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Diversity Scholarships for Plastic Surgery Subinternships: A National Review of US Residency Programs

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Background: Residency programs have developed monetary initiatives for students underrepresented in medicine (URiM). Our team sought to provide a centralized resource for URiM students seeking plastic surgery subinternships with funded opportunities.

Methods: A cross sectional analysis of URiM scholarships offered by US integrated plastic surgery programs (n = 91) between July and September 2023. The study used residency program web domains. Investigators collected information on the monetary value of scholarship, eligibility criteria, and required application documents. Inferential analyses were conducted to investigate whether programs' geographic region or Doximity ranking played a role in likelihood of scholarship existence.

Results: The study found that approximately 52.7% (n = 48) of programs have in place monetary support for underrepresented visiting medical students (eg, stipend or reimbursement). The average monetary support was $1670. A univariate test demonstrated that programs with lower rankings in both reputation and research were less likely to have a scholarship available than higher ranking programs ($P = 0.002$; $P = 0.02$, respectively). Programs located in the Midwest regions were 3.5 times more likely to have a diversity scholarship available ($P = 0.034$). In our multivariate analysis, reputation ranking and geographic region remained significant. A Pearson chi square test showed the greatest proportions of scholarships among geographically similar programs to be in the Midwest (70%), however, not statistically significant.

Conclusions: This study provides a centralized resource for URiM students interested in completing away rotations. Further investigation into development of these scholarship opportunities would be of much benefit and could guide other programs in the funding their own diversity scholarships. *(Plast Reconstr Surg Glob Open 2024; 12:e6015; doi: 10.1097/GOX.0000000000006015; Published online 18 September 2024.)*

INTRODUCTION

With the ultra-competitive landscape of the plastic surgery match cycle, applicants have been encouraged to participate in visiting student subinternships around the country.[1,2] A conglomerate of papers have demonstrated the strong correlation between home students matching at their own home institutions, as well as away rotators matching where they chose to rotate.[3–6] The average number of completed away rotations by an applicant is 2–3.[6] A recent study found the average cost of one of these away rotations to be $2000.[7] Therefore, the base price point for an average number of completed "aways" per applicant is approximately $5000. This approximation does not include auxiliary costs of the residency application process (eg, ERAS, virtual set-up, flights, lodging). These financial constraints bar many students from the ability to complete the average number among the competitive pool.[8–10] An important consideration here is the effect on

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those without home programs and students identifying as underrepresented in medicine (URiM). URiM students typically take out more student loans than their classmates and graduate with more debt.[11,12] We should consider the financial impact away rotations have on this cohort and the likelihood that this challenge contributes to the low representation within plastic surgery.

Many programs have developed monetary scholarships and support for URiM students. Our team sought (1) to provide a centralized resource for URiM students seeking subinternships with funded opportunities and (2) to investigate the relationship between programs offering these scholarships, Doximity rankings, and geographic program location.

Takeaways

Question: What scholarships are available for students seeking to complete plastic surgery away rotations and who identify as underrepresented in medicine?

Findings: A cross-sectional analysis of US integrated plastic surgery programs was conducted to identify these scholarships. Our study revealed that half of the programs are offering monetary support for this population, Midwest programs tend to have more scholarships, and students should prepare early not just for these scholarships, but for away rotations in general.

Meaning: This is a centralized resource for underrepresented in medicine students interested in completing away rotations in plastic surgery.

METHODS

Selection Criteria

This study was deemed institutional review board exempt. Programs participating in the Electronic Residency Application Service, the Plastic Surgery Common Application, or Doximity were included in this study (n = 91).

Data Collection

We conducted a cross-sectional analysis of URiM scholarships offered by plastic surgery residency programs between July and September 2023. Two independent study investigators (L.A. and P.O.) reviewed all 91 program web domains for inclusion; programs with at least one scholarship offered to URiM medical students were included. The study included any scholarship offered to URiM students as defined by the program offering the scholarship and/or as defined by the Association of American Medical Colleges.[13] (**See table, Supplemental Digital Content 1**, which shows the visiting medical student diversity scholarships. **http://links.lww.com/PRSGO/D385**.) (**See table, Supplemental Digital Content 2**, which shows the monetary value of scholarships. **http://links.lww.com/PRSGO/D386**.) (**See table, Supplemental Digital Content 3**, which shows the eligibility. **http://links.lww.com/PRSGO/D387**.) (**See table, Supplemental Digital Content 4,** which shows the application materials. **http://links.lww.com/PRSGO/D388**.)

Once a final list of programs was attained, web domains were more thoroughly reviewed for several variables (see below for variable categorization). For remaining variables, further review included the use of Visiting Student Learning Opportunities, an electronic system used by students to apply for subinternships.

Variables were categorized into four subheadings: general information, monetary value of scholarships, eligibility, and application materials. General information included scholarship website link, contact name and email, length of eligible subinternships, and eligible months. (**Supplemental Digital Content 1, http://links.lww.com/PRSGO/D385**.) Monetary value included stipends and/or reimbursements, and any additional support (outside of the aforementioned) for transportation, room and board, and food (**Supplemental Digital Content 2, http://links.lww.com/PRSGO/D386**). For programs with a monetary value range, the average was taken. The following were considered under eligibility: diversity definition, medical school accreditation, applicant citizenship, Visiting Student Learning Opportunities requirement, medical school year, United States Licensing Examinations (USMLE 1 and/or 2) or Comprehensive Osteopathic Medical Licensing Examination (COMLEX), and core clerkship completion (**Supplemental Digital Content 3, http://links.lww.com/PRSGO/D387**). Core clerkships were defined as obstetrics and gynecology, general surgery, internal medicine, and pediatrics. Remaining variables fell under application materials: curriculum vitae (CV)/resume, number of letters of recommendation (LOR), transcript, and number of essays required (**Supplemental Digital Content 4, http://links.lww.com/PRSGO/D388**).

Additional information included program geographic region (eg, South, West, Northeast, and Midwest), Rural–Urban Continuum Codes (RUCC), and 2022–2023 program rankings per Doximity—both reputation and research rankings[14] (**Supplemental Digital Content 1, http://links.lww.com/PRSGO/D385**).

Statistical Analysis

Descriptive statistics were first used to analyze variables. An inferential statistical workup followed, looking at programs with scholarships compared with those without, and further investigation of whether programs' geographic region or Doximity ranking played a role in likelihood of scholarship existence. Specifically, for uni- and multivariate analysis, generalized logistic models were constructed to compare rates of scholarship availability stratified per regionality; RUCC, reputation, and research rank respectively (Tables 1 and 2). A Pearson chi square test was performed to analyze differences in proportion per region (Table 3).

RESULTS

Overview

Geographic distribution of scholarships was as follows: South, n = 11, West, n = 8, Northeast, n = 12, and Midwest, n = 17. RUCC codes were as follows: RUCC 1, n = 34, RUCC 2, n = 11, RUCC 3, n = 3.

Table 1. Univariate Analysis of Diversity Scholarship Availability

	Awareness of Guidelines	
Characteristic	**Odds Ratio (95% CI)**	***P***
Region of the country		
South	REF	
West	1.45 (0.41–5.15)	0.56
Midwest	**3.53 (1.13–11.92)**	**0.034**
Northeast	1.45 (0.48–4.48)	0.50
RUCC status		
One	REF	
Two	0.62 (0.11–3.02)	0.45
Three	0.82 (0.31–2.20)	0.70
Reputation ranking		
Higher	REF	
Lower	**0.97 (0.95–0.98)**	**0.0020**
Research ranking		
Higher	REF	
Lower	**0.97 (0.96–0.99)**	**0.020**

Table 2. Multivariate Analysis of Diversity Scholarship Availability

	Awareness of Guidelines	
Characteristic	**Odds Ratio (95% CI)**	***P***
Region of the country		
South	REF	
West	1.25 (0.17–10.33)	0.75
Midwest	**4.87 (1.32–20.23)**	**0.026**
Northeast	1.69 (0.47–6.29)	0.42
Reputation ranking		
Higher	REF	
Lower	**0.96 (0.93–0.99)**	**0.014**
Research ranking		
Higher	REF	
Lower	**1.01 (0.97–1.04)**	**0.61**

Table 3. Chi Square Analysis of Scholarship Availability by Region

	Scholarship Availability = [n] (%)		
Characteristic	**Yes [n = 102] (%)**	**No [n = 94] (%)**	***P***
Region			
South	11 (40.74)	16 (59.26)	
West	8 (50)	8 (50)	
Midwest	17 (70.83)	7 (29.17)	
Northeast	12 (50)	12 (50)	0.18

Monetary Value of Scholarship

A total of 48 programs (52.7%) had monetary support for URiM students through either stipends (n = 36) or reimbursements (n = 9). (**Supplemental Digital Content 2, http://links.lww.com/PRSGO/D386.**) Three programs had a scholarship but did not explicitly state the type of disbursement (University of Rochester, University of Mississippi, and UT Health Houston). The average value of stipends was $1990 (n = 32) and of reimbursements was $2055 (n = 9). Stipend amounts were not listed for four programs: Johns Hopkins University, Rush University, UC Irvine, and Wake Forest. Four programs offered completely subsidized housing. One program covered travel costs in total (University of Kansas).

Eligibility

Most programs defined URiM status similar to the Association of American Medical Colleges[13] (**Supplemental Digital Content 3, http://links.lww.com/PRSGO/D387**). Low socioeconomic status was accounted for in 18 programs. Students without home programs were explicitly listed in two scholarship profiles, and four more programs listed "educational/academic disadvantage" as qualifying. Programs catered mainly to fourth year medical students. USMLE Step 1 or COMLEX were required by 39 programs (81.3%). Although Step 2 scores were never required, if they were available, 13 programs asked applicants to disclose.

Application Materials

The number of required LOR ranged from zero to three (required by 26 programs), and the mode number of essays was one (range: 1–6) (required by 41 programs). No programs advertised a guaranteed interview for residency. CVs/resumes and transcripts were required by more than 93% of programs. (**Supplemental Digital Content 4, http://links.lww.com/PRSGO/D388**).

Doximity Rankings and Scholarship

Amongst all plastic surgery residency programs, we categorized them as either a higher or lower ranking using both reputation and research Doximity rankings. A univariate test demonstrated that programs with lower rankings in both reputation and research were less likely to have scholarship available than higher ranking programs ($P = 0.002$; $P = 0.02$ respectively; Table 1). A multivariate analysis test did not maintain this difference for research rankings ($P = 0.61$). However, the analysis did continue to demonstrate a statistically significant difference with respect to reputation ($P = 0.014$; Table 2).

Geography and Scholarship

When evaluating geographic location, a univariate analysis indicated that Midwest programs were 3.5 times more likely to have a scholarship available for visiting students ($P = 0.034$). This statistically significant difference remained when a multivariate analysis was performed ($P = 0.026$). A Pearson chi square test showed that the greatest proportions of scholarships among geographically similar programs were in the Midwest (70%); however, this was not statistically significant (Table 3 and Fig. 1). There was no statistically significant difference in scholarship availability between different RUCC codes.

DISCUSSION

In the face of the highly competitive plastic surgery match cycle, visiting subinternships have become a standard among applicants that bolster likelihood of matching.[2,15] Even early studies (2010 and 2016) reported that 100% of applicants completed at least one away

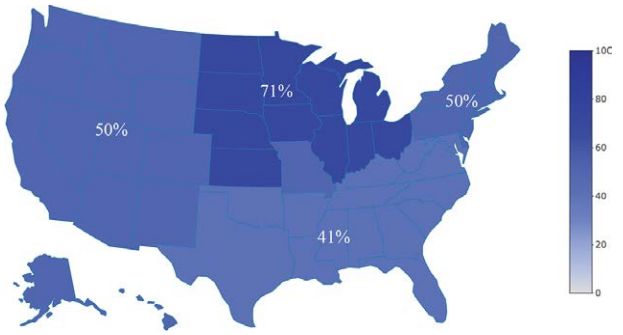

Fig. 1. Proportion of scholarships available amongst geographically similar programs

rotation.[16–18] Studies have demonstrated a correlation between more away rotations and a successful match.[19]

Our study sheds light on the financial challenges facing URiM students undertaking away rotations. The findings provide an overview of available scholarships for URiM students seeking plastic surgery subinternships. (**Supplemental Digital Contents 1–5, http://links.lww.com/PRSGO/D385, http://links.lww.com/PRSGO/D386, http://links.lww.com/PRSGO/D387, http://links.lww.com/PRSGO/D388, http://links.lww.com/PRSGO/D389.**) The implications of these results underscore the ongoing support and need for greater equity in the process.

Financial Barriers and Scholarships

Reghunathan et al purported a guide for holistic review of surgery residents in the match process—attempting to address healthcare disparities.[20] Similarly, providing a repository of scholarships as presented in this article aims to support URiM representation in plastic surgery. Plastic surgery residency has been shown to be among the most expensive specialties to apply to.[8,9] Egro et al conducted a systematic review, yielding the overall financial application expenditure to range from $9475 to $17,735, dependent on number of away rotations and interviews conducted.[9] Completing the average number of away rotations (2–3) would incur an additional $4000–$5000.[7] Two studies purported the mean cost of completing subinternships to be between $3500 and $4000—not accounting for multiple aways.[8,10] The corona virus 2019 (COVID-19) cycle mitigated many costs. However, in the most recent cycle, programs have started to transition back to in-person interviews. American Council of Educators in Plastic Surgery national statement on the 2023–2024 cycle left this decision up to the programs.[21] Understanding that URiM students are more likely to graduate with increased debt, this typically translates to forgoing additional away rotations.[19]

Overall, it is encouraging that nearly half of the programs offer monetary support for URiM students. The average stipend of $1990 indicates a substantial contribution that nearly covers the average price for an away rotation (approximately $2000), yet the discrepancies between amounts highlight the need for standardized financial aid. A 2022 multi-subsurgical specialty study reported a similar aid value ($2007.69 ± 474.90) and illustrated a similar proportion of programs with available scholarships.[19] Additionally, the provision of fully subsidized housing and travel assistance by some programs exemplifies other support modems.

Students without Home Programs

One cohort who can benefit from a repository of subinternship scholarships is those without home plastic surgery programs.[15] Recent articles demonstrated that medical students are most likely to match to their home institution. During the 2021–2022 match, data revealed that applicants were 2.24-times more likely to match at their home institutions than in previous years (CI: 1.32–3.8, $P = 0.0027$).[4] Another study reported that this trend carried over to the 2022–2023 year.[5] Those without a home program are at an inherent statistical disadvantage. Students namely have difficulty in gaining entry-level awareness of the field, ultimately hindering one's ability to attain solid LORs. The latter is significant, as LORs are rated as one of the most important factors in selecting applicants.[22–29] High-quality letters are those written by a well-known plastic surgeon and who can speak on specific qualities and one-on-one experiences with the applicant.[23] Although our study reveal a few programs who explicitly signaled out "students without home programs" as an eligible group, these students can arguably fall under designations such as "other," "educationally disadvantaged," "others whose backgrounds and experiences would diversify their clinical fields," etc.

A 2022 study found those without home programs who were successful in the match actively sought out opportunities outside of their own institutions.[30] Some additional resources for students without plastic surgery programs include PREPPED: Plastic Surgery Research, Education, and Preparation Promoting Equity and Diversity, Explore Plastic Surgery, Operation Diversify, and "Plastic and Reconstructive Surgery Virtual Curriculum.[31–34]

Impact of Program Rankings and Geographic Location

Our study indicates a notable correlation between program rankings, geographic location, and scholarship availability. Lesser ranked programs (as per Doximity, reputation and research) were less likely to offer these scholarships. Higher ranked programs may have more baseline funding that allows for scholarship creation and/or lesser ranked programs may already have higher rates of "diversity" that would prompt fewer diversity recruiting strategies.

Recent literature has demonstrated that geographic bias plays a role in the match algorithm.[35,36] In our study, the Midwest region emerged as a significant hub for scholarship availability, suggesting regional disparities that demand attention. It is important to note that although the Midwest had more scholarships proportionally, there was no difference. These findings suggest a few implications. First, Midwest programs may have baseline lower levels of diversity within their own regional populations, which may make for a harder sell to diverse students. A 2020 survey by the US Census in 2020 reports Midwest states as tending to have lower diversity indices.[37] The

literature has shown that diverse students are more likely to favor practicing within diverse patient populations.[38,39] Further investigation of residency program classes' diversity indices could shine light on whether lower intraprogram diversity index prompts programs to devise more diversity recruiting strategies (eg, diversity scholarships).

The absence of significant differences based on RUCC status implies that the availability of scholarships is not necessarily linked to urbanization levels. The latter, however, must consider that all programs fell within the first three (1–3) classifications of RUCC (ie, all metropolitan areas).

Effectiveness of Scholarships and Other Diversity Recruitment Strategies

The goal of these scholarships is to increase the recruitment and retention of diverse students. Touching a point made in the previous section, it remains to be determined if these scholarships are truly effective in increasing diversity within residency classes and within the overall field of plastic surgery. Bernstein et al found that compared with other surgical specialties, plastic surgery residency classes were ranked sixth out of eight in diversity.[19] Nguemeni Tiako et al examined racial and ethnic diversity across 18 specialties with a cohort of over 26,000 residency applicants and found the lowest URM representation to be within plastic surgery.[38] A 2022 article investigated the status of diversity within plastic surgery over the last decade (2010–2020), specifically assessing trends among URiM students applying to plastic surgery. This study found no significant change in these applications between 2010–2014 and 2015–2020, except for a statistically significant reduction in Hispanic/Latino applications (4% to 3%, $P = 0.01$). Interestingly, a statistically significant increase within the Hispanic, Latino, or of Spanish origin (4%–5%, $P < 0.01$) and other (4%–5%, $P = 0.02$) groups was noted among faculty data with a proportioned decrease in White faculty members.[40] These data points underscore the importance of initiatives aimed at diversifying the specialty. Conversely, an analysis on whether program director and overall faculty/resident diversity identity play a role in influencing whether such scholarships exist would be of interest in a future investigation.

Some other initiatives include the West Coast Plastic Surgery Mentorship Program, Plastic Surgery Foundation Diversity Grant, and a comprehensive repository of diversity travel scholarships to conferences.[41–43] Notably, the American Council of Educators in Plastic Surgery aimed to provide a similar list of URiM—The Visiting Student Program Clearinghouse. Upon review, the last known update occurred in 2016 and yielded a total of 51 scholarships. This list can be used as a supplement should applicants run into issues with communicating with programs.

Fostering Student Agency in Career Planning

Crucial to overcoming the challenges associated with accessing scholarships and away rotations is the active involvement and agency of medical students in planning their educational journey. Empowering students to take responsibility for understanding the requirements and seeking out resources early on in their medical education can significantly impact their success.[44]

Medical education is a partnership between institutions and students, requiring active engagement from both sides. A set of 2016 studies exemplifies this relationship well by examining roles of mentee and mentor in mentorship within plastic surgery—if done well, it can result in mutual value.[45,46] Students must proactively seek information about specialty-specific requirements, scholarship opportunities, and application processes. Therefore, even though we have provided a centralized resource for URiM students seeking rotations, much remains from the student side, in terms of active planning for requirements, reaching out to coordinators for student-specific information, and navigating the remaining continuum of the application process.

The following results are of particular importance to the planning aspect of subinternships:

- USMLE Step 1 or COMLEX were required by 81.3% of programs.
- At least one LOR was required by 54% of programs.
- At least one essay was required by 85% of programs.
- CV/resumes and transcripts were required by more than 93% of programs.

Most applicants likely do not need to worry about board examination timing, as these are typically done within the first two medical school years. However, a thoughtful CV and essay takes time to develop, thus requiring early preparation. More importantly, an applicant is better set up for a strong LOR if a mentorship relationship is started early within medical school.

LIMITATIONS

All information was mined from the residency programs' websites. There may be inherent delays in the accuracy of information provided. However, this is a standard limitation with any cross-sectional analysis. An additional study looking at the discrepancies between web domain information and emailed responses from program coordinators could be of value, examining the availability of information. If programs had scholarships available but did not have them displayed on their pages, the value of having such a scholarship was diminished.

This study used Doximity as a metric to stratify programs; this is not a validated metric of program quality.[47] Although not the best metric for program stratification, at this time, there is no validated and widely used alternative. One attempt as such was by Boyd et al, which produced a list related to program quality, but it included only 25 programs, and was published in *Annals of Plastic Surgery*, which may not be as easily accessed by our viewership.[48] Finally, Doximity is routinely updated every year.

Other financial scholarships available through organizations such as the Latino Medical Student Association, Student National Medical Association, and National Medical Foundation were not included in this study. A future investigation could be to expand this database to include scholarship opportunities outside of institution-based ones.

FUTURE DIRECTIONS

Further investigation into the opinions of program leadership and how they fund these scholarship opportunities would be of much benefit. These insights could help guide other programs in the development of their own scholarships for URiM rotators. Surveying the cohorts completing audition rotations and cohorts of those matching at programs offering diversity scholarships would give insight into whether these scholarships are truly influencing diversity in plastic surgery. It would be interesting to investigate if matched students who received diversity scholarship would have completed their aways if they did not have the opportunity of funding. Such studies could provide guidance on whether institutions should be channeling energy toward or away from these initiatives.

CONCLUSIONS

Similarly to other surgical specialties, plastic surgery programs continue to struggle in achieving adequate URiM representation—unfortunately, remaining relatively unchanged in the last decade. Of course, such an issue is multifactorial; however, financial barriers imposed by a costly application process and necessity to complete away rotations are certainly contributory. This centralized resource of diversity scholarships is an effort to increase equity regarding away rotations, and in doing so, expectantly help increase representation of URiM students in plastic surgery.

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DISCLOSURE

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

REFERENCES

1. Sinik LM, Egan KG, Bagwell AK, et al. Evaluating the importance of sub-internships on the 2022 integrated plastic surgery match during continued COVID-19 regulations. *J Surg Educ.* 2022;79:1435–1440.
2. Asserson DB, Sarac BA, Janis JE. A 5-year analysis of the integrated plastic surgery residency match: the most competitive specialty? *J Surg Res.* 2022;277:303–309.
3. Sergesketter AR, Glener AD, Shammas RL, et al. The association between away rotations and rank order in the integrated plastic surgery match. *Plast Reconstr Surg.* 2021;147.
4. Antezana LA, Rode M, Muro-Cardenas J, et al. Home sweet home: the integrated plastic surgery residency match during the COVID-19 pandemic. *Plast Reconstr Surg.* 2022;150:492e–494e.
5. Muro-Cardenas J, Antezana L, Rode M, et al. A state of flux: trends in integrated plastic surgery home matching in 2022. *Plast Surg.* 2022:229255032211230.
6. Asadourian PA, Murphy AI, Marano AA, et al. Home field advantage: assessing the geographic trends of the plastic surgery residency match during the COVID-19 pandemic. *J Surg Educ.* 2021;78:1923–1929.
7. Ayala A, Ukeje C. There is no place like home: rethinking away rotations. *Acad Med.* 2020;95:e5.
8. Gordon AM, Sarac BA, Drolet BC, et al. Total costs of applying to integrated plastic surgery: geographic considerations, projections, and future implications. *Plast Reconstr Surg Glob Open.* 2021;9:e4058.
9. Egro FM, Smith BT, Nguyen VT. Systematic review of the cost of applying to integrated plastic surgery residency. *Plast Reconstr Surg.* 2018;142:820e–821e.
10. Drolet BC, Brower JP, Lifchez SD, et al. Away rotations and matching in integrated plastic surgery residency: applicant and program director perspectives. *Plast Reconstr Surg.* 2016; 137.
11. Youngclaus J, Fresne JA. *Physician education debt and the cost to attend medical school, 2020 update.* Association of American Medical Colleges: 2020.
12. McMichael B, Lee A, IV, Fallon B, et al. Racial and socioeconomic inequity in the financial stress of medical school. *MedEdPublish.* 2022;12:4.
13. Association of American Medical Colleges. Underrepresented in medicine definition. AAMC. Published 2003. Available at https://www.aamc.org/what-we-do/equity-diversity-inclusion/underrepresented-in-medicine. Accessed November 16, 2023.
14. USDA United States Department of Agriculture Economic Research Service. Rural Urban Continuum Codes (RUCC). January 2024.
15. Mehta K, Sinno S, Saadeh PB, et al. Swings and roundabouts: paradoxes of the away rotation. *Plast Reconstr Surg.* 2015;136:293e.
16. Winterton M, Ahn J, Bernstein J. The prevalence and cost of medical student visiting rotations. *BMC Med Educ.* 2016;16:291.
17. Higgins E, Newman L, Halligan K, et al. Do audition electives impact match success? *Med Educ Online.* 2016;21:31325.
18. Wood JS, David LR. Outcome analysis of factors impacting the plastic surgery match. *Ann Plast Surg.* 2010;64:770–774.
19. Bernstein SL, Wei C, Gu A, et al. An analysis of underrepresented in medicine away rotation scholarships in surgical specialties. *J Grad Med Educ.* 2022;14:533–541.
20. Reghunathan M, Camacho JM, Blum J, et al; TNSGBPRCGAA. A practical guide to implementing holistic review during surgery resident selection. *Plast Reconstr Surg Glob Open.* 2023;11:e5461.
21. American Council of Educators in Plastic Surgery. ACEPS position on 2023–2024 interviews. ACEPS. Available at https://acaplasticsurgeons.org. Published 2023. Accessed November 16, 2023.
22. Allred LJ, Rebowe RE, Harrington MA, et al. The plastic surgery residency interview: a survey of residents and program directors. *Plast Reconstr Surg Glob Open.* 2018;6:e1812.
23. Nagarkar P, Pulikkottil B, Patel A, et al. So you want to become a plastic surgeon? what you need to do and know to get into a plastic surgery residency. *Plast Reconstr Surg.* 2013;131:419–422.
24. Liang F, Rudnicki PA, Prince NH, et al. An evaluation of plastic surgery resident selection factors. *J Surg Educ.* 2015;72:8–15.
25. Janis JE, Hatef DA. Resident selection protocols in plastic surgery: a national survey of plastic surgery program directors. *Plast Reconstr Surg.* 2008;122:1929–1939.
26. Tadisina KK, Orra S, Gharb BB, et al. Applying to integrated plastic surgery residency programs: trends in the past 5 years of the match. *Plast Reconstr Surg.* 2016;137.
27. Schultz KP, Shih L, Davis MJ, et al. Integrated plastic surgery applicant review: important factors and selection criteria. *Plast Reconstr Surg Glob Open.* 2020;8:e2892.
28. Stohl HE, Hueppchen NA, Bienstock JL. The utility of letters of recommendation in pedicting resident success: can the ACGME competencies help? *J Grad Med Educ.* 2011;3:387–390.
29. Thomas HC, Chen S, Narisetti L, et al. The utility of the plastic surgery standardized letter of recommendation form in predicting residency match outcomes. *J Surg Educ.* 2023;80:948–956.
30. Keane CA, Akhter MF, Sarac BA, et al. Characteristics of successful integrated plastic surgery applicants from US allopathic

medical schools without a home integrated program. *J Surg Educ*. 2022;79:551–557.
31. Downer MA, Hill D, Mulenga C, et al. Operation diversify plastic surgery: an innovative strategy to increase diversity in plastic and reconstructive surgery. *Plast Reconstr Surg Glob Open*. 2023;11:e5236.
32. Furnas HJ, Comer CD, Shiah E, et al. Paging all readers! let us explore plastic surgery focus: special topics. *Plast Reconstr Surg*. 2021;148:695–699.
33. Shen AH, Alfonso AR, Cuccolo NG, et al. Designing a plastic and reconstructive surgery virtual curriculum: assessment of medical student knowledge, surgical skill, and community building. *Plast Reconstr Surg*. 2022;150:691–700.
34. Reghunathan M, Blum J, Davis GL, et al. PREPPED: plastic surgery research, education, and preparation promoting equity and diversity. *Plast Reconstr Surg*. 2023;152:201e–203e.
35. Nagarkar PA, Janis JE. Eliminating geographic bias improves match results: an analysis of program preferences and their impact on rank lists and results. *Plast Reconstr Surg*. 2018;142:82e–88e.
36. Nagarkar PA, Janis JE. Unintended bias and unintended consequences: geographic bias in the plastic surgery residency match. *Plast Reconstr Surg Glob Open*. 2022;10:e4063.
37. United States Department of Commerce. 2020 census: racial and ethnic diversity index by state. US Census Bureau. Available at https://www.census.gov/library/visualizations/2021/dec/racial-and-ethnic-diversity-index.html. Published 2020. Accessed November 16, 2023.
38. Nguemeni Tiako MJ, Johnson S, Muhammad M, et al. Association between racial and ethnic diversity in medical specialties and residency application rates. *JAMA Netw Open*. 2022;5:e2240817.
39. Garcia AN, Kuo T, Arangua L, et al. Factors associated with medical school graduates' intention to work with underserved populations. *Acad Med*. 2018;93:82–89.
40. Hernandez JA, Kloer CI, Porras Fimbres D, et al. Plastic surgery diversity through the decade: where we stand and how we can improve. *Plast Reconstr Surg Glob Open*. 2022;10:e4134.
41. Antezana LA, Xie KZ, Weissler JM, et al. Medical students' exposure to plastic surgery: a cross-sectional review of scholarly and academic opportunities. *Plast Reconstr Surg Glob Open*. 2022;10:e4239.
42. Plastic Surgery Foundation. Diversity and inclusion grant. Plastic Surgery Foundation. Available at https://www.thepsf.org/research/grants-program/diversity-and-inclusion-recruitment-and-retention-grant. Published 2023. Accessed November 16, 2023.
43. Reghunathan M, Llaneras J, Segal R, et al. The west coast plastic surgery mentorship program. *Ann Plast Surg*. 2023;90:S274–S280.
44. Sarac BA, Janis JE. Matching into plastic surgery: insights into the data. *Plast Reconstr Surg Glob Open*. 2022;10:e4323.
45. Barker JC, Rendon J, Janis JE. Medical student mentorship in plastic surgery: the mentee's perspective. *Plast Reconstr Surg*. 2016;137:1934–1942.
46. Janis JE, Barker JC. Medical student mentorship in plastic surgery: the mentor's perspective. In: *Plastic and Reconstructive Surgery*. Vol 138.; 2016.
47. Mauch JT, Azoury SC, Onyekaba G, et al. Plastic surgery program leadership perspectives on doximity residency navigator rankings: do we need a better guide for prospective applicants? *J Surg Educ*. 2022;79:1076–1081.
48. Boyd CJ, Davis C, Lindsey JT, et al. Ranking United States plastic surgery residency programs based on academic achievement of faculty members. *Ann Plast Surg*. 2021;86:206–209.