



ORIGINAL ARTICLE

Education

Instagram Use Among Integrated Plastic Surgery Residency Programs: New Insight for Applicants?

Elizabeth M. Hogue, BA* Mathew J. Gregoski, PhD† Sloan V. Rhodes, BS* Fernando A. Herrera, MD‡

Background: Social media has emerged as a valuable resource by which prospective applicants may evaluate residency programs, with Instagram being the most widely used platform. This study aims to categorize and evaluate the accuracy of Instagram content shared by integrated plastic surgery residency programs.

Methods: Integrated plastic surgery residency program accounts were queried on Instagram. Post content in 2021 and 2022 was reviewed and categorized based on topics of interest to plastic surgery applicants. Regression analysis was performed to evaluate the relationship between program size and total number of posts and program diversity and diversity, equity, and inclusion posts. The relationship between research posts and faculty *h*-index was assessed using a 2-tailed *t* test.

Results: Eighty-six program accounts with 3168 Instagram posts were analyzed. Resident life was the most common post category; 13.51% were surgical, with microsurgery being the most common subspecialty. Global health and mentorship were the least commonly posted. A weak correlation was found between program size and total posts. No significant relationship was found between diversity, equity, and inclusion posts and program diversity or between research posts and research productivity of the program.

Conclusions: The widespread use of Instagram by integrated plastic surgery residency programs provides applicants with a valuable tool to select programs aligning with their interests. Post categorization by subjects of interest to applicants may be a useful guide for program selection. However, applicants should be aware that Instagram posts do not necessarily equate with reality. (*Plast Reconstr Surg Glob Open 2025;13:e6717; doi: 10.1097/GOX.00000000000006717; Published online 18 April 2025.*)

INTRODUCTION

Instagram has become the most used social media platform among residency programs and applicants since its adoption in 2015 and is utilized by nearly every plastic surgery residency program. ^{1–6} Similarly, most plastic surgery applicants are active on social media. ⁶ During the

From the *College of Medicine, Medical University of South Carolina, Charleston, SC; †Department of Public Health, Medical University of South Carolina, Charleston, SC; and ‡Department of Surgery, Medical University of South Carolina, Charleston, SC. Received for publication October 7, 2024; accepted March 6, 2025. Presented at the American Medical Association Interim Meeting, November 2023, Washington, DC; the American Medical Association Annual Meeting, June 10, 2023, Chicago, IL; FLEX Research Day at the Medical University of South Carolina, April 14, 2023, Charleston, SC.

Copyright © 2025 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal. DOI: 10.1097/GOX.000000000000006717

2020–2021 application cycle, 70% of integrated plastic surgery applicants used Instagram, and 62% of applicants reported following a plastic surgery residency program on Instagram.^{2,4} Furthermore, applicants report that social media content influences their perception of programs and intended program rank, and applicants increasingly value program information sourced from social media.^{2,4,7,8}

During the COVID-19 pandemic, virtual interviews replaced the traditional in-person interview process of the residency match. Currently, most programs are returning to an in-person format, the platform preferred by most applicants and program directors when surveyed, but some continue to offer a virtual-only interview experience. Applicants felt that virtual interviews caused inferior familiarization with programs compared with inperson interviews, increasing reliance on digital resources such as social media. Ar,11-14 Historically, program websites were the primary online source of program information, but social media has increasingly become applicants' preferred source for program information, in part because it facilitates frequent, time-stamped interactions. Ac,6,9,10,15 Concurrently, programs are integrating social media into

Disclosure statements are at the end of this article, following the correspondence information.

their resident recruitment strategies, promoting topics such as resident life. $^{1.5,16-19}$

It remains unclear whether plastic surgery programs effectively address applicant queries with Instagram content, and no study has examined post content when categorized by factors of interest to applicants. Herein, we assess the distribution of post content across all integrated plastic surgery residency accounts. We predict that post content will reflect the interests of plastic surgery applicants. Also, to the best of our knowledge, no study assesses the veracity of social media content. Therefore, we specifically assess whether Instagram post content accurately reflects program size; diversity, equity, and inclusion (DEI) efforts; and research output. Our findings offer guidance for future plastic surgery applicants regarding their use of social media when assessing residency programs.

METHODS

On March 1, 2023, the Accreditation Council for Graduate Medical Education website was used to identify integrated plastic and reconstructive surgery residency programs in the United States. Fellowship programs were excluded. Program Instagram accounts were identified using the Instagram search engine. Queries included "X plastic surgery residency," "X plastic surgery residency program," "X plastic surgery," and "X surgery residency," where "X" was the full or abbreviated program name. All Instagram posts between January 1, 2021, and December 31, 2022, were surveyed by 1 author (E.M.H.) in March 2023. This study was exempt from review by the institutional review board because no human or animal subjects were involved.

Account biographies were investigated to determine if the account represented the entire division of plastic and reconstructive surgery or specifically the integrated residency program and, if so, whether the account was resident-run. Two programs possessed both a division and residency-specific account. Because the residency-specific accounts were inactive, the division's account was studied. Additional parameters were collected, including the total number of Instagram posts, the number of posts from 2021 to 2022, and the date of the first post.

Content categories were created based on a review of the literature to reflect themes commonly posted by plastic surgery residency programs and topics important to applicants. Feasibility of data collection was also considered when creating categories. Categories could neither be too broad and vague nor so numerous that data collection was overly intensive. Distinct categories included types of surgery (hand, craniofacial, microsurgery, aesthetic, and breast), research, DEI, resident life, conferences, global health, visiting professors, and mentorship (Table 1). If surgical specialty was unclear, then the author E.M.H. chose the subspecialty that was most heavily represented in the post. Such difficulties arose if multiple subspecialties were represented in 1 post, or if a single operation required collaboration of multiple subspecialties. If it was unclear whether a post addressed diversity, then hashtags were assessed for the word diversity. All

Takeaways

Question: Are plastic surgery residency Instagram accounts appropriately addressing applicants' interests?

Findings: Surveying 86 program Instagram accounts, the findings reveal that resident life is the most popular post content, whereas global health and mentorship are the least posted. Instagram post content regarding research output and diversity efforts cannot be reliably verified.

Meaning: This study shows that integrated plastic surgery program Instagram accounts cater to applicant interests; however, the results highlight that applicants should be mindful of misrepresentation on social media.

other Instagram posts were excluded from categorization, including faculty highlights, awards, and schedule updates, for example.

Program websites were also reviewed to determine program size. The total number of faculty and residents associated with each program was recorded. Numbers of Black and Hispanic residents in each program were recorded

Table 1. Definitions of Content Categories

Content Category	Definition
Hand surgery	Upper extremity surgeries including microsurgery of the hand/wrist; laboratory practice of surgical techniques in hand surgery
Craniofacial surgery	All head and neck procedures, excluding aesthetic facial procedures; laboratory prac- tice of surgical techniques in craniofacial surgery
Microsurgery	All microsurgical procedures, excluding microsurgery on the hand, head/neck, and breast; laboratory practice of microsurgical technique
Aesthetic surgery	All aesthetic procedures including but not limited to Botox, abdominoplasty, face lift, and breast augmentation
Breast surgery	Breast reconstruction, breast reduction, and revision surgeries
Other surgery	General surgery; posts of operations that did not specify the type of surgery
Research	Residents presenting research at conferences; congratulations on residents' research; posts of research articles that included a resident as the author
DEI	Displays of racial/ethnic or sex/LGBTQ+ diversity; support for programs that increase diversity with which the residents can get involved
Resident life	Wellness days; specific reference in the caption to wellness; resident activities taking place outside of the hospital; resident "spotlights" highlighting hobbies and personality; sup- port for residents' family life and childbirth
Conferences	Conference attendance excluding any reference to research
Global health	Mission trips; reference to a global health component of the program
Visiting professors	Showing visiting faculty
Mentorship	Direct display of mentorship occurring between residents and faculty or medical students

because these ethnicities are the least represented in plastic and reconstructive surgery training.²⁰ The author (E.M.H.) used resident photographs and names provided by the website to determine ethnicity.

Post content was assessed using descriptive statistics. A regression analysis was performed to evaluate the relationship between frequency of posts and program size. Of note, 1 institution was excluded because faculty members could not be quantified due to a lack of website information. A regression analysis was also performed to evaluate the relationship between DEI posts and the quantity of residents who are underrepresented in medicine (URiM). Three programs were excluded from this analysis because resident photographs were not provided by the website. A 2-tailed t test was performed to assess the relationship between research posts and research output. The h-index of faculty members was used to quantify research output because h-indices are the most established method of evaluating research impact across plastic surgery studies.^{21–23} Frequency of research posts among the 5 institutions with the highest 5-year faculty h-index as calculated by Boyd et al²⁴ were compared with the frequency of research posts from all other programs. The 5 high output programs were the University of Pennsylvania, the University of Michigan, Johns Hopkins, Harvard University, and Stanford University.

For all statistical analyses, a value of P less than 0.05 was considered significant. Statistical analysis was performed by 2 authors (M.J.G. and E.M.H.) using IBM SPSS Statistics Version 28.0.1.0 and Microsoft Excel for Mac Version 16.80.

RESULTS

Of 88 Accreditation Council for Graduate Medical Education–accredited integrated plastic surgery residency programs, 2 lacked an Instagram account at the time of data collection: the University of Texas Health Science Center at Houston and the Mayo Clinic College of Medicine and Science in Jacksonville. Eighty-six programs (97.7%) possessed an account and were included in the analysis. The earliest established Instagram accounts included the University of Chicago and the University of Southern California in October 2015.

There was an average of 172.85 ± 15.12 and a median of 129.5 total posts per account. Loma Linda University had a minimum of 23 posts, and Washington University had a maximum of 794 posts (range = 771) (Fig. 1). When limited to the period of data collection, 2021-2022, there was a mean of 67.99 ± 5.63 posts and a median of 57 posts. During this time, the University of Louisville had a minimum of 7 posts, and Stanford University had a maximum of 344 posts (range = 337).

Of all accounts, 17 (19.77%) represented both the residency program and the division, and 69 (80.23%) solely represented the residency program (Table 2). Among residency program-specific accounts, 11 (15.9%) stated in their biography that they were "resident-run." Interestingly, there were 902 (\bar{x} 12.36) resident life posts among resident-specific accounts and 333 (\bar{x} 19.59) resident life posts among other accounts.

In summary, 3168 (54.2%) of 5847 Instagram posts over a 24-month period could be categorized. On average, 37.31 (range 3–163) posts were included per account. In

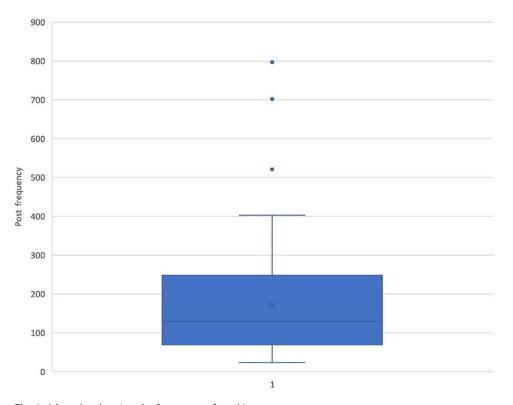


Fig. 1. A boxplot showing the frequency of total Instagram posts.

Table 2. Type of Instagram Account

Account Type	No. Accounts (%)
Department-wide	17 (19.77)
Residency-specific	69 (80.23)
Resident run	11 (15.9)
Not specified	58 (84.1)

order of content frequency, resident life (X = 14.24), research (X = 4.13), conferences (X = 3.65), microsurgery (X = 3.01), visiting surgeon (X = 2.48), DEI (X = 0.96), craniofacial surgery (X = 2.00), other surgery (X = 1.32), aesthetic surgery (X = 1.31), hand surgery (X = 1.02), breast surgery (X = 0.60), global health (X = 0.42), and mentorship (X = 0.26) were posted. Resident life comprised 21.7% of total posts, whereas surgery comprised 13.51% (4.34% microsurgery, 2.92% craniofacial, 1.92% aesthetics, 1.98% other, 1.49% hand, and <1% breast) (Fig. 2). Global health and mentorship were the least commonly posted with 35 and 22 total posts, respectively. Only 18 (20.1%) programs posted about global health, and only 10 (11.6%) programs posted about mentorship.

Linear regression revealed a weakly positive association between program size and number of posts (R = 0.31; $R^2 = 0.09$; P = 0.005) (Fig. 3). Each additional resident or faculty member was associated with 3.12 more Instagram posts (P = 0.005). However, no significant association could be found between program diversity and quantity of DEI posts (R = 0.16; $R^2 = 0.026$; P = 0.15) (Fig. 4). No significant association was found between mean number of research posts and research output (P = 0.64).

DISCUSSION

It is widely recognized that Instagram use among plastic surgery residency programs and applicants has increased significantly in recent years, becoming nearly ubiquitous. In this study, we found that 97.7% of integrated plastic

surgery residency programs possess an Instagram account compared with a reported 56% of programs in 2019. Description 15 Applicant surveys found that most applicants utilize social media and follow a plastic surgery residency program. Multiple studies discovered that between 20% and 73% of applicants believe social media significantly influences their opinions about plastic surgery residency programs. We analyzed the content of residency Instagram accounts to better understand if programs are appropriately addressing applicants' interests, and then we examined program-specific factors to determine the validity of Instagram post content.

Previous studies have evaluated Instagram post engagement, account followers, and number of posts. Shiah et al⁵ also found the University of California Irvine among the top Instagram posters and found that the number of Instagram posts had a strong and significant correlation with the number of residents and faculty. Similarly, our results show that program size correlates with Instagram post frequency, but the relationship is weaker than previously shown. Possibly, smaller programs have begun posting more as Instagram has become more of an expectation rather than an exception.

When evaluating residency programs, applicants search social media to determine how programs emphasize resident life and program culture. 10,18,19 Applicants evaluate resident happiness and program collegiality to find a "good fit," and they report wanting more social media content addressing program culture, resident life, and team bonding. 17 Increased engagement with posts about resident life emphasizes the desire for such content. 1,4,7 Our study reveals that programs are prioritizing advertising resident life on Instagram. Program culture was the most posted topic, comprising 21.7% of all posts. This is not surprising, as social media is often cited by applicants as a primary resource to learn about resident life outside the hospital. 18,19

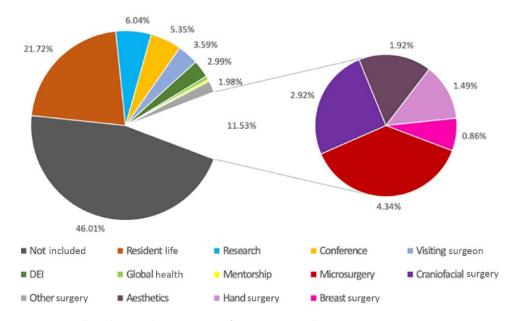


Fig. 2. A pie chart showing the percentage of Instagram posts by content category.

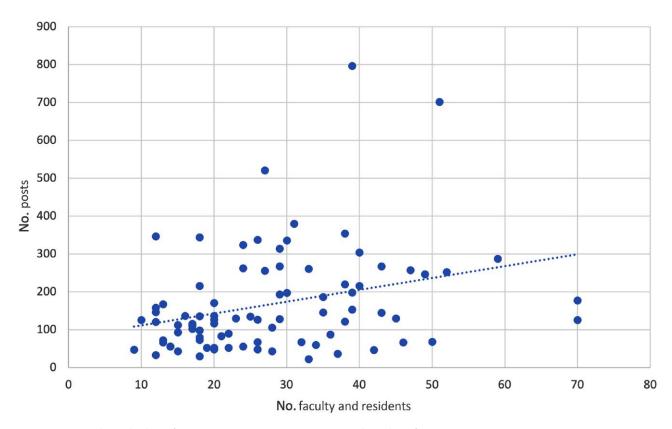


Fig. 3. A scatter plot with a line of regression comparing program size and number of posts.

Interestingly, we find a noticeable lack of Instagram content addressing DEI efforts despite studies having shown that DEI content receives more engagement, and applicants seek programs showing online support for DEI efforts.^{2,14,18} On average, fewer than 1 post per account addressed DEI, findings consistent with the current literature analyzing post content. 2,5,16,25 For example, Das and Drolet discovered that only 65.5% of plastic surgery programs had any posts about women, 40% about race or ethnicity, and 33.3% about LGBTQ+. Furthermore, we could not verify the truthfulness of DEI posts. No significant relationship existed between Instagram DEI content and the number of URiM residents. Similarly, we were unable to confirm a significant relationship between posts about research and program research output as represented by faculty h-indices. Therefore, applicants should be mindful that Instagram content regarding DEI and research may not be a meaningful representation of program support for diversity among residents.

Applicants desire program investment in resident training and mentorship. However, we unfortunately find a lack of Instagram promotion of mentorship. Our findings also align with previous research showing that Instagram is underutilized to promote global health opportunities. Only 0.60% of posts and 18 programs addressed global health. With so few data points, we cannot recommend that applicants rely upon Instagram to remain informed of program investment in resident mentorship or global health opportunities.

It is important to note that most Instagram accounts are not specified as "resident-run," and some accounts

represent both the residency program and the division of plastic and reconstructive surgery. Unexpectedly, posts about resident life were more common on accounts that represented both the residency program and the division of plastic surgery. Logically, one would assume that Instagram accounts run by residents or residency program-specific accounts would provide more content regarding resident life; however, no other studies have analyzed the influence of resident-run status on post content.

Recent efforts have established guidelines for ethical social media use within the field of plastic surgery in response to global concerns. Concerns unique to social media arose in recent years regarding violations of the Health Insurance Portability and Accountability Act, for example.^{27,28} The plastic surgery literature has emphasized the importance of obtaining patient consent to publish either identifiable or de-identified information on social media with some studies recommending the use of a social media-specific consent form.^{29,30} Guidelines should emphasize patient confidentiality and fully informed consent, including a discussion of the permanence and uncontrolled dissemination of online material.²⁸ In response, the American Society of Plastic Surgeons has now included social media in its Code of Ethics.³¹ With residency programs posting many patient and surgical photographs, the importance of protecting patient information cannot be underemphasized. Though our study did not specifically analyze ethical violations on program Instagram accounts, programs should remain vigilant in protecting patient privacy and upholding ethical guidelines. Future areas of

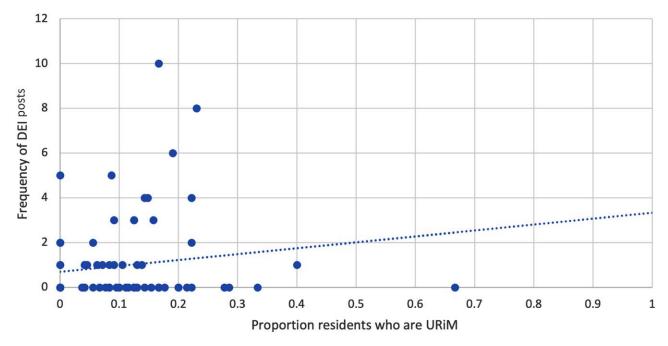


Fig. 4. A scatter plot with a line of regression comparing program DEI and number of DEI posts.

study may address ethical violations on residency program Instagram accounts.

Our findings have several limitations. The internal validity of this content evaluation is limited by the potential bias of the 1 reviewing author. Also, the qualitative nature of content categories precludes numerical comparison of our results with those of other studies. Although our categorical topics aim to align with those emphasized in the literature, exact reproduction is not feasible. Also, our analysis is inherently limited to the length of the study period and does not represent the total post history. Furthermore, the authors' attempts to validate Instagram claims are not comprehensive. The quantity of URiM residents alone does not account for all DEI efforts by programs, and program size is not the only factor indicating program health. Faculty h-indices, having been previously used to represent residency program research output, are also not entirely representative of research activities at an institution.

Finally, some posts inherently provide verification of their claims. For example, photographs of publications and podium presentations directly show research efforts. However, posts regarding content such as DEI, global health, and wellness efforts cannot be similarly validated. Thus, difficulties remain in assessing Instagram content. Are programs truly addressing DEI efforts? Does "resident life" content provide true insight into program culture? Applicants must remain aware of the differences between social media representation and reality, and they should critically evaluate posts on Instagram.

CONCLUSIONS

The transition to virtual interviews during the COVID-19 pandemic accelerated the adoption of social media by both programs and applicants, a trend likely to persist despite the recent return to a primarily in-person interview process. Currently, almost every integrated plastic surgery residency program utilizes Instagram as a promotional platform, and Instagram posts can assist plastic surgery applicants in selecting programs that best align with their interests. Although Instagram content is becoming increasingly more studied, its effectiveness in addressing applicants' questions and the veracity of post content remain uncertain. Therefore, it remains essential to quantify Instagram promotional content and assess discrepancies with actual program offerings. Based on our findings, applicants should not rely on Instagram for a comprehensive assessment of residency programs, though social media remains a useful window into program activity. Moving forward, the validity of Instagram content should be further researched to enhance the applicant experience.

> Fernando A. Herrera, MD 96 Jonathan Lucas Street Charleston, SC 29425 E-mail: herreraf@musc.edu

DISCLOSURE

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

REFERENCES

- Chartier C, Chandawarkar AA, Gould DJ, et al. Insta-grated plastic surgery residencies: 2020 update. Aesthet Surg J. 2021;41:372–379.
- Irwin TJ, Amador RO, Leto Barone AA, et al. Are all posts created equal? A review of academic plastic surgery residency programs' social media engagement statistics. *Plast Reconstr Surg.* 2021;148:700e–702e.
- 3. Jain A, Crane D, Tarabishy S, et al. Social media use among plastic and reconstructive surgery residency programs in the United States. *Plast Reconstr Surg*. 2022;149:369e–371e.

- Pflibsen LR, Deckey DG, Brinkman JC, et al. The effects of website and social media presence of integrated plastic surgery residency programs on prospective applicants: an analysis during the Coronavirus disease 2019 pandemic. *Ann Plast Surg*. 2022;88:599–605.
- Shiah E, Laikhter E, Manstein SM, et al. Evaluation of social media utilization by academic plastic surgery programs during the COVID-19 pandemic. *Plast Reconstr Surg*. 2021;148:825e–836e.
- Steele TN, Galarza-Paez L, Aguilo-Seara G, et al. Social media impact in the match: a survey of current trends in the United States. Arch Plast Surg. 2021;48:107–113.
- Duque S, Riccelli V, Mulqueen S, et al. Global pandemic and plastic surgery residency match: can social media fill the void? Aesthet Surg J. 2021;41:NP1747–NP1753.
- Kraft CT, Chetta MD. Social media evaluation of plastic surgery residency: the integrated applicant perspective. *Plast Reconstr* Surg. 2020;146:848e–849e.
- 9. Sarac BA, Janis JE. Virtual interviews in plastic surgery. *Plast Reconstr Surg Glob Open*. 2021;9:e3749.
- Sarac BA, Shen AH, Nassar AH, et al. Virtual interviews for the integrated plastic surgery residency match: the program director perspective. *Plast Reconstr Surg Glob Open*. 2021;9:e3707.
- Sarac BA, Janis JE. Perspectives of virtual residency interviews in plastic surgery: results following 1 year of training. *Plast Reconstr* Surg Glob Open. 2023;11:e4746.
- Steele TN, Prabhu SS, Layton RG, et al. The virtual interview experience: advantages, disadvantages, and trends in applicant behavior. *Plast Reconstr Surg Glob Open*. 2022;10:e4677.
- 13. Bamba R, Bhagat N, Tran PC, et al. Virtual interviews for the independent plastic surgery match: a modern convenience or a modern misrepresentation? *J Surg Educ.* 2021;78:612–621.
- Benedict MD, Hespe GE, Kumar NG, et al. The impact of social media on applicants' perceptions of plastic surgery training programs. *J Surg Educ.* 2023;80:1179–1187.
- Hashmi A, Policherla R, Campbell H, et al. How informative are the plastic surgery residency websites to prospective applicants? J Surg Educ. 2017;74:74–78.
- Holderread B, Liu J, Doval AF, et al. Examining the role of social media usage in plastic surgery residency recruitment during the COVID-19 pandemic. *Plast Reconstr Surg.* 2023;151:362e–363e.
- Azoury SC, Mazzaferro DM, Piwnica-Worms W, et al. An update on social media in academic plastic surgery training programs: the rising trend of likes, shares, and retweets. *Ann Plast Surg.* 2020;85:100–104.

- Sinno S, Mehta K, Squitieri L, et al. Residency characteristics that matter most to plastic surgery applicants: a multi-institutional analysis and review of the literature. *Ann Plast Surg.* 2015;74:713–717.
- Zuo KJ, Retrouvey H, Wanzel KR. Factors that affect medical students' perception and impression of a plastic surgery program: the role of elective rotations and interviews. *Ann Plast Surg*. 2019;82:224–228.
- Silvestre J, Serletti JM, Chang B. Racial and ethnic diversity of U.S. plastic surgery trainees. J Surg Educ. 2017;74:117–123.
- 21. Wickenheisser VA, Biswas S, Marks C, et al. Defining predictors of future academic productivity in plastic surgery residency. *Plast Reconstr Surg Glob Open*. 2023;11:e5358.
- Therattil PJ, Hoppe IC, Granick MS, et al. Application of the h-index in academic plastic surgery. Ann Plast Surg. 2016;76:545–549.
- Roy E, Egro FM, Zalewski A, et al. Influence of residency training on research productivity and plastic surgery career. *Ann Plast Surg.* 2020;85:672–676.
- Boyd CJ, Davis C, Lindsey JT, Jr, et al. Ranking United States plastic surgery residency programs based on academic achievement of faculty members. *Ann Plast Surg.* 2021;86:206–209.
- Das RK, Drolet BC. Do integrated plastic surgery residency program websites and Instagram accounts address diversity, equity, and inclusion? *Plast Reconstr Surg.* 2023;152:908–914.
- Naides AI, Kapadia K, Salem J, et al. Representation of global health initiatives in plastic surgery training: a social media analysis. *Ann Plast Surg.* 2022;88:S284–S287.
- Oregi P, Cavale N, Khatib M, et al. The ethics and responsibilities of social media usage by plastic surgeons: a literature review.
 Aesthetic Plast Surg. 2024;48:530–542.
- 28. Teven CM, Park JE, Song DH. Social media and consent: are patients adequately informed? *Plast Reconstr Surg.* 2017;140:770e–771e.
- Rohrich RJ. So, do you want to be Facebook friends? How social media have changed plastic surgery and medicine forever. *Plast Reconstr Surg.* 2017;139:1021–1026.
- Bennett KG, Berlin NL, MacEachern MP, et al. The ethical and professional use of social media in surgery: a systematic review of the literature. *Plast Reconstr Surg.* 2018;142:388e–398e.
- ASPS Code of Ethics. Code of Ethics of the American Society of Plastic Surgeons. American Society of Plastic Surgeons. Available at https://www.plasticsurgery.org/documents/governance/ asps-code-of-ethics.pdf. Updated January 2025. Accessed March 28, 2025.