

Deconstructing the Excellent Plastic Surgeon: A Survey of Key Attributes

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Background: Most plastic surgeons practice in nonacademic settings, leaving a small subset of academic plastic surgeons with the responsibility of selecting the future generation of plastic surgeons without representation from a majority of our field. This raises questions as to whether the academic attributes valued during residency selection are valid predictive markers of who will become an excellent plastic surgeon. A survey was conducted of both academic and nonacademic plastic surgeons, as well as trainees, to determine what traits are considered most essential to being an excellent plastic surgeon.

Methods: An electronic survey was distributed before the American Council of Academic Plastic Surgeons 10th Annual Winter Meeting. Demographics and information regarding the respondents' training and academic status were collected. Respondents were asked to select five traits that they considered most important to be an excellent plastic surgeon from a list of 20 preselected traits. Chi-square and Fisher exact tests were used to perform subgroup analyses.

Results: A total of 187 responses were received from meeting attendees, representing an 89.0% response rate. Overall, the five values endorsed as most important for a plastic surgeon were being technically sound (53%), collaborative (48%), ethical (44%), compassionate (37%), and emotionally intelligent (33%). However, the emphasis placed on these different attributes differed significantly amongst different demographic groups.

Conclusion: It is important that we use methods such as holistic review when evaluating plastic surgery applicants to ensure our selection process is congruent with the traits we value. (*Plast Reconstr Surg Glob Open* 2023; 11:e5460; doi: 10.1097/GOX.0000000000005460; Published online 14 December 2023.)

INTRODUCTION

Integrated plastic surgery continues to be the most competitive specialty to match into from medical school.¹ From 2020 to 2022, the match rate decreased from 63.8% to 57.0%.^{2,3} In the same time window, the gap has steeply widened between matched and unmatched applicants with respect to The United States Medical Licensing Examination Step 1 (four-point versus 11-point difference in Step 1 score)

and Step 2 scores (six-point versus 10-point difference in Step 2).²⁻⁴ Moreover, the average number of research experiences (eg, publications, presentations, abstracts) for matched applicants has skyrocketed from 19.1 to 28.4.²⁻⁴

The academic plastic surgeons using these selection criteria represent just 15% of practicing plastic surgeons, whereas the majority of plastic surgeons practice in non-academic settings.⁵ Model plastic surgeons can range from the private practice cosmetic surgeon delivering empathetic and ethical patient care to the global surgeon striving to provide equitable surgical care around the world to the society president advocating for the specialty through public policy. This diversity in practice type within the specialty demonstrates how multiple phenotypes of an excellent plastic surgeon exist beyond the academic ideal. Furthermore, the prioritization of research productivity in the integrated plastic surgery match disadvantages

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students without a home program or from underrepresented backgrounds.⁶⁻⁸ Underrepresented in medicine (URiM) students, many of whom are socioeconomically disadvantaged, have unequal access to research opportunities and lack the financial freedom to participate in unfunded research positions.^{6,8} Despite best efforts to address these disparities with dedicated mentorship programs targeted towards medical students in these demographics by networking students with productive research mentors, the disparities continue to persist.⁹ Although the research productivity gap has narrowed somewhat in recent years, it continues to be a determining metric in plastic surgery residency selection despite evidence that it correlates to future research productivity.^{7,10}

The discrepancy between what is selected for when evaluating residency applicants and what is necessary for excellence as a practicing plastic surgeon deserves greater consideration. As it is primarily academic plastic surgeons who decide what candidates to interview and rank, most practicing plastic surgeons are excluded from the process of resident selection. Further still, the correlation between what academic physicians value in an “excellent resident” and what is selected for during residency selection remain incongruent—a recent survey of faculty members involved in residency education determined that research productivity was one of the lowest-ranked metrics when considering what made a resident “excellent.”¹¹ This has made it difficult to reach a consensus regarding the attributes that should be valued in residency candidates to produce graduates capable of success in a variety of practice settings.

At the 2023 American Council of Academic Plastic Surgeons (ACAPS) 10th Annual Winter Meeting, we aimed to identify characteristics that are essential for success as a plastic surgeon in diverse practice settings within and beyond academia. Understanding these attributes will aid the specialty in choosing the candidates who have the necessary traits to thrive in plastic surgery. This study helps lay the foundation for the adoption of holistic review, a method of applicant selection that prioritizes attributes

Takeaways

Question: What traits are considered the most important to being a successful plastic surgeon?

Findings: Overall, the five values endorsed as most important for a plastic surgeon were being technically sound, collaborative, ethical, compassionate, and emotionally intelligent. However, the emphasis placed on these different attributes differed significantly amongst different demographic groups.

Meaning: It is important that we use methods such as holistic review when evaluating plastic surgery applicants to ensure our selection process is congruent with the traits we value.

and experiences alongside metrics. Relying less on metrics and more on attributes and experiences may become increasingly important as we try to diversify our field and numeric measures such as clerkship grades and the USMLE Step 1 examination have become pass/fail.¹²⁻¹⁵

METHODS

We created an anonymous electronic survey using SurveyMonkey that was distributed on three occasions leading up to the ACAPS Annual Winter Meeting on February 23–26, 2023. Respondents were encouraged to complete the survey while registering for the conference. All participants were asked to respond to a series of demographic questions as well as select the top five most important attributes of an excellent plastic surgeon in practice from a list of 20 attributes determined from literature review and expert consensus. (See Appendix A, Supplemental Digital Content 1, ACAPS Winter Meeting 2023 pre-retreat survey demographic information. <http://links.lww.com/PRSGO/C992>). In addition, participants were asked to describe the characteristics of a successful plastic surgeon they knew personally in a free text response (Fig. 1).



Fig. 1. Attribute word map. Word map demonstrating the most frequently used words in a freely-typed response to the prompt “How would you describe an excellent plastic surgeon?”

Subgroup analyses were performed on the following categories: (1) gender identity; (2) race, ethnicity, and other “invisible” minority status [eg, lesbian, gay, bisexual, transgender, queer, and more (LGBTQ+)] as well as first-generation/low-income (FGLI)]; (3) practice type; and (4) level of training. Statistical analyses included chi-squared analyses and Fisher exact tests, which were conducted with SPSS version 29 (IBM Corp., Armonk, N.Y.). The study was deemed to be exempt from institutional review board review by the University of California San Diego.

RESULTS

Demographics

A total of 187 individuals responded to the survey, representing an 89.0% response rate of all the Winter Meeting attendees. Of these, 65.8% were faculty or independently practicing physicians, 11.2% were residents or fellows, and 23.0% were medical students. Most respondents were White (65%) and non-Hispanic or Latino (79%). Twenty eight percent of our respondents reported being FGLI, and 7% reported that they were LGBTQ+. Most respondents were from programs in the South (40%), with the remainder being approximately equally distributed amongst the West, Midwest, and Northeast. Most respondents worked in an academic environment (71%), whereas 29% worked in a nonacademic practice setting. Of these, 83% were faculty, fellows, or residents who actively participate in resident selection. Demographic data are summarized in Table 1.

Attributes

Overall, the five values endorsed as most important for a plastic surgeon were being technically sound (53%), collaborative (48%), ethical (44%), compassionate (37%), and emotionally intelligent (33%). However, valuation of these attributes differed significantly amongst different demographic groups.

Gender Identity

Overall, the traits identified by male and female respondents were similar to that of the overall population: female respondents were most likely to select being technically sound (57%), collaborative (48%), ethical (44%), compassionate (39%), and effective communication (34%), whereas male respondents most frequently identified being collaborative (50%), technically sound (44%), ethical (43%), emotionally intelligent (40%), and compassionate (32%) as important traits. Male respondents were significantly more likely to endorse being a good leader as one of the five most important attributes for an excellent plastic surgeon (27% versus 4%, $P < 0.001$). Otherwise, there were no statistically significant gender-based differences in responses.

Minority Status

Black respondents were significantly more likely to select humanitarianism as a top five characteristic when compared with their non-Black counterparts (20% versus 1.7%, $P < 0.001$). Additionally, respondents who identified as Hispanic

Table 1. Demographic Information of Survey Respondents

Demographics	n (%)
Total cohort	187
Gender identity	
Female	96 (61.1%)
Male	55 (35.0%)
Nonbinary	1 (0.6%)
Prefer not to answer	5 (3.3%)
Race	
American Indian or Alaska Native	1 (0.6%)
Asian or Asian American	27 (17.2%)
Black or African American	10 (6.4%)
Native Hawaiian or other Pacific Islander	0 (NA%)
White	109 (69.4%)
Prefer not to answer	12 (7.6%)
Ethnicity	
Non-Hispanic/Latino	126 (80.3%)
Hispanic, Latino/a, or of Spanish origin	14 (8.9%)
Prefer not to answer	17 (10.8%)
Identities	
First-generation, low-income	33 (20.4%)
LGBTQIA+	9 (5.7%)
Prefer not to answer	9 (5.7%)
Other	7 (4.2%)
None of the above	106 (66.9%)
Training stage	
Faculty/independently practicing physician	114 (72.6%)
Resident/fellow	14 (8.9%)
Medical student	29 (18.5%)
Current practice model	
Academic	77 (49%)
Employed	5 (3.2%)
Group private practice	10 (7%)
Solo	15 (9.6%)
Large multispecialty group	1 (0.6%)
Recently retired	1 (0.6%)
Other	2 (1.3%)
Academic titles	
Chief/chair	26 (16.6%)
Program director	27 (17.2%)
Assistant program director	17 (10.8%)
Professor	24 (15.3%)
Associate professor	26 (16.6%)
Assistant professor	16 (10.2%)
Clinical instructor	3 (1.9%)
None of the above	22 (14%)
Other	7 (4.5%)
Clinical focus	
General reconstruction	41 (26.1%)
Microsurgery	21 (13.4%)
Craniofacial	13 (8.3%)
Hand	19 (12.1%)
Pediatric surgery	1 (7.0%)
Aesthetic	23 (14.6%)
Gender affirmation surgery	6 (3.8%)
Burn surgery	2 (1.3%)
Multiple	7 (4.5%)

or Latino were significantly more likely to endorse humility as one of their top five characteristics of an excellent plastic surgeon when compared with their non-Hispanic or Latino counterparts (25% versus 13%, $P = 0.013$).

FGLI respondents differed significantly from their counterparts in identification of important characteristics. They were significantly more likely to cite humility (27% versus 11%, $P = 0.011$), humanitarianism (10% versus 1%, $P = 0.002$), and inclusivity (16.3% versus 5.5%, $P = 0.021$) as key attributes of an excellent plastic surgeon. Both FGLI and LGBTQ+ respondents felt that cultural competence is a key factor in determining an excellent plastic surgeon (46% versus 12%, $P = 0.004$, and 31% versus 8%, $P < 0.001$, respectively). There were no other significant differences between the groups.

Practice Type

Academic plastic surgeons were more likely to endorse being collaborative as an essential trait of an excellent plastic surgeon when compared with nonacademic plastic surgeons (59% versus 27%, $P = 0.007$). Although there were no other significant differences in responses between academic and nonacademic faculty or independently practicing physicians, selection of some attributes approached significance such that nonacademics were more likely to endorse being adaptable (39% versus 20%, $P = 0.069$) and technically sound (81% versus 60%, $P = 0.062$) as important traits.

Level of Training

Faculty identified being technically sound (65%), ethical (55%), collaborative (50%), compassionate (42%), and knowledgeable (38%) as their most valued traits. Although residents and fellows prioritized the same top two traits—being technically sound and ethical—they more frequently identified being emotionally intelligent (42%), adaptable (37%), collaborative (37%), and accountable (37%) as qualities of an excellent plastic surgeon. Students’ most frequently identified traits differed from those of faculty and residents/fellows and were as follows: collaborative (54%), compassionate (39%), adaptable (34%), technically sound (29%), and culturally competent (29%) (Fig. 2).

Faculty were significantly more likely to place “technically sound” within their top five most important characteristics compared with nonfaculty respondents (63% versus 34%, $P < 0.001$). Residents and fellows were significantly more likely to report humanitarianism as an important trait (14% versus 2%, $P = 0.004$) when compared with both faculty and medical students. Medical students and residents/fellows were also significantly more likely to identify perseverance (9% versus 1%, $P = 0.014$) and being a good teacher (20% versus 8%, $P = 0.046$) as key qualities compared with faculty respondents.

DISCUSSION

Plastic surgery is a unique field predicated on improving patients’ quality of life and restoring function, whether it be through aesthetic surgery or reconstruction of other defects. To be a successful plastic surgeon, one must possess, at a minimum, a true mastery of technical expertise and a strong foundation of knowledge. In addition, humanistic traits such as compassion, communication, and cultural humility are also important to best serve patients’ diverse needs.¹⁶ Trust in the physician-patient relationship is crucial in plastic surgery, and thus, it is critical that plastic surgeons possess excellent surgical judgment: to know when not to operate just as much as when to operate.

From a list of 20 attributes, our participants selected being technically sound, collaborative, ethical, compassionate, and emotionally intelligent as the most important attributes of a plastic surgeon. When considering the role of the plastic surgeon, it is evident why these traits are highly valued. Whether it be as the consulting surgeon on a complex closure or in a private practice setting working to improve patients’ quality of life, the aforementioned traits are necessary to facilitate strong working relationships with colleagues and patients alike and engender trust in delicate situations.^{16,17} Subgroup analyses offer further insight into the way these valued traits differ

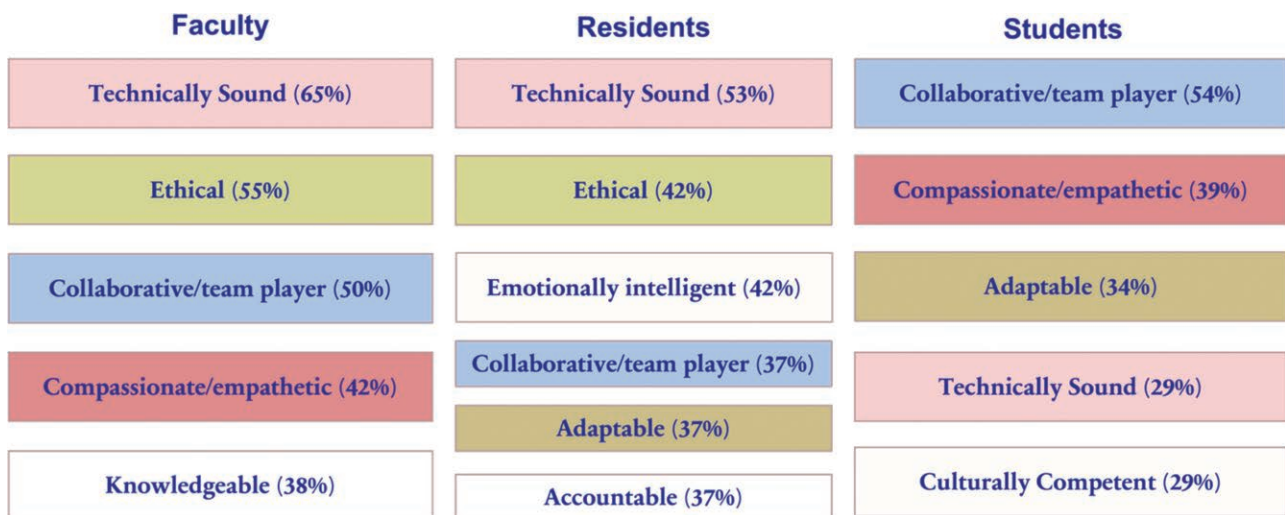


Fig. 2. Top selected attributes by training level. The top five traits most frequently selected as essential for an excellent plastic surgeon by level of training for faculty/independently practicing physicians (n = 123), residents/fellows (n = 21), and medical students (n = 43).

based on life experience and career progression. Early on in training, students value more humanistic traits and place more emphasis on cultural competence compared with their seniors. Likewise, FGLI respondents, LGBTQ+ respondents, and respondents belonging to racial/ethnic minorities placed more value on humanistic traits such as humanitarianism and humility. At the faculty level, technical soundness was most consistently rated as a key attribute for a plastic surgeon. It is the authors' hope that the results of our study will offer more comprehensive insight into the traits that define an excellent plastic surgeon by representing a broad group of opinions, including diversity in gender, geographic distribution, and practice setting.

The Current Paradigm of Resident Selection

Because the diverse practice environment is one of the strengths of our field, we should ensure a selection process that allows us to identify and train future plastic surgeons that best serve our diverse patients' needs.¹² However, despite significant gains in the overall representation of gender, ethnic, and racial diversity in the house of medicine, surgical fields continue to lag behind, particularly plastic surgery.¹⁸ To address this, we must investigate the current resident selection paradigm. However, most current studies on the residency selection process are limited to information provided by program directors or plastic surgeons who practice in academic centers.^{19–22} Although limited by our population size, we demonstrate that many of the humanistic traits valued by academic plastic surgeons are similar to those valued by nonacademic plastic surgeons, lending itself to the question: are we selecting residents according to the guiding principles of what makes an excellent plastic surgeon, or solely by limited numeric metrics?

When selecting candidates who have the potential to become these excellent surgeons, residency programs often utilize academic achievements, such as board scores and research publications, to identify desirable candidates.^{2,3,19,22} Although these objective factors are likely used initially to enable direct comparison between applicants and narrow the field of candidates, they put applicants who did not necessarily excel in these areas at risk of not having the chance to showcase their strengths and attributes. Although high research output carries significant value in an academic setting, it does not necessarily directly contribute to future academic productivity nor the scientific thinking necessary to find success in the community/private setting, where the majority of plastic surgeons are practicing.^{5,10,23,24} Moreover, as the “research arms race” continues, students who are financially able to pursue unpaid research opportunities, including year-long research “fellowships,” continue to pull forward.⁸ Particularly as the more objective numeric metrics (eg, USMLE Step 1 scores and clerkship grades) transition to pass/fail grading, students without strong academic home programs and without the financial means to pursue these opportunities are left at a significant disadvantage and left without opportunities to demonstrate their academic excellence.^{13–15} Furthermore, a recent survey of faculty engaged in resident education found that research productivity was one of the least important metrics when considering what

defines an excellent resident; rather, traits such as leadership capability, operative expertise, bedside manner, and personality were of most importance.¹¹ This raises question as to what aspects should be sought after during residency selection, and whether the way we currently select residents is adequately assessing these characteristics.

Attributes to Guide Resident Selection: What's Teachable, and What's Not?

Selecting excellent residents requires a balance between assessing the applicant's current strengths as well as anticipating their potential to grow throughout years of training. When defining an excellent resident at the early years, faculty often deem traits such as bedside manner and personality as the most important, whereas in later years, technical proficiency and leadership capability are more sought after.¹¹ We present here a list of traits that define an excellent plastic surgeon, including both “hard” and “soft” skills such as technical soundness and compassion. These hard skills such as technical soundness, although important in the practicing plastic surgeon, can typically be improved with practice and repetition. However, the question remains whether these other humanistic traits are teachable, and whether the way we select and evaluate future residents and plastic surgeons is congruent with our value of these traits.

The “teachability” of soft skills such as being compassionate and ethical has been a hot topic of study in medical education. Numerous studies have described the attrition of empathy and compassion throughout medical training, particularly in surgery, with concerns raised about the impact of this decline in patient outcomes and physician.^{25,26} In response to this, several institutions have attempted to implement an empathy curriculum for medical trainees ranging from students to residents, with reported success in both patient-reported and self-reported outcomes.^{27–30} Although these studies all demonstrate a certain capacity for teachability of empathy, we emphasize that a baseline of adeptness in these soft skills is critical for their development, and that these traits should be prioritized in the residency selection process.

How to Discern Key Attributes in the Residency Application

The traits cited above, most of which are considered soft skills, are much more difficult to ascertain than academic prowess, particularly when the applicant is not well known to a program. In the residency selection process, programs mainly rely on the interview, applicant experiences (eg, extracurricular activities, personal statement), and letters of recommendation in their decision-making schema.³¹ Letters of recommendation can often provide some insights to these traits from trusted colleagues.^{19,22,32} However, even the most well-written letter does not always offer insight into these qualities, and it is well known that implicit biases seep through into the content of letters of recommendation, particularly when it comes to description of these soft skills.³³ Additionally, recommendation letters written by well-connected plastic surgeons are preferentially valued, introducing another source of bias when evaluating soft skills from narrative letter content.^{34,35}

The results of our survey suggest that we should strive to find ways to evaluate, and more importantly, prioritize these traits in the application review process. One potential approach to this shift involves evaluation of these traits in the specialty's standardized letter of recommendation. The ACAPS standardized letter form asks letter writers to rate applicants on a percentile scale in various domains (eg, patient care, technical skills, team player).^{36,37} Notably, some of the traits emphasized in our survey are included in this evaluation (eg, communication skills and technical skills). However, a recent publication by Reghunathan et al revealed that this question format is associated with significant score inflation and has therefore become dubiously useful in differentiating applicants.³³ Furthermore, both score inflation and biases against demographic minorities persist even in standardized letters of recommendation, with applicants of minority races receiving lower scores on average when compared with their peers.³³

To address this challenge of distinguishing candidates from a highly qualified applicant pool, holistic review is critical. Holistic review, described by the AAMC as "mission-aligned admissions or selection processes" that consider the "whole" applicant, requires that programs identify their values and focus resident selection on relevant attributes and experiences alongside metrics.¹² For some programs, this may mean de-emphasizing USMLE scores and research experiences and more highly prioritizing skills such as additional language proficiencies, political advocacy, and commitment to underserved populations. To aid programs in practicing holistic review, ongoing work is being conducted to update the standardized letter of recommendation and provide programs with a primer for the implementation of holistic review. Further still, the transition to the Plastic Surgery Common Application, which offers a customizable, specialty-specific application format, may facilitate this by emphasizing more humanistic traits (eg, through behavioral-style questions) and de-emphasizing others (eg, research productivity through emphasis of three most impactful publications).^{38–41}

Limitations

Our study has several limitations. A truly "successful" plastic surgeon cannot be singly defined and certainly differs across space and time, with no true litmus test for success. What makes one surgeon successful in an academic practice may not be what makes another successful in private practice, although there is certainly a great deal of overlap. Likewise, the traits that define a strong resident are not always consistent with the traits that define an excellent practitioner. Our representation of private practice surgeons within our sample remains limited despite a focused effort to access these respondents, with only 29% of our respondents practicing in a nonacademic setting. Moreover, although our cohort approached alignment with national census measures of racial and ethnic diversity, it still fell short of accurately representing the diverse US population.^{42,43}

CONCLUSIONS

As the field of plastic surgery continues to evolve and the landscape of residency selection becomes more

holistic, it is important to align the attributes of the diverse definitions of what makes an excellent plastic surgeon with the process by which we select residents.

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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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