#MedicineToo—Gender Bias in Medical Training: A National Survey of Residents

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INTRODUCTION

Gender bias and sexual harassment are ongoing issues in the American workforce, with recent widespread public attention drawn by the "Me Too" movement. Despite this well-known problem, little is known about the current prevalence and impact of gender discrimination in healthcare.

A 1995 study of US medical school faculty found that half of female faculty experienced gender discrimination or sexual harassment in the academic environment.[1] Another 2005 survey demonstrated that these experiences begin early in training, with nearly 90% of fourth-year medical students having experienced, observed, or heard about at least one incident of gender discrimination or sexual harassment.[2]

This is the first study to characterize the prevalence, experiences, and effects of gender bias within US medical training using a national cohort of all specialties.

METHODS

A survey was developed based on previous gender studies and was iteratively revised for clarity and validity through pre-piloting and piloting phases with representative groups.[1–5] The survey was distributed via email to the designated institutional officials (DIOs) of all 858 ACGME sponsoring institutions (SIs). Survey responses were categorized into three cohorts: female, male, and gender non-binary. Any response without a gender was removed from analysis ($N = 28$). Responses were assigned an ordinal value and statistical analyses were performed using two-sample t tests assuming unequal variances. For specialty-specific analyses, responses were categorized into surgery, internal and family medicine, pediatrics, psychiatry, neurology, obstetrics and gynecology, and all remaining specialties.

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Table 1 Demographic Characteristics of All Respondents and Comparative Data on US Residents in Allopathic Medicine

		Number (%)	Percentage of all US residents
Primary training specialty	Anesthesiology	141 (5)	5
	Child neurology	20 (1)	1
	Dermatology	30 (1)	1
	Diagnostic radiology	88 (3)	4
	Emergency medicine	129 (5)	6
	Family medicine	321 (12)	9
	Internal medicine	655 (24)	20
	Internal medicine-pediatrics	57 (2)	1
	Interventional radiology	9 (1)	1
	Neurological surgery	21 (1)	1
	Neurology	66 (2)	2
	Obstetrics and gynecology	113 (4)	4
	Ophthalmology	24 (1)	1
	Oral and maxillofacial surgery	7 (1)	Not listed
	Orthopedic surgery	69 (2)	3
	Otolaryngology	26 (1)	1
	Pathology	64 (2)	2
	Pediatrics	357 (13)	7
	Physical medicine and rehabilitation	40 (1)	1
	Plastic surgery	23 (1)	1
	Preventive medicine	14 (1)	1
	Psychiatry	163 (6)	4
	Radiation oncology	12 (1)	1
	General surgery	166 (6)	6
	Thoracic surgery	1 (1)	1
	Transitional year	33 (1)	1
	Urology	31 (1)	1
	Vascular surgery	9 (1)	1
	Not listed	69 (2)	N/A
	Decline to state	11 (1)	N/A
Race/ethnicity	American Indian or Alaskan Native	22 (1)	1
	Asian, Native Hawaiian or other Pacific Islander	496 (18)	18
	Black or African American	124 (4)	4
	Hispanic, Latino, or Spanish	223 (8)	5
	Middle Eastern or Northern African	120 (4)	Not listed
	White	1858 (67)	43
	Unknown/not listed	40 (1)	30
	Decline to state	75 (3)	N/A
Gender	Male	1090 (39)	53
	Female	1631 (59)	43
	Non-binary	20 (1)	Not listed
	Decline to state	28 (1)	3
Sexual orientation	Asexual	6 (1)	
	Bisexual	82 (3)	
	Heterosexual	2507 (91)	
	Homosexual	100 (4)	
	Pansexual	17 (1)	
	Queer	15 (1)	
	Not listed	5 (1)	
	Decline to state	37 (1)	

Table 2 Summary of Responses Assessing Gender Bias Experience

Summary of all responses to the survey question "Within your workplace, how often have you experienced any of the following behaviors?" organized by gender identity

		Never (1)	Rarely (2)	Sometimes (3)	Frequently (4)	All the time (5)	Ordinal average (99% CI)
Q1: "Been treated differently based on your gender?"**	Female	7%	19%	44%	24%	5%	3.02 (2.96–3.08)
	Male	43%	28%	20%	7%	2%	1.97 (1.89–2.05)
	Non-binary	45%	15%	15%	15%	10%	2.30 (1.50–3.10)
Q2: "Been treated differently based on your sexual orientation?"**	Female	2%	9%	89%	0%	0%	1.14 (1.11–1.17)
	Male	84%	9%	5%	1%	0%	1.24 (1.19–1.29)
	Non-binary	45%	30%	15%	5%	5%	1.95 (1.29–2.61)
Q3: "Been denied by a patient to provide care?"	Female	49%	42%	9%	0%	0%	1.61 (1.57–1.65)
	Male	47%	36%	16%	1%	0%	1.72 (1.66–1.78)
	Non-binary	65%	10%	20%	5%	0%	1.65 (1.08–2.12)
Q4: "Received uncomfortable remarks about your appearance?"**	Female	16%	28%	41%	13%	3%	2.58 (2.52–2.64)
	Male	53%	31%	14%	2%	0%	1.66 (1.60–1.72)
	Non-binary	50%	20%	20%	10%	0%	1.90 (1.28–2.52)
Q5: "Received uncomfortable remarks about my family planning?"**	Female	31%	26%	30%	10%	2%	2.26 (2.19–2.33)
	Male	74%	17%	6%	2%	1%	1.38 (1.32–1.44)
	Non-binary	70%	15%	10%	0%	5%	1.55 (0.95–2.05)
Q6: "Received sexist comments or jokes?"**	Female	19%	31%	38%	10%	2%	2.46 (2.40–2.52)
	Male	63%	23%	11%	2%	1%	1.56 (1.49–1.64)
	Non-binary	65%	10%	10%	10%	5%	1.80 (1.06–2.54)
Q7: "Received unwanted sexual advances?"**	Female	46%	33%	17%	3%	1%	1.79 (1.73–1.85)
	Male	69%	22%	7%	1%	0%	1.42 (1.36–1.48)
	Non-binary	65%	20%	10%	0%	5%	1.60 (1.00–2.20)

Proportion of respondents agreeing with the statement "The bias that I have experienced has…"

	Female	Male	Non-binary
Increased my feelings of burnout as a physician**	39%	13%	66%
Continues to surprise me when it happens**	44%	39%	33%
Sometimes made me question my decision to become a physician**	11%	6%	33%
Sometimes made me question my decision to pursue further training**	11%	6%	33%
Limited my success as a physician**	15%	8%	33%
Happens to me more than it happens to my peers**	25%	14%	33%

**$p < 0.01$

RESULTS

In total, 142 DIOs agreed to participate, generating 2769 responses. A total of 1090 respondents identified as male, 1631 as female, and 20 as gender non-binary (Table 1). Due to the small sample size, non-binary gender responses are reported but not individually analyzed. Female respondents were significantly more likely to report being treated differently based on gender (93% vs 53%), and these responses were notably more negative. Females were more likely to report receiving uncomfortable remarks about their appearance (84% vs 48%) or family planning (69% vs 27%). Female respondents were also more likely to report receiving sexist comments or jokes (85% vs 36%), or unwanted sexual advances within the workplace (54% vs 33%). Almost half of females (44%) reported that they most frequently experience gender bias from both patients and fellow healthcare professionals (Table 2). There were no differences between the entire population and any of the specialty cohorts except that males in pediatrics and obstetrics and gynecology were more likely to report feeling that they are treated differently based on gender (71% vs 53%, and 83% vs 53%, respectively).

When asked about the effect of these biases, nearly three times as many female respondents reported increased feelings of burnout (37% vs 13%). Similarly, nearly twice as many female respondents reported questioning their decision to become a physician (11% vs 6%), whether to pursue further training, and that their success has been limited (15% vs 8%) as a result of these biases. Finally, female respondents felt that these biases happen to them more than their peers (25% vs 13%) (Table 2).

DISCUSSION

These data highlight the disproportionate gender biases experienced by female trainees across all specialties and their harmful perceived effects. The correlation between gender, bias, and negative work experience is particularly concerning as physician burnout has been associated with depression, suicidal ideation, substance abuse, and medical errors.

Although these results represent trainees from 142 institutions from nearly all 50 states, there is nevertheless sampling bias reflected by the greater proportion of female respondents. As a result, there is inevitable non-response bias that may limit the generalizability. Additionally, participants may have responded to this survey when they have experienced gender bias, potentially overestimating the actual prevalence.

However, this does not diminish the significant differences reported between genders.

Our results demonstrate prevalent, systemic gender issues, which, based on prior literature, have been common in medicine for years[1, 2]. We believe that these issues have persisted because there has yet to be a purposeful and unyielding stance against gender discrimination in academic medicine. It is the responsibility of individual institutions and the ACGME not only to develop and enforce strict policies against gender bias and harassment but to also promote cultural change that empowers trainees of every gender to speak up for themselves and for others.

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