Virtual Ophthalmology Fellowship Interviews: Perceptions of U.S. Ophthalmology Fellowship Applicants in 2020

Samir N. Patel, MD[1]   Elliot G. Cherkas, BS[2]   Charlotte N. Shields, BS[2]   Rebecca R. Soares, MD[1]

John W. Hinkle, MD[1]   Reza Razeghinejad, MD[3]   Kristin M. Hammersmith, MD[4]   Brenton D. Finklea, MD[4]

Carol L. Shields, MD[5]   Michael N. Cohen, MD[1]   M. A. Khan, MD[1]   Ajay E. Kuriyan, MD[1]

Michael A. Klufas, MD[1]

[1] Retina Service, Wills Eye Hospital, Mid Atlantic Retina, Department of Ophthalmology, Thomas Jefferson University, Philadelphia, Pennsylvania
[2] Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, Pennsylvania
[3] Glaucoma Service, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, Pennsylvania
[4] Cornea Service, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, Pennsylvania

Address for correspondence Michael A. Klufas, MD, Retina Service, Wills Eye Hospital, Mid Atlantic Retina, Department of Ophthalmology, Thomas Jefferson University, 840 Walnut Street, Suite 1020, Philadelphia, PA 19107 (e-mail: mklufas@midatlanticretina.com).

[5] Ocular Oncology Service, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, Pennsylvania

Abstract

Objective   This study aimed to evaluate the experiences and preferences of ophthalmology fellowship applicants utilizing a virtual interview format.

Design   Present study is a cross-sectional study.

Subjects   All fellowship applicants to Wills Eye Hospital during 2020 to 2021 application cycle were included.

Methods   A nonvalidated, online survey was conducted, and surveys were distributed at the conclusion of the interview process after rank list submission.

Main Outcome Measures   Applicant demographics, application submissions, interview experiences, financial considerations, and suggestions for improvement of the virtual interview process were the primary outcomes of this cross-sectional study.

Results   Survey responses were received from 68 fellowship applicants (34% response rate). Thirty (44%) applicants preferred in-person interviews, 25 (36%) preferred virtual interviews, and 13 (19%) would like to prefer the option to choose either. Fifty-five of 68 (80%) applicants attended the same range of interviews for which they received interview invitations. Reduced costs were reported as the highest ranked strength of virtual interviews in 44 (65%) applicants, with a majority of respondents (68%) spending less than U.S. $250 throughout the entire process. The highest ranked limitation for virtual interviews was limited exposure to the culture/environment of the program in 20 (29%) respondents. On a scale of 0 to 100, the mean (standard deviation [SD]) satisfaction level with the fellowship application process was 74.6 (18.3) and mean (SD) perceived effectiveness levels of virtual interviews was 67.4 (20.4).

Keywords
► COVID-19
► ophthalmology trainees
► virtual interviews
► medical education

Conclusion Respondents were generally satisfied with virtual interviews and noted reduced costs and increased ability to attend more fellowship interviews as the strengths of the virtual interview format. Limited exposure to the culture/environment of the program was cited as the most important limitation.

The novel coronavirus disease 2019 (COVID-19) pandemic has necessitated rapid advancements in telemedicine and teleeducation over the past year.[1,2] Given travel restrictions and infectious transmission considerations, many medical schools, residency programs, and fellowship programs have recently transitioned to virtual interviews out of necessity and as a result of these concerns.[3–9]

Multiple recent, survey-based studies have been conducted to understand the impact of virtual interviews on applicants and program directors (PDs) for various non-ophthalmology residency and fellowship programs.[3,5,8,10] One study of cardiothoracic fellowship applicants and PDs found that 79% of PDs and 55% of applicants believed that virtual interviews should be offered in the future. However, only 15% of PDs and 20% of applicants agreed that virtual interviews should be the only option offered to candidates.[5] Similarly, another study of general surgery oncology fellows found that 83% of PDs and 79% of candidates felt comfortable creating their rank list following a virtual interview.

There is no data, to our knowledge, on the perceptions of ophthalmology fellowship applicants toward the virtual interview process. The purpose of this study was to evaluate the impact of the virtual interview process for ophthalmology fellowship applicants during the COVID-19 pandemic.

Methods

This prospective cross-sectional study was approved by the Wills Eye Hospital Institutional Review Board. Data were collected in accordance with Health Insurance Portability and Accountability Act guidelines, and the study conformed to the tenets of the Declaration of Helsinki. All study participants provided written informed consent.

A nonvalidated web-based survey was created using SurveyMonkey (SVMK Inc.; San Mateo, CA) for ophthalmology fellowship applicants for the 2020 to 2021 San Francisco (SF) Match fellowship application cycle.

All fellowship applicants ($n = 199$) to six Wills Eye Hospital (Philadelphia, PA) fellowship programs (Academic Global Ophthalmology, Cornea, Glaucoma, Ocular Oncology, Vitreoretinal Surgery, and Neuroophthalmology) were included. The survey was electronically administered via e-mail on December 11, 2020, a day after the SF Match rank list submission deadline (December 10, 2020). Four reminder e-mails were sent (December 17, 2020, December 23, 2020, December 28, 2020, and January 4, 2021), and the survey closed on January 9, 2021. The survey included 22 questions regarding demographic information, the number of programs respondents applied to and interviewed with, monetary costs, virtual interview platform used, satisfaction with the virtual process, perceived

strengths and limitations of the virtual interview, and technological difficulties on interview day (►**Supplemental Appendix**; available in the online version). All data were analyzed using statistical software (IBM SPSS 25 Statistics, Armonk, NY). Statistical significance was considered to be a two-sided p-value < 0.05.

Results

Applicant Demographics

Of 199 applicants surveyed, survey responses were obtained from 68 applicants (34% response rate). Baseline demographics are reported in ►**Table 1**. Thirty of 68 (44%) reported their age between 26 and 30, and 33 (49%) reported age between 31 and 35. Thirty-nine of 68 (57%) reported male sex, and 9 of 68 (13%) identified as an underrepresented minority. The majority of applicants were from a residency program/affiliated institution in the Northeast ($n = 24$; [35%]), followed by the Southern United States ($n = 17$; [25%]), Midwestern United States ($n = 12$; [18%]), Western United States ($n = 8$; [12%]), and Outside the United States lower 48 states ($n = 7$; [10%]). Of the 68 respondents, fellowship application programs included 1 (2%) for Academic Global Ophthalmology, 22 (32%) for Cornea, 9 (13%) for Glaucoma, 4 (6%) for Ocular Oncology, 31 (46%) for Retina, and 1 (2%) for other (Oculoplastics).

Application Cycle Process

Of the 68 respondents, 33 (49%) applied to more than 30 fellowship programs. Fifty-five of 68 (80%) respondents attended the same range of interviews for which they received interview invitations, with 34 (50%) attending more than 15 fellowship interviews, and 13 (19%) attending more than 20 fellowship interviews (►**Table 2**). Of 49 respondents with less than 20 interviews, 47 (96%) attended the same range of interviews for which they received interview invitations.

Forty-six of 68 applicants (68%) reported that the overall cost of their fellowship interviews was less than U.S. $250, whereas 10 (15%) reported overall costs greater than U.S. $1,000.

Applicant Perceptions on Virtual Interviews

On a scale of 0 to 100, the mean (standard deviation [SD]) satisfaction level with the fellowship application process was 74.6 (18.3), and the mean (SD) perceived effectiveness levels of virtual interviews were 67.4 (20.4). When asked regarding future preferences, 30 (44%) preferred in-person interviews, 25 (36%) preferred virtual interviews, and 13 (19%) participants preferred the option to choose either. Applicant perceived strengths (scale: 1–6) and limitations (scale: 1–7) of the virtual interview process are reported

Table 1 Baseline characteristics of survey respondents

Baseline demographics		n	%
Fellowship program	Academic Global Ophthalmology	1	1.5
	Cornea	22	32.4
	Glaucoma	9	13.2
	Ocular Oncology	4	5.9
	Retina	31	45.6
	Other (Oculoplastics)	1	1.5
Age (y)	<25	0	0.0
	26–30	30	44.1
	31–35	33	48.5
	36–40	3	4.4
	41–45	2	2.9
Gender	Male	39	57.4
	Female	29	42.7
Residency location (in the United States)	Northeast	24	35.3
	Midwest	12	17.7
	Southern	17	25.0
	Western	8	11.8
	Outside the United States lower 48 states	7	10.3
Fellowship application process			
Number of fellowship applications	<5	6	8.8
	5–9	6	8.8
	10–14	4	5.9
	15–19	7	10.3
	20–24	6	8.8
	25–29	6	8.8
	>30	33	48.5
Number of fellowship invitations	<5	7	10.3
	5–9	13	19.1
	10–14	12	17.7
	15–19	17	25.0
	20–24	6	8.8
	25–29	8	11.8
	>30	5	7.4
Number of fellowship interviews attended	<5	7	10.3
	5–9	13	19.1
	10–14	14	20.6
	15–19	21	30.9
	20–24	6	8.8
	25–29	4	5.9
	>30	3	4.4

Table 1 (Continued)

Baseline demographics		n	%
Estimated monetary cost for all virtual fellowship interviews (U.S. $)	0–250	46	67.7
	251–500	7	10.3
	501–1,000	5	7.4
	1,001–5,000	9	13.2
	>5,000	1	1.5
Location of virtual fellowship interviews	Home	49	72.1
	Workplace	16	23.5
	Library	1	1.5
	Other (please specify)	2	2.9
Applicant preferences			
Fellowship interview format	In-person interview	30	44.1
	Virtual interview	25	36.8
	Option to choose either	13	19.1
Virtual interview platform	Zoom	65	95.6
	Microsoft Teams	1	1.5
	Google Hangout	1	1.5
	Other (please specify)	1	1.5
Optimal length of time for each video interview (min)	10	4	5.9
	15	37	54.4
	20	24	35.3
	30	2	2.9
	45	1	1.5

in ►**Table 3**. Reduced costs were reported as the highest ranked strength in 44 of 68 (65%) respondents with a mean (SD) of 5.5 (1.1). The highest ranked limitation was limited exposure to the culture/environment of the program in 20 (29%) respondents with a mean (SD) of 5.4 (1.6).

Additionally, respondents reported that speaking to current trainees at the program was the most helpful resource for learning about the program ($n = 34$; [50%]), followed by speaking with mentors ($n = 15$; [22%]).

Participants most commonly indicated that the optimal virtual interview length was 15 minutes ($n = 37$ [54%]), followed by 20 ($n = 24$ [35%]), 10 ($n = 4$ [6%]), 30 minutes ($n = 2$ [3%]), and 45 minutes ($n = 1$ [2%]). Regarding virtual interview platforms, respondents used Zoom ($n = 67$ [99%]) most frequently, followed by Microsoft Teams ($n = 17$ [25%]), SF Match ($n = 11$ [16%]), and Google Hangout ($n = 6$ [9%]). The majority of participants indicated that their preferred virtual platform was Zoom ($n = 65$ [96%]).

Discussion

The concept of virtual residency and fellowship interviews has been a topic of interest prior to the COVID-19 pandemic.[11] In

Table 2 Association between number of fellowship interview invitations and number of interviews attended by applicants

		Number of Interview Invitations (n)							
		<5	5–9	10–14	15–19	20–24	25–29	>30	Total
Number of interviews attended (n)	<5	7							7
	5–9		13						13
	10–14			12	2				14
	15–19				15	5		1	21
	20–24					1	4	1	6
	25–29						4		4
	>30							3	3
	Total	7	13	12	17	6	8	5	68

support of such a format, Bird et al noted that virtual interviews "provide different information than what is currently available from academic metrics and … may give program directors an opportunity to widen the skill set of applicants they invite to in-person interviews."[12] The COVID-19 pandemic accelerated this interest into a necessity, as social distancing guidelines, travel restrictions, safety concerns for applicants, and faculty required a remote or virtual format in many cases. Indeed, several national organizations, including the Association of American Medical Colleges (AAMC), Accreditation Council for Graduate Medical Education (ACGME), and Association for University Professors of Ophthalmology (AUPO), have strongly encouraged or required virtual interview formats for the 2020 application year.[13]

In this study, we sought to assess the experience and preferences of ophthalmology fellowship applicants utilizing the virtual interview format. The greatest strength of the virtual interview process for ophthalmology fellowship applicants was reduced costs. Indeed, in this survey, 46 (68%) reported that the overall cost of their fellowship interviews was less than U.S. $250, whereas prior studies have reported a mean total cost of U.S. $5,500 for vitreoretinal fellowship applicants.[14] Other nonophthalmology studies have noted that using virtual interviews saved both applicants and programs over U.S. $500 per applicant,[15,16] specifically by reducing travel and meal costs, while another argued that virtual interviews saved time for both parties.[17] These savings may have important implications, as a prior study of ophthalmology residency applicants reported that 68% had to obtain additional funds from family, loans, or credit cards to afford their in-person interviews.[18] Additionally, as noted by Hariton et al, these high

Table 3 Perceived strengths and limitations of applicants to virtual fellowship interviews

	Mean (SD)	Mode (range)
Strengths of virtual format[1] (Scale: 1 = smallest strength to 6 = largest strength)		
Reduced costs	5.5 (1.1)	6 (1–6)
Shorter interview day schedule	3.6 (1.5)	5 (1–6)
Less pressure during interview	2.1 (1.1)	2 (1–6)
Ability to interview at more fellowship programs	3.4 (1.3)	3 (1–6)
Greater scheduling flexibility	4.2 (1.3)	5 (1–6)
Limitations of virtual format[2] (Scale: 1 = smallest limitation to 7 = largest limitation)		
Limited exposure to faculty	3.4 (1.9)	3 (1–7)
Limited exposure to fellows	3.8 (1.8)	3 (1–7)
Limited exposure to the culture/environment of the program	5.4 (1.6)	7 (1–7)
Inability to physically tour the facilities	4.3 (1.7)	6 (1–7)
Limited exposure to the geographic location/city	4.5 (2.0)	6 (1–7)
Limited exposure to details of the program structure (i.e., call schedule and rotation blocks)	2.3 (1.4)	1 (1–6)
Not enough opportunities to exhibit an applicant's strengths to the program	3.3 (1.8)	2 (1–6)
Difficulty making interpersonal connections via virtual interview	4.4 (2.0)	7 (1–7)

Abbreviation: SD, standard deviation.

personal costs highlight socioeconomic inequalities, favoring those who can afford the extensive travel-related expenses.[19] By reducing interview-related expenses, programs may help applicants to attend more interview invitations, and help level the playing field for applicants who may be unable to afford attending multiple in-person interviews around the country.

Study respondents also reported greater schedule flexibility as a major benefit of the virtual interview season. One study evaluating ophthalmology fellowship match outcomes from 2012 to 2017 reported that applicants submitted a mean (SD) of 20 (16.6) applications, received 7 (5.4) in-person interview invites, and ranked 7 (5.3) programs.[20] In this study, 33 (49%) applicants applied to more than 30 fellowship programs with 34 (50%) applicants attending more than 15 fellowship interviews. Furthermore, 80% ($n = 55$) of respondents attended the same range of interviews for which they received interview invitations. Collectively, these findings suggest that applicants are attending more fellowship interviews with the virtual format compared with previous application cycles. Prior studies have reported that one of the most significant barriers to attending an in-person interview has been navigating issues with dates and locations.[18] With virtual interviews, an applicant could perform multiple interviews from one location, minimizing the need for travel. Additionally, this virtual format could benefit the medical system by limiting the number of missed work days (including on-call responsibilities), reducing strain on the trainee's institution.[21]

Despite these strengths, the biggest perceived weakness among our respondents was limited exposure to the culture/environment of the program. This is of particular relevance to ophthalmology fellowship programs given that the small fellowship class sizes underscore the perceived importance of cultural and program fit which may be limited with a virtual interview process. Although impossible to fully replicate in-person exposure to a program and its city, one study mentioned that it is possible to partially mitigate this by providing interactive virtual tours and designing comprehensive video presentations and online materials.[22,23]

Limitations

This study has several limitations. Nonresponse bias may be present, as the overall response rate was 34%. Furthermore, there is also the potential for selection bias. Respondents who had a positive experience at their interview day may have been more likely to respond to our survey. In addition, only applicants applying to Wills Eye Hospital fellowship programs were invited to participate in this survey, and applicants to these fellowship programs may be different than those choosing to apply to other programs. Furthermore, the survey administered was nonvalidated which may limit the reliability of the findings. Lastly, this study evaluated only the preferences of applicants, so the preferences regarding the virtual fellowship interview format by PDs, faculty interviewers, and current residents/fellows were not assessed for comparison.

Conclusion

In conclusion, this study evaluates perceptions and experiences of ophthalmology fellowship applicants undergoing virtual fellowship interviews in the 2020 to 2021 interview cycle. Presenting these preferences and perceptions may inform how future ophthalmology fellowship interviews occur, regardless of an intervening pandemic. Further study to refine and improve the remote interview format may be of continued interest to medical education training programs.

Relevant Disclosures
No conflicting relationship exists for any author. A.J.K. is a consultant for Alimera Sciences, Allergan, and Bausch Health. M.A.K. is a consultant for Genentech and Allergen and a lecturer for Genentech and Regeneron. M.N.C. is a consultant for Allergan.

Conflict of Interest
None declared

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