

A Regional Analysis of Diversity, Equity, and Inclusion Initiatives in Plastic Surgery Residency Programs

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Background: Residents seek inclusive training environments that prioritize diversity. To evaluate programs that focus on these elements, websites have become essential for applicants but often lack in diversity, equity, and inclusion (DEI) content. Thus, this study aimed to assess current efforts and attention to DEI within plastic surgery residency programs and compare them by region.

Methods: A retrospective review of Accreditation Council for Graduate Medical Education plastic surgery residency program websites was conducted. Various elements of DEI were identified on each program's page and were compared based on geographic region.

Results: Upon review, 82 residency programs were identified. Of these programs, 40 (48.7%) mentioned at least 1 element of DEI on their website, 38 (46.3%) promoted gender affirmation surgery as a part of their program, 29 (35.4%) mentioned advocacy, and 39 (47.6%) showcased at least 1 publication/presentation about DEI. Between the regions, there was no statistically significant difference in mention of DEI or perceptible representation in leadership. However, there was a significant difference in the mention of gender affirmation surgery, with the Northeast having the most mention (74.1%, $P = 0.006$). In addition, there was a significant difference in DEI research featured on websites, with the West having the highest rate of features (69.2%, $P = 0.019$).

Conclusions: This study demonstrates the variance of different aspects of DEI on plastic surgery websites. To foster diverse prospective applicants, plastic surgery residency programs must be aware of these paucities and address them accordingly. (*Plast Reconstr Surg Glob Open* 2024; 12:e6283; doi: [10.1097/GOX.00000000000006283](https://doi.org/10.1097/GOX.00000000000006283); Published online 26 November 2024.)

INTRODUCTION

Disparities in healthcare remain a national issue, with minoritized communities trailing behind White populations in health outcomes.¹⁻³ Research consistently demonstrates that underrepresented patients often experience better health outcomes when they receive care from providers who share similar cultural backgrounds.⁴⁻⁶ These physicians bring not only linguistic and cultural

competence, but also a deeper understanding of the social determinants of health that disproportionately affect their communities.

In the evolving landscape of plastic surgery education, many incoming residents recognize the significance of diversity and intersectionality in medicine and are prioritizing training that mirrors these ideals. As such, the specialty has focused on an expansion of diversity, equity, and inclusion (DEI) initiatives and representation within plastic surgery. Milestones include the establishment of Operation Diversity Plastic Surgery, the creation of the Plastic Surgery Foundation Diversity and Inclusion Grant, and the induction of Dr. Steven Williams as the first African American president of the American Society of Plastic Surgeons in 2023.⁷

Applicants have increasingly utilized residency program websites to understand how specific programs contribute to the expansion of DEI. Elements such as the mention of DEI or engagement initiatives have been shown to appeal to applicants, with as many as 78% of applicants believing that elements on a program website influenced their decision to apply, and 41% refraining

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from applying based on website quality.^{8–13} From the limited literature, it has become evident that most websites have significant potential for expanding their DEI content. Therefore, this study aimed to analyze DEI elements among plastic surgery websites and identify trends across regions to assess the perceived commitments of programs to DEI.

METHODS

Setting

A list of Accreditation Council for Graduate Medical Education accredited plastic surgery residency programs for 2024 was compiled, encompassing both integrated programs and integrated/independent programs. This list was cross-referenced with that published within the American Society of Plastic Surgeons medical student forum. Each program website was identified by a Google search for the program name and “plastic surgery residency.” Programs defined as fellowships were excluded from the search. Solely independent programs were excluded as they often shared a website with the department of surgery, serving as a potential confounder of data.

Website Scraping

DEI literature was analyzed, and interviews with medical students and faculty were conducted to determine the elements that prospective applicants and champions of DEI in the literature would like to see on websites to showcase a program’s commitment to DEI. Through these methods, 10 elements were formulated, including (1) the mention of DEI, (2) advocacy for underrepresented communities, (3) community engagement initiatives, (4) global engagement initiatives, (5) didactics sessions dedicated to DEI, (6) diversity research showcasing, (7) curriculum including gender affirmation surgery, (8) a surgical DEI committee, (9) a plastic surgery faculty member on a diversity committee, and (10) perceptible representation in leadership (program director/assistant program director). Elaborations of each of the 10 elements are described in Table 1. Websites were then evaluated for the presence or absence of these elements. Additional data points such as program state/region, status of integrated or independent, diversity of residents, and program size were collected.

All pages and subsections of the available websites were reviewed by 3 authors (D.G.C., K.L., and G.B.). Each author reviewed the first 5 websites to identify these elements and ensure accuracy between reviewers. Discrepancies were addressed among authors, and an independent review of each website was conducted to generate interrater reliability. The 3 authors communicated regularly to further clarify each element and address any questions.

Comparative Analysis

Programs were divided by region into the West, Midwest, South, and Northeast. Comparative analysis of DEI elements by region was performed. Primary outcomes included the 10 DEI elements identified by the 3

Takeaways

Question: How do a program’s perceived commitments to diversity, equity, and inclusion (DEI) differ by region?

Findings: After a review of plastic surgery residency websites, the most frequent elements found that showcase a program’s commitment to DEI were the mention of DEI (48.8%), a curriculum containing gender affirmation surgery (48.8%), and featured diversity research (43.9%). Between regions, there were significant differences in the mention of gender affirmation surgery and featured DEI research across these websites.

Meaning: Further understanding and addressing these differences between regions represents a step toward creating DEI within plastic surgery.

authors. χ^2 Analysis was utilized for categorical data, and independent *t* test or Wilcoxon signed-rank test were utilized for continuous data depending on data normality. Analysis of variance was performed to compare means for variables with more than 2 independent groups. Statistical significance was determined by a *P* value less than 0.05. All statistical analysis was performed in RStudio 4.2.1 (Posit Software, Boston, MA).

RESULTS

A total of 82 residency programs were identified, of which all had plastic surgery residency webpages. When examining these programs by region, 13 (14.9%) were located in the West, 21 (25.6%) in the Midwest, 21 (25.6%) in the South, and 27 (25.6%) in the Northeast.

Overall, program websites had an average of 3.1 of the 10 aforementioned DEI elements. The most common elements included mention of DEI (40, 48.8%), curriculum containing gender affirmation surgery (40, 48.8%),

Table 1. Elements of Diversity

Mention of DEI	Mentions of DEI such as a diversity statement, a distinct DEI section with a header, or a program mission statement with DEI
Advocacy for URM communities	Posts related to the empowerment or education of marginalized communities
Community engagement initiatives	Participation in community engagement or service
Global engagement initiatives	Participation in global engagement or service
DEI didactics sessions	Curriculum or grand rounds related to DEI
Diversity research spotlight	Posts highlighting current research on disparities
Gender affirmation surgery	Mentions of training in gender affirmation surgery
Surgical DEI committee	Committees within the department of surgery devoted to DEI initiatives
Plastic surgery faculty on DEI leadership	Participation of a plastic surgery faculty member on a surgery or an institutional DEI committee
Program leader perceptible representation	A program director or assistant program director who was deemed as representative of an expansion of plastic surgery diversity

Table 2. Plastic Surgery Residency Program Website Elements Based on Regional Status

	Overall	West	Midwest	South	Northeast	P
	n = 82	n = 13 (15.8%)	n = 21 (25.6%)	n = 21 (25.6%)	n = 27 (32.9%)	0.509
No. DEI elements	3.1	3.8	2.9	2.4	3.4	0.064
Mention of DEI	40 (48.8%)	7 (53.8%)	12 (57.1%)	11 (52.4%)	10 (37.0%)	0.509
Advocacy for URM communities	29 (35.4%)	6 (46.2%)	10 (47.6%)	3 (14.3%)	10 (37.0%)	0.104
Community engagement initiatives	11 (13.4%)	1 (7.7%)	3 (14.3%)	4 (19.0%)	3 (11.1%)	0.779
Global engagement initiatives	36 (43.9%)	7 (53.8%)	10 (47.6%)	8 (38.1%)	11 (40.7%)	0.792
DEI didactics sessions	12 (14.6%)	1 (7.7%)	3 (14.3%)	1 (4.8%)	7 (25.9%)	0.299
Diversity research spotlight	36 (43.9%)	9 (69.2%)	6 (28.6%)	7 (33.3%)	17 (63.0%)	0.019
Gender affirmation surgery	40 (48.8%)	6 (46.2%)	9 (42.9%)	5 (23.8%)	20 (74.1%)	0.006
Surgery DEI committee	34 (25.6%)	8 (61.5%)	7 (33.3%)	8 (38.1%)	11 (40.7%)	0.418
Plastics faculty on DEI leadership	10 (12.2%)	4 (30.8%)	1 (4.8%)	3 (14.3%)	2 (7.4%)	0.115
Perceptible representation in leadership	36 (43.9%)	8 (61.5%)	11 (52.4%)	10 (47.6%)	7 (25.9%)	0.116
Diverse PD	22 (26.8%)	6 (46.2%)	6 (28.6%)	7 (33.3%)	3 (11.1%)	0.096
Diverse APD	21 (25.6%)	4 (30.7%)	7 (33.3%)	4 (19.0%)	6 (22.2%)	0.486

APD, assistant program director; PD, program director.

Boldface values are statistically significant.

featured diversity research (36, 43.9%), global engagement initiatives (36, 43.9%), and perceptible representation within leadership (36, 43.9%). The least noted elements included plastic surgery faculty members on a DEI committee (10, 12.2%), community engagement initiatives (11, 13.4%), and DEI didactic sessions (12, 14.6%) (Table 2).

When comparing between regions, there were no significant differences in the mention of DEI ($P = 0.509$), community engagement initiatives ($P = 0.779$), global engagement initiatives ($P = 0.792$), DEI didactics sessions ($P = 0.299$), surgery DEI committees ($P = 0.418$), plastic surgery faculty involvement on DEI committees ($P = 0.115$), or perceptible representation on leadership ($P = 0.116$). There was, however, a significant difference in diversity research featured on websites ($P = 0.019$) with the West having the highest proportion of features (9, 69.2%), followed by the Northeast (17, 63.0%), the South (7, 33.3%), and the Midwest (6, 28.6%). In addition, there was a significant difference in the mention of gender affirmation surgery ($P = 0.006$) with the Northeast having the most mention (20, 74.1%), followed by the West (6, 46.2%), the Midwest (9, 42.9%), and the South (5, 23.8%). Of note, the total number of DEI elements on each website trended toward significance ($P = 0.064$) with the West having the most DEI elements (3.8), followed by the Northeast (3.4), the Midwest (2.9), and the South (2.4).

DISCUSSION

After the COVID-19 pandemic, residency websites have become increasingly important for showcasing key aspects of residency programs.¹⁴ Through meticulously crafted content including mission statements, virtual tours, resident day in the life videos, and detailed program overviews, each website offers a comprehensive glimpse into the offerings and unique culture of each institution. Previous research suggests that residency websites often lack content that is valued by applicants.^{13,15} Specifically, social factors such as DEI efforts have been identified as desired by applicants but not always delivered by websites.^{16,17} Thus, this study identified 10 elements that

showcase a plastic surgery program's commitment to DEI and compared their prevalence by region to illuminate differences in DEI efforts.

Stratified by region, it was found that there was a significant difference in the promotion of DEI-specific research on websites. Understanding patient demographics, access to resources, and the political climate of a community can help guide physicians to provide relevant care. Dr. Paris Butler has set a standard for impactful DEI-specific research within the United States. His findings that African American women receive reconstructive breast surgery at half the rate of the majority of women have sparked widespread discussion and brought this disparity to the forefront in leading academic medical centers, motivating these institutions to be a part of the solution rather than contributing to the problem.^{18,19} Highlighting this research on residency program websites allows programs to communicate their commitment to train socially and culturally competent physicians, aware of specific community needs.

Reporting of gender-affirming care (GAC) was also significantly different between regions. Northeastern residency programs had the highest mention of gender affirmation surgery, followed by Western, Midwestern, then Southern programs. This finding is paralleled by Kim et al,²⁰ who found that the number of gender-affirming surgery procedures performed is highest in the Western US (50.8%), followed by the Northeast (32.3%), Midwest (9.1%), and South (8.0%). Insurance coverage may be a factor impacting these findings. Medicaid explicitly covers GAC in coastal regions of the West and Northeast and has the largest number of exclusions in the Midwest and South.²¹ Furthermore, the Kaiser Family Foundation noted that state legislature prohibiting or restricting minors from accessing GAC has increased more than 5-fold from 2021 to 2024.²² Plastic surgeons practicing in the American South and American Midwest have had to adjust to the disproportionate amount of legislation passed restricting minor access to GAC compared to their Northeast and Western counterparts and can still be impacted by medical state-tourism and interstate legal ramifications. These factors are important for plastic surgery applicants, as they need to be aware of the possible

future legislation that can hinder the scope of their training if they decide to apply to certain regional programs impacted by restrictive legislation. The landscape of GAC is continuously changing, and plastic surgery programs throughout the United States must be adaptive. Although there were regional differences in the reporting of gender affirmation surgery, the topic emerged as 1 of the most commonly featured topics across websites, with prevalence significantly increasing from 19.5% to 48.8% in 2021.¹⁷ Emphasizing support and training for gender affirmation surgery on websites may be important to prospective trainees. A 2021 article by the American Society of Plastic Surgeons found that aspiring residency candidates continue to receive guidance to conceal their sexual orientation or gender identity while applying, to avoid prejudice and discrimination within the field.²³ Highlighting support of gender affirmation surgery on residency websites may engage those interested in working with the LGBTQ+ community and have positive effects on recruiting a diverse team.

Perceptible representation in leadership was found most frequently in the West (61.5%), followed by the Midwest (52.4%), South (47.6%), and Northeast (25.9%) but did not reach significance. The importance of perceptible representation to students was shown when a group of prospective applicants from Howard University, Meharry Medical College, and Morehouse Medical College pioneered Operation Diversify Plastics, an initiative that connects underrepresented in medicine (URM) students with plastic surgery faculty members to increase in the matriculants within the specialty. The initiative was started due to a desire to increase the number of diverse role models, mentors, and sponsors in plastic surgery.²⁴ The inadequate diversity in plastic surgery faculty is a multifaceted problem that does not have an easy solution. Though women make up more than 50% of medical students, they comprise 38% of plastic surgery residents, 20% of faculty, 13% of program directors, and 8% of chairs.²⁵ This trend follows for African and Latino Americans, as they make up 3.7% and 6.2% of plastic surgery residents, 1.4% and 3.6% of academic plastic surgeons and 1.6% and 4.9% of tenured professors, respectively.²⁴ One idea that has been proposed to address this issue is action at the leadership level to target students.^{26,27} URM plastic surgeons in positions of power can serve as mentors for prospective students. For example, plastic surgery leadership at The University of California at San Diego pioneered a “DEI Mentorship Program and Workshop” where URM students were invited to receive didactic lectures, a suture laboratory, a resident panel, and a dissection laboratory. After the workshop conclusion, URM students interested in plastic surgery were more confident in their knowledge, technical skills, and connections with mentors.²⁸ Efforts such as these empower underrepresented communities and serve as a promising model for other institutions.

This study faced several limitations, including limited data availability across websites. Conducted by prospective plastic surgery applicants and plastic surgery residents, the study raised a critical concern: if the reviewers struggled to find this information upon an in-depth review, how can we expect other applicants to do so? With limited data on

websites, a program’s efforts toward expanding DEI may not be fully represented. Future studies should survey residents and program directors to further assess a program’s commitment to DEI. Additional limitations include the nature in which the data were collected. Often, websites were outdated, causing inconsistencies in data collection. When collecting perceptible representation in leadership, photometric analysis (pictures + name) was utilized.²⁹ This methodology may have caused deviations in data among faculty that identify with an ethnicity that differs from the appearance of their photograph. In an aim to decrease these 2 sources of bias, this study performed interrater reliability among 3 authors of different sexes and ethnicities. An interrater reliability of 96% was calculated among authors, indicating excellent agreement. Finally, the 10 elements identified by the authors could not fully capture all aspects of every program. Thus, further studies should utilize surveys of programs and residents to determine how their perception of the DEI efforts of the program aligns with the reported website content.

CONCLUSIONS

With the impact of websites on an applicant’s interest in programs and the increasing importance on inclusivity within program culture, it may be helpful for programs to place additional focus on highlighting their involvement in and value placed in inclusive efforts. In addition, it may be helpful to demonstrate efforts and diversity visually with faculty and resident photographs as well as photographs of community engagement and other inclusive events. These elements can not only strengthen the program’s perception to applicants but also increase the diversity of plastic surgery teams. Between regions, differences existed in the amount of featured diversity research and mention of gender affirmation surgery. Understanding and addressing these differences represents a step toward creating DEI within plastic surgery.

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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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