

Perspectives of physicians regarding the role of webinars on medical education during the COVID-19 pandemic

Annamalai Odayappan, Rengaraj Venkatesh¹, Raveendra Tammineni², Sivagami Nachiappan³, Mani Iswarya⁴

Purpose: To understand the perspectives of physicians regarding the role of webinars on continuing medical education. **Methods:** An online survey comprising of 34 questions in nine sections was conducted using Google Forms. The link for the questionnaire was shared via e-mail and social media to practicing physicians. The survey accepted responses from September 10, 2020, to September 30, 2020. **Results:** In total, 509 ophthalmologists and 91 physicians from other specialties participated in the survey. The physicians were predominantly employed in nongovernmental institutes (25%) or were in private practice (33.2%). The preference was to attend a weekend webinar (62.8%), in the evening (52.8%), not extending more than 2 hours (97.7%), by ≤ 3 reputed national speakers (89.8%), each given 15 to 30 minutes for their presentation, and the topic being clinical or surgical skill demonstration (47.5%) or recent advances (39.5%). The residents were perceived to be the most benefited (65.3%). There was an equal preference for watching a webinar live or recorded (50.7% vs. 49.3%). Zoom Video Communications, Inc., was described as the platform that offers the best experience (43.8%). Webinars were considered to be better than conferences or continuing medical education (CME) activities (55.8%). The majority (43.8%) also preferred to get CME credit points by attending paid webinars. However, the broad consensus was that webinars should not completely replace the conferences (42.5%). **Conclusion:** Our survey evaluated the participants' perspective and the advantages and the disadvantages of a webinar and provides suggestions for the conduct of an ideal webinar with maximum active participation. Future programs would greatly be benefited by this survey.

Key words: Medical education, online teaching, physician perspectives, survey, webinar

India has more than 1,000,000 doctors, among whom around 25,000 are estimated to be ophthalmologists.^[1,2] Ever since the onset of the COVID-19 (coronavirus disease 2019) pandemic and the lockdown, most conferences have been either canceled or conducted virtually. Consequently, there has been a significant spurt in the number of webinars leading to a "webidemic." It does happen that at times there are many webinars scheduled at the same time slots. This overburdens the listener leading to reluctance in attending many of these talks.

At our postgraduate training institute, we have been conducting similar teleconferences connecting the various hospitals for more than 20 years. A lot of effort goes into organizing and conducting a webinar. These talks could also be saved online for future viewing. The modalities of education in a post-COVID-19 normal era would be quite different from the current or past methods, and therefore a systematic assessment of the various aspects of a webinar was felt necessary. Therefore, we conducted a survey among doctors of various specialties to find out about the usefulness

of these webinars, their role in future scientific programs, and the viewers' preferences, and to identify areas for improvement.

Methods

We performed an online survey by circulating questionnaires to various doctors comprising predominantly of ophthalmologists. The questionnaire with 34 questions in nine sections was developed by the authors and framed in the Google Forms platform [Annexure 1]. Answering all the questions in order was mandatory, and the answers could be reviewed before final submission by the participants. A general introduction regarding the purpose and duration was given before starting the survey. The participation was voluntary without incentives and consent was implied. The link for the questionnaire was shared via email and social media to various doctors to obtain their responses. The survey accepted responses from September 10, 2020, to September 30, 2020. A pilot study was conducted among 24 doctors to assess the validity of the questionnaire, format of the questions, and options for the answers.

Department of Glaucoma, Aravind Eye Hospital, Pondicherry, ¹Chief Medical Officer, Aravind Eye Hospital, Pondicherry, ²Head of Department of Glaucoma, Sankar Foundation Eye Institute, Visakhapatnam, Andhra Pradesh, ³Resident, Indira Gandhi Government General Hospital and Post Graduate Institute, Puducherry, ⁴Department of Biostatistics, Aravind Eye Hospital, Madurai, Tamil Nadu, India

Correspondence to: Dr. Rengaraj Venkatesh, C/o Aravind Eye Hospital, Cuddalore Main Road, Thavalakuppam, Puducherry - 605 007, India. E-mail: venkatesh@aravind.org

Received: 03-Jan-2021

Revision: 07-Mar-2021

Accepted: 20-Mar-2021

Published: 30-Apr-2021

Access this article online

Website:

www.ijo.in

DOI:

10.4103/ijo.IJO_24_21

Quick Response Code:



This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Cite this article as: Odayappan A, Venkatesh R, Tammineni R, Nachiappan S, Iswarya M. Perspectives of physicians regarding the role of webinars on medical education during the COVID-19 pandemic. Indian J Ophthalmol 2021;69:1251-6.

Statistical analysis was performed using the Stata statistical software, Version 14.0 (StataCorp, College Station, Texas, USA). The age of the participants was expressed as mean \pm standard deviation, and the categorical variables were presented as frequency (percentage). Chi-square tests or Fisher's exact tests were used to assess the association between each question in the questionnaire with the ophthalmologists and other physicians. *P* values <0.05 were considered statistically significant.

Results

A total of 509 ophthalmologists and 91 doctors from various other specialties participated in the survey. The nonophthalmologists were categorized based on the various branches of medicine such as general medicine, general surgery, otorhinolaryngology, pediatrics, anesthesia, obstetrics, radiology, psychiatry, dermatology, orthopedics, and a few nonclinical departments such as biochemistry and anatomy. Eight responses were received from allied health personnel and were excluded from the analysis. The mean age of the participants was 40.8 ± 10.5 years. There was an almost equal gender distribution (51.5:48.5). The participants were predominantly working in nongovernmental institutes (25%) or were in private practice (33.2%).

We found that 62.8% of the participants preferred to attend webinars on weekends and more than half (52.8%) preferred the evening (4–8 p.m.) time slot for attending webinars. A vast majority (97.7%) of the doctors preferred to listen to webinars with less than 2-hour duration. Clinical or surgical skill demonstration (47.5%) seemed to be the most sought-after topic followed by recent advances (39.5%). Basic lectures (8.7%) and research-oriented lectures (4.3%) were the least preferred.

More than two thirds preferred to listen to very specific topics such as management of diabetic macular edema and surgical treatment of glaucoma (71.7%) rather than broad topics such as diabetic retinopathy or glaucoma management. Discussing topics relevant to the listener was the most important factor that would interest them to attend the webinar (82.3%). The majority of the participants also noticed that the individual presenters often exceeded the allotted time (62.8%), and the duration of the entire webinar was above the time limit (69.7%). Among all participants, 65.3% opined that residents and fellows were the most benefited by attending the webinars [Table 1].

More than half of them preferred to attend online talks by reputed national speakers (54.8%), and they also felt that the interaction was better with them (44.5%). Preference for watching a webinar live or as a recorded version was nearly equal (50.7% vs. 49.3%). The major reasons given to watch a webinar live were the advantage to clarify doubts (31.2%), inability to watch later if the schedule was missed (26.0%), and the possibility to interact with the other participants (10.7%).

Nearly 71% preferred using the "chat mode" to ask questions and more than 90% observed that the audience questions were clarified by the speakers appropriately. The major reasons for not raising questions included the need to read about the topic a bit before questions could be asked (36.3%), feeling that the others listening might think that the questions were too basic (15.6%), shyness (7.2%), lack of time resulting in an inability to take up all the questions by the speakers or moderators (1.7%), and the desire to

find answers from the existing literature rather than having opinions from the presenters (0.2%). A majority (65.8%) of them preferred to revisit the webinar if a recorded version was made available [Table 2]. The various reasons for preferring a recorded version rather than a live one included the ability to pause and continue (35.2%), inappropriate timing (26.3%), directly visiting the interesting portions of the webinar (24.2%), and avoiding registration (1.2%).

Two thirds of all doctors opined that introducing the speakers was necessary, and they needed to know who the speakers were, but the rest felt that it wasted time (33.5%). The participants preferred to have two or three speakers in a single webinar (84.5%). More than half (53.2%) believed that each speaker needed to be given 15 to 30 minutes for the presentation. Only 9.5% of them said that the speakers could talk for more than 30 minutes. The various advantages and disadvantages of a webinar are shown in Figs. 1 and 2.

The majority of the participants believed that the webinars conducted by the pharmaceutical companies shared scientific information but were biased toward their brand (44.2%). WhatsApp (WhatsApp Inc., Facebook, Inc., Mountain View, California, USA) seemed to be the most common mode for the spread of information regarding upcoming webinars (69.5%). Zoom (Zoom Video Communications, Inc., San Jose, California, U. S. A) was described as the platform that offered the best experience (43.8%).

Among all doctors, 55.8% believed that webinars were better than conferences or continuing medical education (CME) activities. The majority (43.8%) said that if given the option to get CME credit points by attending paid webinars similar to the conferences, they would be willing to do that; however, they also felt that webinars should not completely replace conferences or CME in the future (42.5%) [Table 3].

Discussion

A spurt in the number of webinars gives the audience the luxury to pick and choose the webinars that they wish to attend. Our survey identifies the features of a popular webinar and suggests the scope for improvement.

There was an equal inclination among doctors for watching the webinar as live or a recorded one. Quite a few webinars do not have a recorded version available, but we find that around two thirds of all the doctors prefer to revisit the webinar if a recorded version becomes available. Considering that nearly half of the doctors wish to watch a recorded version and another two thirds want to revisit the talks, it would be for the greater good that webinars are recorded and made available online for later viewing. Moreover, it does not result in any additional cost to the organizers. Therefore, a postpresentation marketing with the link for the recorded version is also justified.

Quite a significant proportion of doctors describe time constraints and find that the speakers exceed the allotted time. Moreover, one third of them are not interested in the introduction of the speakers, and they skip to the main agenda of the webinar. It would, therefore, be prudent to quickly start the talk with minimal introduction and stick to the time. Well-renowned speakers may not need an introduction. Probably, the flyer used for publicity may describe the speakers.

Table 1: Demographic details and general preference

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Age in years				<0.001 ^M
Mean±SD	41.6±10.7	36.6±8.3	40.8±10.5	
Range	23-87	25-72	23-87	
Age distribution (years)				<0.001 ^C
≤30	73 (14.3)	21 (23.1)	94 (15.7)	
31-40	192 (37.7)	49 (53.8)	241 (40.2)	
41-50	143 (28.1)	13 (14.3)	156 (26.0)	
51-60	68 (13.4)	7 (7.7)	75 (12.5)	
61-70	30 (5.9)	0	30 (5.0)	
>70	3 (0.6)	1 (1.1)	4 (0.7)	
Gender				0.162 ^C
Female	253 (49.7)	38 (41.8)	291 (48.5)	
Male	256 (50.3)	53 (58.2)	309 (51.5)	
Current work status				<0.001 ^C
Corporate hospital	66 (12.9)	10 (10.9)	76 (12.7)	
Fellow in subspecialty training	47 (9.2)	4 (4.4)	51 (8.5)	
Government practice	43 (8.5)	25 (27.5)	68 (11.3)	
Nongovernmental institute	133 (26.1)	17 (18.7)	150 (25.0)	
Private practice-As a group	72 (14.2)	3 (3.3)	75 (12.5)	
Private practice-Single practitioner	108 (21.2)	16 (17.6)	124 (20.7)	
Resident (Diploma Masters/DNB)	40 (7.9)	16 (17.6)	56 (9.3)	
Prefer to attend the webinars on				0.108 ^C
Weekdays	196 (38.5)	27 (29.7)	223 (37.2)	
Weekends	313 (61.5)	64 (70.3)	377 (62.8)	
Ideal time to attend webinar				0.106 ^C
Forenoon (8 a.m. to 12 noon)	33 (6.5)	9 (9.9)	42 (7.0)	
Afternoon (12 noon to 4 p.m.)	61 (11.9)	16 (17.6)	77 (12.8)	
Evening (4 to 8 p.m.)	279 (54.8)	38 (41.8)	317 (52.8)	
Night (8 to 12 p.m.)	136 (26.7)	28 (30.8)	164 (27.3)	
Ideal duration of a webinar (hours)				0.025 ^F
<1	247 (48.5)	59 (64.8)	306 (51.0)	
1-2	248 (48.7)	32 (35.2)	280 (46.7)	
2-3	11 (2.2)	-	11 (1.8)	
>3	3 (0.6)	-	3 (0.5)	
Topic preference				
Types of webinar you prefer to attend				0.003 ^C
Clinical or surgical skill demonstration	258 (50.7)	27 (29.7)	285 (47.5)	
Recent advances	190 (37.3)	47 (51.7)	237 (39.5)	
Basic lectures	40 (7.9)	12 (13.2)	52 (8.7)	
Research-oriented lectures	21 (4.1)	5 (5.5)	26 (4.3)	
Topics you feel would be an ideal component in a single webinar				<0.001 ^C
Very specific topics such as management of diabetic macular edema, surgical treatment of glaucoma	391 (76.8)	39 (42.9)	430 (71.7)	
Topics that cover broad areas such as diabetic retinopathy, glaucoma management	118 (23.2)	52 (57.1)	170 (28.3)	
Most important factor that makes you see a particular webinar				0.465 ^F
Topics relevant to you	409 (80.3)	80 (87.9)	489 (81.5)	
Acclaimed speakers	57 (11.2)	7 (7.7)	64 (10.7)	
Appropriate timing	39 (7.7)	4 (4.4)	43 (7.2)	
All of the above	4 (0.8)	-	4 (0.7)	
Sticking to time and beneficiary				
The presenters exceed their allotted time				0.378 ^C
Often	322 (63.3)	55 (60.4)	377 (62.8)	
Rarely	179 (35.2)	36 (39.6)	215 (35.8)	
Never	8 (1.6)	-	8 (1.3)	
The entire webinar exceeds the planned time				0.121 ^C
Often	360 (70.7)	58 (63.7)	418 (69.7)	
Rarely	144 (28.3)	30 (33.0)	174 (29.0)	
Never	5 (1.0)	3 (3.3)	8 (1.3)	

Contd...

Table 1: Contd...

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Most benefited by attending webinars				0.016 ^c
Residents/Fellows	332 (65.2)	60 (65.9)	392 (65.3)	
Specialty Care physicians	101 (19.8)	9 (9.9)	110 (18.3)	
General physicians	76 (14.9)	22 (24.2)	98 (16.3)	

^MMann-Whitney U test; ^cChi-square test; ^FFisher's exact test

Table 2: Specific preference about webinar

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Prefer to attend online talks by				0.045 ^c
Reputed national speakers	275 (54.0)	54 (59.3)	329 (54.8)	
Reputed international speakers	151 (29.7)	16 (17.6)	167 (27.8)	
Younger generation speakers	57 (11.2)	17 (18.7)	74 (12.3)	
Speakers from your institute	26 (5.1)	4 (4.4)	30 (5.0)	
Interaction is better with				0.457 ^c
Reputed national speakers	225 (44.2)	42 (46.2)	267 (44.5)	
Younger generation speakers	111 (21.8)	25 (27.5)	136 (22.7)	
Reputed international speakers	95 (18.7)	14 (15.4)	109 (18.2)	
Speakers from your institute	78 (15.3)	10 (10.9)	88 (14.7)	
Prefer to watch the webinar as				0.265 ^c
Live webinar	253 (49.7)	51 (56.0)	304 (50.7)	
Recorded webinar	256 (50.3)	40 (44.0)	296 (49.3)	
Reasons to watch live webinar				0.651 ^F
I would be able to ask doubts	160 (31.4)	27 (29.7)	187 (31.2)	
If I missed the schedule, I would probably never watch it later even if recording is available	131 (25.7)	25 (27.5)	156 (26.0)	
I would like to interact with the other participants	51 (10.0)	13 (14.3)	64 (10.7)	
Ability to watch the unedited version	1 (0.2)	-	1 (0.2)	
Not applicable	166 (32.6)	26 (28.6)	192 (32.0)	
Would you revisit a recorded webinar again?				0.294 ^c
Yes	339 (66.6)	56 (61.5)	395 (65.8)	
Sometimes	145 (28.5)	27 (29.7)	172 (28.7)	
No	25 (4.9)	8 (8.8)	33 (5.5)	
Preference to ask questions during a webinar				0.054 ^c
Chat	369 (72.5)	55 (60.4)	424 (70.7)	
Ask live orally if possible	90 (17.7)	25 (27.5)	115 (19.2)	
Do not prefer to ask questions	50 (9.8)	11 (12.1)	61 (10.2)	
Questions that you ask are clarified by the speakers appropriately				0.110 ^c
In most instances	352 (69.2)	53 (58.2)	405 (67.5)	
Yes, definitely	110 (21.6)	28 (30.8)	138 (23.0)	
Inadequately	41 (8.1)	10 (11.0)	51 (8.5)	
Never	6 (1.2)	-	6 (1.0)	
Read about the topic before you attend the session				0.756 ^c
Yes	125 (24.6)	23 (25.3)	148 (24.7)	
Sometimes	196 (38.5)	38 (41.8)	234 (39.0)	
No	188 (36.9)	30 (32.9)	218 (36.3)	

^cChi-square test; ^FFisher's exact test

Exceeding time will invariably exert more pressure on the subsequent speakers to curtail their talks leading to the rushing of topics and consequently poor understanding. One way of sticking to time would be to ask the speakers to record their talk in advance and play it during the actual webinar while the speaker stays available live for discussion. This would ensure that talks do not exceed the time limits. Additionally, this also overcomes any technical issues that may occur because the recording can be played from anywhere.

More than two thirds of them prefer to ask questions over chat, and 22% have apprehension in asking questions. This barrier can be overcome by having greater exposure such as presenting in conferences. Dasgupta *et al.* analyzed the role of webinars on the learning experience of ophthalmology residents and noted that almost three fourths of them welcomed it as a good academic tool.^[3] Participants of our survey also felt that the residents and fellows are the most benefited by attending the webinars.

Table 3: Conduct of a webinar and comparison to conferences

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Introducing the speakers is necessary				0.044 ^c
Yes. We need to know who they are	330 (64.8)	69 (75.8)	399 (66.5)	
No. It wastes time. We already know who they are	121 (23.8)	11 (12.1)	132 (22.0)	
No. It wastes time. We don't need to know	58 (11.4)	11 (12.1)	69 (11.5)	
How many presenters would be ideal to have in a single webinar?				<0.001 ^c
1	12 (2.4)	20 (22.0)	32 (5.3)	
2	168 (33.0)	50 (54.9)	218 (36.3)	
3	270 (53.0)	19 (20.9)	289 (48.2)	
≥4	59 (11.6)	2 (2.2)	61 (10.2)	
How long do you think needs to be given to each presenter of a webinar?				<0.001 ^c
<15 min	210 (41.3)	14 (15.4)	224 (37.3)	
15-30 min	263 (51.7)	56 (61.5)	319 (53.2)	
30-45 min	30 (5.9)	17 (18.7)	47 (7.8)	
>45 min	6 (1.1)	4 (4.4)	10 (1.7)	
For webinars conducted by pharmaceutical companies, do you think . . . ?				<0.001 ^c
They share scientific information but are biased toward their brand	233 (45.8)	32 (35.2)	265 (44.2)	
They share scientific information and are not biased, but only promote their brand	141 (27.7)	21 (23.1)	162 (27.0)	
They are biased toward their brand	60 (11.8)	27 (29.7)	87 (14.5)	
They primarily share scientific information only	75 (14.7)	11 (12.1)	86 (14.3)	
How do you get to know about upcoming webinars?				0.008 ^c
WhatsApp	342 (67.2)	75 (82.4)	417 (69.5)	
E-mail	153 (30.1)	13 (14.3)	166 (27.7)	
Institutional information	14 (2.7)	3 (3.3)	17 (2.8)	
Which platform do you feel offers the best experience?				<0.001 ^c
Zoom	213 (41.8)	50 (54.9)	263 (43.8)	
YouTube Live	199 (39.1)	11 (12.1)	210 (35.0)	
Google Meet	37 (7.3)	16 (17.6)	53 (8.8)	
Cisco Webex	28 (5.5)	7 (7.7)	35 (5.8)	
Microsoft Teams	22 (4.3)	6 (6.6)	28 (4.7)	
Facebook Live	10 (1.9)	1 (1.1)	11 (1.8)	
How useful do you find the webinars to be?				<0.001 ^c
Better than conferences/CME	307 (60.3)	28 (30.8)	335 (55.8)	
Inferior to conferences/CME	145 (28.5)	45 (49.5)	190 (31.7)	
No idea	52 (10.2)	14 (15.4)	66 (11.0)	
Not useful	5 (1.0)	4 (4.4)	9 (1.5)	
If given the option to get CME credit points by attending paid webinars similar to conferences, would you be willing to do that?				0.908 ^c
Yes	225 (44.2)	38 (41.8)	263 (43.8)	
No. I prefer conferences	154 (30.3)	29 (31.9)	183 (30.5)	
Maybe	130 (25.5)	24 (26.4)	154 (25.7)	
Webinars should replace conferences/CME in the future?				0.059 ^c
No	206 (40.5)	49 (53.8)	255 (42.5)	
Maybe	164 (32.2)	23 (25.3)	187 (31.2)	
Yes	139 (27.3)	19 (20.9)	158 (26.3)	

^cChi-square test. CME: Continuing medical education

We note that only 4.3% of the doctors preferred research-oriented lectures. The development of a mind-set for research is the need of the hour, and this needs to be incorporated from residency. Research in India is just picking up in recent times.^[4] We have been shifting toward evidence-based medicine, and to alter the current protocols for the better, we need strong evidence that would be created by meticulous research. To publish a good study, a strong foundation and protocol are needed. Orientation to research in medical schools in India is very minimal. Therefore, a good residency program needs to have a strong education plan on research methodology. This low interest is probably due to

lack of awareness among specialists, residents, and needs to be addressed. There is plenty of scope for improvement in this regard, and strengthening existing programs would go a long way in improving these numbers.

Efforts need to be taken to address the various disadvantages of a webinar. Internet connectivity being a major barrier is the responsibility of both the organizers and the participants. A rehearsal before the actual presentation may help overcome the technical glitches and allow for a smooth presentation. Adequate time needs to be given to the speakers, or the topic could be split to reduce the speed and facilitate better

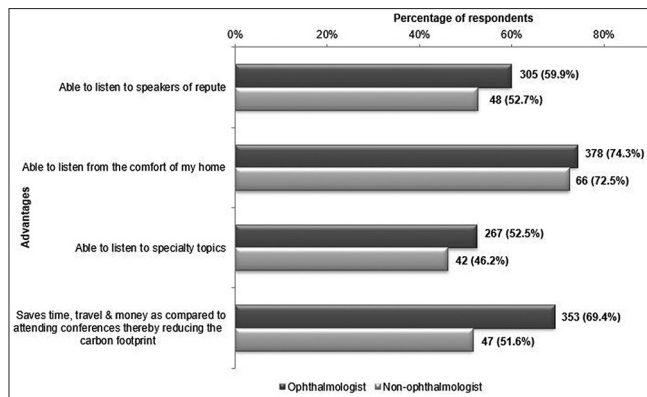


Figure 1: Major advantages of webinars

understanding. Information overload can be overcome by giving just adequate information helping the participant understand the concept with use of statistics only when necessary. Additionally, giving adequate time for answering the doubts would benefit all.

Among the various online platforms available, Zoom seems to be the most user-friendly. WhatsApp seems to have the maximum reach in spreading information about upcoming webinars. Organizers should be able to find a mechanism to reach the various social media groups so that they get enough publicity.

Webinars are also considered better than conferences or CME activities because of their various advantages as described earlier. Furthermore, a majority would also like to get CME credit points by attending paid webinars. This could probably be considered for future scientific programs. However, conferences have their own flair, and majority of the doctors acknowledge that webinars should not completely replace conferences but should rather be an addition. A hybrid model of the scientific program where the delegates can attend in either live or virtual mode could be an alternative.

The strengths of this study lie in the detailed questionnaire that was used for the survey conducted toward the end of the lockdown period. Doctors would have had enough exposure to various formats of the webinar to understand the pros and cons. Moreover, doctors employed in various areas were included in our study. The limitation is that the sample included just around 2% to 3% of all the ophthalmologists in the country, and the residents were less than 10% of all the participants; however, the difficulty in getting a huge voluntary response must be considered. There were some differences between ophthalmologists and doctors in other specialties for a few questions, but this could be a bias due to unequal sample size. However, for most questions, the majority was similar in both groups suggesting that these guidelines hold good for the entire medical field.

Based on our survey, we find that a weekend 4 to 8 p.m. webinar of less than 2-hour duration on clinical or surgical skill demonstration or recent advances on some specific topic by two or three reputed national speakers with 15 to 30 minutes presentation by each would be the ideal components for a popular webinar. Additional suggestions

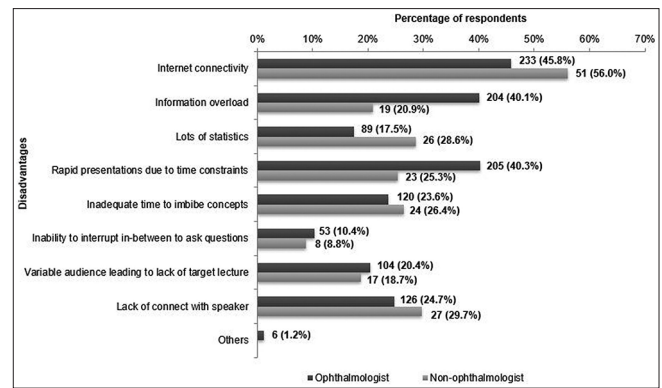


Figure 2: Major disadvantages of webinars

to the organizers of ophthalmology societies include scheduling webinars without overlap, sticking to time, trying delivery of a prerecorded talk followed by a live interaction, having a recorded version available for later viewing with postpresentation marketing, and organizing strong research methodology workshops. Physical conferences are beginning, but the advantages that a webinar brings with its quick organizing capacity at minimal costs allowing the audience to listen at their convenience with grossly reduced carbon footprinting cannot be overlooked. A hybrid mode of scientific program should be attempted.

Conclusion

In conclusion, having studied the responses of a spectrum of doctors, including ophthalmologists and physicians from other specialties for their preferences to scheduling, content, and progress of the sessions of webinars, we find that there are major benefits in terms of learning. The programs being developed in the future would therefore greatly benefit from this and other similar feedback and analysis-based studies.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- India's public health system in crisis: Too many patients, not enough doctors. Hindustan Times. Available from: <https://www.hindustantimes.com/india-news/public-health-system-in-crisis-too-many-patients-not-enough-doctors/story-39XAtFSWGfO0e4qRKcd8fO.html>. [Last accessed on 2020 Dec 07].
- Estimated number of ophthalmologists across India from 2005 to 2020. Statista. Available from: <https://www.statista.com/statistics/953172/india-number-of-ophthalmologists/>. [Last accessed on 2020 Dec 07].
- Dasgupta S, Shakeel T, Gupta P, Kakkar A, Vats V, Jain M, et al. Impact of ophthalmic webinars on the resident's learning experience during COVID-19 pandemic: An insight into its present and future prospects. *Indian J Ophthalmol* 2021;69:145-50.
- Kumaragurupari R, Sieving PC, Lalitha P. A bibliometric study of publications by Indian ophthalmologists and vision researchers, 2001-06. *Indian J Ophthalmol* 2010;58:275-80.

Perspectives of physicians regarding the role of webinars on medical education during the COVID-19 pandemic

Annamalai Odayappan, Rengaraj Venkatesh¹, Raveendra Tammineni², Sivagami Nachiappan³, Mani Iswarya⁴

Purpose: To understand the perspectives of physicians regarding the role of webinars on continuing medical education. **Methods:** An online survey comprising of 34 questions in nine sections was conducted using Google Forms. The link for the questionnaire was shared via e-mail and social media to practicing physicians. The survey accepted responses from September 10, 2020, to September 30, 2020. **Results:** In total, 509 ophthalmologists and 91 physicians from other specialties participated in the survey. The physicians were predominantly employed in nongovernmental institutes (25%) or were in private practice (33.2%). The preference was to attend a weekend webinar (62.8%), in the evening (52.8%), not extending more than 2 hours (97.7%), by ≤ 3 reputed national speakers (89.8%), each given 15 to 30 minutes for their presentation, and the topic being clinical or surgical skill demonstration (47.5%) or recent advances (39.5%). The residents were perceived to be the most benefited (65.3%). There was an equal preference for watching a webinar live or recorded (50.7% vs. 49.3%). Zoom Video Communications, Inc., was described as the platform that offers the best experience (43.8%). Webinars were considered to be better than conferences or continuing medical education (CME) activities (55.8%). The majority (43.8%) also preferred to get CME credit points by attending paid webinars. However, the broad consensus was that webinars should not completely replace the conferences (42.5%). **Conclusion:** Our survey evaluated the participants' perspective and the advantages and the disadvantages of a webinar and provides suggestions for the conduct of an ideal webinar with maximum active participation. Future programs would greatly be benefited by this survey.

Key words: Medical education, online teaching, physician perspectives, survey, webinar

India has more than 1,000,000 doctors, among whom around 25,000 are estimated to be ophthalmologists.^[1,2] Ever since the onset of the COVID-19 (coronavirus disease 2019) pandemic and the lockdown, most conferences have been either canceled or conducted virtually. Consequently, there has been a significant spurt in the number of webinars leading to a "webidemic." It does happen that at times there are many webinars scheduled at the same time slots. This overburdens the listener leading to reluctance in attending many of these talks.

At our postgraduate training institute, we have been conducting similar teleconferences connecting the various hospitals for more than 20 years. A lot of effort goes into organizing and conducting a webinar. These talks could also be saved online for future viewing. The modalities of education in a post-COVID-19 normal era would be quite different from the current or past methods, and therefore a systematic assessment of the various aspects of a webinar was felt necessary. Therefore, we conducted a survey among doctors of various specialties to find out about the usefulness

of these webinars, their role in future scientific programs, and the viewers' preferences, and to identify areas for improvement.

Methods

We performed an online survey by circulating questionnaires to various doctors comprising predominantly of ophthalmologists. The questionnaire with 34 questions in nine sections was developed by the authors and framed in the Google Forms platform [Annexure 1]. Answering all the questions in order was mandatory, and the answers could be reviewed before final submission by the participants. A general introduction regarding the purpose and duration was given before starting the survey. The participation was voluntary without incentives and consent was implied. The link for the questionnaire was shared via email and social media to various doctors to obtain their responses. The survey accepted responses from September 10, 2020, to September 30, 2020. A pilot study was conducted among 24 doctors to assess the validity of the questionnaire, format of the questions, and options for the answers.

Department of Glaucoma, Aravind Eye Hospital, Pondicherry, ¹Chief Medical Officer, Aravind Eye Hospital, Pondicherry, ²Head of Department of Glaucoma, Sankar Foundation Eye Institute, Visakhapatnam, Andhra Pradesh, ³Resident, Indira Gandhi Government General Hospital and Post Graduate Institute, Puducherry, ⁴Department of Biostatistics, Aravind Eye Hospital, Madurai, Tamil Nadu, India

Correspondence to: Dr. Rengaraj Venkatesh, C/o Aravind Eye Hospital, Cuddalore Main Road, Thavalakuppam, Puducherry - 605 007, India. E-mail: venkatesh@aravind.org

Received: 03-Jan-2021

Revision: 07-Mar-2021

Accepted: 20-Mar-2021

Published: *****

Access this article online

Website:

www.ijo.in

DOI:

10.4103/ijo.IJO_24_21

PMID:

Quick Response Code:



This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Cite this article as: Odayappan A, Venkatesh R, Tammineni R, Nachiappan S, Iswarya M. Perspectives of physicians regarding the role of webinars on medical education during the COVID-19 pandemic. Indian J Ophthalmol 2021;69:1251-6.

Statistical analysis was performed using the Stata statistical software, Version 14.0 (StataCorp, College Station, Texas, USA). The age of the participants was expressed as mean \pm standard deviation, and the categorical variables were presented as frequency (percentage). Chi-square tests or Fisher's exact tests were used to assess the association between each question in the questionnaire with the ophthalmologists and other physicians. *P* values <0.05 were considered statistically significant.

Results

A total of 509 ophthalmologists and 91 doctors from various other specialties participated in the survey. The nonophthalmologists were categorized based on the various branches of medicine such as general medicine, general surgery, otorhinolaryngology, pediatrics, anesthesia, obstetrics, radiology, psychiatry, dermatology, orthopedics, and a few nonclinical departments such as biochemistry and anatomy. Eight responses were received from allied health personnel and were excluded from the analysis. The mean age of the participants was 40.8 ± 10.5 years. There was an almost equal gender distribution (51.5:48.5). The participants were predominantly working in nongovernmental institutes (25%) or were in private practice (33.2%).

We found that 62.8% of the participants preferred to attend webinars on weekends and more than half (52.8%) preferred the evening (4–8 p.m.) time slot for attending webinars. A vast majority (97.7%) of the doctors preferred to listen to webinars with less than 2-hour duration. Clinical or surgical skill demonstration (47.5%) seemed to be the most sought-after topic followed by recent advances (39.5%). Basic lectures (8.7%) and research-oriented lectures (4.3%) were the least preferred.

More than two thirds preferred to listen to very specific topics such as management of diabetic macular edema and surgical treatment of glaucoma (71.7%) rather than broad topics such as diabetic retinopathy or glaucoma management. Discussing topics relevant to the listener was the most important factor that would interest them to attend the webinar (82.3%). The majority of the participants also noticed that the individual presenters often exceeded the allotted time (62.8%), and the duration of the entire webinar was above the time limit (69.7%). Among all participants, 65.3% opined that residents and fellows were the most benefited by attending the webinars [Table 1].

More than half of them preferred to attend online talks by reputed national speakers (54.8%), and they also felt that the interaction was better with them (44.5%). Preference for watching a webinar live or as a recorded version was nearly equal (50.7% vs. 49.3%). The major reasons given to watch a webinar live were the advantage to clarify doubts (31.2%), inability to watch later if the schedule was missed (26.0%), and the possibility to interact with the other participants (10.7%).

Nearly 71% preferred using the "chat mode" to ask questions and more than 90% observed that the audience questions were clarified by the speakers appropriately. The major reasons for not raising questions included the need to read about the topic a bit before questions could be asked (36.3%), feeling that the others listening might think that the questions were too basic (15.6%), shyness (7.2%), lack of time resulting in an inability to take up all the questions by the speakers or moderators (1.7%), and the desire to

find answers from the existing literature rather than having opinions from the presenters (0.2%). A majority (65.8%) of them preferred to revisit the webinar if a recorded version was made available [Table 2]. The various reasons for preferring a recorded version rather than a live one included the ability to pause and continue (35.2%), inappropriate timing (26.3%), directly visiting the interesting portions of the webinar (24.2%), and avoiding registration (1.2%).

Two thirds of all doctors opined that introducing the speakers was necessary, and they needed to know who the speakers were, but the rest felt that it wasted time (33.5%). The participants preferred to have two or three speakers in a single webinar (84.5%). More than half (53.2%) believed that each speaker needed to be given 15 to 30 minutes for the presentation. Only 9.5% of them said that the speakers could talk for more than 30 minutes. The various advantages and disadvantages of a webinar are shown in Figs. 1 and 2.

The majority of the participants believed that the webinars conducted by the pharmaceutical companies shared scientific information but were biased toward their brand (44.2%). WhatsApp (WhatsApp Inc., Facebook, Inc., Mountain View, California, USA) seemed to be the most common mode for the spread of information regarding upcoming webinars (69.5%). Zoom (Zoom Video Communications, Inc., San Jose, California, U. S. A) was described as the platform that offered the best experience (43.8%).

Among all doctors, 55.8% believed that webinars were better than conferences or continuing medical education (CME) activities. The majority (43.8%) said that if given the option to get CME credit points by attending paid webinars similar to the conferences, they would be willing to do that; however, they also felt that webinars should not completely replace conferences or CME in the future (42.5%) [Table 3].

Discussion

A spurt in the number of webinars gives the audience the luxury to pick and choose the webinars that they wish to attend. Our survey identifies the features of a popular webinar and suggests the scope for improvement.

There was an equal inclination among doctors for watching the webinar as live or a recorded one. Quite a few webinars do not have a recorded version available, but we find that around two thirds of all the doctors prefer to revisit the webinar if a recorded version becomes available. Considering that nearly half of the doctors wish to watch a recorded version and another two thirds want to revisit the talks, it would be for the greater good that webinars are recorded and made available online for later viewing. Moreover, it does not result in any additional cost to the organizers. Therefore, a postpresentation marketing with the link for the recorded version is also justified.

Quite a significant proportion of doctors describe time constraints and find that the speakers exceed the allotted time. Moreover, one third of them are not interested in the introduction of the speakers, and they skip to the main agenda of the webinar. It would, therefore, be prudent to quickly start the talk with minimal introduction and stick to the time. Well-renowned speakers may not need an introduction. Probably, the flyer used for publicity may describe the speakers.

Table 1: Demographic details and general preference

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Age in years				<0.001 ^M
Mean±SD	41.6±10.7	36.6±8.3	40.8±10.5	
Range	23-87	25-72	23-87	
Age distribution (years)				<0.001 ^C
≤30	73 (14.3)	21 (23.1)	94 (15.7)	
31-40	192 (37.7)	49 (53.8)	241 (40.2)	
41-50	143 (28.1)	13 (14.3)	156 (26.0)	
51-60	68 (13.4)	7 (7.7)	75 (12.5)	
61-70	30 (5.9)	0	30 (5.0)	
>70	3 (0.6)	1 (1.1)	4 (0.7)	
Gender				0.162 ^C
Female	253 (49.7)	38 (41.8)	291 (48.5)	
Male	256 (50.3)	53 (58.2)	309 (51.5)	
Current work status				<0.001 ^C
Corporate hospital	66 (12.9)	10 (10.9)	76 (12.7)	
Fellow in subspecialty training	47 (9.2)	4 (4.4)	51 (8.5)	
Government practice	43 (8.5)	25 (27.5)	68 (11.3)	
Nongovernmental institute	133 (26.1)	17 (18.7)	150 (25.0)	
Private practice-As a group	72 (14.2)	3 (3.3)	75 (12.5)	
Private practice-Single practitioner	108 (21.2)	16 (17.6)	124 (20.7)	
Resident (Diploma Masters/DNB)	40 (7.9)	16 (17.6)	56 (9.3)	
Prefer to attend the webinars on				0.108 ^C
Weekdays	196 (38.5)	27 (29.7)	223 (37.2)	
Weekends	313 (61.5)	64 (70.3)	377 (62.8)	
Ideal time to attend webinar				0.106 ^C
Forenoon (8 a.m. to 12 noon)	33 (6.5)	9 (9.9)	42 (7.0)	
Afternoon (12 noon to 4 p.m.)	61 (11.9)	16 (17.6)	77 (12.8)	
Evening (4 to 8 p.m.)	279 (54.8)	38 (41.8)	317 (52.8)	
Night (8 to 12 p.m.)	136 (26.7)	28 (30.8)	164 (27.3)	
Ideal duration of a webinar (hours)				0.025 ^F
<1	247 (48.5)	59 (64.8)	306 (51.0)	
1-2	248 (48.7)	32 (35.2)	280 (46.7)	
2-3	11 (2.2)	-	11 (1.8)	
>3	3 (0.6)	-	3 (0.5)	
Topic preference				
Types of webinar you prefer to attend				0.003 ^C
Clinical or surgical skill demonstration	258 (50.7)	27 (29.7)	285 (47.5)	
Recent advances	190 (37.3)	47 (51.7)	237 (39.5)	
Basic lectures	40 (7.9)	12 (13.2)	52 (8.7)	
Research-oriented lectures	21 (4.1)	5 (5.5)	26 (4.3)	
Topics you feel would be an ideal component in a single webinar				<0.001 ^C
Very specific topics such as management of diabetic macular edema, surgical treatment of glaucoma	391 (76.8)	39 (42.9)	430 (71.7)	
Topics that cover broad areas such as diabetic retinopathy, glaucoma management	118 (23.2)	52 (57.1)	170 (28.3)	
Most important factor that makes you see a particular webinar				0.465 ^F
Topics relevant to you	409 (80.3)	80 (87.9)	489 (81.5)	
Acclaimed speakers	57 (11.2)	7 (7.7)	64 (10.7)	
Appropriate timing	39 (7.7)	4 (4.4)	43 (7.2)	
All of the above	4 (0.8)	-	4 (0.7)	
Sticking to time and beneficiary				
The presenters exceed their allotted time				0.378 ^C
Often	322 (63.3)	55 (60.4)	377 (62.8)	
Rarely	179 (35.2)	36 (39.6)	215 (35.8)	
Never	8 (1.6)	-	8 (1.3)	
The entire webinar exceeds the planned time				0.121 ^C
Often	360 (70.7)	58 (63.7)	418 (69.7)	
Rarely	144 (28.3)	30 (33.0)	174 (29.0)	
Never	5 (1.0)	3 (3.3)	8 (1.3)	

Contd...

Table 1: Contd...

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Most benefited by attending webinars				0.016 ^c
Residents/Fellows	332 (65.2)	60 (65.9)	392 (65.3)	
Specialty Care physicians	101 (19.8)	9 (9.9)	110 (18.3)	
General physicians	76 (14.9)	22 (24.2)	98 (16.3)	

^MMann-Whitney U test; ^cChi-square test; ^FFisher's exact test

Table 2: Specific preference about webinar

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Prefer to attend online talks by				0.045 ^c
Reputed national speakers	275 (54.0)	54 (59.3)	329 (54.8)	
Reputed international speakers	151 (29.7)	16 (17.6)	167 (27.8)	
Younger generation speakers	57 (11.2)	17 (18.7)	74 (12.3)	
Speakers from your institute	26 (5.1)	4 (4.4)	30 (5.0)	
Interaction is better with				0.457 ^c
Reputed national speakers	225 (44.2)	42 (46.2)	267 (44.5)	
Younger generation speakers	111 (21.8)	25 (27.5)	136 (22.7)	
Reputed international speakers	95 (18.7)	14 (15.4)	109 (18.2)	
Speakers from your institute	78 (15.3)	10 (10.9)	88 (14.7)	
Prefer to watch the webinar as				0.265 ^c
Live webinar	253 (49.7)	51 (56.0)	304 (50.7)	
Recorded webinar	256 (50.3)	40 (44.0)	296 (49.3)	
Reasons to watch live webinar				0.651 ^F
I would be able to ask doubts	160 (31.4)	27 (29.7)	187 (31.2)	
If I missed the schedule, I would probably never watch it later even if recording is available	131 (25.7)	25 (27.5)	156 (26.0)	
I would like to interact with the other participants	51 (10.0)	13 (14.3)	64 (10.7)	
Ability to watch the unedited version	1 (0.2)	-	1 (0.2)	
Not applicable	166 (32.6)	26 (28.6)	192 (32.0)	
Would you revisit a recorded webinar again?				0.294 ^c
Yes	339 (66.6)	56 (61.5)	395 (65.8)	
Sometimes	145 (28.5)	27 (29.7)	172 (28.7)	
No	25 (4.9)	8 (8.8)	33 (5.5)	
Preference to ask questions during a webinar				0.054 ^c
Chat	369 (72.5)	55 (60.4)	424 (70.7)	
Ask live orally if possible	90 (17.7)	25 (27.5)	115 (19.2)	
Do not prefer to ask questions	50 (9.8)	11 (12.1)	61 (10.2)	
Questions that you ask are clarified by the speakers appropriately				0.110 ^c
In most instances	352 (69.2)	53 (58.2)	405 (67.5)	
Yes, definitely	110 (21.6)	28 (30.8)	138 (23.0)	
Inadequately	41 (8.1)	10 (11.0)	51 (8.5)	
Never	6 (1.2)	-	6 (1.0)	
Read about the topic before you attend the session				0.756 ^c
Yes	125 (24.6)	23 (25.3)	148 (24.7)	
Sometimes	196 (38.5)	38 (41.8)	234 (39.0)	
No	188 (36.9)	30 (32.9)	218 (36.3)	

^cChi-square test; ^FFisher's exact test

Exceeding time will invariably exert more pressure on the subsequent speakers to curtail their talks leading to the rushing of topics and consequently poor understanding. One way of sticking to time would be to ask the speakers to record their talk in advance and play it during the actual webinar while the speaker stays available live for discussion. This would ensure that talks do not exceed the time limits. Additionally, this also overcomes any technical issues that may occur because the recording can be played from anywhere.

More than two thirds of them prefer to ask questions over chat, and 22% have apprehension in asking questions. This barrier can be overcome by having greater exposure such as presenting in conferences. Dasgupta *et al.* analyzed the role of webinars on the learning experience of ophthalmology residents and noted that almost three fourths of them welcomed it as a good academic tool.^[3] Participants of our survey also felt that the residents and fellows are the most benefited by attending the webinars.

Table 3: Conduct of a webinar and comparison to conferences

Parameters	Ophthalmologist (n=509) n (%)	Nonophthalmologist (n=91) n (%)	Total (n=600)	P
Introducing the speakers is necessary				0.044 ^c
Yes. We need to know who they are	330 (64.8)	69 (75.8)	399 (66.5)	
No. It wastes time. We already know who they are	121 (23.8)	11 (12.1)	132 (22.0)	
No. It wastes time. We don't need to know	58 (11.4)	11 (12.1)	69 (11.5)	
How many presenters would be ideal to have in a single webinar?				<0.001 ^c
1	12 (2.4)	20 (22.0)	32 (5.3)	
2	168 (33.0)	50 (54.9)	218 (36.3)	
3	270 (53.0)	19 (20.9)	289 (48.2)	
≥4	59 (11.6)	2 (2.2)	61 (10.2)	
How long do you think needs to be given to each presenter of a webinar?				<0.001 ^c
<15 min	210 (41.3)	14 (15.4)	224 (37.3)	
15-30 min	263 (51.7)	56 (61.5)	319 (53.2)	
30-45 min	30 (5.9)	17 (18.7)	47 (7.8)	
>45 min	6 (1.1)	4 (4.4)	10 (1.7)	
For webinars conducted by pharmaceutical companies, do you think . . . ?				<0.001 ^c
They share scientific information but are biased toward their brand	233 (45.8)	32 (35.2)	265 (44.2)	
They share scientific information and are not biased, but only promote their brand	141 (27.7)	21 (23.1)	162 (27.0)	
They are biased toward their brand	60 (11.8)	27 (29.7)	87 (14.5)	
They primarily share scientific information only	75 (14.7)	11 (12.1)	86 (14.3)	
How do you get to know about upcoming webinars?				0.008 ^c
WhatsApp	342 (67.2)	75 (82.4)	417 (69.5)	
E-mail	153 (30.1)	13 (14.3)	166 (27.7)	
Institutional information	14 (2.7)	3 (3.3)	17 (2.8)	
Which platform do you feel offers the best experience?				<0.001 ^c
Zoom	213 (41.8)	50 (54.9)	263 (43.8)	
YouTube Live	199 (39.1)	11 (12.1)	210 (35.0)	
Google Meet	37 (7.3)	16 (17.6)	53 (8.8)	
Cisco Webex	28 (5.5)	7 (7.7)	35 (5.8)	
Microsoft Teams	22 (4.3)	6 (6.6)	28 (4.7)	
Facebook Live	10 (1.9)	1 (1.1)	11 (1.8)	
How useful do you find the webinars to be?				<0.001 ^c
Better than conferences/CME	307 (60.3)	28 (30.8)	335 (55.8)	
Inferior to conferences/CME	145 (28.5)	45 (49.5)	190 (31.7)	
No idea	52 (10.2)	14 (15.4)	66 (11.0)	
Not useful	5 (1.0)	4 (4.4)	9 (1.5)	
If given the option to get CME credit points by attending paid webinars similar to conferences, would you be willing to do that?				0.908 ^c
Yes	225 (44.2)	38 (41.8)	263 (43.8)	
No. I prefer conferences	154 (30.3)	29 (31.9)	183 (30.5)	
Maybe	130 (25.5)	24 (26.4)	154 (25.7)	
Webinars should replace conferences/CME in the future?				0.059 ^c
No	206 (40.5)	49 (53.8)	255 (42.5)	
Maybe	164 (32.2)	23 (25.3)	187 (31.2)	
Yes	139 (27.3)	19 (20.9)	158 (26.3)	

^cChi-square test. CME: Continuing medical education

We note that only 4.3% of the doctors preferred research-oriented lectures. The development of a mind-set for research is the need of the hour, and this needs to be incorporated from residency. Research in India is just picking up in recent times.^[4] We have been shifting toward evidence-based medicine, and to alter the current protocols for the better, we need strong evidence that would be created by meticulous research. To publish a good study, a strong foundation and protocol are needed. Orientation to research in medical schools in India is very minimal. Therefore, a good residency program needs to have a strong education plan on research methodology. This low interest is probably due to

lack of awareness among specialists, residents, and needs to be addressed. There is plenty of scope for improvement in this regard, and strengthening existing programs would go a long way in improving these numbers.

Efforts need to be taken to address the various disadvantages of a webinar. Internet connectivity being a major barrier is the responsibility of both the organizers and the participants. A rehearsal before the actual presentation may help overcome the technical glitches and allow for a smooth presentation. Adequate time needs to be given to the speakers, or the topic could be split to reduce the speed and facilitate better

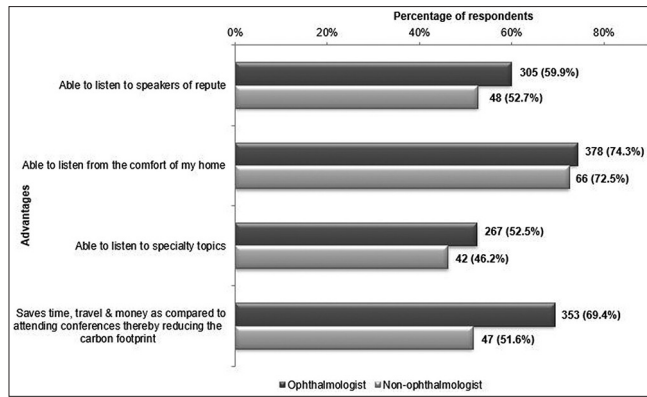


Figure 1: Major advantages of webinars

understanding. Information overload can be overcome by giving just adequate information helping the participant understand the concept with use of statistics only when necessary. Additionally, giving adequate time for answering the doubts would benefit all.

Among the various online platforms available, Zoom seems to be the most user-friendly. WhatsApp seems to have the maximum reach in spreading information about upcoming webinars. Organizers should be able to find a mechanism to reach the various social media groups so that they get enough publicity.

Webinars are also considered better than conferences or CME activities because of their various advantages as described earlier. Furthermore, a majority would also like to get CME credit points by attending paid webinars. This could probably be considered for future scientific programs. However, conferences have their own flair, and majority of the doctors acknowledge that webinars should not completely replace conferences but should rather be an addition. A hybrid model of the scientific program where the delegates can attend in either live or virtual mode could be an alternative.

The strengths of this study lie in the detailed questionnaire that was used for the survey conducted toward the end of the lockdown period. Doctors would have had enough exposure to various formats of the webinar to understand the pros and cons. Moreover, doctors employed in various areas were included in our study. The limitation is that the sample included just around 2% to 3% of all the ophthalmologists in the country, and the residents were less than 10% of all the participants; however, the difficulty in getting a huge voluntary response must be considered. There were some differences between ophthalmologists and doctors in other specialties for a few questions, but this could be a bias due to unequal sample size. However, for most questions, the majority was similar in both groups suggesting that these guidelines hold good for the entire medical field.

Based on our survey, we find that a weekend 4 to 8 p.m. webinar of less than 2-hour duration on clinical or surgical skill demonstration or recent advances on some specific topic by two or three reputed national speakers with 15 to 30 minutes presentation by each would be the ideal components for a popular webinar. Additional suggestions

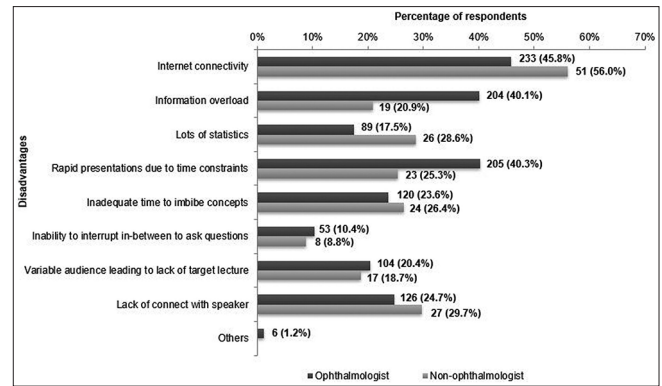


Figure 2: Major disadvantages of webinars

to the organizers of ophthalmology societies include scheduling webinars without overlap, sticking to time, trying delivery of a prerecorded talk followed by a live interaction, having a recorded version available for later viewing with postpresentation marketing, and organizing strong research methodology workshops. Physical conferences are beginning, but the advantages that a webinar brings with its quick organizing capacity at minimal costs allowing the audience to listen at their convenience with grossly reduced carbon footprinting cannot be overlooked. A hybrid mode of scientific program should be attempted.

Conclusion

In conclusion, having studied the responses of a spectrum of doctors, including ophthalmologists and physicians from other specialties for their preferences to scheduling, content, and progress of the sessions of webinars, we find that there are major benefits in terms of learning. The programs being developed in the future would therefore greatly benefit from this and other similar feedback and analysis-based studies.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- India's public health system in crisis: Too many patients, not enough doctors. Hindustan Times. Available from: <https://www.hindustantimes.com/india-news/public-health-system-in-crisis-too-many-patients-not-enough-doctors/story-39XAtFSWGfO0e4qRKcd8fO.html>. [Last accessed on 2020 Dec 07].
- Estimated number of ophthalmologists across India from 2005 to 2020. Statista. Available from: <https://www.statista.com/statistics/953172/india-number-of-ophthalmologists/>. [Last accessed on 2020 Dec 07].
- Dasgupta S, Shakeel T, Gupta P, Kakkar A, Vats V, Jain M, *et al*. Impact of ophthalmic webinars on the resident's learning experience during COVID-19 pandemic: An insight into its present and future prospects. *Indian J Ophthalmol* 2021;69:145-50.
- Kumaragurupari R, Sieving PC, Lalitha P. A bibliometric study of publications by Indian ophthalmologists and vision researchers, 2001-06. *Indian J Ophthalmol* 2010;58:275-80.

Annexure 1 - Survey Questionnaire Webinars for Doctors

Perspectives of Doctors Regarding the Role of Webinars in the COVID-19 Era

Greetings! Ever since the start of the COVID-19 pandemic and the lockdown, Major Medical Conferences have been either cancelled or conducted virtually. Consequently, there has been a significant spurt in the number of webinars being conducted, sometimes so much that once there were 21 major Ophthalmology webinars from India in one single day. This overburdens us leading to reluctance to attend a majority of these talks; however, this also gives us the luxury to pick and choose the webinars that we wish to attend.

We, at Aravind Eye Hospital, have been conducting webinars since time immemorial which has now increased since March 2020. We plan to conduct a survey to find out about the usefulness of these webinars and identify areas for improvement. So, we kindly request you to spend a few minutes in answering the questions below.

There are 34 questions in 9 short sections.

For further information, please contact annamalai.o@aravind.org.

Self-Details

Section 1

1. Your age?

2. Gender

- a. Female
- b. Male
- c. Others

3. What is your speciality in medicine?

- a. Ophthalmology
- b. Others: Please mention _____

4. What is your current work status?

- a. Resident (Diploma / Masters / D.N.B.)
- b. Fellow in sub-specialty training
- c. Government Practice
- d. Non-governmental Institute
- e. Private practice - single practitioner
- f. Private practice - As a group
- g. Corporate hospital

Section 2

General Preference about Webinar

5. Would you prefer to attend the webinars on

- a. Weekdays
- b. Weekends

6. What time of the day would be ideal for you to attend a webinar?

- a. Forenoon (8 AM – 12 Noon)
- b. Afternoon (12 Noon – 4 PM)
- c. Evening (4 – 8 PM)
- d. Night (8 – 12 PM)

7. What do you think should be the ideal duration of a webinar? *

- a. < 1 hour
- b. 1-2 hours
- c. 2-3 hours
- d. >3 hours

Section 3

Topic Preference

8. Which of the following type of webinar do you prefer to attend?

- a. Basics lectures
- b. Recent advances

- c. Clinical or surgical skill demonstration
 - d. Research oriented lectures
9. What sort of topics do you feel would be an ideal component in a single webinar?
- a. Topics that cover broad areas like diabetic retinopathy, glaucoma management
 - b. Very specific topics like diabetic macular edema, trabeculectomy

Section 4

Sticking to Time & Beneficiary

10. As a listener, do you think that presenters exceed their allotted time?
- a. Often
 - b. Rarely
 - c. Never
11. As a listener, do you think that the entire webinar exceeds the planned time?
- a. Often
 - b. Rarely
 - c. Never
12. Whom do you think will be most benefitted by attending webinars?
- a. Residents
 - b. General physicians
 - c. Speciality Care physicians

Section 5

Specific Preference

13. Do you prefer to attend online talks by
- a. Reputed international speakers
 - b. Speakers from your Institute
 - c. Reputed national speakers
 - d. Younger generation speakers
14. Whom do you feel the interaction is better with?
- a. Reputed national speakers
 - b. Younger generation speakers
 - c. Speakers from your Institute
 - d. Reputed international speakers
15. Would you prefer to watch the webinar as
- a. Live webinar
 - b. Recorded webinar
16. If you prefer to watch the webinar live, what may be the reason for it?
- a. I would be able to ask doubts
 - b. If I missed the schedule, I would probably never watch it later even if recording is available
 - c. I would like to interact with the other participants
 - d. Not applicable
 - e. Other:
17. If given the option, would you revisit a recorded version of the webinar again?
- a. Yes
 - b. No
 - c. Sometimes
18. How do you prefer to ask questions during a webinar?
- a. Chat
 - b. Ask live orally if possible
 - c. Do not prefer to ask questions
19. Do you feel that the questions that you/participants ask are clarified by the speakers appropriately?
- a. Yes, definitely
 - b. In most instances
 - c. Inadequately
 - d. Never

20. What may be the most common reason for you not asking questions after a talk?
- I feel shy
 - I feel people might think it is too basic
 - I need to read about the topic a bit to ask doubts
 - I do not get any doubts
 - Not applicable
 - Other: _____
21. If you prefer a recorded version rather than a live session, what may be the reason for it?
- The timing was not appropriate
 - This allows me to pause and continue
 - This allows me to choose to see the interesting portions of the webinar
 - I don't prefer to register for the live webinar
 - Not applicable
 - Other: _____
22. When a webinar is announced, do you read about the topic before you attend the session?
- Yes
 - No
 - Sometimes

Section 6

Advantages, Disadvantages & Reason

23. What are the major disadvantages of a webinar? (You can choose multiple options as applicable)
- Internet connectivity
 - Information overload
 - Lots of statistics
 - Rapid presentations due to time constraints
 - Inadequate time to imbibe concepts
 - Inability to interrupt in-between to ask questions
 - Variable audience leading to lack of targeted lecture
 - Lack of connect with the speaker
 - Other: _____
24. What do you feel are the major advantages of a webinar? (You can choose multiple options as applicable)
- Able to listen to speakers of repute
 - Able to listen from the comfort of my home
 - Able to listen to specialty topics
 - Saves time, travel and money as compared to attending conferences thereby reducing the carbon footprint
 - Other: _____
25. Which of the following is the most important factor that makes you see a particular webinar?
- Topics relevant to you
 - Acclaimed speakers
 - Appropriate timing
 - Other: _____

Section 7

Conduct of a Webinar

26. Do you feel that introducing the speakers is necessary?
- Yes. We need to know who they are
 - No. It wastes time. We don't need to know
 - No. It wastes time. We already know who they are
27. How many presenters would be ideal to have in a single webinar?
- 1
 - 2
 - 3
 - ≥ 4
28. How long do you think needs to be given to each presenter of a webinar?
- < 15 minutes
 - 15-30 minutes
 - 30-45 minutes
 - 45 minutes

29. For Webinars conducted by pharma companies, do you think
- They are biased towards their brand
 - They primarily share scientific information only
 - They share scientific information but are biased towards their brand
 - They share scientific information, are not biased but only promote their brand

Section 8

Communication & Platform

30. How do you get to know about upcoming webinars? (Choose the most relevant option)
- Whatsapp
 - E-mail
 - Institutional information
31. Which platform do you feel offers the best experience?
- Microsoft Teams
 - Google Meet
 - Cisco Webex
 - Zoom
 - YouTube Live
 - Facebook Live

Section 9

Comparison to CME

32. How useful do you find the Webinars to be?
- Not useful
 - Inferior compared to conferences/CME
 - Better compared to conferences/CME
 - No idea
33. If given the option to get CME credit points by attending paid webinars similar to conferences, would you be willing to do that?
- Yes
 - No. I prefer conferences
 - Maybe
34. Do you think webinars should replace conferences/CME in the future?
- Yes
 - No
 - Maybe