



## AOA Critical Issues in Education

# Perceptions of Racial and Gender Microaggressions in an Academic Orthopaedic Department

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**Background:** Orthopaedic surgery consistently ranks last among all medical specialties in diversity and inclusion. While active efforts have recently been implemented to enact change, no study to date has explored the potential effects that social microaggressions have on an individual's career in orthopaedic surgery. The primary aim of this study was to investigate the influence of the perceived experiences of gender and race-based microaggressions on orthopaedic surgery residents, fellows, and attendings in their decision to pursue a career in orthopaedic surgery.

**Methods:** A 34-question institutional review board–approved, modified version of the validated Racial and Ethnic Minorities Scale and Daily Life Experiences survey was sent to a total of 84 individuals at the University of Miami (UM) Department of Orthopaedics. Responses were anonymously collected from current UM orthopaedic residents, fellows, and attendings. Survey results were analyzed for the prevalence of microaggressions in the context of sex, race, ethnicity, academic goals, daily scenarios, and department support. p-Values less than 0.05 were considered statistically significant.

**Results:** Fifty-four of 84 respondents (64%) completed the survey. Female respondents experienced significantly more gender-based microaggressions than male respondents. On average, male participants disagreed that their experiences with microaggressions made them doubt their ability to pursue a career in orthopaedic surgery while female participants responded they were neutral. In comparison with their White counterparts, non-White and Hispanic ethnicity participants demonstrated a statistically significantly greater frequency of race and ethnicity-based microaggressions.

**Conclusion:** Our study demonstrates that female participants, non-White participants, and Hispanic minorities across all levels of training experience a higher frequency of microaggressions. The impact of these experiences on career decisions and goals for women and persons of color in orthopaedic surgery at this single institution is mixed. Experienced microaggressions should be further investigated as a potential barrier to recruitment and retention of under-represented minorities in orthopaedic surgery.

**Level of Evidence:** III

### Introduction

Microaggressions are subtle behaviors which arise from unconscious bias, covert prejudice, or hostility that can be

categorized into 3 groups: microassaults, microinsults, and microinvalidations. Despite their subtlety, the frequency and severity at which microaggressions are experienced by an individual act as a

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TABLE 1 Demographics of Survey Participants

	Percent % (n)
Total respondents	54
Race	
White	81.5 (n = 44)
Non-White	18.5 (n = 10)
Asian	13.0 (n = 7)
Black or African American and Asian	3.7 (n = 2)
White and Black or African American	1.9 (n = 1)
Sex	
Female	20.4 (n = 11)
Male	77.8 (n = 42)
Nonbinary/third gender	1.9 (n = 1)
Ethnicity	
Hispanic or Latino origin	25.9 (n = 14)
Non-Hispanic or Latino origin	74.1 (n = 40)
Career status	
Attending	53.7 (n = 29)
Fellow	3.7 (n = 2)
Orthopaedics resident	42.6 (n = 23)
Age, years	
20-29	18.5 (n = 10)
30-39	38.9 (n = 21)
40-49	16.7 (n = 9)
50-59	9.3 (n = 5)
60-69	9.3 (n = 5)
70+	7.4 (n = 4)

chronic stressor, causing physical and psychological dysfunction<sup>1</sup>. The cumulative effects of microaggressions can lead to feelings of social exclusion and negative psychological impact that is indiscriminate to a particular level of training or medical specialty<sup>2</sup>.

Previous studies on the prevalence and nature of microaggressions in medicine consistently demonstrate that microaggressions are experienced at a higher frequency in women, members of the lesbian, gay, bisexual, transgender and queer community, and persons of color<sup>3-10</sup>. Despite this growing evidence, there are few studies that examine the impact of microaggressions on learner's experience and career satisfaction, decisions, or goals<sup>3</sup>.

Although diversity is slowly improving across surgical residencies, orthopaedic surgery programs in the United States continue to lag behind. In fact, every year from 2012 to 2020, orthopaedic surgery demonstrates the lowest annual growth rate of women residents and residents from under-represented minority groups compared with other surgical specialties such as urology, general surgery, otolaryngology, plastic surgery, and vascular surgery<sup>11</sup>. We wondered whether the prevalence of perceived microaggressions paralleled this disparity.

By using a modified version of the validated Racial and Ethnic Minorities Scale (REMS) and Daily Life Experiences Survey, our study investigates the frequency of experienced or perceived microaggressions in orthopaedic surgery and their

effects on one's orthopaedic surgery career. Ultimately, study findings may provide insight into current perceptions that may be hindering improvement of diversity within orthopaedic surgery on a local and national scale.

## Methods

### Microaggression Survey Design

An institutional review board–approved (IRB20211236) anonymous 34-question multiple-choice online survey was created by combining a modified version of 2 validated surveys that assess perceptions of racial microaggressions by minorities: the REMS and Daily Life Experiences survey<sup>1,12</sup>. Not all questions from the original sources were used. Selected questions were also recontextualized to address situations related to orthopaedic surgery training. In addition to basic demographic information, participants were asked to indicate the categorical frequency in which they experienced certain scenarios involving microaggressions directly related to their race and sex in the past 6 months to 1 year. These categorical responses were scaled from 1 to 5, with 1 indicating that the scenario was not experienced and 5 indicating that the scenario was experienced very frequently (10+ times). Questions on gender-based scenarios were adapted from those that were race-based. In addition, participants were asked to rate their level of agreement toward statements related to how might their experienced microaggressions have influenced their career on a scale of 1 to 5, with 1 indicating strong disagreement and 5 strong agreement. Questions specifically addressed the degree of feeling supported by their respective departments and the impact of microaggressions on one's pursuit of academic and/or professional goals, specifically in orthopaedic surgery (See Appendix A, <http://links.lww.com/JBJSOA/A542>).

### Survey Distribution

The survey was distributed through institution email to all attendings, fellows, and residents who were active members of the orthopaedics department at the University of Miami Miller School of Medicine between January 2022 and March 2022. Consent was obtained from participants before initiating the survey. Compensation for participation was not provided.

### Data Collection and Analysis

Anonymous survey responses were collected using *Qualtrics*, a secure, Health Insurance Portability and Accountability Act-certified research data management platform.

Subgroup analyses were performed by stratifying by race, sex, Hispanic ethnicity, career level, and age. Independent T-tests were used to detect significant differences in survey responses to questions on microaggressions based on race, sex, and Hispanic ethnicity. The nonbinary/third gender response was not included in statistical analysis because of insufficient response in this category. Analysis of variance was used to analyze career level and age.

## Results

### Participant Demographics

At the time the survey was sent out, the department predominantly constituted of men and of White race across

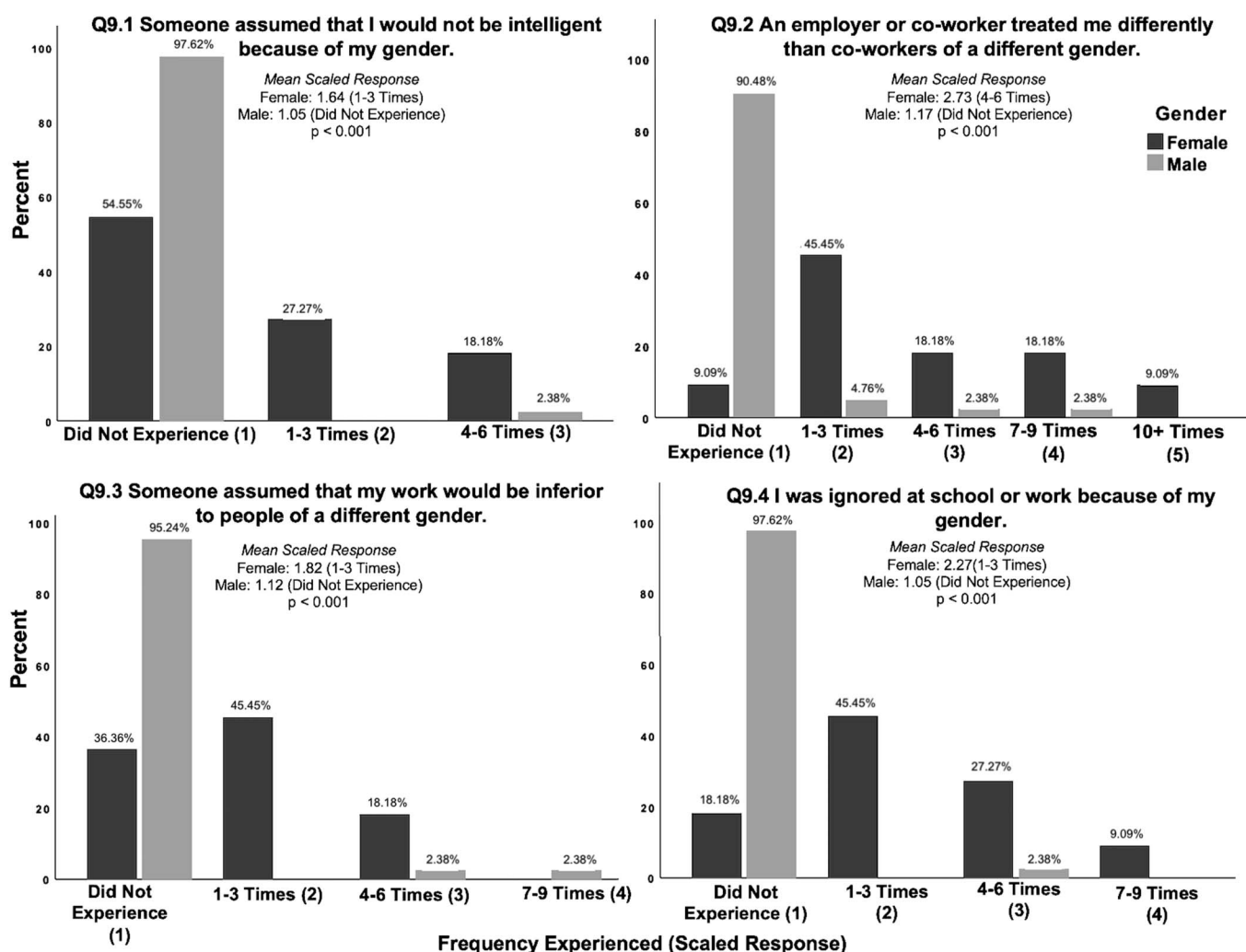


Fig. 1  
Frequency of experienced gender-based microaggressions by female versus male participants.

all career levels including residents (82.8% men, 74.2% White), fellows (85.7% men, 57.1% White), and faculty (78.1% men, 81.3% White). In total, 54 of 84 respondents (64%) completed the anonymous survey. Participants were majority White (81.5%), non-Hispanic (74.1%), and male (77.8%) of attending-level career status (53.7%) aged between 30 and 39 years (38.9%) (Table 1). There was no further follow-up with the 30 of 84 nonrespondents.

### Sex

Overall, female participants experienced a significantly greater average frequency of gender-based microaggressions compared with male participants. On average, female participants reported that their intelligence was perceived by others to be lesser than their male counterparts because of their sex 1 to 3 times in the past 6 months (Fig. 1, Q9.1). Female participants reported a similar average frequency when asked how often they were made to feel inferior to the opposite sex and overlooked or ignored for their professional opinions. On average, female participants also

felt they were treated differently by an employer or coworker compared with the opposite sex 4 to 6 times in the past 6 months of taking the survey (Fig. 1, Q9.2). By contrast, male participants reported an average frequency of zero (or “did not experience”) for each respective scenario (Fig. 1). The distribution of how frequently a female participant experienced these scenarios varied. Male responses trended inversely to the frequency at which these microaggressions were experienced (Fig. 1).

### Race and Ethnicity

Participants of Hispanic ethnicity indicated that they experienced others showing surprise at their scholastic success or feeling that others assumed they were less intelligent or had a lower paying job because of their race 1 to 3 times in the past 6 months (Fig. 2, Q8.1, 8.2, 8.3, respectively). This was significantly greater than the zero frequency reported among non-Hispanic individuals for the same scenarios (Fig. 2). There were zero non-Hispanic/Latino respondents who experienced these microaggression scenarios up to 4 to 6 times (Fig. 2).

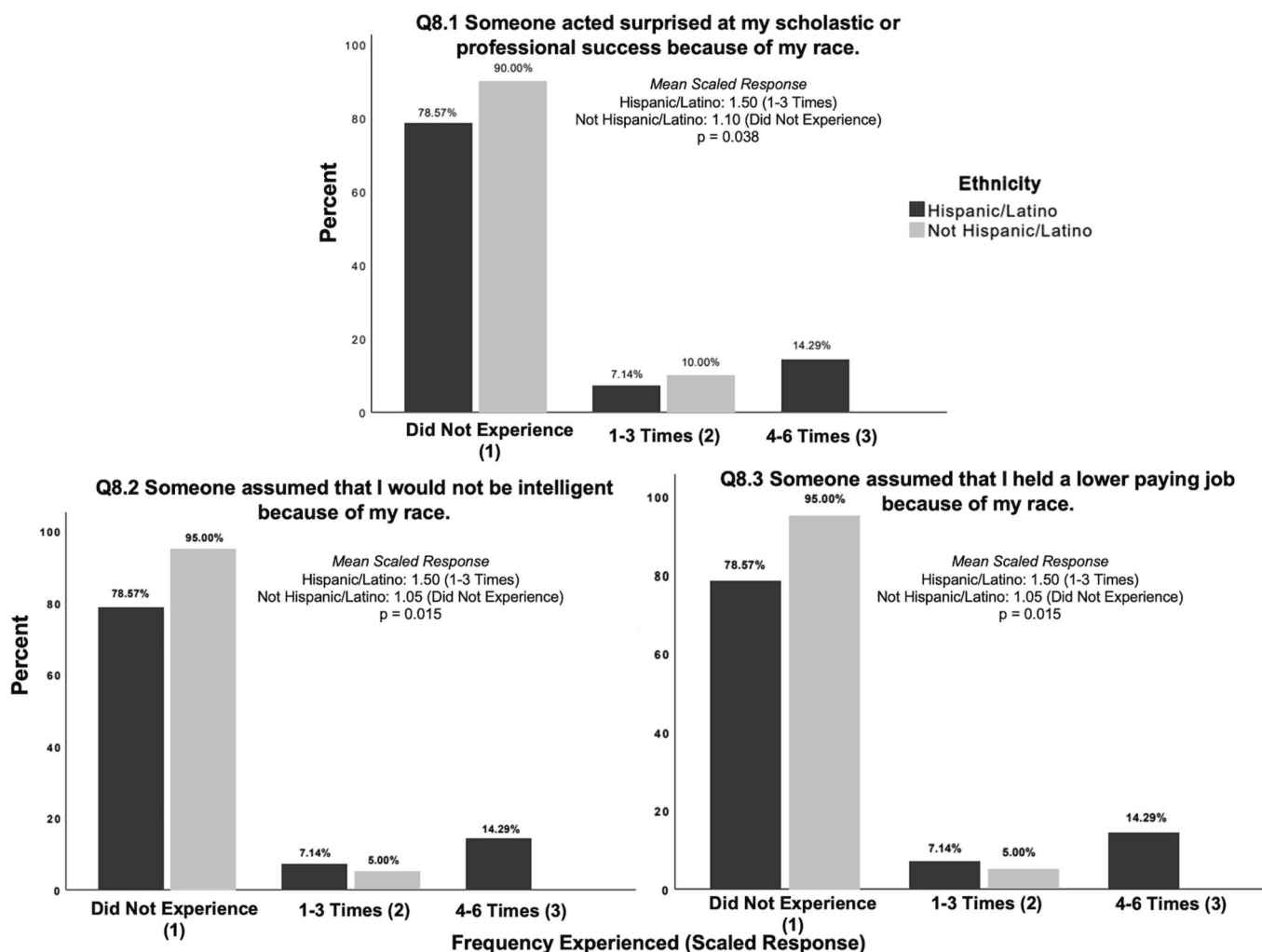


Fig. 2 Frequency of experienced race-based microaggressions by Hispanic/Latino participants versus non-Hispanic/Latino participants.

On average, non-White participants indicated that they experienced being told by their peers that people of color no longer experience racism or that all obstacles are indistinct to racial groups 1 to 3 times in the past 6 months from taking the survey (Fig. 3, Q8.6). Of a similar average frequency, non-White participants felt ignored at school or work because of their race and felt being treated differently than White coworkers (Fig. 3, Q8.11 and 8.13, respectively). White participants reported a zero average frequency for the respective scenarios (Fig. 3). This difference was statistically significant. The percentage of White respondents trended inversely to the frequency at which these scenarios were experienced, whereas the distribution among non-White respondents was varied (Fig. 3).

**Academic and Career Goals**

There were significant gender differences for scenario questions related to the effect of microaggressions on academic goals and career goals and support and protection from the

department. Regardless of race, female participants felt discouraged in pursuing their academic or educational goals a few times compared with less than once for male participants in the past 6 months (Fig. 4, Q10.1). Female participants also felt less supported or accepted in their academic or career pursuits a few times in the past 6 months compared with that of non-minority male peers, who on average indicated they had never experienced any of these scenarios (Fig. 4, Q10.2). The percentage of male respondents trended inversely to the frequency at which these scenarios were experienced. The distribution among female respondents was varied (Fig. 4). Male respondents on average agreed that their department chair would respond appropriately to instances of gender discrimination while female respondents remained neutral (Fig. 4, Q7.2). Finally, when asked whether their perceived and/or experienced microaggressions affected their confidence in ability to pursue an orthopaedic surgery career, male respondents on average “disagreed” while female respondents indicated a “neutral” stance (Fig. 5). There were no major differences in

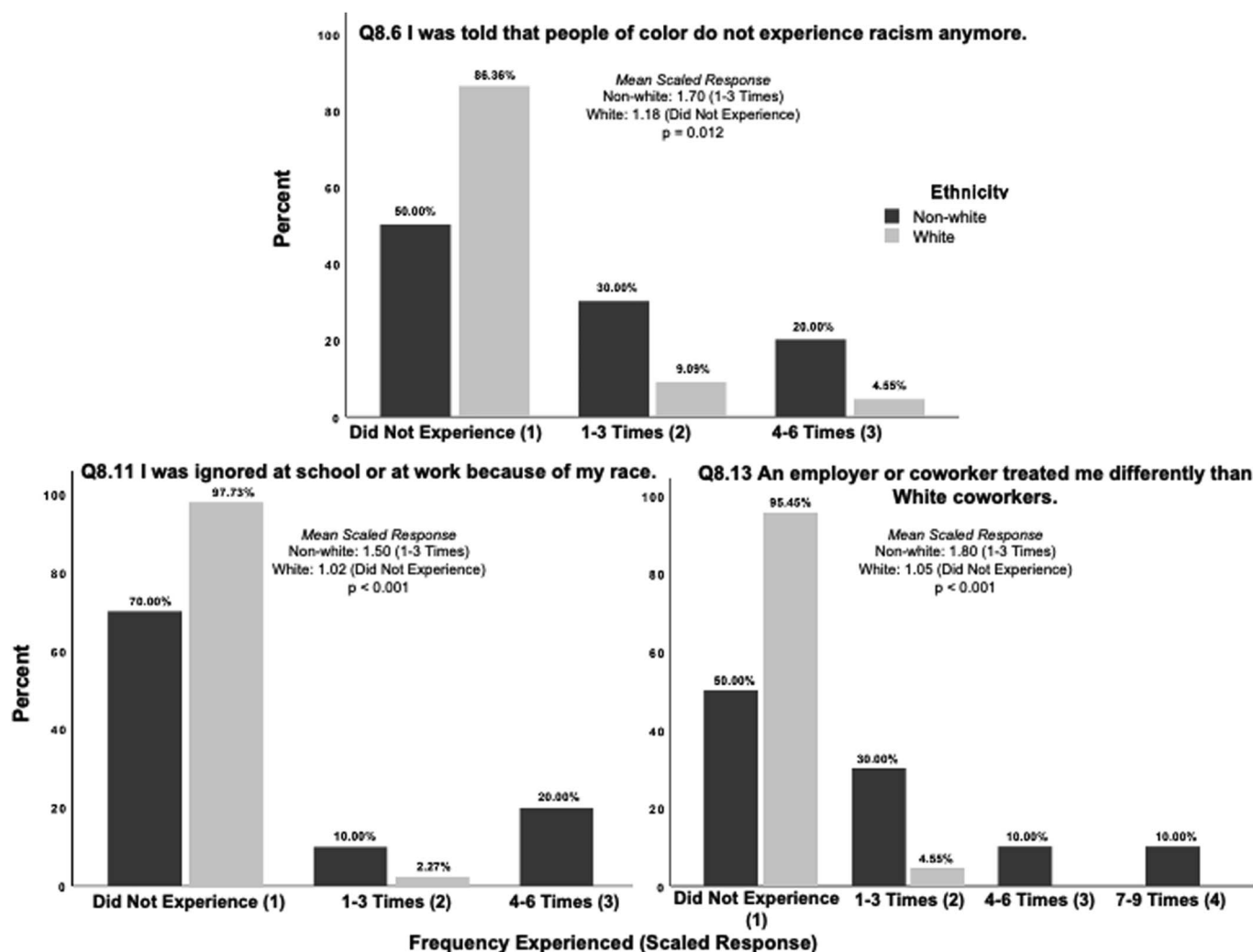


Fig. 3

Frequency of experienced race-based microaggressions by White versus non-White participants.

response to career-related scenarios among different career status or age groups.

## Discussion

Orthopaedic surgery has been one of the slowest surgical subspecialties to improve in gender and ethnic diversity<sup>11,13</sup>. Using a longitudinal survey database, Haffner et al. found that from 2012 to 2020, female representation in other surgical specialty residencies increased from 28% to 33% while that in orthopaedic residency remained stagnant at 16% every year<sup>11</sup>. In a similar fashion, other surgical specialties experienced a 1.6% growth in under-represented minority representation, reaching a total of 9.7% in 2020. Comparatively, 7.7% of all orthopaedic residents were from under-represented minority groups<sup>11</sup>. Furthermore, in 2019, only 6.5% of American Academy of Orthopaedic Surgeons (AAOS) membership was represented by female participants, a 2.5% increase from 10 years ago<sup>14</sup>. McDonald et al. also revealed that retention of

under-represented minorities in the field is also poor, reporting that 17.5% of orthopaedic residents who resigned and/or were dismissed in the past decade were from these groups<sup>15</sup>. Studies have identified barriers to orthopaedic trainee recruitment and retention including lack of representation in leadership, sexual harassment, and perceptions of diversity in the field<sup>15-18</sup>. In one study by Balch Samora et al., the authors found that only 58% of surveyed AAOS members reported that they felt their workplaces could effectively manage behaviors regarding discrimination, bullying, sexual harassment, and harassment<sup>19</sup>. Although microaggressions toward these excluded groups have been shown to be prevalent and pervasive throughout surgical subspecialties, especially those that are male-dominant, there are few studies that examine their impact on career satisfaction, decisions, or goals<sup>3,11</sup>.

Similar to the existing studies, the results of our analysis demonstrate that female participants and non-White minorities across all levels of training experience a significantly higher

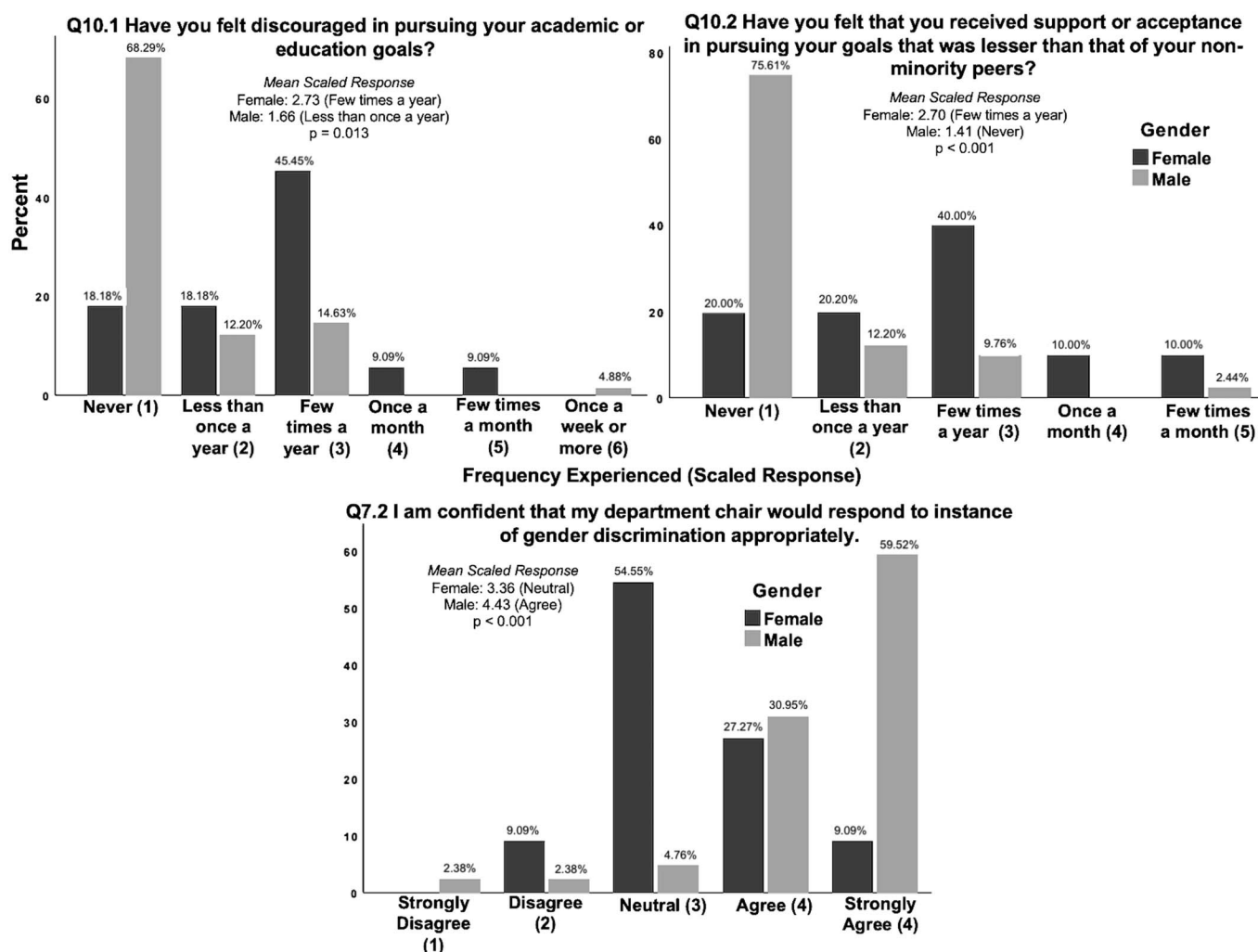


Fig. 4 Frequency of experiencing the negative impacts of gender-based microaggressions as it relates to pursuing academic goals or receiving institutional support or acceptance by female versus male participants.

frequency of microaggressions compared with their White, male counterparts<sup>3-10,20,21</sup>. Quantifying the impact of these disproportionate experiences on respective careers, however, is less straightforward.

The makeup of the orthopaedic surgery department surveyed is predominantly male and White at all levels of training. Overall, our female participants responded that they experienced discouragement in their academic goals, career goals, and support and protection from the department significantly more frequently than male participants on average. Perhaps, one of our most notable findings was that the average female participant was “neutral” toward the statement that their experiences with gender-based microaggressions have or had made them doubt their ability to pursue a career in orthopaedic surgery. The subtle difference between a female individual choosing “neutral” over “disagree” may signify the inability to completely refute the belief that microaggressions affected their career pursuits, unlike the 75% of male participants who either

“strongly disagreed” or “disagreed.” Understanding the reasons why female respondents remained neutral to these statements lies beyond the scope of this study and should be further explored to better understand the nuanced effects of microaggressions in medicine. Nonetheless, this finding highlights an important gender difference in how individuals might feel supported, or not, and thus more confident in their personal ability to pursue orthopaedic surgery. In the context of our other findings, it is reasonable to conclude that part of this difference is related to the effects of one’s experience with microaggressions over time.

Quantification and characterization of the challenges that women and persons of color in orthopaedics face can lead to a better understanding for all in the field and allow to analyze the root cause of problems in diversity to be identified<sup>18,22</sup>. Although recruitment was not the subject of this study, our results infer that microaggressions may be one of these root problems and should be further investigated. Individuals from

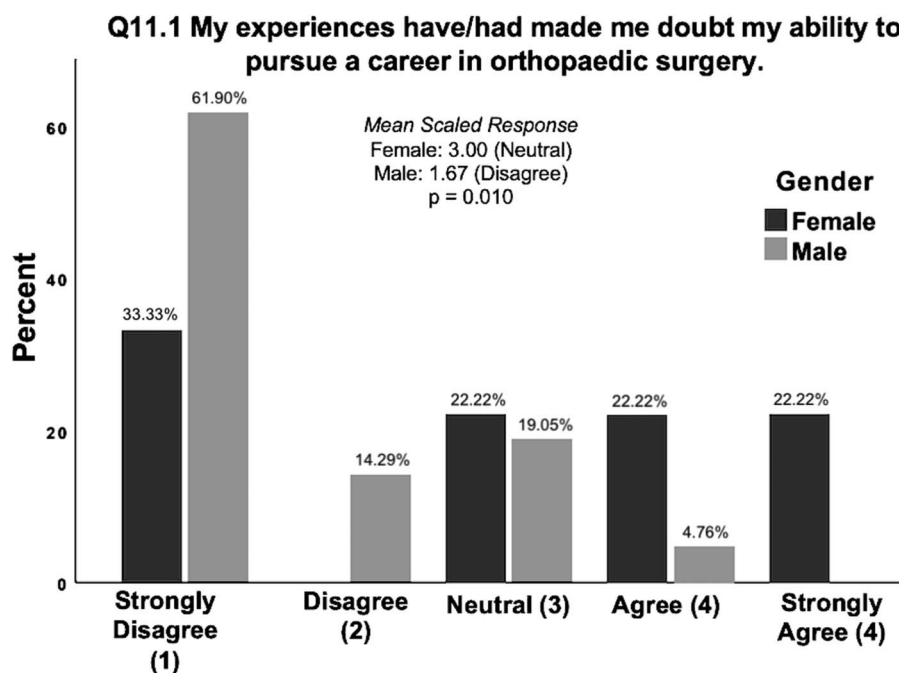


Fig. 5  
 Frequency of male versus female participants responding on a scale from “strongly disagree” to “strongly agree” to statements about how experienced microaggressions influenced self-doubt as it relates to pursuing academic goals.

the target, perpetrator, and bystander roles should be educated on what constitutes a microaggression and how these words can be detrimental in self-esteem, mental health, and productivity<sup>23</sup>. With the recent, robust push for diversity in orthopaedic organizations such as Speakuportho, Pride Ortho, International Orthopaedic Diversity Alliance, the J. Robert Gladden Orthopaedic Society, the American Academy of Latin Orthopaedic Surgeons, the Black Women Orthopaedic Society, and Nth Dimensions, a space has been opened to allow for frank, candid conversations regarding hostility, bullying, and microaggressions in the workplace<sup>24-30</sup>.

Finally, we must also yield interest in these subjects from individuals who belong to dominant social groups such as White, heterosexual men<sup>23</sup>. These groups represent a potential source of allies, who are an important component in disarming racial microaggressions. In addition to refraining from these behaviors, allies actively promote the rights and experiences of those in the minority and, in turn, validate and support the targets of microaggressions<sup>23</sup>. Although our study does not assess the motivations for participation, the fact that over 70% of our respondents were White, non-Hispanic male may signify an interest and willingness to learn about minority experiences, a step for positive changes.

### Limitations


Our study is not without limitations. First, this investigation and its findings are reflective of the experience and department culture of a single, urban-based institution. The survey respondents consisted of 10 minorities and 11 women, which is a small data set affecting the results presented in the figures. Because this

survey did not use a control group, the findings cannot be generalized to other surgical departments within the same institution, nor to orthopaedic departments at other institutions. In addition, our study did not have representation from individuals who identify as nonbinary/third gender. The modest sample size was insufficient to draw conclusions between racial subgroups beyond the 2 broad categories “White” and “non-White.” This additionally limited our ability to investigate confounding factors between cross-tabulated variables. Because there were 34 respondents in the White male group and only 2 respondents in the non-White female group, differences in survey responses between majority and minority demographics were unable to be meaningfully considered. The small sample size may have also led women and racial minority participants to question the survey’s anonymity. Future iterations of this study should be conducted on a national level to capture potential differences or similarities of experienced microaggressions based on the type of institution, community populations, and geography.

### Conclusion

Our study demonstrates that women and non-White minorities across all levels of training experience a higher frequency of implicit and explicit biases in the form of microaggressions. At this single institution, the impact of these experiences on one’s confidence pursuing a career in orthopaedic surgery is mixed. Perceived or experienced microaggressions may act as a potential barrier to recruitment and retention of underrepresented minorities in orthopaedic surgery. Further studies should investigate the impact of perceived microaggressions on recruitment and retention at institutions across the country.

## Appendix

 Supporting material provided by the authors is posted with the online version of this article as a data supplement at [jbjs.org \(http://links.lww.com/JBJSOA/A542\)](http://links.lww.com/JBJSOA/A542). This content was not copyedited or verified by JBJS. ■

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