Diversity, Equity, Inclusion, and Justice

Gender Microaggressions During Virtual Residency Interviews and Impact on Ranking of Programs During the Residency Match

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ABSTRACT

Background Microaggressions are one form of gender bias contributing to gender disparities and mistreatment, but their prevalence during virtual residency interviews has not been explored.

Objective To explore applicants' recall of experiencing gender microaggressions during virtual residency interviews and whether these experiences affected programs' rank position on applicants' rank lists.

Methods Fourth-year medical students at a single institution who participated in the 2021 Match were surveyed after submitting their rank lists. Students were surveyed categorically on (1) their recall of the frequency they experienced 17 gender microaggressions during interviews, and (2) how these affected reported ranking of programs on their rank lists.

Results Sixty-one percent (103 of 170) of eligible students responded to the survey. Seventy-two percent (36 of 50) of women experienced at least one microaggression compared to 30% (9 of 30) of men. The largest difference was in the experience of environmental microaggressions, which are demeaning cues communicated individually or institutionally, delivered visually, or that refer to climate ($P<.001$). Women experienced more microaggressions than men in nonsurgical ($P=.003$) and surgical specialties excluding obstetrics and gynecology ($P=.009$). When microaggressions were experienced at 1 to 2 programs, 36% of applicants (26 of 73) reported significantly lowering program ranking, compared to 5% (1 of 19) when microaggressions occurred at more than 5 programs ($P=.038$).

Conclusions Women applicants experience more microaggressions than men do during nonsurgical and male-dominated surgical specialty residency interviews. Respondents who recalled experiencing microaggressions at fewer programs were more likely to report significantly lowering the rank of those programs compared to those who experienced them at more programs.

Introduction

Gender biases are suggested to disproportionately affect the advancement of women, especially in surgical specialties.[1-6] Failure to address them pose a barrier to improving gender diversity and may continue to perpetuate disparities.

Microaggressions are one form of gender bias defined as verbal, behavioral, and environmental exchanges that send denigrating messages to individuals because of their group membership.[7] These subtle and often unconscious discriminatory biases are difficult to detect.[7] Few studies measure discrimination during residency interviews,[8] a critical time for residency programs to bolster diversity recruitment efforts and leave lasting impressions on trainees. Multiple interactions with interviewers and indirect observations on program culture make interviews susceptible to microaggressions.[9] However, the prevalence of gender microaggressions during virtual or any type of residency interviews has not been explored. As women and underrepresented in medicine (UIM) applicants weigh diversity more than other applicants when ranking programs during the National Resident Matching Program (NRMP),[10,11] microaggressions during interviews may leave a differentially unwelcoming impression on marginalized groups.

This study aims to evaluate the prevalence and types of gender microaggressions during residency interviews and to measure their impact on applicants' reported ranking of residency programs on their rank lists. This can help residency programs improve recruitment practices for diverse applicants.

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Editor's Note: The online version of this article contains the survey used in the study and a figure of gender microaggression experience by gender and specialty.

Methods

Study Setting

We conducted a cross-sectional survey, from March 8 to April 8, 2021, of fourth-year students at a Midwestern medical school affiliated with a tertiary academic medical center. Eligible students included those who participated in the NRMP in 2021.

Study Design

The anonymous voluntary electronic survey (provided as online supplementary data) was sent to participants on March 8, 2021. Consent was implied upon survey initiation. Participants were eligible for a $10 gift card, regardless of completion.

The survey was constructed by the authors after review of published microaggression scales. Microaggression items were modified to assess for gender microaggressions from the Racial and Ethnic Microaggressions Scale, a self-report inventory with high correlation to measures of discrimination in daily interactions.[12] The survey was pretested by cognitive interviewing on 3 interns and revised for clarity and response process validity. The survey queried on (1) the frequency that respondents recalled personally experiencing 4 categories of gender microaggressions: microassaults, microinsults, microinvalidations, and environmental microaggressions during interviews; (2) how the experience of microaggressions affected their ranking of the programs where they occurred; and (3) demographics including self-reported age, biological sex, gender identity, race, and specialty.[7]

The frequency of microaggressions experienced was assessed categorically by "0," "1-2," "3-5," or ">5" independent programs where they occurred. If an applicant selected a nonzero response, they were asked how they changed their ranking of the program categorically by "did not rank," "significantly lowered," "slightly lowered," "did not change," "slightly raised," and "significantly raised."

Our primary outcome was the frequency of recalled microaggressions by gender and specialty. Surgical specialties included general surgery, neurological surgery, orthopedics, ophthalmology, otolaryngology, plastic surgery, urology, and obstetrics and gynecology (OB/GYN). Our secondary outcomes included change in program ranking by microaggression type and frequency experienced.

Statistical Analysis

Statistical analysis was performed with SPSS Statistics 27 (IBM Corp, Armonk, NY). Demographics and microaggression frequency were analyzed via chi-square and Fisher's exact tests. To assess whether the frequency of experiencing any microaggression affected reported change in ranking of a program, contingency tables were created using the categorical microaggression frequency and categorical ranking change. These tables were analyzed using the Freeman-Halton extension of Fisher's exact test. Statistical significance level was set as $P<.05$. In any case with multiple comparisons, a Bonferroni adjustment was applied. Additional analysis where OB/GYN applicants were excluded from surgical specialties was performed, as OB/GYN consists of predominantly female trainees, with studies showing significantly more gender bias in surgical specialties excluding OB/GYN compared to OB/GYN.[2]

This study was deemed exempt by the University of Michigan's Institutional Review Board.

TABLE 1
Survey Respondent Demographics

Characteristic	n (%)
Gender identity	
Male	30 (38)
Female	50 (63)
Nonbinary	0 (0)
Age	
20-25	15 (19)
26-30	58 (73)
31-35	7 (9)
Race	
White	44 (55)
Asian	11 (14)
Hispanic or Latinx or Spanish origin	5 (6)
Black or African American	2 (3)
More than one	12 (15)
Other	6 (8)
Underrepresented in medicine (UIM) status	
UIM	17 (21)
Non-UIM	63 (79)
Specialty	
Surgical	25 (31)
Nonsurgical	55 (69)

Results

Of 170 eligible students, 103 (61%) took the survey. Twenty-three surveys were excluded due to partial completion. TABLE 1 depicts respondent demographics. All self-reported gender identities aligned with reported male and female sex. No respondents reported a nonbinary gender identity. There was no difference in the distribution of women and men applying into surgical and nonsurgical specialties ($P=.49$).

TABLE 2
Recalled Frequency of Gender Microaggressions Experienced by Gender

		No. of Unique Programs Applicants Recall Experiencing Microaggressions, n (%)			
		0	1-2	3-5	>5
Gender Microassaults[a]					
Someone explicitly disregarded or devalued my comments or opinions because of my gender	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	42 (84)	6 (12)	2 (4)	0 (0)
Someone explicitly made verbal comments belittling my gender	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	45 (90)	4 (8)	1 (2)	0 (0)
I felt excluded from a conversation or interaction because of my gender	Men	27 (90)	2 (7)	0 (0)	0 (0)
	Women	46 (92)	3 (6)	1 (2)	0 (0)
Someone explicitly mentioned that my gender underperforms compared to other genders	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	49 (98)	1 (2)	0 (0)	0 (0)
Gender Microinsults[b]					
Someone acted surprised at my scholastic or professional success because of my gender	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	48 (96)	1 (2)	1 (2)	0 (0)
Someone made a comment about my interview attire that made me feel uncomfortable	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	49 (98)	1 (2)	0 (0)	0 (0)
Someone implied my success was attributed to equity initiatives to achieve gender parity	Men	29 (97)	1 (3)	0 (0)	0 (0)
	Women	50 (100)	0 (0)	0 (0)	0 (0)
Gender Microinvalidations[c]					
Someone said they do not see gender	Men	28 (93)	1 (3)	1 (3)	0 (0)
	Women	45 (90)	4 (8)	1 (2)	0 (0)
Someone said that people should not think about gender differences anymore	Men	29 (97)	1 (3)	0 (0)	0 (0)
	Women	44 (88)	6 (12)	0 (0)	0 (0)
Someone said that people do not experience sexism anymore	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	50 (100)	0 (0)	0 (0)	0 (0)
Someone said that I should not complain about gender	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	49 (98)	1 (2)	0 (0)	0 (0)
Someone said that all genders experience the same obstacles	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	48 (96)	2 (4)	0 (0)	0 (0)
Someone said not to be too sensitive about gender issues	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	48 (96)	1 (2)	1 (2)	0 (0)
Environmental Microaggressions[d]					
I did not observe faculty/trainees of my gender portrayed positively	Men	28 (93)	1 (3)	0 (0)	1 (3)
	Women	41 (82)	7 (14)	1 (2)	1 (2)
Contributions of residents/faculty of my gender were not featured at the institution	Men	30 (100)	0 (0)	0 (0)	0 (0)
	Women	39 (78)	7 (14)	3 (6)	1 (2)
People of my gender were not represented in leadership positions at the institutions	Men	29 (97)	1 (3)	0 (0)	0 (0)
	Women	30 (100)	11 (22)	6 (12)	3 (6)
Specific health care needs and benefit options important to my gender were not discussed	Men	27 (90)	2 (7)	1 (3.3)	0 (0)
	Women	23 (46)	9 (18)	9 (18)	9 (18)

[a] Conscious, deliberate, and either subtle or explicit gender biased attitudes, beliefs, or behaviors that are communicated to marginalized groups through cues, verbalizations, or behaviors meant to attack the group identity of the person and hurt/harm the intended victim.
[b] Interpersonal or environmental communications that convey stereotypes, rudeness, and insensitivity that demean a person's gender identity, including subtle snubs frequently outside conscious awareness of the perpetrator, but convey hidden insulting messages to the victim.
[c] Communications that exclude, negate, or nullify the psychological thoughts, feelings, or experiential reality of a group.
[d] Demeaning and threatening social, educational, political, or economic cues that are communicated individually, institutionally, or societally to marginalized groups and may be delivered visually and may refer to climate.

TABLE 3
Reported Change in Program Ranking for Students Who Recall Experiencing Any Gender Microaggression at Varying Frequencies

No. of Unique Programs at Which Applicants Recall Experiencing Microaggressions	Reported Change In Program Ranking			
	Significantly Lowered Ranking	Slightly Lowered Ranking	Did Not Change Ranking	Chi-Square, *P* Value
1-2	26	20	27	X^2 (4, n=116) = 10.16, *P*=.038
3-5	3	9	12	
>5	1	7	11	

Seventy-two percent of women (36 of 50) experienced one or more gender microaggressions during at least one program interview, compared to 30% of men (9 of 30; 95% CI 0.21-0.63; $P<.001$). The most commonly experienced type of microaggression was environmental. TABLE 2 shows the frequency, types, and definitions of microaggressions experienced.

There was no difference in the frequency of microaggressions experienced between women applying into surgical and nonsurgical specialties. The difference in the frequency of microaggressions experienced between women and men was significant for those applying into both nonsurgical specialties (95% CI 0.18-0.67, $P=.003$) and surgical specialties only when excluding OB/GYN applicants (95% CI 0.29-0.96, $P=.009$; online supplementary data).

No specific microaggression was associated with a significant change in how applicants ranked programs. When microaggressions were experienced at only "1-2" programs, more applicants reported lowering the ranking of the program compared to when they occurred at ">5" programs (TABLE 3).

Discussion

We found that women experienced more microaggressions than men during virtual residency interviews, with the most commonly experienced microaggression type being environmental. Respondents who reported experiencing microaggressions at fewer programs were more likely to report lowering the ranking of those programs compared to those who experienced microaggressions at more programs. These findings suggest that applicants experience environmental microaggressions, and there may exist a frequency limit to the effect that microaggressions have on how applicants rank programs.

Our work is consistent with literature on the pervasiveness of microinequities against women.[1,2,4,5] Our findings confirm that gender microinequities occur even before medical students become residents and suggest that they are not specific to surgical specialties. Especially as environmental microaggressions related to gender representation were the most frequently reported, programs across all specialties should ensure that faculty and residents interviewing applicants represent diverse identities and are trained to address the concerns of diverse applicants.

No specific microaggression was associated with a change in how applicants ranked programs. Santen et al also found that, while a majority of students were asked at least one discriminatory question during interviews, they did not report changes in program ranking.[8] Applicants may be willing to overlook microaggressions when constructing their rank lists in order to optimize their chances of matching. Our data add that programs committing microaggressions, when others do not, may stand out negatively to applicants and rank lower.

Our study has several limitations. This was a single institution study with a response rate of approximately 60%. However, respondent demographics were representative of the institution's student demographics (61.5% female-identifying, 38.2% male-identifying, and 0.26% nonbinary[13]). The ability to analyze the intersectional experience of microaggressions as it relates to gender and race was limited by statistical power when looking at both gender and UIM status. Furthermore, the nature of data collection makes the study susceptible to recall bias.

Future studies should reexamine microaggressions when interviews resume in-person. Furthermore, multiple components of identity interact to inform an individual's gender experience,[14] and future studies should explore intersectionality.

Conclusions

Our study demonstrates that women applicants to residency programs report experiencing more gender microaggressions than men do during virtual interviews, with a majority being environmental. When recalling microaggressions at fewer programs, more applicants reported lowering their ranking of the programs on their rank lists compared to applicants who recalled experiencing them at more programs.

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