

Ethnic and Sex Diversity in Academic Plastic Surgery: A Cross-sectional Study

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Background: Ethnic, racial, and sex disparities continue to persist in medicine despite efforts to diversify the profession. In competitive surgical specialties such as plastic surgery, those disparities are particularly pronounced. This study aims to evaluate racial, ethnic, and sex diversity in academic plastic surgery.

Methods: We compiled a list of major plastic surgery professional societies, plastic surgery journal editorial boards, and plastic surgery accreditation boards to evaluate ethnic and sex diversity in society, research, and accreditation domains, respectively. Demographic data were collected and analyzed using the Mann–Whitney *U* test and the Kruskal–Wallis test.

Results: White individuals are significantly overrepresented across the professional and research domains, and Asian individuals are overrepresented in the professional domain when compared to non-white races. White individuals make up a total of 74% of the society domain, 67% of the research domain, and 86% of the accreditation domain when compared to all non-white surgeons. Male surgeons made up 79% of the society domain, 83% of the research domain, and 77% of the accreditation domain when compared to all non-male surgeons.

Conclusions: Ethnic, racial, and sex disparities persist in academic plastic surgery. This study, which looked at societies, editorial boards, and accreditation boards, demonstrated a persistent ethnic, racial, and sex homogeneity among leadership. Changes are required to continue to diversify the field and provide women and underrepresented minorities the tools needed to succeed. (*Plast Reconstr Surg Glob Open* 2023; 11:e4991; doi: [10.1097/GOX.0000000000004991](https://doi.org/10.1097/GOX.0000000000004991); Published online 30 June 2023.)

INTRODUCTION

Sex and race disparities have been studied in medicine,^{1–3} and efforts have been made to increase diversity among healthcare providers to better serve the needs of a diverse population. Minority patients tend to feel more comfortable with minority physicians, and minority physicians have been shown to provide care more frequently for minority patients.^{4,5} Many studies have been conducted to examine the quality of physician–patient relationships as they relate to race and sex concordance. Findings suggest

that racial concordance is associated with better communication across domains, including patient satisfaction, information giving, participatory decision-making, partnership building, visit length, and supportiveness and respect during conversations.⁶

These results indicate there is a need for better racial and ethnic representation among physicians. Although strides have been made in some medical specialties toward realizing this goal, plastic surgery has remained relatively stagnant over the last 40 years.^{7,8} In a recent meta-analysis focusing on representation in faculty and leadership positions in plastic surgery, Chawla et al discuss the importance of mentorship and sponsorship for women and underrepresented minority students in plastic surgery.⁹ The purpose of this study is to expand on these findings and discuss racial, ethnic, and sex diversity in the academic and professional realms. Specifically, we aim to examine representation reflected in plastic surgery societies, journal editorial boards, and accreditation boards. These will be termed the professional, research, and accreditation domains, respectively.

In our efforts to study diversity in academic medicine, we recognize that sex and race and ethnicity are social

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constructs. Ethnicity has historically referred to a person's cultural identity, whereas race refers to a broad category of people divided arbitrarily based on ancestral origin and physical characteristics. These categories are nuanced based on each person. In keeping with the recent guidelines for reporting race and ethnicity, we opted to use the term "race and ethnicity" throughout our article as a unified aggregate.¹⁰ On the other hand, sex can be defined according to biologic and physiologic factors, including sex hormones, external genitalia, and chromosomal makeup. Gender can be defined according to the social, environmental, and behavioral factors influencing an individual's health.¹¹ Presently, no accurate tool exists to assess an individual's gender. As such, throughout our article, we used the term "sex" to differentiate male and female subjects.

METHODS

We followed the methods outlined by Chawla et al for race and ethnicity and sexual identification.⁹ Initial data collection was performed on March 28, 2022. Surgeons' forenames; surnames; and links to their respective research, accreditation, or society websites were recorded by a single author (H.T.). These data were then reviewed by two authors independently (H.T. and D.R.). Determination of race and ethnicity occurred by photograph analysis and surname analysis. Photograph analysis was performed by identifying common facial features for race and ethnicity perception as outlined by Bulhoff et al.¹² Surname analysis was performed by looking at commonly used letter combinations for specific racial and ethnic groups while using the Oxford dictionary of surnames as a reference.

Once race and ethnicity were determined, physicians were classified into the most closely related "ethnic race" groups outlined in the 2019 AAMC census report. Ethnic/race categories include white, Asian, Hispanic/Latino, African American, other, multiracial, or Native American. According to recent JAMA guidelines for reporting race and ethnicity, the categories "other" and "multiracial" were excluded, as these categories were deemed nonspecific and indeterminable without self-reported data.¹⁰ The "unknown" ethnic race category in this study included physicians for whom an approximate categorization could not be determined using photo and surname analysis. For uniformity, the US Census Bureau for race and ethnicity was used for regional race and ethnicity classifications, meaning that those of Latino and Hispanic descent were both categorized singularly as "Hispanic." By the same standard, those having origins in any of the original people in the Far East, Southeast Asia, or the Indian subcontinent were characterized as "Asian." Sex was determined according to forename and picture included on the aforementioned professional websites. Social media photos were not included. Discrepancies between the initial two authors reviewing the data were to be brought to the senior author (E.F.). No discrepancies occurred. Physicians practicing outside of the United States were excluded. Physicians

Takeaways

Question: What races and genders are most represented in academic plastic surgery, specifically among plastic surgery societies, editorial boards, and accreditation boards?

Findings: White providers are overrepresented in plastic surgery societies and editorial boards when compared to all non-white races. Asian providers are overrepresented in societies when compared to other non-white races.

Meaning: Ethnic, racial, and sex disparities persist in academic plastic surgery. More effort must be made to diversify the field to better serve the needs of a diverse population.

holding multiple positions on one board or one position in multiple societies were only counted a single time, as we planned to examine the total number of each demographic across all accreditation boards, editorial boards, and societies.

Race, ethnicity, and sex diversity in the professional domain were studied by analyzing the boards of state, regional, and specialty plastic surgery societies. Societies listed on the American Society of Plastic Surgeons and Aesthetic Society websites were recorded. Inactive societies were excluded to yield a total of 34 societies with 285 board members. Inactive societies were defined as societies for which a professional webpage no longer exists or which clearly state on their professional webpage that they are no longer active. Board members were recorded for the 2021–2022 year. Variables collected included the forename, surname, and position of each member.

Race and ethnicity and sex diversity in the research domain were analyzed by assessing the members of editorial boards of five plastic surgery journals. A total of 413 members were recorded. Journals were selected according to impact factor and excluded if they were not based in the United States (Table 1).

Variables collected included the forename, surname, and position of each member. All editors were included, except for individuals not in possession of a medical degree or equivalent. All associate editors outside of the United States were also excluded. We collected similar data to investigate racial, ethnic, and sex diversity among accreditation boards in plastic surgery in order to investigate diversity in the accreditation domain. We visited the websites of the American Board of Plastic Surgery and the ACGME Plastic Subspecialty Board and recorded forename, surname, and position for a total of 35 members.

Table 1. Plastic Surgery Journals Selected for This Study with Associated Impact Factors

Journal	Impact Factor
<i>Plastic and Reconstructive Surgery</i>	4.73
<i>Aesthetic Surgery Journal</i>	3.48
<i>Annals of Plastic Surgery</i>	1.45
<i>Facial Plastic Surgery & Aesthetic Medicine</i>	4.61
<i>Journal of Reconstructive Microsurgery</i>	2.87

STATISTICAL ANALYSIS

Demographic information, professional domain, and research domain were reported as mean ± standard deviation and median (interquartile range). The Mann–Whitney *U* test was used to compare differences in demographic information, professional domain, and research domain among sex and race and ethnicity. To compare the demographic information, professional domain, and research domain among race categories, the Kruskal–Wallis test was used. A *P* value of less than 0.05 was considered significant. SAS 9.4 (SAS Institute Inc., Cary, N.C.) was used for data analysis.

RESULTS

Racial and Ethnic and Sex Composition in Academic Plastic Surgery

Of 285 society board members analyzed in this study, 225 (79%) were men and 61 (21%) were women. In terms of race and ethnicity, 208 members were white (74%), seven were Black or African American (2%), 44 were Asian (15%), five were Hispanic (2%), and 22 were of unknown race (7%). Stratifying according to race and sex, 162 participants were white men (57%), 46 were white women (16%), 35 were Asian men (12%), 18 were men of unknown race (7%), eight were Asian women (3%), five were Hispanic men (2%), four were Black or African American men (1%), three were Black or African

American women (1%), and four were unknown race. All other race groups that were not mentioned did not have any members represented (Fig. 1).

There were 412 editorial board members who met the inclusion criteria for our study, 343 of whom were men (83%) and 69, women (17%). Race and ethnicity stratification was as follows: 277 white (67%), six Black or African American (1%), 90 Asian (22%), 11 Hispanic (3%), and five unknown race (6%). All other race and ethnic groups that were not mentioned had a total of 0 members represented. Stratification according to race and ethnicity and sex is outlined according to the pie chart below (Fig. 2).

Between The American Board of Plastic Surgery and the ACGME Plastic Subspecialty Board, a total of 35 members were analyzed. Among these members, 27 were men (77%) and eight were women (35%). A total of 30 were white (86%), three were Asian (9%), and one was Black or African American (3%). Due to sample size, further analysis by race and ethnicity and sex was not performed.

Comparison of Academic Domains to US Bureau Census and American Academy of Plastic Surgeons Census

Next, we sought to compare the frequency of race and ethnic groups in the professional and research domains with the 2019 AAMC Census Report of all plastic surgery providers. The accreditation domain was not compared due to the low sample size. Results comparing the

Plastic Surgery Societies by Race and Ethnicity and Sex

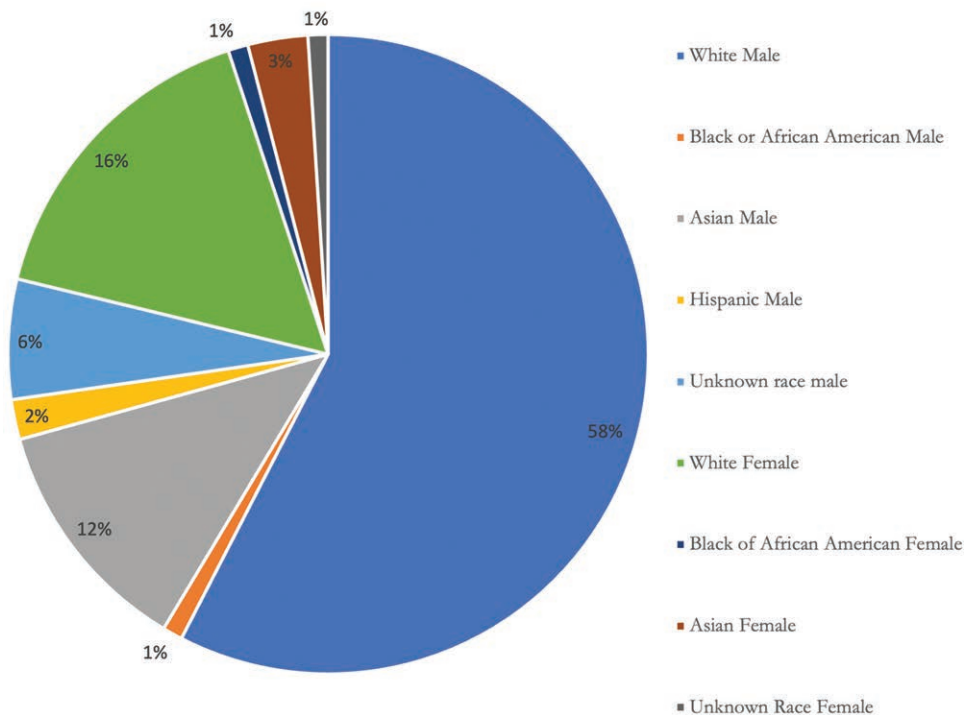


Fig. 1. Pie chart demonstrating the distribution of society board members according to race and ethnicity and sex.

Plastic Surgery Editorial Boards by Race and Ethnicity and Sex

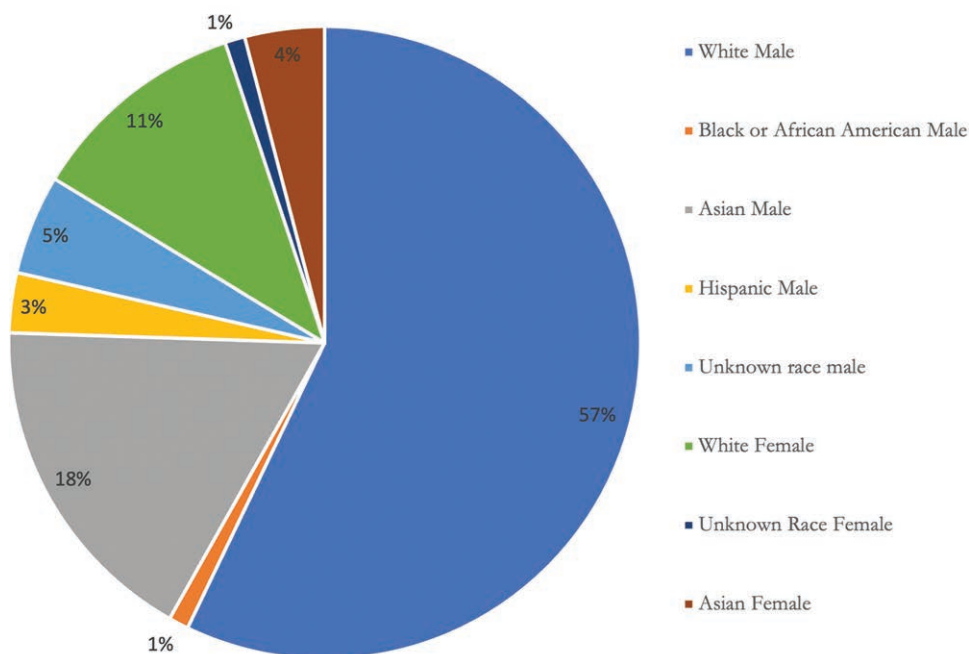


Fig. 2. Pie chart demonstrating the distribution of editorial board members according to race and ethnicity and sex.

frequency of different race and ethnic groups in the professional domain to the frequency of those same groups in all of plastic surgery yielded differences of +9%, -1%, +3%, and -3% for white, Black or African American, Asian, and Hispanic providers, respectively. The frequency of different race and ethnic groups in the research domain compared to the frequency of those same groups in all of plastic surgery yielded differences of +3%, -2%, +10%, and -2% for white, Black or African American, Asian, and Hispanic providers, respectively.

We also compared the frequencies of sexes represented in the professional and research domains with the 2019 AAMC Census Report. In the professional domain, differences in the frequency of men and women represented on society boards compared to frequency of men and women in all of plastic surgery respectively were +4% and -4%. In the research domain, differences in the frequency of men and women represented on editorial boards compared to frequency of men and women in all of plastic surgery, respectively, was 0% for both.

Demographic Information Reported as Mean and Standard Deviation

We sought to report demographic information in the professional and research domains as mean and standard deviation values. Using the Mann-Whitney U and Kruskal-Wallis tests, we determined that white individuals are significantly overrepresented across professional and research domains, while Asian individuals are overrepresented in the professional domain when compared to all

other non-white races. The sample size for the accreditation domain was determined to be too small to make additional conclusions (Fig. 3).

DISCUSSION

Our results demonstrate that disparities in racial and ethnic diversity within plastic surgery professional, research, and accreditation domains continue to exist despite efforts to expand diversity in medicine. Representation is important for many reasons, all of which significantly contribute to providing meaningful patient care. As discussed previously, racial concordance can contribute to better communication between patient and physician.¹³ Additionally, having physicians of diverse backgrounds contributes to a diversity of perspectives that can lead to advances in the specialty.

Significant efforts have been undertaken to quantify disparities within plastic surgery. Several studies have looked at racial and ethnic diversity among residency applications to plastic surgery programs and have found that Black and Hispanic applicants are severely underrepresented in plastic surgery residency programs despite many applying.^{7,14,15} A few studies have also examined representation within academic plastic surgery by examining faculty composition, rank and research output, determining that women and minorities were underrepresented and had less research productivity.^{9,16} These findings are consistent with the “leaky pipeline” phenomenon, where women and underrepresented minorities are not as highly

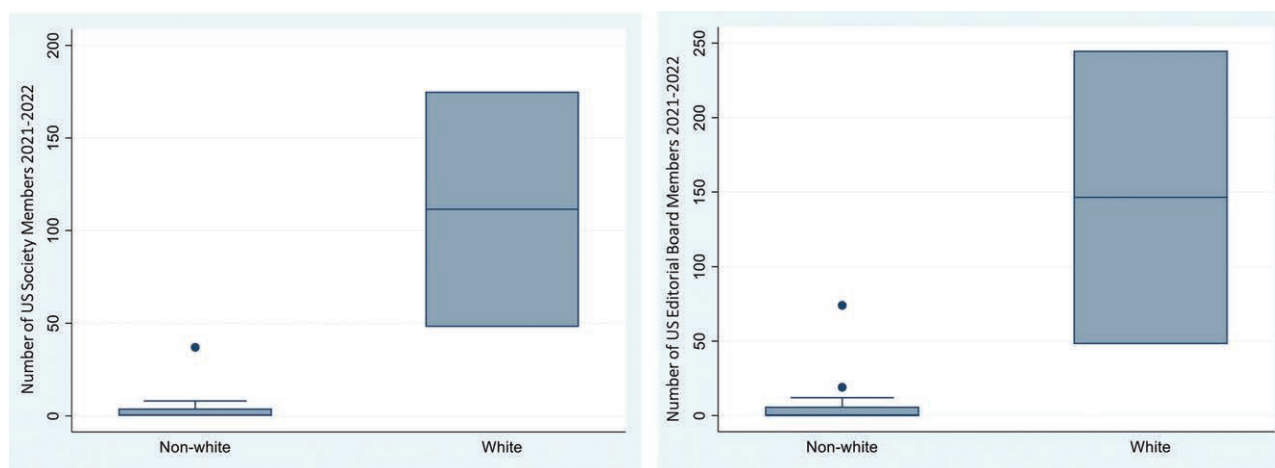


Fig. 3. Box and whisker plots for professional and research domains. A, Professional domain. B, Research domain.

represented in competitive specialties. Many reasons for the “leakiness” of the pipeline have been described in the literature, with some of the most common challenges being lack of access to mentorship, information, or advising, as well as family conflict.¹⁷ Studies have shown that effective mentorship broadens residency diversity, where females and underrepresented minorities place significant importance on the race and ethnicity and sex of academic faculty members.¹⁸ One example of a mentorship program that has been established is PREPPED, which is directed toward those who are underrepresented, come from socioeconomically disadvantaged backgrounds, or do not have a home plastic surgery residency program.¹⁹ Additionally, distance mentorship has been trialed previously, which may be able to reach those interested in plastic surgery that do not have an established network nearby.²⁰ National societies may also play a significant role in the promotion of underrepresented minority students. For example, the Garnes Society offers scholarships for students to attend conferences and channels through which Black and underrepresented minorities in plastic surgery can interface.²¹ Increased efforts should be directed toward creating mentorship programs across the country to broaden access, and further research should be done to quantify how mentorship programs contribute to changing the demographics within plastic surgery domains.

Researchers have also studied representation among leadership positions within academic plastic surgery.^{9,22,23} Our study furthered this discussion by examining racial and ethnic demographics within plastic surgery societies, journal editorial boards, and accreditation boards. Previous research indicates similar findings to our study, where minorities are not adequately represented in leadership positions. The issue remains in how to enact change. One potential strategy is for journal editorial boards and professional societies to examine how their recruitment and appointment processes for members and focus on retaining those who are committed to upholding and promoting policies directed at diversity and inclusion. This will help change the demographics within

plastic surgery. Additionally, Arya et al have proposed a comprehensive model to address systemic barriers to creating a more diverse workforce in vascular surgery, which could likely be applied to diversifying plastic surgery.²⁴ This model advises transparency in recruitment to leadership and research positions and zero tolerance for harassment, among other ideas. This model should be adopted by large plastic surgery societies and accreditation boards to fully address disparities in plastic surgery.

One significant limitation of our study is that the demographic data on plastic surgeons was not self-reported and was instead extracted using photogenic and surname identification. This relies on the evaluators’ preconceived notions, which may not align with how people actually identify. Additionally, surnames may not be representative of a person’s self-identified background. Though this limits the quality of our study, it serves as a foundation for further research, namely in developing more accurate ways to report diversity within plastic surgery domains. One opportunity to capture the diversity more accurately in plastic surgery would be to encourage surgeons to publicly share their pronouns on their respective professional websites. Additionally, we are not able to quantify how many positions may have been offered but declined. It is possible that positions were offered to surgeons from underrepresented backgrounds and that this data has not been captured. Having access to this data would help determine why people decline these positions. Our study was also limited by a small sample size within the accreditation domain, which may lead to skewed or biased results. We did not examine diversity in plastic surgery on a global scale. Although this may have increased our sampling base, the United States has a unique healthcare system and medical education process that differs from other countries, which can make it difficult to compare and implement solutions. One published study specifically found that representation in academic plastic surgery in Canada was better than in the United States; however, it still found disparities in faculty representation across the board.⁹ Further research could be undertaken to examine global plastic surgery societies and editorial

boards to determine whether disparities exist globally. We also note that racial, ethnic, and sex disparities exist across many medical specialties. In fact, previous studies examining diversity in academic, research, and accreditation domains in orthopedic and general surgery yielded similar results.^{1,25} A recent study examined gender and racial disparities in general and vascular surgery and also found them to be prominent in trainees and the workforce.²⁴ Thus, the issue of diversity is not unique to plastic surgery as a specialty, but emphasizes a larger problem in medicine as a whole. Lastly, this study analyzes a few components of what diversity entails, and we acknowledge that diversity includes life experiences, religion, sexual orientation, gender, and so on. We encourage professional societies to take these aspects into account when finding diverse candidates.

CONCLUSIONS

Although efforts have been taken to increase ethnic and sex diversity in medicine, plastic surgery continues to fall short of achieving these goals. Our study demonstrates a lack of diversity across multiple domains of plastic surgery, indicating that white individuals still dominate the specialty. Further research should be directed toward accurately depicting the diversity in plastic surgery, identifying barriers for minorities in attaining leadership positions, and furthering efforts with recruitment, matriculation, and retention of minorities.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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