrier 'lack of familiarity with institutional policies' in the third iteration of this course. In this cohort of students, lack of familiarity with institutional policies was seen as less of a barrier toward addressing discrimination after the workshop ($p < .001$).

Compared to in-person workshop participants, virtual workshop participants groups had similar gender ($p = .21$) and URM ($p = .40$) characteristics. There were similar reductions in barriers for addressing both microaggressions ($p = .27$) and discrimination ($p = .28$) across in-person and virtual settings.

Effect of diminishing barriers to addressing microaggressions discriminations by subgroup

We also assessed how these results may have varied by different subgroups in this sample of students (Supplemental Figure 1). We found that students who reported previous experiences with microaggressions reported a significantly greater reduction in challenges for addressing microaggressions ($p = .007$) and discrimination ($p = .006$) than students who did not report previous experience at all. In fact, students who reported never previously experiencing microaggressions (NEMA) did not demonstrate a significant change in perceived challenges for addressing microaggressions ($p = .06$) or discrimination ($p = .91$). There were no significant differences in the effectiveness of the workshop in reducing barriers by gender or URM status.

Discussion

In this study of three cohorts of first-year medical and dental students at a single institution, the vast majority of surveyed students had experienced or witnessed discrimination or microaggressions, with female gender students and URM students reporting microaggressions more commonly. A unique workshop providing tools for addressing discrimination and microaggressions in clinical contexts mitigated several perceived barriers to responding to microaggressions, except for student fears of retribution for responding. We also found that students who previously experienced microaggressions were more likely to report a decrease in these perceived barriers after the workshop, compared to students who had not. These effects were consistent across cohorts and true for both in-person and virtual settings.

Consistent with other published data on prevalence of microaggressions (Montenegro 2016; Ackerman-Barger et al. 2019; Wheeler et al. 2019), we found that nearly 82% of surveyed health professional trainees reported personally experiencing or witnessing at least one microaggression in just their first year in a clinical setting. This overwhelming majority highlights the high prevalence of these experiences, students' awareness and identification of these issues, and the need for interventions to both empower students to address these issues and institutional reforms so that these instances happen less often. Of note, surveyed students had only completed one year of medical or dental school. One might expect that the percentage of participants who report witnessing or experiencing microaggressions would increase over the course of medical school with more clinical exposure.

Our results highlight that students of female gender are more likely to experience or witness microaggressions than men. This adds to the growing body of evidence demonstrating that individuals of female gender are more likely to experience microaggressions, both as students and as faculty (Espaillat et al. 2019; Periyakoil et al. 2019). Irrespective of other intersectional identities, female gender individuals are more likely to experience gender-based mistreatment by medical faculty and colleagues (Hinze 2004; Babaria et al. 2011; Hill and Vaughan 2013). Numerous studies conclude that individuals of female gender experience extensive gender-based mistreatment with psychological, professional, and economic impacts, and our findings further support this accumulating data (Thomas et al. 2019).

Additionally, we found that significantly more URM students reported microaggressions directed at them personally. This aligns with previous reporting that have shown the negative impacts URM students face in academia secondary to chronic experiences of racism, microaggressions, and discrimination (Torres et al. 2010; van Ryn et al. 2011; Rodríguez et al. 2015). In addition, URM students may have been afraid to report having experienced microaggressions due to fear of retribution or dismissal of their concerns, two reasons for nonreporting expressed by various URM medical students in other reports (Batty 2020; Kmietowicz 2020).

Lastly, our results indicate that the workshop was not effective for NEMA, who were more likely to be male and non-URM based on our prior analysis of the data from the first workshop iteration (Sandoval et al. 2020). There are several possible explanations for these results. These students may underestimate the impact of microaggressions and disengage from workshop activities. Some students may feel guilt or shame when confronted with these topics that hinders their learning. Students may also use different learning methods depending on their previous exposure to microaggressions: students who have experienced microaggressions may use the workshop as a reflective practice in line with the principles of experiential learning, allowing for more meaningful engagement with the material (Yardley et al. 2012). Although the concept of allyship was introduced in the second iteration of the workshop, many workshop vignettes were written from the perspective of the person experiencing the microaggression. A more targeted intervention, such as upstander training, is likely needed for this group given its emphasis on active allyship by those who witness but do not experience mistreatment (Evans et al. 2020; Ho et al. 2020).

This educational intervention successfully decreased student-perceived barriers in addressing microaggressions in nearly all assessed categories – difficulty recognizing microaggressions, uncertainty of what to say or do, lack of allies, or lack of familiarity with institutional supports, and uncertainty of clinical relevance. The workshop did explicitly highlight institutional support systems that exist to support students in addressing microaggressions; however, fear of retribution was a persistent perceived barrier. This fear is in the setting of near-constant evaluation in clinical settings, creating a power dynamic in which students may feel uncomfortable sharing experiences of bias (Elnicki et al. 2002; Srivastava 2013; Martinez et al. 2015). Given this barrier, it is imperative for institutions to develop systems that eliminate fear of retribution. Institutional responses should not be

limited to encouraging students to reach out informally to faculty; this strategy has been shown to insufficiently mitigate the fear of retribution with incidents continuing to be underreported (Aggarwal and Kheriaty 2018; Chung et al. 2018). Potential efficacious solutions may include anonymous reporting systems for mistreatment, which an evolving body of evidence reveals to be a promising tool for incident management among medical students (Fried et al. 2012; Harvard Medical School 2017; Harvard University 2021).

Importantly, the efficacy of this workshop was similar across in-person and virtual formats, highlighting two unique benefits of this workshop. First, in an educational landscape transformed by COVID-19, these findings support safe, distanced learning of these topics in an effective manner. Second, remote facilitation of this curriculum allows for better institutional collaboration and expansion of these materials, as workshops can be offered by external preceptors in other institutions or locations. This can reduce administrative barriers unique to the in-person environment (i.e. finding comfortable faculty available for in-person facilitation) and ensure better access for all students, independent of their medical school.

The similar efficacy of this workshop across virtual and in-person deliveries aligns with myriad research demonstrating the value of remote medical education. In continuing medical education, distance-learning has become fairly common, with studies demonstrating its efficacy across numerous disciplines (Curran et al. 2006; Sandhaus et al. 2020; Alpert et al. 2021). Moreover, distance-based learning appears to be similarly efficacious when compared to in-person options (Cook et al. 2008). However, there are distinct challenges when delivering virtual workshops, including time constraints, technical issues, and negative expectations that may lead to reduced efficacy (O'Doherty et al. 2018). To mitigate these, institutions should disseminate strategies for optimizing virtual workshops and provide compensation for the time needed to design and facilitate successful virtual workshops.

Limitations to this study include its single institution design, use of a survey tool that – although previously used and published – has not been validated externally, and a lack of sufficient power to assess the relationship between non-binary gender and microaggressions. Given anecdotal examples of microaggressions that target gender-nonconforming and non-binary people, we suggest further studies to better characterize this phenomenon. Beyond racial and gender identity, microaggressions can be based on myriad marginalized identities. Furthermore, we acknowledge that this workshop addresses microaggressions as they manifest in the US and other Western nations and may not be fully generalizable to other contexts. Future iterations of this workshop should address bias along other axes of identity including religion, disability, socioeconomic status, and others. Finally, this study assessed self-reported changes in knowledge and attitudes rather than changes in behavior. Future assessments of this workshop could incorporate longitudinal follow-up of students to assess whether behavior change in clinical settings occurred and if the effects of this workshop persisted over time.

Education interventions like this workshop may prove effective for addressing microaggressions and discrimination in the clinical and classroom environments in medical education. Even more importantly, institutional change is necessary so that an environment that tolerates microaggressions and discrimination is no longer acceptable. Institutions must incorporate anti-racist policies that include reporting systems and mitigation strategies for perceived fear of retribution for those who report. We must make progress in addressing discrimination and microaggressions in the clinic, so that we can better achieve equity for both our colleagues and our patients.

Glossary

Microaggression: defined by Sue et al. as 'brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional' most often targeting marginalized groups (Sue et al. 2007). In clinical settings, examples include a female trainee receiving unwanted comments about her appearance, or an under-represented in medicine (URM) student being mistaken for an interpreter or custodial staff member.

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Notes on contributors

Raquel Sofia Sandoval, Medical Student, Harvard Medical School and Harvard Kennedy School of Government, Boston, MA, USA.

Spencer Dunleavy, MSc, MSc, Medical Student, Columbia University College of Physicians and Surgeons, New York City, NY, USA.

Titilayo Afolabi, MD, Department of Medicine, Massachusetts General Hospital, Boston, MA, USA.

Jordan Taylor Said, Medical Student, Harvard Medical School, Boston, MA, USA.

Jade Connor, Medical Student, Harvard Medical School, Boston, MA, USA.

Azfar Hossain, Medical Student, Harvard Medical School, Boston, MA, USA.

Bina Kassamali, Medical Student, Harvard Medical School, Boston, MA, USA.

Tamina Kienka, Medical Student, Harvard Medical School, Boston, MA, USA.

Maahika Srinivasan, Medical Student, Harvard Medical School, Boston, MA, USA.

Anita Cheng, MD, Clinical Instructor in Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School, Beth Israel Deaconess Medical Center, Boston, MA, USA.

Daniele Ölveczky, MD, MS, Assistant Professor of Medicine, Harvard Medical School; Inclusion Officer, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA, USA.

Avik Chatterjee, MD, MPH, Physician, Boston Health Care for the Homeless Program; Associate Epidemiologist, Division of Global Health Equity, Brigham and Women's Hospital; Lecturer, Part-time, Harvard Medical School, and Assistant Professor, Boston University School of Medicine, Boston, MA, USA.

ORCID

Raquel Sofia Sandoval http://orcid.org/0000-0002-0770-4030
Spencer Dunleavy http://orcid.org/0000-0002-0196-2143

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