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Diversity in orthopaedic trauma: where we are and where we need to be

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Abstract

Diversity has multiple dimensions, and individuals' interpretation of diversity varies broadly. The Orthopaedic Trauma Association (OTA) leadership recognized the need to address issues of diversity within the organization and appointed the OTA Diversity Committee in 2020. The OTA Diversity Committee has produced a statement that was confirmed by the OTA's board of directors reflecting the organization's position on diversity: "The OTA promotes and values diversity and inclusion at all levels with the goal of creating an environment where every member has the opportunity to excel in leadership, education, and culturally-competent orthopaedic trauma care." The OTA Diversity Committee surveyed its 1907 OTA members in the United States and Canada to assess its membership's attitudes toward and interpretation of this important topic.

Methods: Two surveys were distributed. One 15-question survey was sent to 1907 OTA members with different membership categories in the United States and Canada requesting basic demographic information and asking how members felt about the degree to which women and underrepresented minorities (URM) are represented within the OTA and within its leadership. A second 11-question survey was sent to 30 past chairs of 2017–2019 OTA educational courses and meetings evaluating their criteria for choosing faculty for OTA courses. Comments were reviewed and summarized to identify recurring themes.

Results: Two hundred seven responses from the membership and 14 from course chairs were received from the 1907 surveys that were emailed to OTA members in the United States and Canada. The results reveal awareness of the limited female and URM representation within the OTA. However, there is disagreement in how or even whether this should be addressed at an organizational level. Review of comments from both surveys reveals a number of common themes on these important topics.

Conclusion: The members and course chairs surveyed recognize that there is limited diversity at the OTA leadership and faculty level. Many members feel that the OTA would benefit from increasing female and URM representation in committees, within the leadership, and as faculty at OTA-sponsored courses. However, survey comments reveal that many members and course chairs feel it is not the organization's role to regulate diversity and that diversity initiatives themselves may introduce an unnecessary form of bias.

Keywords: diversity, orthopaedic, orthopaedic surgery, OTA, underrepresented minorities, women

1. Introduction

The value of diversity within a workforce has been well documented in many fields, including medicine. Creativity, innovation, and productivity are a few of the achievements that have been closely linked to the amount of diversity within a team.[1] Studies have shown that in order for an organization to grow and improve, diversity of thought must be present and valued.[2] Recent awareness of perpetual healthcare disparities in our country, the #MeToo movement, and the public health crisis resulting from systemic racism exemplify the extreme need to produce a more diverse medical workforce.[3] It was this knowledge that led Dr Michael McKee, the current Orthopaedic Trauma Association (OTA) president, to appoint a diversity task force to identify and address these inequities within our own organization.

Recent research has shown that the percentage of women and members of underrepresented minority (URM) groups within the field of orthopaedic surgery is the lowest of all surgical subspecialities.[4] Despite active efforts to correct this disparity, the rate of women and URMs entering orthopaedics has remained relatively low even as it has improved in other surgical subspecialties. As of 2015, women held approximately 14% of all orthopaedic residency positions and URM residents held approximately 22%. And while the percentage of women has remained relatively constant, the number of URM residents has decreased roughly 32% over the preceding 10-year period.[5]

The low level of women and URM representation in orthopaedics is not limited to graduate medical education, however. These populations are also represented in relatively low

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numbers among professional societies, though the actual proportion varies significantly by group (between 2 and 26% for organizations in the American Academy of Orthopaedic Surgeons Board of Specialty Societies). Until this point, very little information has been collected about the demographics of the OTA membership. Prior studies have estimated the percentage of women within the OTA as being approximately 10%,[6] while the number of underrepresented minorities is unknown but also appears to be low anecdotally.

One explanation for this lack of diversity has been the stereotype that the field of orthopaedic surgery, and particularly orthopaedic trauma, is an "old boys' club" that is comprised primarily of and subsequently promotes white males from within its ranks. While several recent programs and events have sought to increase awareness of the benefits of diversity as well as the importance of inclusion within the field (including the 2019 inauguration of Kristy L. Weber, MD, as president of the American Academy of Orthopaedic Surgeons and the subsequent diversity and inclusion campaign promoted by that group), little is known about the representation of females and URMs among orthopaedic trauma surgeons or the OTA.

This study aims to identify and quantify members' definition of and attitudes toward diversity; to assess members' expectations for diversity within the OTA, its leadership, and its course faculty; to determine what factors influence faculty selection for OTA-sponsored courses; and to identify barriers to increasing diversity throughout the organization. It also is the first to attempt to gain basic demographic information from OTA members to be used for future benchmarks.

2. Methods

The members of the OTA Diversity Task Force compiled a list of questions concerning past and current diversity issues. The study was deemed exempt from Institutional Review Board and Animal Use Committee Review. The questions were approved by the OTA's leadership and distributed via email using SurveyMonkey. One 15-question survey, sent to 1907 OTA members with different membership categories in the United States and Canada, sought basic demographic information as well as OTA members' views on several diversity issues. A second 11-question survey, sent to 30 past chairs of 2017–2019 OTA educational courses and meetings,

Table 1

Demographic data collected from 207 OTA membership survey respondents.

	N (out of 207)	Percentage
Gender		
Male	148	71.5
Female	47	22.7
Nonbinary	2	1.0
Choose not to respond	10	4.8
Self-identification as an underrepresented minority		
No	129	62.3
Yes	78	37.7
Years in practice		
0–5	52	25.1
6–10	40	19.3
11–15	25	12.0
15–20	28	13.5
Greater than 20	62	30.0
OTA membership category		
Active	136	65.7
Candidate	40	19.3
Clinical	21	10.1
Research	5	2.4
Trauma practice professional	3	1.5
International	2	1.0

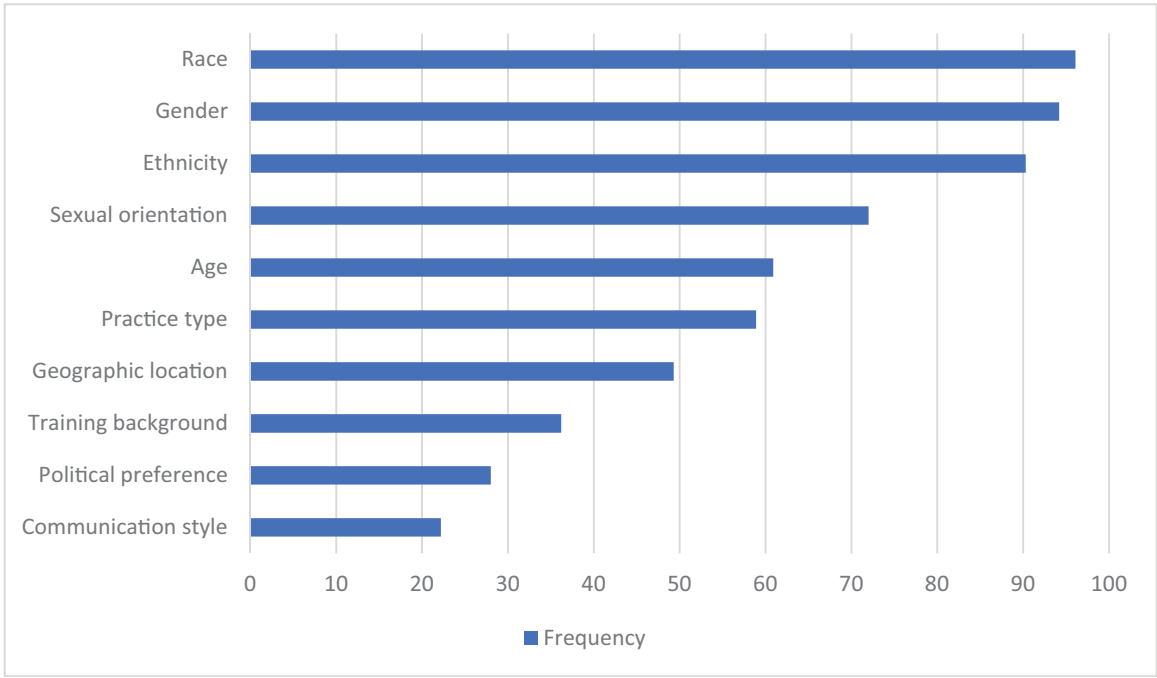

Figure 1. Frequency of affirmative responses to the question "How do you define diversity?" among 207 OTA membership survey respondents.

Table 2

Attitudes toward diversity from 207 OTA membership survey respondents

	N (out of 207)	Percentage
Do you think the OTA encourages diversity?		
Yes	132	63.8
No	75	36.2
Do you think the OTA creates a welcoming environment for members of all races, genders, beliefs, and sexual orientations?		
Yes	171	82.6
No	36	17.4
Do you think our OTA membership is representative of the community in which we provide care?		
Yes	68	32.9
No	139	67.2
Do you think there is too much emphasis on diversity in the OTA?		
Yes	30	14.5
No	177	85.5

evaluated whether diversity factored into the faculty selection process. Members were given approximately 30 days to review and complete the surveys. Results were compiled by SurveyMonkey's data evaluator with assistance from OTA staff and were reviewed and analyzed by Diversity Task Force members.

3. Results

3.1. OTA membership survey

Two hundred seven OTA members responded to the membership survey *from the 1,907 surveys that were emailed to OTA members* with different membership categories *in the United States and Canada*. (10.9% response rate among all members and a 29.2% response rate among the 710 OTA members who opened the email). All respondents answered all survey questions. Respondents identified as 71.5% male (148/207), 22.7% female (47), and 1.0% nonbinary (2), with 4.8% of respondents (10) preferring not to answer. 37.7% (78) considered themselves a member of a URM group. The plurality of respondents had greater than 20 years in practice (30.0%) or fewer than 5 years in practice (25.1%). Most (65.7%) were active OTA members, with a smaller percentage composed of candidate members (19.3%), international members (1.0%), or other membership types (Table 1).

The types of information included in respondents' definitions of diversity are summarized in Figure 1. There was a high degree of consensus that race, gender, and ethnicity all factored into diversity and a moderate degree of consensus that sexual orientation, age, practice type, and practice location should be considered in this definition. Fewer than 2 in 5 respondents considered training background, political leaning, or communication style to exemplify diversity.

Respondents were also queried about their impression of diversity within the OTA (Table 2). While 63.8% (132/207) of respondents believed that "the OTA encourages diversity," a larger proportion (82.6%, 171/207) agreed that "the OTA creates a welcoming environment for members of all races, genders, beliefs, and sexual orientations." And while nearly two-thirds (67.2%, 139/207) acknowledged that "our OTA membership is [not] representative of the community in which we provide care," only 14.5% (30/207) of members believed that there is too much emphasis on diversity in the OTA.

Three questions evaluated members' perception of the OTA's role in actively increasing diversity within the organization (Table 3). Approximately two-thirds of respondents were in favor of prioritizing women and URMs in the selection of leadership and course faculty (62.8%, 130/207) and in the selection of OTA meeting instructional course lectures, symposia, and/or as moderators (66.2%, 137/207). However, respondents exhibited a much stronger negative response to the question "Should the OTA require a certain number or percentage of diverse individuals as part of leadership and faculty," with only 28.0% (58/207) responding favorably and 72.0% (149/207) responding negatively.

The final survey questions sought free text answers to the questions "How can the OTA increase diversity in the OTA membership, faculty, and leadership positions?" and "What do you perceive to be barriers to diversity among OTA members and/or OTA faculty?" It also asked respondents to share additional comments about diversity in the OTA. Recurrent themes from respondents' comments are summarized in the "Comments on the Comments [Recurring Themes]" section.

Table 3

Perception of the OTA's role in actively increasing diversity from 207 OTA membership survey respondents

	N (out of 207)	Percentage
Should the OTA prioritize inclusion of women and underrepresented minorities (URMs) in selection of leadership and faculty?		
Yes	130	62.8
No	77	37.2
Should the OTA prioritize inclusion of women and underrepresented minorities in OTA meeting instructional course lectures, symposia, and/or as moderators?		
Yes	137	66.2
No	70	33.8
Should the OTA require a certain number or percentage of diverse individuals as part of leadership and faculty?		
Yes	58	28.0
No	147	72.0

3.2. OTA faculty leadership survey

The OTA faculty leadership survey of 30 past course chairs resulted in 14 completed surveys (46.7% response rate). The purpose of this survey was to identify the role of diversity, if any, in selecting faculty for OTA-sponsored courses. A minority of course chairs (14.3%, 2/14) report that the OTA provided them with criteria for selecting faculty. When asked "How did you choose your faculty?" most chairs describe a combination of choosing among individuals who they know, they have trained, they have previously worked with, those who have been active within the OTA, or who have reputations as good lecturers/teachers. Fewer than a third of respondents considered characteristics commonly associated with diversity such as age, race, ethnicity, gender, sexual orientation, or practice type as important criteria when choosing course faculty (Fig. 2). All respondents stated that they invited at least 1 female or URM to teach at his or her course but 28.57% (4/14) of respondents acknowledged that they experienced difficulty finding diverse faculty to participate. 78.6% (11/14) felt that being provided a list of URM and female OTA members and these individuals' areas of expertise would encourage or assist them in selecting a more diverse faculty (Table 4).

Once again, 3 questions evaluated course chairs' perception of the OTA's role in actively increasing diversity (Table 5). 78.6% of

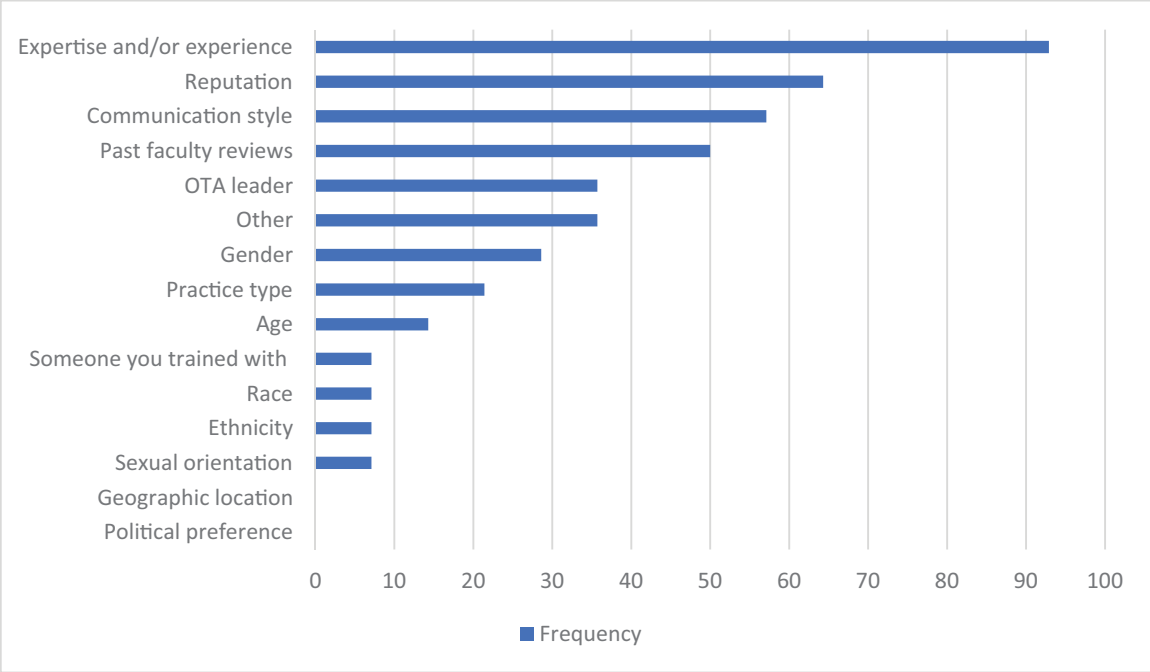

Figure 2. Frequency of affirmative responses to the question "What are the qualities that are most important to you when selecting your course faculty?" among 14 prior OTA course chairs.

course chairs (11/14) responded affirmatively when asked if they thought including female or URMs is important when selecting OTA members, compared to 21.4% (3/14) who did not. However, only about two-thirds of course chairs (64.3%, 9/14) were in favor of prioritizing women and URMs in the selection of leadership and course faculty and in the selection of OTA meeting instructional course lectures, symposia, and/or as moderators.

3.3. Recurring themes

The majority of respondents felt that the OTA encourages diversity, and many applauded the organization for recognizing lack of diversity as an issue and for seeking to address it. Nevertheless, there were numerous respondents whose comments stood out for their strong objection to the OTA actively focusing on this as an issue as an organization. A few common themes both supported and decried this concern, some of which are summarized below and in Table 6.

Most respondents did not feel there was an overemphasis on diversity in the OTA; however, several noted that there have been few active initiatives to improve it, especially with respect to underrepresented minorities. It was repeatedly stated that, although the OTA may be accepting, it is not necessarily welcoming which highlighted the overall perceived insularity of the organization. The term "old boys' club" or even "old white boys' club" was repeatedly used to describe the organization. One respondent noted that the same few female and URM leaders seem to be "shuffled" into different leadership and faculty positions within the organization which these respondents felt did

Table 4

Data on course faculty selection from 14 prior OTA course chairs

	N (out of 14)	Percentage
When you selected faculty, did the OTA provide you with any criteria for selecting faculty?		
Yes	2	14.3
No	12	85.7
When selecting faculty members for your course, did you invite any female or underrepresented minority OTA members?		
Yes	14	100.0
No	0	0
Did you experience difficulty in finding diverse faculty for teaching at your course, if that was a consideration?		
Yes	4	28.6
No	10	71.4
If you were provided a list of underrepresented minorities and female OTA members and their areas of expertise, would this encourage/assist you in selecting a more diverse faculty?		
Yes	11	78.6
No	3	21.4

Table 5

Perception of the OTA's role in actively increasing diversity from 14 prior OTA course chairs

	N (out of 14)	Percentage
Do you think including female or underrepresented minorities is important in selecting OTA members?		
Yes	11	78.6
No	3	21.4
Should the OTA prioritize inclusion of women and underrepresented minorities in selection of leadership and faculty?		
Yes	9	64.3
No	5	35.7
Should the OTA prioritize inclusion of women and underrepresented minorities in OTA meeting instructional course lectures, symposia, and/or as moderators?		
Yes	9	64.3
No	5	35.7

Table 6

Major paraphrased themes from respondents' free text comments.

- There is a paucity of racial and gender diversity within the highest levels of the OTA
- "Shuffling around" select women and URMs among OTA leadership and committee positions does not constitute diversity
- Diversity of training background, practice, and expertise should hold value to the organization
- The lack of diverse role models impedes mentorship
- Strict quotas for women and URMs in leadership positions should not be imposed
- Care must be taken to avoid "sacrificing quality" or "lowering the bar" for the sake of improving diversity
- Members' qualifications should be placed in highest regard, regardless of gender, race, or background
- Resources that describe members' background, experience, and expertise may improve visibility and inclusion of women and URMs
- Diverse representation on the podium and within the leadership is embraced by younger OTA members regardless of gender or race

URM = underrepresented minorities.

not indicate a true institutional commitment to diversity. In addition, several members commented that not only is there a paucity of gender and racial diversity, but there is little practice type or training program diversity (where a few training programs are favored and are overrepresented at many different levels of the organization). The lack of diversity at the highest levels was also reiterated in several comments about the importance of having a diverse panel of mentors and role models. Respondents noted that the lack of diverse role models within the organization, especially at leadership levels, made it more difficult for individuals from groups underrepresented in orthopaedics to feel as if they could develop the connections needed to guide them through the ranks and into leadership roles in the organization.

Several survey questions evaluated members' opinion about what kind of active role the OTA should take, if any, in promoting women and underrepresented minorities for roles within the organization. Nearly two-thirds of members and course chairs surveyed supported encouragement of or even prioritization of these groups in leadership positions (both within the organization and within course faculty), but few supported the introduction of target percentages for these roles. The questions evaluating members' opinions on these matters generated very dichotomous and at times quite strong responses within the comments. Although many members voiced support for active programs that improve diversity, several members objected strongly, citing concerns about sacrificing quality or "lowering the bar" if active efforts to improve diversity were introduced at an institutional level. The need to focus solely on achievement, contributions, and merit were upheld as "the only criteria that matter" by some members, who felt that the OTA should be focusing on the care of trauma patients and not on other issues.

In general, among the respondents who did not feel either that it was the role of the OTA to focus on diversity or that there needed to be any emphasis on improving diversity, there was very staunch adherence to a number of recurring themes: there is no apparent bias in the OTA, so it is not necessary to address this as an issue; diversity is not an issue that the OTA should be promoting—as the organization should be focused solely on improving the care of trauma patients; the qualifications of members should be the only deciding factor in the selection of leadership, course faculty, committee members, etc. with the implication that diverse candidates will obtain these positions on their own merit if they are truly qualified and that diversity will thus occur "organically;" and attempts at forcibly increasing diversity within the organization risk sacrificing quality for the sake of diversity. Regardless of how the objective portion of several survey questions were answered, comments citing these concerns were included after every question with a free text option.

Similar opinions and concerns were echoed in the course chair survey. A few respondents stated that they would actively recruit a more diverse faculty if they had a resource providing information about the background, experience, and expertise of OTA members with whom they were not familiar. Appropriately, there was repeated emphasis on selecting quality and qualified faculty, with the term "merit-based" frequently recurring. Respondents stated that faculty selection was based on factors such as: being recognized as good speakers/teachers from past meetings; having been a previous faculty or fellow; having published or presented at the OTA in the past; having past personal relationships through OTA; and having a personal relationship with the faculty member. It is important to note, however, that these criteria all require previous experience with/exposure to the course chair and/or the OTA—which does not happen in a vacuum or if the same people are repeatedly selected as faculty or presenters. One respondent noted that the "optics" of all white male panels did not help our diversity goals, while another acknowledged the importance of diverse representation on the podium as encouragement for younger members. However, the majority of comments in this much smaller survey repeatedly stressed the importance of not sacrificing quality for diversity, as if these are mutually exclusive, and suggested that the focus should be solely on merit to avoid bias.

Overall, the comments reflected very wide-ranging views among both the membership and course chairs, with the majority supporting some, but not all, types of diversity efforts. However, a very vocal minority adamantly opposed any explicit effort, often linking increasing diversity with decreasing quality.

4. Discussion

Diversity in orthopaedics has been a topic of discussion for several decades and has been amplified by current events. There is increasing awareness of the lack of diversity in orthopaedics as well as its impact on training programs, professional societies, academic programs, and leadership. For the latest year that data is available, of the total number of orthopaedic residents in the United States, 15.4% were women, 13.3% were Asian, 5% were Hispanic, and 4% were Black. There has been virtually no improvement in racial diversity in the last 20 years for Black residents and only a very small change for Hispanic/Latino residents.[7] Recently, 13 Carousel presidents from the AOA president's carousel, which includes the presidents of the major English-language-speaking orthopaedic organizations worldwide, opined that the lack of representation by these groups was significantly lower than in other parts of the world.[8]Several countries have implemented various programs designed to increase participation of women and URMs by: creating a diverse membership that reflects the community (Australia), improving gender diversity (Canada), promoting residency selection of indigenous peoples (New Zealand), modifying orthopaedic trainee selection criteria to reflect the population profile (South Africa), and devoting a portion of the national meeting to showcasing orthopaedics in secondary schools

(United Kingdom). In the United States, notable organizations that have promoted diversity include the Ruth Jackson Orthopaedic Society (established in 1983 to provide a network for and to promote women), the J. Robert Gladden Orthopaedic Society (established in 1998 for URMs), and the American Association of Latino Orthopedic Surgeons (established in 2010). At a more junior level, the Perry Initiative and the Nth Dimensions organizations promote participation among female and URM high-school, undergraduate, and medical students in orthopaedic programs.

This survey of the OTA membership was an attempt to understand its members' definition of and perception of this important issue and to gauge the membership's interest in actively addressing issues pertaining to participation among the organization's women and underrepresented minorities. A survey by the Ruth Jackson Orthopaedic Society identified work–life balance, lack of mentors, and perception of strength needed as barriers to female participation in the field.[9] Interestingly, from the medical students' perspective, racial and gender diversity were the least important factors in considering orthopaedics as a career, though women rated these factors as more important than men.[10] Sobel et al[11] found that factors which promoted gender diversity in residency programs include having more female faculty, more female leadership positions, and a dedicated research year.

Our survey of the OTA membership showed awareness of limited diversity in the membership, organization leadership, and course leadership. However, it also showed how widely disparate the opinions of the membership are regarding the need to address this issue at the organizational level. A disturbing recurring thread was that increasing diversity was synonymous with decreasing quality by selecting outside of the usual "pool" of leaders, speakers, and faculty members without recognizing that this very selection process is a prime perpetuator of the persistent lack of diversity. We argue that, because the OTA is in fact a selective group, the assumption should be that all members are qualified and that lack of experience among some of its female and URM members may be due to lack of visibility or promotion, rather than lack of qualifications or merit. This hypothesis is underscored by recent data showing not only that women in orthopaedic surgery are less likely to receive professional society awards than would be expected by their representation within the field, but that they are more likely to receive awards conferred through a blinded process than an unblinded process.[12] This suggests that implicit or unrecognized bias, rather than lack of merit, may be influencing processes such as these.

4.1. Limitations

The limitations of this study are primarily related to the low survey response rate (10.9% for the membership survey and 46.7% for the course chairs survey). We hypothesize that individuals with the strongest opinions on the topic of diversity (either positive or negative) or who are most impacted by issues related to diversity were more likely to respond to the survey than many of their peers. The first suspicion was confirmed by the free text comments, where strongly worded comments on both sides of the question were identified. The second suspicion was confirmed by the demographic information collected from the respondents, where 22.7% identified as female and 37.7% identified as members of a URM group. These statistics are in sharp contrast to previous estimates of diversity within this organization (where the proportion of female members was previously estimated to be 10%)[6] and to anecdotal reports from the members. A more accurate way of collecting demographic information about OTA members would be to collect it through the Membership Committee. We hope that more accurate information about the diverse make-up of this organization will be available as a benchmark soon.

A second limitation pertains to the method of survey dissemination. The survey was disseminated by email to 1907 OTA members in the United States and Canada. Surveys delivered electronically are fraught with issues such as distribution to a "low priority" or "junk" mailbox based on mail server settings or simply lack of follow-up by the receiver. (For example, of only 710 members who opened the email, 207 responded—a 29.2% response rate among those who opened the email.) In the future, disseminating surveys at OTA-sponsored events like the Annual Meeting or educational courses may improve survey completion among engaged members.

5. Conclusion

Surveys of the Orthopaedic Trauma Association membership and faculty leadership revealed support for diversity initiatives among the membership. However, respondents' comments also highlighted some members' concerns about promotion and regulation of diversity at the organizational level. Specifically, several respondents cited concerns that diversity initiatives may reduce opportunities for members who are not part of traditionally underrepresented groups. These concerns must be reconciled with recent evidence that implicit or unrecognized bias may be contributing to lack of promotion among women and underrepresented minorities to ensure that all members are supported by the orthopaedic trauma community.

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