

Prevalence of Prohibited Questions during Plastic Surgery Residency Interviews

Ashley E. Rogers, MD*
 Esperanza Mantilla-Rivas, MD*
 Daniela Duarte-Bateman, MD*
 Monica Manrique, MD*
 Jennifer L. McGrath, MD*
 Md Sohail Rana, MBBS, MPH†
 Albert K. Oh, MD*
 Lisa R. David, MD‡
 Jeffrey E. Janis, MD, FACS§
 Gary F. Rogers, MD, JD, LLM,
 MBA, MPH*

Background: Despite rules set forth by the National Resident Matching Program and American Association of Medical Colleges (AAMC), prohibited questions during the residency interview process are well documented. This study describes the prevalence of these encounters by surveying residency applicants to integrated plastic and reconstructive surgery (PRS) programs for the 2022 match cycle.

Methods: An anonymous 16-question REDCap survey was distributed to 2022 cycle applicants of a single PRS program. The applicants were queried about demographic information, interview experience, and questions deemed illegal by the AAMC/NRMP guidelines.

Results: One hundred survey responses were attained for a 33.1% response rate. The majority of respondents were aged 26-30 (76%), women (53%), and white (53%); 33% received 15+ interviews for the application cycle. Seventy-eight percent of respondents reported being asked a prohibited question during at least one interview, with the most common "illegal" question categories being number/ranking of interviews (42%), marital status (33%), career balance (25%), and race/ethnicity (22%). Only 25.6% of applicants considered the subject matter inappropriate, whereas 42.3% were unsure. Although no applicant took action to report the potentially illegal scenarios, 30% said that their experiences influenced their rank list.

Conclusions: Our survey study revealed that prohibited interview questions in PRS residency interviews are common. Permissible lines of questioning and discussion between programs and applicants during residency interviews have been defined by AAMC. Institutions should provide guidance and training to all participants. Applicants should be made aware of and empowered to utilize available anonymous reporting tools. (*Plast Reconstr Surg Glob Open* 2023; 11:e5018; doi: [10.1097/GOX.0000000000005018](https://doi.org/10.1097/GOX.0000000000005018); Published online 13 June 2023.)

INTRODUCTION

Plastic surgery is one of the most competitive residencies, and this trend has only intensified in recent years.^{1,2} In the 2020 and 2021 application cycles, 30.1% of United States medical student applicants for integrated plastic surgery positions failed to match. This figure rose

to 38.4% (108 applicants) in 2022.³⁻⁵ During the 2022 match cycle, there were 411 applicants for the 194 PGY-1 spots offered by 86 integrated plastic and reconstructive surgery (PRS) programs.^{6,7} Based on the 2022 National Resident Matching Program (NRMP) report, 281 (80%) applicants were educated in US medical schools, and this group secured 173 (89.2%) of the positions.⁵ The qualifications of successful candidates in plastic surgery are the most competitive of all specialties. According to the American Association of Medical Colleges (AAMC), the combined USMLE Step 1 and Step II for the first-year integrated plastic surgery residents (247 and 253.2, respectively) were second only to residents in otolaryngology (247 and 254.4, respectively), while the average number of publications, presentations, and abstracts

From the *Division of Plastic and Reconstructive Surgery, Children's National Hospital, Washington, D.C.; †Joseph E. Roberts, Jr. Center for Surgical Care, Children's National Hospital, Washington, D.C.; ‡Department of Plastic and Reconstructive Surgery Wake Forest Baptist Medical Center Winston Salem, N.C.; §Department of Plastic and Reconstructive Surgery, The Ohio State University Wexner Medical Center, Columbus, Ohio.

Received for publication January 17, 2023; accepted April 3, 2023.

Copyright © 2023 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 \(CCBY-NC-ND\)](https://creativecommons.org/licenses/by-nc-nd/4.0/), 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.0000000000005018](https://doi.org/10.1097/GOX.0000000000005018)

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

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.

of the first-year plastic surgery residents (20) was second only to neurosurgery (24.6) and 45% greater than orthopedic surgery (13.9) and otolaryngology (13.7).⁸ Consequently, participation in the integrated plastic surgery match is highly competitive, and most applicants consider each interview essential to their prospect of becoming a plastic surgeon. In such a high-stakes setting, the fairness and transparency of the interview process are paramount.

Studies of various medical and surgical specialties have documented that the incidence of impermissible or potentially illegal questions asked to candidates during the interview process is shockingly high (Fig. 1).⁹⁻¹³ A study by Hern et al surveying nearly 11,000 applicants in both nonsurgical and surgical specialties revealed that 53.3% of respondents were asked about their marital status, 24% about children, and 13.8% about plans for child-rearing.⁸ Similar findings have been reported in other specialties.⁹⁻¹³ Questions during an employment process regarding race/ethnicity, sex, gender identity, sexual orientation, age, disability, religion, political views, and family status explicitly violate federal law under Title VII of the Civil Rights Act of 1964.¹⁴ Likewise, the NRMP offers Codes of Conduct for both applicants and programs that tend to closely follow the federal legislation.^{15,16} This guide contains a specific section entitled “Refrain From Asking Illegal Questions.” Moreover, the AAMC publishes “Best Practices for Conducting Medical Interviews” that spell out topics to avoid during an interview, including demographics, family, history (military, arrests, criminal convictions), and other programs/specialties and ranking plans (Fig. 2).¹⁷

Despite these clear guidelines, applicants continue to face these disallowed questions, which we define here as any topic and/or statement that AAMC/NRMP prohibits. Studies from prior match cycles over the last decade have revealed that while both genders were significantly affected, female respondents were more likely to receive an impermissible question, especially regarding marital status, family planning, and/or commitment to the program.¹⁰ Although not illegal, questions regarding an applicant’s commitment to a given program and/or interviews are prohibited by match rule, yet studies show violations are prevalent across numerous specialties.^{10-13,18} Thus, the purpose of this study is threefold: to

Takeaways

Question: How often are impermissible questions asked during Plastic and Reconstructive Surgery residency interviews?

Findings: Seventy-eight percent of respondents were asked an impermissible question in at least one interview. The most common questions were associated with number/ranking of interviews (42%), marital status (33%), career balance (25%), and race/ethnicity (22%). Although no applicant took action to report the potentially illegal scenarios, 25.6% considered the subject matter as inappropriate and 30% said that their experiences influenced their rank list.

Meaning: Impermissible questions surface with frequency during plastic and reconstructive surgery residency interviews. Applicants should be made aware of and empowered to utilize available anonymous reporting tools.

document the prevalence of impermissible and illegal questions during PRS residency interviews, to explore the types of questions that arise, and to draw awareness to this matter in hopes of improving the fairness and transparency of the process.

METHODS

After institutional review board approval, an anonymous 16-question survey on potentially illegal questions during the PRS residency interview was designed and distributed on REDCap (Fig. 1). From March 2022 to June 2022, this survey was sent to all match 2022 applicants (302 applicants) of one integrated PRS program in the United States. After match results were published (March 2022), three separate emails, spaced a week apart, were sent to applicants with a response rate of 27.8%. Three subsequent reminder emails were sent 2 weeks apart until June 2022. Responses were continuously collected for a total of 66 days, achieving a final response rate of 33.1%.

Study data were collected and managed using REDCap—Research Electronic Data Capture, hosted at Children’s National Hospital of Washington, DC.^{19,20} REDCap is a secure, web-based software platform

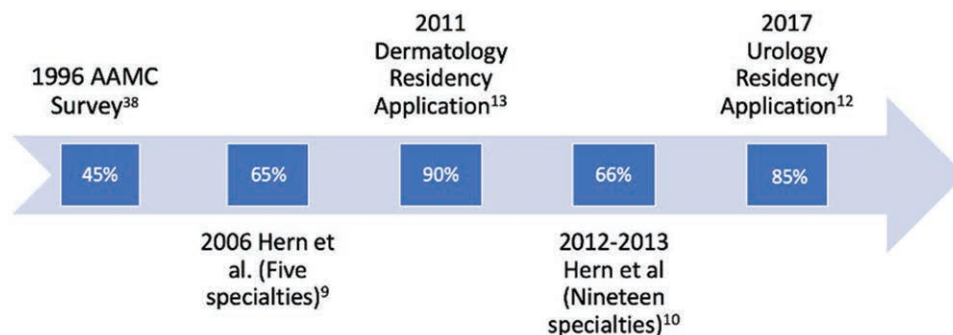


Fig. 1. Timeline of similar studies in other specialties.

Avoid inappropriate questions and always check with your institution's legal counsel about inquiries that may be prohibited by law or employer policy.	
The following topics should be avoided during an interview:	
Demographics	Age, race, religion, socioeconomic status, ethnicity, sexual orientation, gender identity, national origin
Family	Lineage, ancestry, primary or native language, marital status, maiden name or family surname, relationships or people the applicant lives with, family issues (parental status, age of dependents, plans for children)
Personal	Height and weight, physical and mental disabilities, physical appearance, personal activities that probe for personal affiliations
History	Military discharge, arrests, criminal convictions
Other programs or specialties, and ranking plans	Information about other programs or specialties to which they might be applying and/or how the applicant plans to rank your program.

Fig. 2. Data courtesy of AAMC.org: "Best Practices for Conducting Residency Program Interviews."

designed to support data capture for research studies, providing (1) an intuitive interface for validated data capture; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for data integration and interoperability with external sources. The survey instrument was not linked to identifiable information; all responses were anonymous.

The applicants were queried about the demographic information, interview experience, questions, or comments that would be considered illegal based on the AAMC guidelines. Additionally, respondents were asked about their responses in these scenarios, if they had decided to pursue actions related to inappropriate questions, and if their ranking of these programs was affected.

Answers were tabulated into REDCap, and data evaluation was done using Microsoft Excel 16.40 (Microsoft Corporation, Redmond, WA). Statistical analysis was performed using Stata software, version 14.2 MP (Stata Corporation, College Station, Tex.). Trends between gender, ethnicity, or age at completing the survey and the prevalence of inappropriate questions were analyzed. Univariate analysis was performed using unpaired *t* test, and Wilcoxon-Mann-Whitney tests to compare continuous data, and categorical variables were compared using chi-square test. Values were expressed as mean \pm SD or median with interquartile range (IQR) for the continuous variables and frequencies with percentages for the categorical variables. A *P* value less than 0.05 was considered to be statistically significant. For the subgroup analyses, stratified by gender, age, and race/ethnicity, we found greater than 80% of power to detect a large effect size (Cohen's *W* = 0.5).

Table 1. Summary of Applicant Characteristics

Variables	N = 100
Age category, n (%)	
21–25	17 (17.0)
26–30	76 (76.0)
31–35	6 (6.0)
NA	1 (1.0)
Gender, n (%)	
Men	45 (45.0)
Women	53 (53.0)
NA	2 (2.0)
Race/ethnicity, n (%)	
White	53 (53.0)
Black or African American	6 (6.0)
Hispanic or Latino	10 (10.0)
Asian	14 (14.0)
Two or more races	12 (12.0)
NA	5 (5.0)
Total number of interviews received n (%)	
1–5	18 (18.0)
6–10	25 (25.0)
11–15	24 (24.0)
>15	33 (33.0)

RESULTS

Applicant characteristics are illustrated in [Table 1](#). One hundred of the 302 applicants who were surveyed (33.1%) completed the survey request. Most respondents had received more than 10 interviews for the application cycle. The majority (78%) of applicants experienced an impermissible question/scenario with an average of 3.6 (SD 3.79) interviews that included at least one of these questions ([Figs. 3 and 4](#)). The most prevalent categories of these questions were number/ranking interviews (42%), followed by marital status (33%), career balance (25%), and race/ethnicity (22%). ([See survey, Supplemental Digital Content 1](#), which displays the example survey sent to plastic surgery applicants. <http://links.lww.com/PRSGO/C580>.) Although many of these questions/scenarios were seen as inappropriate (25.6%), 42.3% of applicants felt unsure/neutral about the appropriateness of the statements ([Table 2](#)). The other 25 respondents (32.1%) found that these questions were appropriate given the context of the interview discussion. Eight applicants (10.3%) refused to respond in these scenarios, and of those who did answer, 85.7% answered truthfully. No applicant submitted a complaint or reported these potentially illegal scenarios. The most common reasons cited by the respondents included fear of retribution or negative impact on their ranking by the institution (30.9%), followed by lack of benefit (16.2%). Lastly, 30% of respondents said their experience influenced their rank list.

Additional analyses were performed to examine the association of age group, gender, and race/ethnicity, with the most prevalent categories of illegal questions, truthfulness, and ranking decision. There were no statistically significant associations between different age groups and categories of illegal questions, truthfulness, or ranking

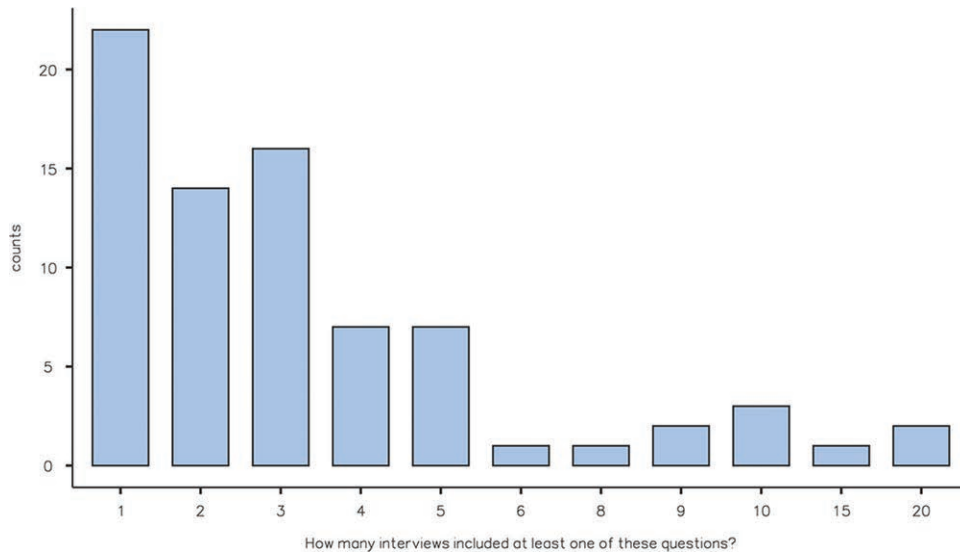


Fig. 3. Total interviews that included illegal questions.

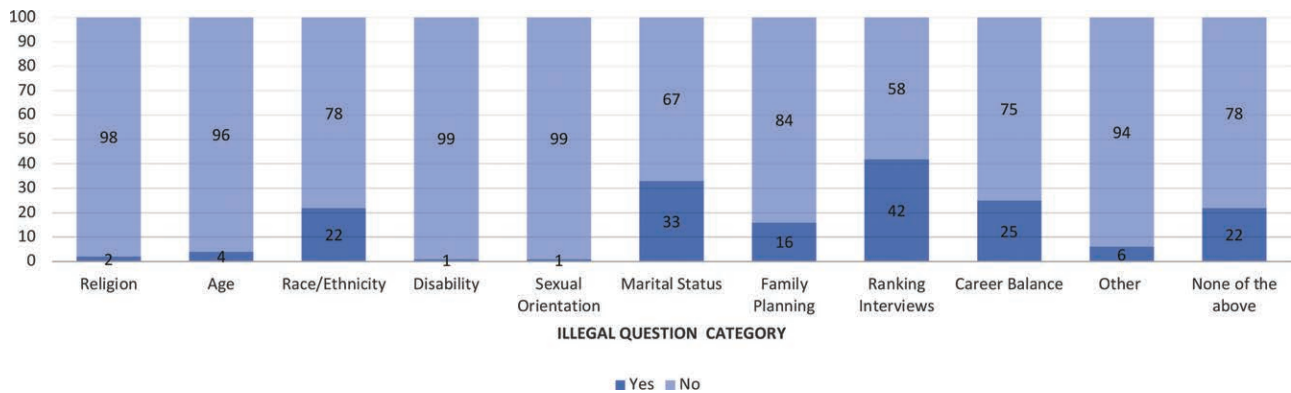


Fig. 4. Prevalence of illegal questions per category.

decision (Table 3). Regarding gender, our analysis found that encountering these types of scenarios significantly influenced the rank list for females (43.4% women versus 13.3% men, $P = 0.001$) (Table 4). Analysis on race/ethnicity revealed that Black, Asian, and Hispanic/Latino applicants had statistically more questions that pertained to their race/ethnicity. (Table 5).

DISCUSSION

Applicants reporting potentially impermissible or potentially illegal questions is not a novel discovery. A study by Ciesielski-Carlucci et al revealed that more than half of residency applicants identified questions asked during interviews as “inappropriate, uncomfortable, or possibly discriminatory.”²¹ Subsequent studies have been carried out specific to urology, emergency medicine, dermatology, and radiation oncology yielding similar results.^{12,13,22,23} Hern et al examined 19 specialties in the 2012–2013 residency interview cycle and found that 65.9% of respondents reported receiving at least one potentially illegal question, and 82% of surgical applicants were asked such

questions.^{9,10} These earlier studies called for a code of conduct and a definition of acceptable interview procedures. Yet, despite the wide range of resources now readily available to programs (updated in 2016 and 2021), the high prevalence of impermissible or illegal questions during the plastic surgery interview process found in the present study highlights that these concerns continue to jeopardize the integrity of the interview and match process.

The two most common impermissible questions reported by applicants to the PRS match were related to discussions of the applicant’s rank list (42%) and marital status (33%). In 2016, Hern et al. found that over 30% of respondents in some specialties reported illegal questions related to rank lists and commitment to programs. They astutely pointed out that these are “not potentially illegal in the same way as other questions.”¹⁰ Questions of this nature are specific to residency interviews and somehow feel less prohibitive, as civil rights laws do not protect them. This may explain the high prevalence shown in our study, where 42% of those who experienced an illegal question reported the questions were rank-related. In 2010, Sbicca et al found that 90% of respondents to a

Table 2. Summary of Illegal Questions and Impact of Program Rank

Variable	Value
Illegal questions categories, mean (SD)	1.49 (1.29)
Illegal questions categories (breakdown), n (%)	
0	22 (22.0)
1	39 (39.0)
2	19 (19.0)
3	11 (11.0)
4	7 (7.0)
5	1 (1.0)
6	1 (1.0)
Total interviews that included illegal questions, mean (SD)	3.6 (3.79)
Appropriateness, n (%) (n = 78)	
Appropriate	25 (32.1)
Inappropriate	20 (25.6)
Hard to say	13 (16.7)
Neutral	20 (25.6)
Refused to answer, n (%) (n = 78)	
No	70 (89.7)
Yes	8 (10.3)
Answer truthfully, n (%) (n = 70)	
No	10 (14.30)
Yes	60 (85.70)
Pursue actions, n (%) (n = 78)	0 (0.00)
Why no action was taken, n (%) (n = 78)	
Appropriate	36 (52.90)
Not worth/benefit	10 (16.2)
Fear of retaliation/lower ranking	21 (30.90)
Decision of rank influenced n (%)	
No	70 (70.0)
Yes	30 (30.0)

dermatology applicant survey were asked about interviews at other programs, whereas 32% felt pressured to reveal how they intended to rank programs.¹³ While examining the responses of 202 radiation oncology applicants in 2017, Sura et al revealed similar findings: 47% of illegal questions were regarding interviews at other programs, whereas 12% were specific to rank intention.¹¹ Similarly, Sebesta et al reported 141 responses by urology applicants in the 2017 match cycle (governed by AUA, not NRMP); 85% reported an illegal question during at least one interview, 48% of applicants were asked about rank lists, and all who reported impermissible questions were asked about other interview locations or the number of interviews attended.¹² These questions can create a dilemma

for applicants given that admitting to a high number of interviews may be misinterpreted to mean that they have little interest in attending that specific program, whereas reporting a lower number may give the appearance that they are a less desirable candidate. Although these questions do not constitute a legal infraction, the NRMP website (updated August 2021) clearly states that inquiries by programs regarding other programs and/or how the applicant plans to rank them are a violation of the Match Participation Agreement.²⁴

In contrast, questions regarding marital status or child-bearing/family plans are often proscribed by the state and, more tangentially, by federal laws.¹⁴ Our results for these types of questions were generally consistent with findings published in other specialties.^{9-13,22} However, unlike prior studies, which found these questions were more frequently asked to female applicants,^{9,10} our study did not reveal a gender difference. Sbicca et al reported 78 (44%) dermatology applicants being asked about marital status, and 33 (19%) asked if they either currently had children, or intended to have children, in the 2009 Match.¹³ Urology applicant data showed that 55% were asked questions about personal life, including marital status and current/future plans for children.¹² Sura et al revealed that marital status questions appeared 30% of the time. Child-rearing plans were reported by 6% of radiation oncology applicants. In contrast, Hern et al revealed that 53.3% of respondents reported illegal questions on marital status, 24% regarding children, and 13.8% being asked about plans for child rearing in a survey sent to 11,000 applicants of both surgical and nonsurgical specialties.^{9,11} Our study found that 33% of applicants reported receiving a question about marital status, whereas about 16% were questioned about family planning. Regardless of the questions' intent, an applicant who fails to match could legally challenge whether their answer to such a question was used to discriminate against them. Although employment discrimination based on marital status is not directly protected under federal law,²⁵ many states have enacted laws that prohibit this practice,²⁶⁻³⁰ and there are examples of litigants suing employers on the theory that these questions are a covert form of gender discrimination, which is prohibited under Title VII of the Civil Rights Act of 1964.¹⁴

Title VII also prevents employment discrimination based on race, age, religion, and sexual orientation, which were reported by 22%, 4%, 2%, and 1% of applicants in our survey, respectively. In our study, 50% of applicants belonging to racially and ethnically minoritized groups

Table 3. Association/Trend between Age Group and Any Category of Illegal Questions, Truthfulness, and Decision Ranking

	Age Group			P
	21-25 (N = 17)	26-30 (N = 76)	31-35 (N = 6)	
Illegal questions: race/ethnicity, n (%)	3 (17.6)	17 (22.4)	1 (16.7)	0.876
Illegal questions: marital status, n (%)	6 (35.3)	24 (31.6)	2 (33.3)	0.956
Illegal questions: family planning, n (%)	4 (23.5)	10 (13.2)	1 (16.7)	0.556
Illegal questions: ranking interviews, n (%)	7 (41.2)	33 (43.4)	2 (33.3)	0.885
Illegal questions: career balance, n (%)	6 (35.3)	17 (22.4)	1 (16.7)	0.481
Answer truthfully, n (%)	10 (90.9)	46 (83.6)	3 (100.0)	0.630
Influenced program rank, n (%)	8 (47.1)	20 (26.3)	1 (16.7)	0.185

Table 4. Association/Trend between Gender and Any Category of Illegal Questions, Truthfulness, and Decision Ranking

	Gender		P
	Men (N = 45)	Women (N = 53)	
Illegal questions: race/ethnicity, n (%)	8 (17.8)	14 (26.4)	0.307
Illegal questions: marital status, n (%)	13 (28.9)	19 (35.8)	0.464
Illegal questions: family planning, n (%)	5 (11.1)	10 (18.9)	0.288
Illegal questions: ranking interviews, n (%)	17 (37.8)	24 (45.3)	0.453
Illegal questions: career balance, n (%)	7 (15.6)	16 (30.2)	0.089
Answer truthfully, n (%)	28 (90.3)	30 (81.1)	0.284
Influenced program rank, n (%)	6 (13.3)	23 (43.4)	0.001

Value in boldface represents $P < 0.05$, which was considered to be statistically significant.

(Black, Asian, and Hispanic/Latino) were asked questions that pertained to their race/ethnicity versus co-applicants identified as White and two or more races, who were asked in a significantly lesser degree (9% and 8%, respectively). Regardless of the intention of these questions, programs should refrain from inquiring about this topic, as applicants could legally challenge whether their question was used to discriminate against them. Questions regarding age in our study were rare (4%), and federal protection against employment discrimination under the Age Discrimination in Employment Act of 1967 is only applicable to individuals 40 years of age or older (although there are state-specific laws that may apply to younger persons).³¹ Lastly, one applicant reported being asked about a disability. Although the Americans with Disabilities Act of 1990 prohibits employment discrimination against individuals with disabilities, there are allowances where a prospective employee may be unable to perform essential functions despite reasonable workplace accommodations.³²

Our study also explored the effect and impression these impermissible questions had on applicants. Results demonstrated that receiving a forbidden question influenced the rank lists order of 30% of respondents with a statistically significant gender difference: rank lists of women were altered 43.4% of the time versus 13.3% for men (Table 4). Similar to our findings, a 2021 study

surveying fourth-year medical students regarding NRMP violations revealed that 60.3% of the 433 respondents were asked about locations of other interviews; 53% of these applicants were left with a negative impression of the program, with 22.6% being less to much less likely to rank the violating programs highly. Interestingly, most match violations in this study were found to be committed by program directors.³³ We support the proposal of the authors of this study that program directors are best poised to initiate and perpetuate necessary change.

Another important finding of our investigation was that many applicants had imperfect information about what did or did not constitute an impermissible or illegal line of questioning. Many respondents to this study stated that it was “hard to tell” or felt “neutral” about the appropriateness of some types of clearly impermissible or illegal questions. This further highlights the need for applicants and program participants to review interview guidelines outlined by their parent hospital and by the AAMC/NRMP. In general, interviewers should avoid questions that have no obvious bearing on a resident’s ability to serve as a resident/trainee and stick to questions for which the answer has some fundamental or underlying job-related necessity. Even when the boundaries of a question are uncertain, regulatory bodies like the Equal Employment Opportunity Commission consider the intent of questioning and how the information is used as critical aspects when determining whether to pursue a claim for discrimination.

Although direct legal action by an applicant for such questions is rare, the NRMP Applicant Violation Report system allows applicants to report violations that can result in program investigation and sanctions. This system was put in place in 2017 following reports of significant program coercion and confirmed violations often resulting in a 1-to-3-year flag as a match violator in the NRMP Registration, Ranking, and Results (R3) system.³⁴ Even without a flag, prior studies have called attention to the influence on how applicants negatively perceive and rank programs that asked these illegal questions.¹⁸ An article published by the NRMP president/chief executive officer and chief policy officer in 2019 specifies that such sanctions may entail a 2-or 3-year “flag” visible to applicants and medical school officials through the R3 system.³⁴ They have found these sanctions were effective, as subsequent breaches by violating programs were rare. Some residency applicant claims of lower ranking due to their race or a disability have been

Table 5. Association/Trend between Race/Ethnicity and Any Category of Illegal Questions, Truthfulness, and Decision Ranking

	Race/Ethnicity					P
	White (N = 53)	Black or African American (N = 6)	Hispanic or Latino (N=10)	Asian (N=14)	Two or More Races (N=12)	
Illegal questions: race/ethnicity, n (%)	5 (9.4)	3 (50.0)	5 (50.0)	7 (50.0)	1 (8.3)	0.001
Illegal questions: marital status, n (%)	24 (45.3)	1 (16.7)	2 (20.0)	2 (14.3)	3 (25.0)	0.109
Illegal questions: family planning, n (%)	9 (17.0)	1 (16.7)	0 (0.0)	2 (14.3)	3 (25.0)	0.605
Illegal questions: ranking interviews, n (%)	21 (39.6)	2 (33.3)	4 (40.0)	8 (57.1)	4 (33.3)	0.738
Illegal questions: career balance, n (%)	14 (26.4)	2 (33.3)	1 (10.0)	3 (21.4)	2 (16.7)	0.746
Answer truthfully, n (%)	32 (84.2)	4 (80.0)	7 (100.0)	7 (77.8)	6 (85.7)	0.789
Decision of rank influenced n (%)	13 (27.7)	2 (40.0)	3 (33.3)	6 (54.5)	3 (33.3)	0.556

investigated and dismissed;³⁵⁻³⁷ however, there is a paucity of recent data regarding the prevalence and disposition of such reports. Our study findings suggest that many applicants either do not know of, or trust the anonymity of the system. Of all respondents who reported being asked an impermissible question during an interview, not a single respondent reported a violation, with nearly one-third citing fear of retribution/lower ranking (30.9%) and others selecting that doing so was “not worth it” (16.2%) This suggests that nearly half (47.1%) are unaware of the anonymous violation reporting form available (<https://www.nrmp.org/wp-content/uploads/2021/12/Violations-Report-Form-for-Applicants.pdf>).

Our study has several limitations. The first is that our data were collected from applicants of a single institution; thus, we are missing the experiences of 14% (49) of applicants from the 2022 plastic surgery match who did not apply to this institution (of the 351 applicants total reported by NRMP). While we attempted to obtain national data, we were unable to do so. Furthermore, our survey response rate was relatively low at 33.1% versus prior studies. Second, we distributed the survey in March to limit applicant recall bias; however, with interviews spanning from December to February, recall bias may be likely. It is also possible that we captured more responses from those with negative experiences as they were more likely to respond. Furthermore, we cannot elucidate if respondents had more or fewer interviews than average applicants of this cycle. Perhaps applicants with more interviews were more likely to respond to our survey, which could be confounding; however, we minimized selection bias by sending the survey to all applicants of a single PRS program regardless of any demographic information. To reduce recall bias, the applicants were asked if they had experienced certain types of questions in *any* interview and not to count each separate instance for each interview they received. This method of data collection was fashioned after that used in the study of Hern et al.⁹ Thus, an applicant who was asked a certain type of inappropriate or impermissible question (eg, religion) in one of two interviews would be counted the same as an applicant who was asked the same type of question in one of fifteen interviews. This grouping of responses greatly limits a more granular statistical inquiry, which would have been helpful to determine if certain candidates are more likely (as a percentage of their total interviews) to be asked impermissible questions. Moreover, the anonymous format of the questionnaire also did not allow at which programs and by which interviewers the impermissible questions were asked. Thus, it is possible that the frequency of these questions clusters in certain interviewers at specific programs and that a small subset of applicants are far more likely to be asked inappropriate questions than other candidates. Given our findings, a more detailed analysis is warranted, but this may require prospective reporting by applicants to ensure accurate data. Another potential limitation is that in the year analyzed for this study, all interviews were conducted virtually. This may have provided an entirely different experience than prior in-person interviews. The potential to be recorded over videoconferencing may have limited the more candid discussions held in person or at the traditional preinterview

gatherings. In this study, we did not have a control group or compare with a nonsurgical specialty of the same year.

CONCLUSIONS

Despite the emphasis placed on the content of what is asked of applicants during plastic surgery residency interviews, inappropriate, impermissible, and to a lesser degree, frankly, illegal questions still surface with frequency. Our findings do not imply malintent or that applicants view questions that are technically impermissible as such. In fact, 32.1% of applicants interpreted technically impermissible questions as “appropriate.” However, the integrity of the interviewing process is best ensured if any ambiguous questions or statements be avoided, because even well-intentioned comments can lead to misinterpretation and investigation and possibly be subject to litigation. Prior suggestions for improvement have included developing both match policy videos to be reviewed before rank list submission and NRMP online training modules for interviewers.^{11,13} While we agree that these may assist in achieving the goal of abolishing illegal or impermissible questions, they would have to be led by the NRMP/AAMC.

As the review of guidelines is not currently mandatory at any level, we suggest that plastic surgery training programs institute safeguards to ensure the integrity of the interview process. These include:

1. All persons involved with the interview process sign off on having read the AAMC “Best Practices for Conducting Medical Interviews” Section 2,¹⁷ “A Practical Guide for Faculty” and the NRMP Match Code of Conduct for Programs. These contain in total seven pages of reading that should take any interviewer less than 10 minutes to complete.³⁸
2. Applicants should be made aware of their rights, and illegal topics should be reviewed briefly at every interview introduction.
3. An anonymous link to report a violation should be provided at each interview. Link here: <https://www.nrmp.org/wp-content/uploads/2021/12/Violations-Report-Form-for-Applicants.pdf>
4. Annual departmental in-house audits by interviewees, like those suggested by Sura et al.¹¹

Future studies should focus on the effect of the increased program and applicant education and oversight on the prevalence of impermissible questions in the plastic surgery match process.

Gary F. Rogers, MD, JD, LLM, MBA, MPH
 Department of Pediatric Plastic Surgery
 Children’s National Health System
 Washington, DC 20010
 E-mail: grogers@childrensnational.org

DISCLOSURES

The authors have no financial interest to declare in relation to the content of this article. This study was supported by Clinical and Translational Science Institute at Children’s National grant support (UL1TR001876).

REFERENCES

- 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.
- Sarac BA, Janis JE. Matching into plastic surgery: insights into the data. *Plast Reconstr Surg Glob Open*. 2022;10:e4323.
- NRMP. 2020 Main Residency Match. Available at https://www.nrmp.org/wp-content/uploads/2021/12/MM_Results_and-Data_2020-rev.pdf. Published 2020. Accessed November 25, 2022.
- NRMP. 2021 main residency match. Available at https://www.nrmp.org/wp-content/uploads/2021/08/MRM-Results_and-Data_2021.pdf. Published 2021. Accessed November 25, 2022.
- NRMP. 2022 main residency match. Available at https://www.nrmp.org/wp-content/uploads/2022/05/2022-Main-Match-Results-and-Data_Final.pdf. Published 2022. Accessed November 25, 2022.
- ERAS Statistics | AAMC. Available at <https://www.aamc.org/data-reports/students-residents/report/eras-statistics>. Accessed November 25, 2022.
- American Council of Academic Plastic Surgeons. Plastic surgery position availability: questionnaire results. Available at <https://acaplasticsurgeons.org/residency-resources/Plastic-Surgery-Position-Availability-Question1.cgi>. Accessed November 25, 2022.
- Table B1. Test scores and experiences of first-year residents, by specialty | AAMC. Available at <https://www.aamc.org/data-reports/students-residents/interactive-data/report-residents/2021/table-b1-test-scores-and-experiences-first-year-residents-specialty>. Accessed November 25, 2022.
- Hern H, Alter H, Wills C, et al. How prevalent are potentially illegal questions during residency interviews? *Acad Med*. 2013;88:1116–1121.
- Hern H, Trivedi T, Alter H, et al. How prevalent are potentially illegal questions during residency interviews? A follow-up study of applicants to all specialties in the national resident matching program. *Acad Med*. 2016;91:1546–1553.
- Sura K, Lischalk JW, Grills IS, et al. Contemporary analysis of the prevalence of illegal match questions during medical student residency interviews. *Int J Radiat Oncol Biol Phys*. 2018;100:1075–1078.
- Sebesta EM, Lipsky MJ, Nunez M, et al. The national resident matching program code of conduct: what is the perceived degree of compliance during the urology match process? *Urology*. 2018;122:37–43.
- Sbicca JA, Gorell ES, Peng DH, et al. A follow-up survey of the integrity of the dermatology national resident matching program. *J Am Acad Dermatol*. 2012;67:429–435.
- Civil Rights Act (1964) | National Archives. Available at <https://www.archives.gov/milestone-documents/civil-rights-act>. Accessed November 24, 2022.
- Match Codes of Conduct | NRMP. Available at <https://www.nrmp.org/intro-to-the-match/the-match-agreement/match-codes-of-conduct/>. Accessed November 24, 2022.
- NRMP. Match Code of Conduct for Programs. Available at https://www.nrmp.org/wp-content/uploads/2022/08/NRMP-Match-Code-of-Conduct_Programs_Final.pdf. Accessed November 24, 22.
- Best Practices for Conducting Residency Program Interviews | AAMC. Available at <https://www.aamc.org/about-us/mission-areas/medical-education/best-practices-conducting-residency-program-interviews>. Accessed November 24, 2022.
- Santen SA, Davis KR, Brady DW, et al. Potentially discriminatory questions during residency interviews: frequency and effects on residents' ranking of programs in the national resident matching program. *J Grad Med Educ*. 2010;2:336–340.
- Harris PA, Taylor R, Thielke R, et al. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42:377–381.
- Harris PA, Taylor R, Minor BL, et al. The REDCap consortium: Building an international community of software platform partners. *J Biomed Inform*. 2019;95:103208.
- Ciesielski-Carlucci C, Hern HG, Kushner TK. Avoiding discriminatory medical school admission and residency interviewing. *Acad Med*. 1994;69:975975.
- Teichman JM, Anderson KD, Dorough MM, et al. The urology residency matching program in practice. *J Urol*. 2000;163:1878–1887.
- Thurman RJ, Katz E, Carter W, et al. Emergency medicine residency applicant perceptions of unethical recruiting practices and illegal questioning in the match. *Acad Emerg Med*. 2009;16:550–557.
- During my interview, the program director asked me about other programs to which I had applied and how I plan to rank them. Must I provide that information? | NRMP. Available at <https://www.nrmp.org/help/item/during-my-interview-the-program-director-asked-me-about-other-programs-to-which-i-had-applied-and-how-i-plan-to-rank-them-must-i-provide-that-information-2/>. Accessed November 24, 2022.
- Pre-Employment Inquiries and Marital Status or Number of Children | U.S. Equal Employment Opportunity Commission. Available at <https://www.eeoc.gov/pre-employment-inquiries-and-marital-status-or-number-children>. Accessed November 24, 2022.
- Equality of opportunity a civil right. N.Y. Exec. Law § 291 (2019). Available at <https://www.nysenate.gov/legislation/laws/EXC/291>. Accessed November 24, 2022.
- Unlawful employment practices, Cal Gov Code § 12940 (2010). Available at https://www.easylawlookup.com/California-Law/Government-Code/par-18305/_easylookup.blp?GO=P+repare&print=&data=GOV&sidfw=&site=EASY&location=78232&spon=&p_start=810&p_end=819&p_para=18305&p_epara=18467&display=YES. Accessed November 24, 2022.
- Title 162, WAC § 162-16mn-250 (1999). Available at <https://app.leg.wa.gov/wac/default.aspx?cite=162-16-250>. Accessed November 24, 2022.
- Virginia Human Rights Act, Va. Code Ann. § 2.2-3900. (2022). Available at <https://law.lis.virginia.gov/vacodefull/title2.2/chapter39/>. Accessed November 24, 2022.
- Unlawful Discrimination in Employment, Public Accommodations and Real Property Transactions; Administrative and Civil Enforcement, ORS. Chapter 659A§ (2021). Available at https://www.oregonlegislature.gov/bills_laws/ors/ors659a.html. Accessed November 24, 2022.
- Age Discrimination | U.S. Equal Employment Opportunity Commission. Available at <https://www.eeoc.gov/age-discrimination>. Accessed November 24, 2022.
- Americans with Disabilities Act of 1990, As Amended | ADA.gov. Available at <https://www.ada.gov/law-and-regs/ada/>. Accessed November 24, 2022.
- Monir RL, Michaudet K, Monir JG, et al. Impact of match violations on applicants' perceptions and rankings of residency programs. *Cureus*. 2021;13:e12823.
- Curtin LS, Signer MM. Program noncompliance in the national resident matching program: prevalence and consequences. *J Grad Med Educ*. 2019;11:12–14.
- United States Court of Appeals SC. *Kasuri v St. Elizabeth Hosp. Medical Center.*, 897 F.2d 845 (6th Cir. 1990) (1990).
- United States Court of Appeals SC. *Roth v Lutheran General Hosp.*, 57 F.3d 1446 (7th Cir. 1995) (1995).
- United States District Court WDP. *Sidique v University of Pittsburgh Dept. of Dermatology.*, Civil Action No. 02-365 (W.D. Pa. Nov. 12, 2003) (2013).
- Association of American Medical Colleges. *1996 Medical School Graduation Questionnaire, Summary report for all schools*. Washington, DC: Association of American Medical Colleges; 1996.