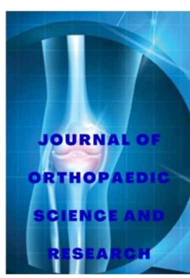

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Research Article

Exploring Gender Differences in Perceived Barriers to Advancement in Orthopaedic Surgery: A Cross-Sectional Survey

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Abstract

Background: Studies have documented structural and cultural barriers to women's advancement in orthopaedic leadership, but few have compared how practicing women and men in orthopaedics perceive leadership-related barriers. The goal of the present study was to compare gender-based perceptions of barriers to leadership advancement.

Methodology: We conducted a cross-sectional survey of practicing orthopaedic surgeons across the United States. Gender was self-identified. Likert-scale items assessed perceived barriers across five domains: mentorship, leadership training, caregiving responsibilities, compensation and informal networking. Gender-based perceptual differences were analyzed using Wilcoxon rank-sum and chi-squared tests.

Results: Of the 95 respondents included in the analysis, 52 (55%) identified as women. Despite no significant between-gender differences in having had formal leadership training and having had a mentor, compared with men, women perceived lack of access to formal leadership training ($p < 0.001$) and lack of access to mentorship ($p = 0.005$) as significantly greater barriers to acquiring leadership roles. Women had higher levels of agreement with having current caregiving responsibilities ($p = 0.006$) and perceived caregiving responsibilities as a greater barrier to leadership roles ($p < 0.001$). Women were more likely to be aware of informal networking systems that systemically exclude faculty based on gender ($p < 0.001$) and race ($p < 0.001$).

Conclusion: In orthopaedics, women perceived barriers to leadership, particularly regarding mentorship, caregiving and informal networking opportunities, to be significantly greater than did men. Understanding these perceptions may be relevant to attracting and retaining a diverse workforce.

Keywords: Orthopaedic Surgery; Leadership; Perceived Barriers; Gender Disparities; Mentorship; Caregiving Responsibilities; Informal Networking

Abbreviations

DEI: Diversity; Equity and Inclusion; URiM: Underrepresented in Medicine

Introduction

The number of women entering the field of orthopaedics has grown from 8.8% in 2001 to 22.4% in 2023 [1,2]. However, despite these gains at the entry level, women remain significantly underrepresented in leadership: In 2025, of 159 orthopaedic surgery residency program director positions, women held 23 (14.5%) and men held 136 (85.5%); of 151 department chair positions 12 (7.9%) were held by women and 139 (92.1%) by men [3]. Smith, et al., reported that women had 63% and 83% lower odds of being a program director or department chair, respectively, than men and in 2022, Ramos, et al., showed that the number of female members in in a regional orthopaedic society was positively associated with the presence of women on boards of directors or serving as presidents, suggesting that representation can drive leadership parity [4,5]. Inclusive leadership environments

foster stronger mentorship, more collaborative teams and broader institutional priorities. In orthopaedics, where team-based care is essential, these dynamics may have particular impact. A recent study demonstrated that surgical teams with sex-diverse anesthesia-surgery pairings had lower rates of major postoperative complications [6].

Thus, despite documented discrepancies between growth and leadership of women in orthopaedics and between genders in leadership positions, the reasons for the discrepancies are less clear. We wondered whether the differences could be explained by comparing perceptions of the accessibility of leadership training and roles by those entering the specialty.

It is important to examine perceptions of opportunity and fairness because decisions to pursue leadership pathways may be shaped not only by the true availability of opportunities, but also by whether those opportunities are experienced as accessible, supportive, inclusive and fair [7,8]. These perceptions may also influence retention, as workplace belonging and perceived leadership behaviors have been associated with intent to leave among women health care professionals [7-9]. More broadly, equity theory proposes that individuals evaluate fairness by comparing their own inputs and outcomes with those of others and that perceived inequity can affect motivation, engagement and retention. In a narrative review of organizational literature, Shinde, drew on the literature of equity theory, organizational behavior, human resources and workplace retention, with sector-specific examples from information technology, healthcare and manufacturing. The author concluded that perceived inequities in workload distribution, recognition and compensation may contribute to dissatisfaction, burnout, disengagement and turnover across workplace settings, including healthcare.

To our knowledge, no study has directly compared how practicing women and men in orthopaedics perceive barriers to leadership. We addressed this gap by surveying practicing orthopaedic surgeons to compare gender-based perceptions of barriers related to key leadership domains in which surgeons may perceive barriers to leadership advancement, including unequal access to mentorship, insufficient leadership training opportunities, disproportionate caregiving responsibilities, pay inequities and exclusion from informal networks [5,10-16]. Therefore, rather than to determine whether the underlying structural barriers exist or differ in magnitude, our objective was to examine whether women and men differed in how they perceive these potential barriers to leadership advancement. In framing these questions, we focused on equity rather than equality. Here, equity refers to impartial access to leadership pathways that accounts for structural barriers among individuals with comparable qualifications; this differs from equality, which refers to applying the same access to all individuals without accounting for structural context.

Methodology

We conducted a cross-sectional survey through Qualtrics (Qualtrics, Provo, UT, USA; https://jh.qualtrics.com, accessed August 2024) (Supplemental Material - Study Survey Instrument) that was distributed via email. This survey-based study, in which participant data were anonymized, was deemed exempt from full review by the Johns Hopkins Medicine Institutional Review Boards (IRB00441336).

Study Population and Recruitment

The survey targeted practicing orthopaedic surgeons across the United States. Recruitment was conducted over eight weeks, from September 15, 2024, to November 15, 2024 and the survey remained open through March 15, 2025. We used purposive and snowball sampling: initial outreach was conducted via email through 216 orthopaedic residency program coordinators and 40 DEI leaders at academic orthopaedic departments, who were asked to forward the survey to faculty in their departments or networks. Because the survey was distributed through intermediaries and responses were anonymous, we could not determine the total number of surgeons who received the survey, calculate a response rate or definitively exclude duplicate submissions. Respondents were offered a chance to enter a USD 20 gift card raffle upon survey completion. Information was provided on the survey landing page describing the study purpose, anonymity and voluntary participation. Consent was obtained electronically through implied consent: “By proceeding with the survey, you indicate your consent to participate in this study.” Surveys were considered “sufficiently complete” if respondents provided their gender and answered the Likert-scale items across all five leadership domains (mentorship, leadership training, caregiving, compensation and informal networking). Partial responses missing these core items were excluded. A total of 95 surgeons met these criteria.

Survey Instrument

We developed a structured, closed-ended survey using Qualtrics. No validated survey instrument exists on this topic, so the questions in this survey were adapted from published climate and DEI instruments and the five domains were selected because they recur in the orthopaedic and academic medicine literature on advancement and leadership [12,17,18]. Two question formats were used: multiple choice, to collect demographic and background data and Likert scale, to assess perceptions of leadership barriers. Demographic data included self-identified gender identity, self-identified race/ethnicity, age, subspecialty, years in practice and primary practice setting. Underrepresented in Medicine (URiM) status was coded according to the Association of American Medical Colleges' definitions and based solely on participants' self-reported race and ethnicity [19]. The Likert items were measured on a 5-point scale, where 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree and 5 = strongly agree. No identifiable information was collected and all responses were stored securely on a secure, password-protected desktop computer and deidentified before analysis. The survey can be seen in Supplement 1.

Statistical Analysis

Descriptive statistics were used to summarize demographic characteristics and Likert scale responses. To assess gender-based differences in perceived barriers, we used Wilcoxon rank-sum tests for ordinal Likert data and chi-squared tests for categorical variables. All analyses were performed using R version 4.5.0 (R Foundation for Statistical Computing, Vienna, Austria; April 2025).

Results

Baseline Characteristics

Of the 95 respondents, the majority were women (n = 52, 55%) and reported working in academic settings (n = 75, 79%). Thirteen respondents (14%) identified as members of URiM groups and the most reported age group was 41-45 years. Fourteen percent of men and 13.5% of women identified as URiM. The most represented subspecialties were sports medicine, pediatric orthopaedics and hand surgery (Table 1).

Gender Differences in Perceptions of Barriers to Leadership

Between-gender differences in perceptions of barriers to leadership are presented in Table 2. Of 95 respondents, 56 (59%) reported having received formal leadership training and the proportions of men (n = 26, 60%) and women (n = 31, 60%) did not differ significantly ($p > 0.99$). However, women perceived lack of access to leadership training as a significantly greater barrier to leadership advancement than men ($p < 0.001$). Among women, 17 (33%) responded “Definitely yes” or “Probably yes,” to the statement “Access to formal leadership training has been a barrier to acquiring leadership roles” compared with only 4 (9%) men. The median responses were 3 (“Neither agree nor disagree”) for women and 2 (“Somewhat disagree”) for men.

Perceptions of Limited Access to Mentorship as a Barrier to Attaining Leadership Roles

Although the numbers of women (44, 85%) and men (31, 72%) who reported having had a mentor did not differ ($p = 0.15$), compared with men, women viewed lack of access to mentorship as a significantly greater barrier ($p = 0.005$). When asked to rate the statement, “Access to mentorship has been a barrier to acquiring leadership roles,” 24 (46%) women selected “Definitely yes” or “Probably yes,” compared with only 8 (19%) men. The median response was 3 (“Neither agree nor disagree”) for women versus 2 (“Probably not”) for men, indicating that women perceived lack of access to mentorship as a greater barrier to leadership advancement.

Perceptions of Caregiving Responsibilities as a Barrier to Attaining Leadership Roles

Women reported greater caregiving responsibilities than men on a 5-point ordinal scale ($p = 0.006$), with 41 women (79%) and 24 men (56%) selecting “Probably yes” or “Definitely yes.” These responsibilities were also perceived by women to be a higher barrier to leadership advancement ($p < 0.001$). When asked to rate the statement “Caregiving responsibilities have been a barrier to acquiring leadership roles,” over half of women respondents (n = 27, 52%) selected “Definitely yes” or “Probably yes,” compared with 16% (n = 7) of men. The median perception of caregiving as a leadership barrier was 4 (“Probably yes”) among women versus 2 (“Probably not”) among men.

Perceptions of Informal Networking as a Barrier to Attaining Leadership Roles

Significantly more women than men reported awareness of gender-based (62% vs. 23%, $p < 0.001$) and race-based (44%, n = 32

vs. 23%, n = 10; $p < 0.001$) exclusion from informal networks. Additionally, 56% (n = 29) of women identified exclusion from informal networks as a barrier to leadership advancement, compared with 14% (n = 6) of men ($p < 0.001$), with median Likert responses of 4 (“Probably yes”) and 2 (“Probably not”), respectively. The feeling of being a full and equal participant in informal decision-making settings did not differ significantly between genders (p = 0.052).

Perceptions of Compensation as a Barrier to Attaining Leadership Roles

Perceived fairness of compensation did not differ significantly by gender (65% of women vs. 56% of men, p = 0.68). However, a substantial gender gap was observed in perceptions of pay equity: 92% of women, compared with 47% of men, believed that men are paid more than women ($p < 0.001$). Despite this disparity in perception, relatively few respondents identified compensation as a direct barrier to leadership (19% of women vs. 12% of men, p = 0.34).

Variable	**Value, n (%)**
Total number of respondents	95
Gender	
Male	43 (45)
Female	52 (55)
Race/Ethnicity	
Non-URiM	79 (83)
URiM	13 (14)
Prefer not to answer	3 (3)
Specialty	
Foot and ankle	5 (5)
General	5 (5)
Hand	14 (15)
Oncology	3 (3)
Pediatrics	15 (16)
Shoulder/elbow	10 (11)
Spine	6 (6)
Sports medicine	33 (35)
Total joint arthroplasty	9 (9)
Trauma	16 (17)
Other/Unknown	1 (1)
Age (years)	
30-34	3 (3)
35-40	12 (13)
41-45	27 (28)
46-50	9 (9)
51-55	12 (13)
56-60	5 (5)
61-65	12 (13)
Over 65	15 (16)
Years of practice	
0-5	13 (14)
6-10	19 (20)
11-20	22 (23)
21-30	14 (15)
31-40	16 (17)
>40	5 (5)
Unknown	6 (6)

Variable	Value, n (%)
Primary practice setting	
Academic	75 (79)
Private	14 (15)
Unknown	6 (6)

Table 1: Demographic data of respondents.

Perceived Barrier	Men	Women	p value
	n (%), a mean ± SDb; median [IQR]b		
Lack of access to leadership training			
Received formal leadership training	26 (60)	31 (60)	>0.99
Access to leadership training a barrier to leadership	2.05 ± 0.94; 2 [1-3]	2.94 ± 1.20; 3 [2-4]	<0.001
Lack of access to mentorship			
Ever had a mentor	31 (72)	44 (85)	0.15
Mentorship access a barrier to leadership	2.35 ± 1.15; 2 [1-3]	3.12 ± 1.31; 3 [2-4]	0.005
Caregiving responsibilities			
Currently has caregiving responsibilities	3.67 ± 1.47; 4 [2.5-5]	4.40 ± 1.11; 5 [4-5]	0.006
Caregiving responsibilities a barrier to leadership	2.08 ± 1.15; 2 [1-3]	3.38 ± 1.31; 4 [2-4]	<0.001
Lack of access to informal networks			
Aware of gender-based exclusion (Definitely/Probably Yes)	10 (23)	32 (62)	<0.001
Aware of race-based exclusion (Definitely/Probably Yes)	6 (14)	23 (44)	<0.001
Informal networking a barrier	2.45 ± 1.18; 2 [1-4]	3.39 ± 1.30; 4 [3-4]	<0.001
Compensation			
Believe men are paid more than women	20 (47)	48 (92)	<0.001
Believe they are compensated fairly	24 (56)	34 (65)	0.68
Compensation a barrier to leadership	2.08 ± 1.16; 2 [1-3]	2.34 ± 1.27; 2 [1-3]	0.34
[a]Categorical data presented as n (%). [b]Continuous/ordinal data presented as mean ± SD; median [IQR]. Likert-scale responses were coded on a 5-point scale. For "barrier" items: 1 = Definitely not, 2 = Probably not, 3 = Might or might not, 4 = Probably yes, 5 = Definitely yes. Statistically significant values ($p < 0.05$) in bold. IQR, interquartile range; SD, standard deviation.			

Table 2: Gender differences in perceptions of barriers to leadership among surveyed orthopaedic surgeons (N = 95).

Discussion

Despite evidence that inclusive leadership environments foster stronger mentorship, more collaborative teams, broader institutional priorities and improved patient care, women in orthopaedics remain underrepresented in leadership roles and have been shown to have lower odds of being a program director or chair than men [3-6]. This disparity deserves attention because those in leadership positions confer influence over domains such as mentorship, promotion, resource allocation and the informal networks through which advancement opportunities often arise. The present study revealed significant differences in perceived barriers to leadership advancement between men and women. Gender differences were most pronounced for caregiving responsibilities and informal networking, which women perceived as greater barriers to leadership advancement than did men. Women also perceived limited access to leadership training and mentorship as greater barriers, although these domains were endorsed less frequently overall. These findings should be interpreted carefully because the study measured perceived barriers rather than structural inequities.

Equity theory, originally described in 1965 by Adams, is an organizational psychology framework for understanding how individuals evaluate workplace fairness [20]. This theory proposes that 1) individuals judge workplace fairness by comparing their inputs (time, effort, skills and experience) with outputs (pay, promotion and opportunity); 2) these comparisons are made relative to a relevant comparison group (e.g. peers) and 3) perceived imbalance can create dissatisfaction and motivate efforts to restore equity [20]. Organizational justice research supports this framework: In their meta-analysis of 25 years of organizational

justice research, Colquitt, et al., found that distributive, procedural, interpersonal and informational justice were associated with more favorable workplace outcomes, including greater job satisfaction, stronger organizational commitment, more positive evaluations of authority, more organizational citizenship behavior, lower withdrawal and better performance [21]. In academic medicine, a survey of healthcare professionals by Schaechter, et al., revealed that more frequent experiences of institutional workplace belonging were strongly associated with lower intent to leave [9]. In a study by Liu, et al., early-career women faculty identified mentorship, leadership opportunities, work-life integration, institutional resources and representation as important to leadership development and perceptions of institutional gender-equity climate were found by Shorey, et al., to differ by gender, with women reporting a less favorable climate than men [7,8]. Along with the suggestion that perceived inequities in workplace responsibilities and rewards may contribute to dissatisfaction and turnover across workplaces, Shinde, also proposed that organizations have a role in monitoring perceptions of fairness, evaluating whether those perceptions correspond to measurable inequities and addressing the underlying conditions when inequities are identified [22]. If applied to the field of orthopaedics, these recommendations support further evaluation to determine whether perceived barriers correspond to measurable differences in the five domains evaluated in this study. Future research should replicate these findings in larger, more diverse samples to examine how gender may interact with race, ethnicity and career stage and use qualitative interviews to clarify how these perceptions arise, whether they correspond to measurable institutional barriers and which interventions may address either the perceptions themselves or the underlying conditions that generate them.

Limitations

This study had several limitations. The use of purposive and snowball sampling may have introduced selection bias, as those more interested in leadership and equity issues may have been more likely to respond. The small sample size limited our ability to perform subgroup analyses (e.g., by age, race/ethnicity or subspecialty). Because the survey was forwarded by intermediaries and responses were anonymous, we could not determine the total number of surgeons invited, calculate a response rate or definitively exclude duplicate submissions. This prevented us from fully evaluating the representativeness of our sample and introduced the possibilities of nonresponse bias and limited generalizability of our results. Data were self-reported and, thus, subject to social desirability bias and individual interpretation of leadership experiences, although anonymity of responses was intended to mitigate this concern. Although the survey was informed by previously published DEI instruments, it was not independently validated. Finally, the discrepancies between reported receipt of leadership training and mentorship (similar rates by gender) and the significantly different perceptions of access to these resources as barriers may reflect a limitation of our survey design. The binary items ("Have you received any formal leadership training?" and "Have you had a mentor?") did not account for differences in type, depth, quality or continuity. As a result, comparable participation rates may mask meaningful disparities in access, which could explain why women were more likely to perceive limited access.

Although leadership training is widely endorsed, previous studies have suggested that current efforts are insufficient and that training should be integrated earlier in surgeons' careers [12-14]. In the present study, about 59% of respondents reported having received formal leadership training, a finding consistent with concerns that training opportunities in orthopaedics may be limited relative to demand [10,13,14]. We also found that, although the proportions of men and women who had received such training did not differ, women perceived lack of access to leadership training as a greater barrier than men did, which could reflect differences in how respondents interpreted the adequacy, quality or usefulness of available training opportunities. We speculate that women may be more attuned to structural shortages in leadership training, whether because of their own or observations of their peers', experiences and that this could contribute to their heightened awareness of barriers.

Most of our respondents reported having had a mentor at some point in their careers, but compared with men, women perceived lack of access to mentorship as a significantly greater barrier to leadership advancement. It has been suggested that women in orthopaedics may encounter challenges in finding mentors who share their identity and lived experience [5,10,11]. Sustained mentorship relationships that evolve into sponsorship, in which senior leaders actively advocate for and create advancement opportunities for their mentees, may be especially important for supporting women's progression into leadership roles, but such relationships may be constrained by limited access to identity-concordant mentorship for women in orthopaedics [23,24]. At the same time, mentorship across gender or racial/ethnic differences can be effective, but programs should recognize potential challenges, including bias and communication barriers [24]. Compared with men, women had significantly higher levels of agreement with having current caregiving responsibilities and perceived those responsibilities as greater barriers to leadership advancement. This reflects well-established trends across academic medicine, where women are more likely to shoulder

domestic responsibilities, often without adequate institutional support [15]. Studies have cited the importance of accommodations such as parental leave and flexible promotion pathways to offset the professional impact of caregiving demands in medicine [25].

Compensation was not widely perceived to be an obstacle to attaining leadership roles. However, most women in our cohort believed that men are paid more than women, highlighting a perceived inequity in compensation. This aligns with reports of compensation structures that disadvantage women orthopaedic surgeons and with evidence from a systematic review by Halim, et al., demonstrating that male orthopaedic surgeons earn more than their female colleagues even after adjustment for rank, years in practice, practice setting and subspecialty [10,26]. It may be that the relatively high baseline compensation in orthopaedics reduces the extent to which salary is perceived as a barrier to leadership advancement [27]. Awareness of race- and gender-based exclusion from informal networking structures was also more prevalent among women. Exclusion from mentorship circles, referral networks, after-hours gatherings and informal decision-making spaces can limit visibility and pathways to leadership for women and URiM surgeons [11]. Our findings support the intentional design of networking opportunities that are accessible across genders and races.

Future Implications

Leaders in orthopaedics help define clinical priorities, training norms and research agendas that shape the specialty's future. Ensuring that leadership opportunities are equitably accessible is essential to fostering a diverse and more effective workforce [5,6]. Because perceived inequity itself may affect engagement and retention, institutions and specialty societies should examine mentorship quality, caregiving accommodations and informal networking structures to determine whether leadership opportunities are experienced as accessible, supportive and fair [9,22].

Conclusion

Compared with men, women perceived barriers to leadership advancement to be greater across several key domains. Because perceptions of inequity can affect motivation and career advancement, it is important for institutions and specialty societies to monitor these perceptions as part of leadership development efforts. Institutions and specialty societies should prioritize ongoing assessment of these perceptions to help identify areas that warrant further evaluation and guide any necessary intervention where measurable structural inequities exist. Broadening access to leadership development is essential, not only for individual advancement, but also for building a stronger, more effective orthopaedic workforce and advancing orthopaedic care.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available due to the risk of participant re-identification in this anonymous survey dataset but are available from the corresponding author upon reasonable request.

Ethical Statement

This study was acknowledged by the Johns Hopkins Medicine Institutional Review Boards (IRB00441336) and was deemed exempt from full review.

Informed Consent Statement

Informed consent was obtained from all participants included in the study.

Authors' Contributions

DL and ST conceptualized the study, provided methodology and validation, administered the project and reviewed and edited the final manuscript. ST curated the data; acquired funding; provided formal analysis, investigation and visualization; and wrote the original draft. DL provided resources and supervised the project.

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Supplementary File

Supplemental Material for "Exploring Gender Differences in Perceived Barriers to Advancement in Orthopaedic Surgery: A Cross-Sectional Survey"

Study Survey Instrument

Assessing Barriers to Leadership Positions in Orthopaedic Surgery

You are invited to participate in a research study titled "Assessing Barriers to Leadership Positions in Orthopaedic Surgery" (IRB00441336). Your participation involves completing a 5 minute survey. Your responses will be completely anonymous and no personally identifiable information will be collected. Participation is voluntary and you may withdraw at any time without consequence. If you have any questions, feel free to contact author.

By proceeding with the survey, you indicate your consent to participate in this study.

Section 1: Demographic Information Sex

☐ Female
☐ Male
☐ Intersex
☐ Not listed (please explain):
☐ Prefer not to say

How do you identify?

☐ Woman
☐ Man
☐ Transgender/Trans woman
☐ Transgender/Trans man
☐ Non-Binary
☐ Not listed (please explain):
☐ Prefer not to say

Which of the following ethnic or racial categories best describes how you self-identify? (Select all that apply)

☐ White
☐ African-American or Black
☐ Asian
☐ Hispanic/Latinx
☐ Middle Eastern/North African
☐ Native American/Alaska Native/First Nations
☐ Pacific Islander/Native Hawaiian
☐ Prefer not to answer
☐ Prefer to describe:

What is your age?

☐ 30-34 years old
☐ 35-40 years old
☐ 41-45 years old
☐ 46-50 years old
☐ 51-55 years old
☐ 56-60 years old
☐ 61-65 years old
☐ Over 65

What is your specialty area? (Select all that apply)

☐ General
☐ Trauma
☐ Pediatrics
☐ Total joint arthroplasty

- ☐ Shoulder/elbow
- ☐ Hand
- ☐ Sports medicine
- ☐ Spine
- ☐ Oncology
- ☐ Foot and ankle
- ☐ Other (please specify):

How would you describe the majority of your practice?

- ☐ Academic
- ☐ Private
- ☐ Other (please specify/explain):

How many years have you been practicing?

Have you made any accommodations or changes to your work schedule or duties for personal reasons at any point in your career, such as shifting to part-time status?

- ☐ Yes
- ☐ No

If yes, please list accommodations/changes:

Section 2: Mentorship

Do you... (Select all that apply)

- ☐ Currently have a mentor
- ☐ Had a mentor in the past
- ☐ Have never had a mentor

At what stages of your career have you had a mentor? (Select all that apply)

- ☐ Prior to medical school
- ☐ Medical school
- ☐ Residency
- ☐ Fellowship
- ☐ Practicing physician
- ☐ Not Applicable
- ☐ Other (please specify):

I believe relationships are more difficult between a mentor and a trainee of different gender.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Access to mentorship has been a barrier to acquiring leadership roles.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Section 3: Leadership Training

Have you received any formal leadership training?

- ☐ Yes
- ☐ No

If yes, during what time period did you receive formal leadership training? (Select all that apply)
☐ Prior to medical school
☐ Medical school
☐ Residency
☐ Fellowship
☐ Practicing physician
☐ Not Applicable
☐ Other (please specify):

Access to formal leadership training has been a barrier to acquiring leadership roles.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

Section 4: Informal Networking
I am aware of informal networking which systematically (even if not purposely) excludes faculty members on the basis of gender.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

I am aware of informal networking which systematically (even if not purposely) excludes faculty members on the basis of race.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

I feel like a full and equal participant in informal problem solving, decision making and collaborative research efforts, given comparable expertise.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

The presence of informal networking has been a barrier to acquiring leadership roles.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

Section 5: Caregiving Responsibilities
I have caregiving responsibilities in my life.
☐ Strongly disagree
☐ Somewhat disagree
☐ Neither agree nor disagree
☐ Somewhat agree
☐ Strongly agree

Caregiving responsibilities have been a barrier to acquiring leadership roles.
- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Section 6: Compensation
Do you believe men in orthopaedics are paid more than women?
- ☐ Yes, men are paid more than women.
- ☐ No, women are paid more than men.
- ☐ No, men and women are paid equally

Do you think you are compensated fairly?
- ☐ Yes
- ☐ No

Compensation has been a barrier to acquiring leadership roles.
- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Optional
Would you like to enter the raffle to win one of ten $25 Amazon gift cards? Your response will still remain anonymous.
- ☐ Yes
- ☐ No

About the journal

Journal of Orthopaedic Science and Research is an international, peer-reviewed, open-access journal published by Athenaeum Scientific Publishers. The journal publishes original research articles, case reports, editorials, reviews, and commentaries relevant to its scope. It aims to disseminate high-quality scholarly work that contributes to research, clinical practice, and academic knowledge in the field.

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