Title
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Journal
Journal of surgical education, 80(2)

ISSN
1931-7204

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Publication Date
2023-02-01

DOI
10.1016/j.jsurg.2022.09.019

ORIGINAL REPORTS

Virtual Interviews: Assessing How Expectations Meet Reality

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OBJECTIVE: This study aimed to determine the postmatriculation perceptions of interns and faculty who participated in the 2020-2021 virtual interview process and how their expectations of the program and the applicants, respectively, aligned with reality.

DESIGN, SETTING, AND PARTICIPANTS: Published surveys on virtual interviewing were reviewed and modified to design two surveys, for interns and for faculty who interviewed. Interns and faculty members from the Departments of Surgery and Medicine at one institution who participated in the 2020-2021 virtual interview process completed the surveys four to six months after the start of the academic year. Following survey completion, surgical interns from the same application cycle participated in one in-person focus group nine months after the start of the academic year to clarify points raised in the surveys.

RESULTS: Forty-six interns and faculty members responded to the survey (subgroup response rates ranging from 13-30%) and ten interns participated in the focus group (participation rate 100%). Most faculty and intern participants found that expectations formed during virtual interviews were accurate. However, our respondents noted limitations to virtual interviews that reduced their usefulness, including challenges with unnatural social interactions, understanding city fit, and getting a sense of resident and program culture. Participants provided possible solutions to address these challenges.

CONCLUSIONS: Overall, this mixed-methods study at a single institution found that perceptions from virtual interviews were generally accurate but with some limitations. We describe several opportunities to improve the virtual interview process and optimize the application experience. (J Surg Ed 000:1−8. © 2022 The Author(s). Published by Elsevier Inc. on behalf of Association of Program Directors in Surgery. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/))

KEY WORDS: Residency applications, virtual interviews

COMPETENCIES: Professionalism, Interpersonal and Communication Skills, Systems-Based Practice

INTRODUCTION

As a result of the coronavirus 2019 (COVID) pandemic, residency applicant interviews transitioned to a virtual format across the country. With the slow resolution of the pandemic, education leaders are looking to the future of residency interviews to determine whether interviews should remain virtual, return to being in-person, or be part of a hybrid approach. The implications of these decisions will have a significant impact on both residents and residency programs in terms of planning, cost, equity, and satisfactory matches.

Numerous prior studies have evaluated perceptions of interview formats. Finney and colleagues surveyed 167 general surgery applicants after Match Day 2021 about their experiences with virtual interviews.[1] They found limitations to the virtual format, including dissatisfaction with social and tour events and difficulty assessing program culture. Other studies in multiple residencies and fellowship programs have found similar barriers around the interview experience and becoming familiar with programs, programs' cultures, and cities.[2−6] Some applicants have worried that transitioning to virtual interviews may shift emphasis from personality and fit to standardized tests and class rank.[4] Other applicant-cited barriers have included time zone differences, challenges with access to a quiet virtual interview setting, and

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  1931-7204/$30.00 https://doi.org/10.1016/j.jsurg.2022.09.019

difficulties with interview hoarding.[7-9] Nonetheless, multiple studies have independently concluded that virtual interviews saved applicants time and money, reduced carbon emissions, and allowed for greater scheduling flexibility.[10-14] Due to these factors, authors and survey respondents have found virtual interviews to promote equity among interviewees.[8] Many previously surveyed applicants have seen virtual interviews as the way forward even after the pandemic.[1,7,15]

Prior authors also have evaluated program directors' (PDs), associate program directors' (APDs), program administrators' (PAs), and interviewed faculty's views of virtual interviews. A recently published survey of 1123 PDs in 30 specialties described a wide range of perceptions towards virtual interviews.[16] Interestingly, only 15% of responding PDs felt that virtual interviews were better than in-person interviews. Other studies have reached comparable conclusions.[9,17] DeLay and colleagues surveyed 60 surgical PDs and APDs with 54% of respondents reporting that virtual interviews limited the evaluation of applicants.[18] Despite this, another study comparing program ranking changes after virtual compared to in-person interviews among anesthesiology applicants reached different conclusions. This study found similar objective program ranking changes after virtual and after in-person interviews.[19] Studies of faculty interviewers found that faculty have adapted to virtual interviews with varied satisfaction. Stated benefits to interviewers included increased convenience and time savings.[13,20] However, program leadership remain split as to whether interviews should remain virtual.[21]

A natural goal of the residency interview and selection process is to achieve both program and applicant satisfaction with each other after applicants become interns. Given the length and investment of residency training, understanding whether virtual interviews are acceptable in this regard is of utmost importance.[22] However, all described studies have focused on applicants' and programs' thoughts and observations after interviews but prior to intern matriculation. There is a gap in the literature assessing perceptions of virtual interviews after intern matriculation. As such, this study aimed to determine the post-matriculation perceptions of interns and faculty who participated in the 2020-2021 virtual interview process and assess the alignment of their pre-matriculation expectations of the program and reality.

METHODS

Design: This is a mixed methods study. This methodology was chosen to allow for the exploration of perceptions that were reported in quantitative data. We followed the process of an explanatory sequential mixed methods model.[23]

Surveys: To determine alignment of perceptions based on virtual interviews with reality, published surveys on virtual interviewing were reviewed and modified to design an 18-item survey for interns and a 15-item survey for faculty interviewers (Appendices A and B).[2,4,15] Survey questions were discussed and piloted among authors and then distributed using Qualtrics.[24] The surveys required five to ten minutes to complete. The surveys included Likert scale (rated on a five-point scale), multiple choice, free response, and demographic questions. All surgical and internal medicine interns and faculty at our institution received the anonymous survey by email with two remainder emails four to six months after the start of the academic year (October to December 2021). Multiple choice, Likert scale, and demographic responses were reviewed quantitatively. In addition, free responses were independently reviewed for themes by two authors using conventional content analysis (RB and JW).[25]

Focus Group: Following survey completion and analysis of both intern and faculty responses, an in-person focus group was held in March 2022 with surgical interns after a surgical simulation session to clarify themes raised in the surveys. Participation in the focus group itself was optional and confidential for interns. The focus group moderator (MK) probed points needing further details. The focus group was audio-recorded, transcribed, de-identified, and reviewed for accuracy. Two authors independently reviewed the focus group discussion (RB and MK) by reading transcripts and organizing points into broader themes, which were then reconciled.

Statistical Analysis and Ethical Approval: Descriptive data were generated for variables of interest. Qualtrics and Stata were used for analysis.[24,26] This study was deemed exempt by our Institutional Review Board (IRB21-34429).

RESULTS

Intern Survey: Twenty-two interns responded to the intern survey, including 13 of 44 surgical interns (30%) and 9 of 63 medical interns (14%) with a total response rate of 21%. Surgical intern respondents included interns participating in categorical general surgery, non-designated preliminary general surgery, plastic surgery, neurosurgery, otolaryngology – head and neck surgery, orthopedic surgery, and diagnostic radiology. The plurality of interns had accepted and attended more than fifteen interviews. The demographics of interns are included in Table 1.

TABLE 1. Demographics of intern and faculty interviewer survey respondents

	Interns	Faculty
Total – n	22	24
Age – n (%)		
24 and younger	0 (0)	0 (0)
25 to 30	17 (77)	0 (0)
31 to 40	5 (23)	5 (22)
41 to 50	0 (0)	11 (48)
51 to 60	0 (0)	4 (17)
61 to 70	0 (0)	3 (13)
71 and older	0 (0)	0 (0)
Gender – n (%)		
Female	12 (55)	12 (50)
Male	10 (45)	11 (46)
Nonbinary	0 (0)	0 (0)
Prefer not to answer	0 (0)	1 (4)
Ethnicity – n (%)		
Hispanic or Latinx	5 (23)	1 (4)
Black or African American	1 (5)	0 (0)
White or Caucasian	10 (45)	13 (54)
American Indian or Alaska Native	0 (0)	0 (0)
Asian	3 (14)	4 (17)
Hawaiian or Pacific Islander	0 (0)	0 (0)
Other	3 (14)	5 (21)
Prefer not to answer	0 (0)	1 (4)
Region of Medical School – n (%)		
Northeast	6 (27)	
Southeast	2 (9)	
Midwest	4 (18)	
Mountain West	7 (32)	
Other	3 (14)	

On five-point Likert-scale questions, interns rated questions answered by residents (mean = 4.4), social time with residents (mean = 4.1), and interviews with residents (mean = 4.0) as the three factors that in retrospect had most helped them understand the program. The virtual tour of the program (mean = 2.9) and social time with faculty (mean = 3.2) were the factors that were rated the lowest in helping them understand the program. Among features of the program that the virtual interviews helped applicants to understand, interns were most satisfied with the virtual interviews for getting a feel of the residents (mean = 4.2) and least satisfied with the virtual interviews for determining the fit of the city (mean = 3.2). Interns felt that an in-person interview would have been most helpful for determining the city's fit (mean = 4.4), followed by getting a feel of the program and institution (mean = 3.8). Most interns (19 of 22; 86%) agreed or strongly agreed that it is important to visit the location of the residency program and most (15 of 22; 68%) felt that it was important to meet residents and staff of the residency program in person. Interns were mixed as to whether programs should offer both in-person and virtual options for future interviews, with a plurality (9 of 22; 41%) disagreeing that both options should be offered (Figure 1). However, most respondents (16 of 22; 73%) thought applicants should have the option to visit for an in-person tour or shadowing experience. In total, most applicants (13 of 22; 59%) felt that their expectations of the program based on the virtual interviews were very or extremely accurate (Figure 2A).

In free responses, several important themes were identified. First, respondents differentiated between content and culture in the usefulness of virtual interviews. For example, one respondent noted,

> "I don't feel an in-person interview would allow us to understand the program itself better as the content would probably be the same. I do think that it would definitely help with the understanding of the culture." (I-17)

Another stated,

> "You cannot simulate online what it's like to physically be at a prospective training hospital. When I interviewed for medical schools, the in-person component had an outsized effect on my decision. I need to walk through the town/city, eat the local food, experience the culture, and walk through the hospital, pretending I'm working here, to fully develop a well-rounded opinion on program fit." (I-12)

To help with this, several respondents recommended more options for socializing and additional discussions of residents' and faculty members' lives outside the hospital and with one another. Second, interns identified a need to understand the geography of moving around the institution and sites. One intern found that

> "An in-person interview would have been much more helpful for getting a sense of all of the different hospital sites and the distance between them." (I-20)

Another noted the inability to understand "the neighborhood surrounding the hospital" (I-9) while a third would have appreciated visiting the city for "more perspective on the communities we would be serving." (I-7) Multiple interns suggested more 3D tours, videos, and interactive maps to address these concerns. Third, respondents noted a strong preference to be able to visit the city without an effect on ranking. Many responded to a question about hybrid interviews, worrying that this would negatively impact those who could not come in person.

Faculty Survey: Twenty-four faculty member interviewers responded to the faculty survey, including 6 of 47 surgical faculty interviewers (13%) and 18 of 123

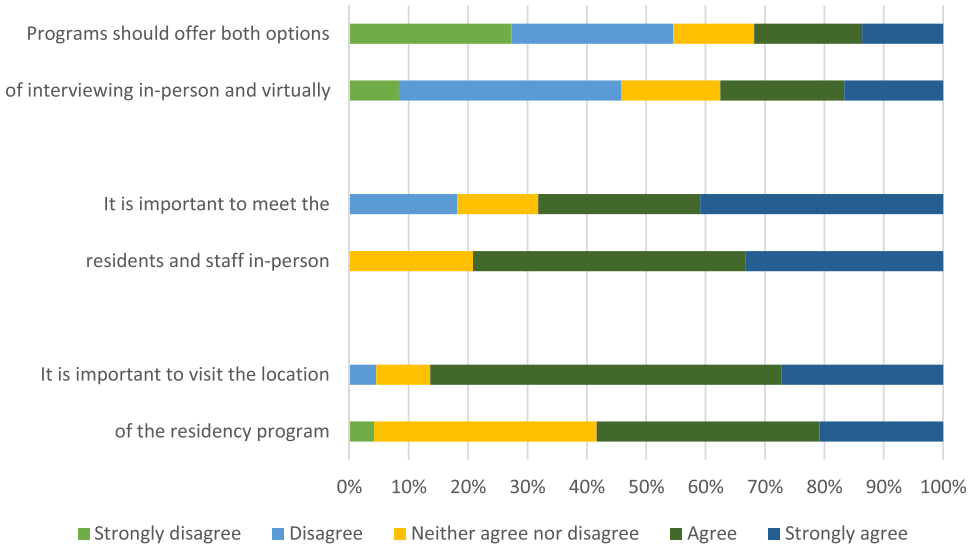

FIGURE 1. Intern (top row) and faculty (bottom row) opinions on interview offerings and the importance of in-person meetings and visits.

medical faculty interviewers (15%) with a total response rate of 14%. Faculty interviewers had participated in as few as one to more than fifteen prior interview cycles. The demographics of faculty interviewers are included in Table 1.

On five-point Likert scale questions, faculty identified that applicants' academic interests (mean = 4.1) and applicants' interest in the specialty (mean = 4.0) were the most helpful factors for faculty understanding applicants. Faculty thought in-person interviews would have been most helpful to applicants in determining the city's fit (mean = 4.6). Most faculty (14 of 24; 58%) agreed or strongly agreed that it is important to visit the location of the residency program and most (19 of 24; 79%) felt that it is important to meet residents and staff of the residency program in-person. Faculty were mixed as to whether programs should offer both in-person and virtual options for future interviews, with a slight plurality (11 of 24; 46%) disagreeing that both options should be offered (Figure 1). Faculty felt that their expectations of applicants were somewhat accurate (11 of 24; 46%), very accurate (8 of 24; 33%), or extremely accurate (1 of 24; 4%) (Figure 2B).

In faculty interviewers' free responses, several themes were identified. First, respondents were concerned about the virtual interview experience as excessively formal compared to the in-person interview experience.

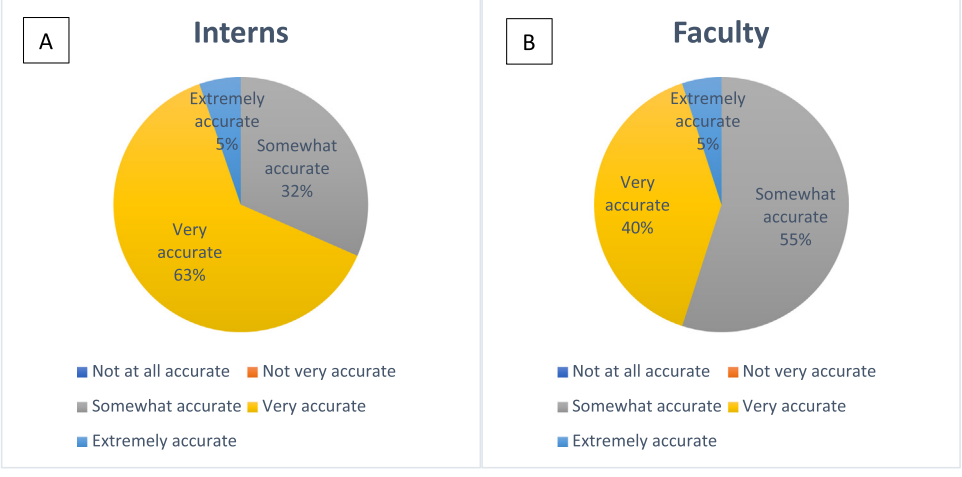

FIGURE 2. Accuracy of intern expectations of the program (A) and faculty expectations of interns (B) based on virtual interviews.

One noted, "the social interactions are more formalized and less frequent on Zoom [with] no spontaneous conversations." Another theme related to applicant inability to adequately assess the program. One faculty interviewer noted "the interviews are more about us selling our program." (F-4) The third theme related to the similarity of the virtual to the in-person interview format. Like interns, faculty interviewers identified that a hybrid interview approach would significantly disadvantage those unable to attend in-person. One summarized, "we have to make sure that we don't give people who can afford the costs an unfair advantage in the final selection." (F-13)

Focus Group: Ten surgical interns participated in the focus group. Ten interns were part of the simulation session preceding the focus group and none opted out, representing a 100% participation rate. Interns clarified those aspects of interviewing that they found or would find most helpful, including social time and observing interactions among residents. For social activities, participants emphasized the importance of being able to talk to both residents and faculty about their lives outside the hospital to gain a better perspective of the community at the program. With regard to observing interactions among residents, participants recommended having some of the resident social events take place with the residents all together in one or a few places rather than each alone on a separate videoconferencing screen. As with survey respondents, focus group participants felt strongly that a hybrid approach would disadvantage those applicants unable to come in person. Interns recommended that a nationwide standard be set for second look in-person visits. After some discussion, participants posited a system in which applicants would interview virtually, then programs would submit rank lists, then applicants would be given the option to visit in-person, then applicants would submit rank lists.

DISCUSSION

Virtual interviews have dramatically changed the landscape of the residency application process beginning with the COVID pandemic. Although programs had piloted and assessed the feasibility of such interviews years prior to the pandemic, the now near-universal adoption of virtual interviewing has prompted significant discussion as to the way forward in coming years.[15,27] Given varied experiences with virtual interviews, authors have published recommendations for and against their continued use.[3,28] Our study filled the gap in knowledge of perceptions of virtual interviews after applicant matriculation. Overall, we found that most expectations formed during virtual interviews were accurate, though more so for interns than for faculty. Our respondents noted several limitations where virtual interviews fail to address important issues. These limitations generally matched those noted in prior studies, and included challenges with social interactions, understanding city fit, and getting a sense of resident and program culture.[1-6] It is unclear why faculty members' expectations were less accurate than were interns' expectations. This could be related to faculty members' prior experience with in-person interviews or the greater amount of time that applicants spend getting to know the program and its residents during the interview day compared to faculty members' time getting to know the applicants.

Interviews may be more important for applicants than for programs. One study that assessed preliminary and final rank lists found that interviews had a greater influence on applicants' lists than programs' lists.[29] Our faculty interviewers' free response themes support this contention with their concern regarding virtual interviews' adequacy for applicant assessment of the program. As such, the fact that interns' expectations were more accurately matched with reality than were faculty members' expectations is reassuring. In other words, since interviews appear most important for applicants' experience, we are encouraged that applicants' expectations based on those interviews are generally accurate. When designing future virtual interview experiences, programs should thus prioritize those events that most allow applicants to get to know the program and location. Our participants emphasized the usefulness of time with residents and social events. In addition, many of our participants found virtual tours of the hospital, neighborhoods, and city lacking and recommended increased emphasis on 3D tours, videos, and interactive maps to better depict these settings.

While prior authors[18,22,30] have shown survey data or provided recommendations that support or oppose so-called hybrid interviews, most of our respondents opposed this option. Our study's participants worried that hybrid interviews would promote inequities in applicant evaluation without significant benefits. In contrast, interns and faculty felt that a non-interview or "second look" visitation option would be a useful option, provided that such a visit did not adversely impact equity and could be conducted without an effect on ranking. Focus group participants provided a potential model for this type of visitation if it occurred between the program's and applicant's rank list submission.

There are several important limitations to this study. The survey response rates were low. This is a limitation as non-respondents may have had different experiences than respondents. For example, dissatisfied interns or

faculty may have been more or less likely to respond to the survey. We are encouraged, however, that a focus group with a 100% participation rate, which we conducted to confirm and clarify several points, demonstrated consistent findings with the survey results. In addition, this is a single-institution study, which may reduce the generalizability of our findings. Importantly, however, it reflects the experience of a range of applicants and interview experiences across medicine, general surgery, and multiple surgical fields, supporting our findings across different specialties. These results are most likely to be relevant to large academic internal medicine and surgical residencies like ours. Nevertheless, the small sample size, survey response rate, and single-institution nature of this study limits our findings. Future studies should monitor the influence of improved virtual interview experiences.

It is likely that virtual interviews will continue to play an important role in the residency application processes, particularly as programs consider cost, environmental impact, and equity. Those seeking to optimize virtual interviews have published recommendations to enhance the experience for both applicants and programs.[31-36] These recommendations may prove useful as we enter a third season of virtual interviewing. Our findings provide additional details to help design virtual interviews in a way that maximizes their usefulness by highlighting the importance of protected resident social time, a more natural social event format, improved 3D tours with interactive maps, and the possibility of a novel hybrid visitation plan.

Overall, this mixed methods study assessed how expectations based on impressions formed during virtual interviews aligned with reality after the applicants matriculated and became interns. We found that perceptions were generally accurate but with limitations in virtual interviews, particularly regarding assessing social interactions, determining city fit, and understanding program and resident culture. We discussed several opportunities to improve the virtual interview process and optimize the application experience.

ACKNOWLEDGMENTS

We want to acknowledge Virginia Schuler, Heidi Crist, Sarah Schaeffer, and Kenzo Hirose for their support in distributing the intern and faculty surveys. We would also like to acknowledge the interns and faculty who responded to the survey and participated in the focus groups. The research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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SUPPLEMENTARY INFORMATION

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.jsurg.2022.09.019.