

Perception among ophthalmologists about webinars as a method of continued medical education during COVID-19 pandemic

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Purpose: To ascertain ophthalmologist's perceptions about webinars as a method of continued medical education during the COVID-19 pandemic. **Methods:** In a cross-sectional study, a 21-question survey was circulated using digital media platform to approximately 1400 ophthalmologists in India between 16th August 2020 to 31st August 2020. The questionnaire focussed on the quality and usefulness of webinars based on the Bloom's taxonomy. The responses (on 4- or 5-point Likert scale) were analyzed among three professional groups- ophthalmologists in-training, consultants in public sector, and private practitioners. **Results:** 393 ophthalmologists participated in the survey, with a response rate of 28%. The mean age was 34.6 ± 9.7 years, and males constituted 49.6% (199/393) of the respondents. Forty-seven percent of the respondents perceived the quality of webinars as good or excellent (185/393), 72.8% reported knowledge gain from webinars (286/393), and 63.9% felt that webinars are important in clinical practice and should continue post-COVID-19 pandemic (251/393), with distinct responses among the professional groups. The drawbacks perceived were overt number of webinars (371; 94.4%), confusion regarding which webinars to attend (313; 79.6%), repetition of the information (296; 75.3%), limited opportunity for participant interaction (146; 37.2%) and disparate weightage to the core disciplines of Ophthalmology. **Conclusion:** Most respondents had favorable perceptions of Ophthalmology webinars happening during the COVID-19 pandemic. However, there is need for improvisation in the volume of webinars, target-audience-based delivery, and participant interaction to add value to this new dimension of teaching-learning.

Key words: COVID-19, E-learning, medical education, ophthalmology, webinars

The outbreak of novel Coronavirus Disease (COVID-19) has posed an arduous challenge for medical professionals to continue health care for patients, medical education, and medical research. Conversion of teaching hospitals to COVID-19 care centers, involvement of healthcare professionals in COVID-19 care, restrictions on academic gatherings, dissolution of clinical teachings in outpatient departments and wards, and reduction in the number of surgical procedures have significantly hampered the medical education.^[1-3]

It is apparent that the ophthalmologists have been particularly affected by the COVID-19 pandemic, as not only are they at high risk of acquisition of infection from very close patient interaction,^[4,5] but also this branch of medicine relies heavily on elective patient care and surgeries. In a nation-wide survey conducted on the effect of COVID-19 on ophthalmic practice and patient care in India,^[6] more than 70% of the respondents were not seeing patients during the lockdown phase, and elective surgeries were almost completely stopped. Another nation-wide survey was conducted among ophthalmology residents in-training to assess the impact of

COVID-19 on ophthalmology training programs in India.^[7] In this study, approximately 80% of the respondents believed that the COVID-19 pandemic had adversely affected their learning, especially surgical training.

In response to the adverse effect of the pandemic on medical education, methods of e-learning such as online classes and webinars have rapidly emerged.^[8-10] A webinar is a seminar conducted on the web to have a broader presenter-audience interaction.^[11] The national and state ophthalmic bodies in India have been actively involved in organizing webinars on different ophthalmology disciplines pertaining to the needs of both residents and consultants. Mishra *et al.*^[7] reported that 75.7% of the respondents (trainee ophthalmologists) in their survey felt that online classes and webinars were useful during the lockdown period. However, there has been an epidemic of ophthalmic webinars in recent times, with the involvement of both public and private sectors in organization of webinars. Little is known from the literature regarding the perceived usefulness and limitations of the ophthalmology webinars in recent times.^[7] This study aimed

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at an online survey of ophthalmologists (both in-trainee and consultants) to identify their perceptions regarding webinars as a continued medical education (CME) method during the COVID-19 pandemic.

Methods

A questionnaire-based cross-sectional observational study was conducted after obtaining clearance from the Institution's research review board and Ethics committee. The study adhered to the tenets of the declaration of Helsinki.

The study involved the circulation of an online survey, addressing the perceptions of ophthalmologists in India regarding ophthalmology webinars held during the COVID-19 pandemic. The study population included residents in training (junior residents), senior residents, clinical and research fellows, consultants in the public sector, and ophthalmologists practicing in the private sector throughout the country.

A 21-question based survey was developed in the English language using Google forms [*Supplemental online material 1*]. After a brief introduction and informed consent, the survey consisted of participant's personal details and a mandatory questionnaire. The content of the questionnaire was validated by three researchers in terms of relevance, simplicity, clarity, and ambiguity. The questionnaire was pilot tested on ten qualified volunteers with proficiency in the English language for comprehension. The questionnaire was divided into multiple domains: volume and disciplines of webinars (questions 1 to 10), quality of webinars (questions 11 to 14), engagement in webinars (questions 15 and 16), and usefulness of webinars (questions 17 to 21). Bloom's taxonomy of cognitive learning objectives was used to develop a few questions that assessed the e-learning process of attendees.^[12,13] The domains of learning in Bloom's taxonomy^[12] that were used for the questionnaire were remembering (question 15), understanding (question 16), and applying a concept (question 18). The response to the questions was measured using 4- or 5- point Likert scales.

Voluntary response sampling, a type of non-probability sampling, was used in this study. The link to the survey was circulated to ophthalmologists through social media (WhatsApp). The link was shared on different regional, state, and national ophthalmic WhatsApp groups (approximate cumulative participants ~ 1400). The participation was requested from ophthalmologists who have attended at least five webinars since the outbreak of COVID-19. The survey was open for about two week's period from 16th August 2020 till 31st August 2020. A reminder to take the survey was sent at the end of one week. Personal contact through social media message was also made to improve the response rate. The response link allowed completing the survey only once using a particular email address.

The responses were collected, and the data were exported to an excel sheet. Statistical analysis was performed using SPSS 23.0 software. The response to individual questions was analyzed for the whole cohort and compared between three professional groups: in-training ophthalmologists (junior residents, senior residents, and fellows), consultants in the public sector, and private practitioners. Experience in ophthalmology (in years) was compared between the groups using the Kruskal-Wallis test. Categorical variables (responses to individual questions) were compared between the groups using the Chi-square test or Fisher exact test depending upon the sample numbers. A value of $P < 0.05$ was considered as statistically significant.

Results

A total of 393 responses were obtained during the survey period. Due to the overlap of Ophthalmologists in different social media groups to which the survey was sent, the response rate was at least 28% (393/1400). The demographic details of the respondents are mentioned in Table 1. The average age of the respondents was 34.6 ± 9.7 years (range 22-77 years). Males constituted 49.6% (199/393) of the respondents. In-training ophthalmologists (residents and fellows undergoing training in both public and private sector) constituted 50.9% (200/393) of the respondents, 32.3% (127/393) were ophthalmologists practicing in the private sector, and the rest 16.8% (66/393) were consultants in the public sector. The median experience of Ophthalmology, including training years, was five years (range 0.5 to 50 years) with a significant difference between the professional groups ($P < 0.001$) [Table 1].

The distribution of responses to the individual questions of the survey is given in Table 2.

Perception of volume and disciplines of webinars

Before the COVID-19 pandemic, nearly 20% of the respondents (79/393) had never attended a webinar, and another 42% (165/393) rarely used to participate in webinars. An increase in frequency of attending webinars during the COVID-19 pandemic was reported by 85.2% (335/393) of the respondents. Also, 41.9% (165/393) of the respondents agreed that they attended the webinars to get out of the boredom arising out of COVID-19 restrictions.

Almost half of the respondents (191/393, 48.6%) attended more than ten webinars pertaining to different disciplines. There

Table 1: Demographic features of the survey respondents

Parameters	Value
Number of respondents	393
Age (years)- mean \pm SD	34.6 \pm 9.7
Gender n (%)	
Male	199 (50.6%)
Female	194 (49.4%)
Background of respondents n (%)	
Post-graduates/Junior residents	102 (25.9%)
Senior resident	76 (19.3%)
Fellows	22 (5.6%)
Consultants in public sector	66 (16.8%)
Practicing ophthalmologists in private sector	127 (32.3%)
Years of experience in Ophthalmology including training (median, range)	
Overall	5 (0.5-50)
In-training	3 (0.5-9)
Consultants in public sector	12.5 (5-40)
Practicing ophthalmologists in private sector	10 (1-50)
Major subspecialty practiced/followed (if applicable) n (%)	
Cataract	101 (34.7%)
Retina and Uvea	74 (25.4%)
Cornea	52 (17.9%)
Squint and pediatric ophthalmology	21 (7.2%)
Glaucoma	19 (6.5%)
Oculoplasty	15 (5.2%)
Refractive surgery	4 (1.4%)
Ocular oncology	3 (1.0%)
Neuro-ophthalmology	2 (0.7%)
Total	291 (100%)

Table 2: Distribution of responses to the survey questions

Q. No.	Question	Response				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
4	Was the purpose of you attending webinars, to get out of the boredom of COVID?	30 (7.6%)	135 (34.4%)	75 (19.1%)	124 (31.6%)	29 (7.4%)
5	Do you think there were overt numbers of webinars in the COVID pandemic?	240 (61.1%)	131 (33.3%)	14 (3.6%)	8 (2.0%)	0
6	Do you think you got confused regarding "which webinars to attend and which not"?	153 (38.9%)	164 (41.7%)	36 (9.2%)	36 (9.2%)	4 (1.0%)
7	Do you think there was repetition of the same topics in the webinars?	115 (29.3%)	181 (46.1%)	61 (15.5%)	35 (8.9%)	1 (0.25%)
8	Did the webinars themselves increase the boredom during the COVID pandemic?	39 (9.9%)	156 (39.7%)	96 (24.4%)	88 (22.4%)	14 (3.6%)
11	Do you think the presentations in webinar were clinically relevant, clear and understandable?	29 (7.4%)	240 (61.1%)	89 (22.6%)	28 (7.1%)	7 (1.8%)
12	Do you think that webinars were well organized with presenter keeping to the devoted time?	23 (5.9%)	213 (54.2%)	89 (22.6%)	56 (14.2%)	12 (3.1%)
13	Do you think there was sufficient opportunity provided for interaction of participants during the webinars?	15 (3.8%)	141 (35.6%)	91 (23.2%)	134 (34.1%)	12 (3.1%)
17	Do you think the webinars added to your existing knowledge of the subject?	40 (10.2%)	246 (62.6%)	64 (16.3%)	33 (8.4%)	10 (2.5%)
18	Based on the knowledge gathered from the webinars, do you think you would be able to deal with clinical and surgical cases positively?	22 (5.6%)	175 (44.5%)	122 (31.0%)	66 (16.8%)	8 (2.0%)
19	Do you think attending webinars was proper utilization of your time?	36 (9.2%)	188 (47.8%)	95 (24.2%)	60 (15.3%)	14 (3.6%)
20	Do you think webinars can be equivalent to the talks in physical conferences or CME?	39 (9.9%)	126 (32.1%)	64 (16.3%)	128 (32.6%)	36 (9.2%)
21	Do you think overall the webinars are important in clinical practice and should continue post-COVID?	52 (13.2%)	199 (50.6%)	70 (17.8%)	53 (13.5%)	19 (4.8%)
		Very much so	Above average	Average	Below average	Not at all
15	Do you think you can recall the contents of the webinars you have attended?	21 (5.3%)	78 (19.8%)	226 (57.5%)	52 (13.2%)	16 (4.1%)
16	If asked will you be able to discuss or describe the contents of the webinars (you attended) properly?	22 (5.6%)	75 (19.1%)	211 (53.7%)	72 (18.3%)	13 (3.3%)
		10 or less	11 to 30	31 to 50	>50	-
1	During the total duration of COVID crisis, how many webinars related to Ophthalmology have you attended?	202 (51.4%)	149 (37.9%)	30 (7.6%)	12 (3.1%)	-
		Always	Often	Sometimes	Rarely	Never
2	Have you been attending the webinars before the COVID crisis?	3 (0.76%)	26 (6.6%)	120 (30.5%)	165 (42%)	79 (20.1%)
		Definitely	Probably	Possibly	Probably not	Definitely not
3	Has your frequency of attending the webinars during the COVID crisis increased?	247 (62.8%)	50 (12.7%)	38 (9.7%)	37 (9.4%)	21 (5.3%)
		Excellent	Good	Fair	Poor	Very poor
14	How in your opinion was the quality of webinars overall?	28 (7.1%)	157 (40%)	186 (47.3%)	16 (4.1%)	6 (1.5%)

Contd...

Table 2: Contd...

Q. No.	Question	Response
9	Which specialty webinars do you think were the most beneficial?	Cataract: 92 (23.4%) Cornea: 76 (19.3%) Retina and uvea: 102 (26%) Squint and pediatric ophthalmology: 16 (4.1%) Refractive surgery: 17 (4.3%) Glaucoma: 39 (9.9%) Neuro ophthalmology: 19 (4.8%) Oculoplasty: 22 (5.6%) Ocular Oncology: 10 (2.5%)
10	Which sub-specialty webinar do you think was given less importance but needs to be conducted more often?	Cataract: 25 (6.4%) Cornea: 15 (3.8%) Retina and uvea: 34 (8.7%) Squint and pediatric ophthalmology: 68 (17.3%) Refractive surgery: 30 (7.6%) Glaucoma: 14 (3.6%) Neuro ophthalmology: 105 (26.7%) Oculoplasty: 47 (12%) Ocular Oncology: 55 (14%)

COVID: Coronavirus disease; CME: Continued medical education

was no difference in the distribution of the number of webinars attended among the professional groups ($P < 0.23$) [Fig. 1]. A high proportion of respondents (371/393; 94.4%) felt that there were overt numbers of webinars during the COVID-19 pandemic. The majority of the respondents (313/393; 79.6%) agreed to the confusion regarding "which webinars to attend and which not," and also many respondents (296/393; 75.3%) reported repetition of topics discussed in the webinars. Nearly half (49.6%, 195/393) of the respondents felt that the increased number of webinars themselves worsened the boredom from COVID-19 restrictions.

The respondents reported that the most beneficial webinars were on "Retina and Uvea" (26%, 102/393) followed by "Cataract" (23.4%, 92/393) and "Cornea" (19.3%, 76/393). The in-training respondents and consultants in the public sector found webinars on "Retina and Uvea" to be most beneficial while private practitioners found webinars on "Cataract" to be most helpful. The discipline that was given the least importance and needed to be conducted more often as per the respondents was "Neuro-ophthalmology" (26.7%, 105/393) followed by "Squint & pediatric ophthalmology" (17.3%, 68/393), "Ocular oncology" (14%, 55/393) and "Oculoplasty" (12%, 47/393).

Perception of quality of webinars

The content of webinars was agreed upon to be clinically relevant, clear, and understandable by 68.4% (269/393) of the respondents, while 8.9% (35/393) disagreed and 22.6% (89/393) were undecided. There was no significant difference in response to this question among different professional groups ($P < 0.08$).

According to 60% (236/393) of the respondents, the webinars were well organized with presenters keeping to the devoted time, while 17.3% (68/393) disagreed and 22.6% (89/393) were undecided. Only 39.7% (156/393) respondents agreed to sufficient opportunity being provided for interaction with participants during the webinars, while 37.2% (146/393) respondents felt it to be insufficient.

Overall the webinars were found to be of good to excellent quality by 47.1% (185/393), fair by 47.3% (186/393), and poor

to very poor by only 5.6% (22/393) of the respondents. The response to this question was significantly different among the professional groups ($P < 0.025$). The webinars were found to be good to excellent in quality by 56.5% (113/200) of the in-training respondents, 34.8% (23/66) of consultants in the public sector, and 38.6% (49/127) of the private practitioners [Fig. 2].

Perception of content retention

The recall of contents of the webinars was average, above average (including very much so), and below-average (including not at all) as per 57.5% (226/393), 25.2% (99/393), and 17.3% (68/393) of the respondents, respectively. Over half of the respondents (211/393; 53.7%) felt that they could describe and discuss the contents of webinars at an average level, while 24.7% (97/393) and 21.6% (85/393) of the respondents felt it to be above and below average respectively. However, there was no significant difference in content recall ($P < 0.86$) and content description ($P < 0.88$) among the professional groups.

Perception of the usefulness of webinars

The webinars added to the existing knowledge as per 72.8% (286/393) of the respondents, while 10.9% (43/393) disagreed, and 16.3% (64/393) were undecided. A greater number of in-training respondents (82.5%, 165/200) agreed to this question when compared to the consultants in the public sector (62.1%, 41/66) and private practitioners (62.9%, 80/127) with a significant statistical difference ($P < 0.032$) [Fig. 3].

Based on the knowledge gathered from the webinars, 50.1% (197/393) respondents agreed that they would be able to deal with clinical and surgical cases positively, while 18.8% (74/393) disagreed and 31.1% (122/393) were undecided. There was no significant difference in agreement to this question among the professional groups ($P < 0.23$).

Over half of the respondents (224/393; 57.0%) agreed that attending webinars was a proper utilization of their time, while 18.8% (74/393) disagreed and 24.2% (95/393) were undecided. There was a significant difference in agreement to this question among the professional groups ($P < 0.005$). Approximately two-thirds of the in-training respondents (137/200; 68.5%) agreed, while 48.0% (61/127) of the private practitioners and

only 39.4% (26/66) of the consultants in the public sector agreed to this question [Fig. 4].

The webinars were found to be equivalent to physical conferences or continued medical education as per 41.9% (165/393) of the respondents, while an equal number of respondents (41.7%, 164/393) disagreed. There was no difference in agreement to this question among the professional groups ($P < 0.99$).

A high proportion of the respondents (251/393; 63.9%) believed that the webinars are important in clinical practice and should continue post-COVID pandemic, while 18.3% (72/393) disagreed and another 17.8% (70/393) were undecided. The agreement was uniform across all professional groups ($P < 0.77$).

Comparison of responses depending upon the volume of webinars attended

The response to survey questions was compared between respondents who attended ≤ 10 webinars (group 1) and those who attended > 10 webinars (group 2) [Table 3]. There was no difference noted in response distribution regarding perceived confusion about webinars ($P < 0.53$) and repetition of contents in webinars ($P < 0.80$). A significant difference was noted between the groups with regards to the perceived overall quality of webinars ($P < 0.001$), knowledge gain ($P < 0.005$), clinical application of gained knowledge ($P < 0.001$), proper utilization of time ($P < 0.001$), equivalent nature of webinars to

physical conferences ($P < 0.005$), and continuation of webinars in the post-COVID era ($P < 0.047$).

Discussion

In the current COVID-times, face-to-face academic gatherings, conferences, and CMEs have been curtailed to prevent the spread of infection. The challenges in medical education posed by the pandemic have resulted in the increased popularity of alternative teaching-learning methods such as online classes and webinars.^[3,9,10] As compared to the physical conferences, webinars provide an opportunity for students and teachers to interact online from virtually anywhere in the world and avoid the need to travel to a physical conference room, thereby making them flexible, cost-effective and environment friendly. Webinars can host members without facing the constraints of space and time. Most importantly, effectiveness of webinar may be assessed timely and easily by measuring the gain in knowledge and skills of participants from pretest to posttest. This study is the first of its kind to evaluate attendee’s perceptions towards ophthalmology webinars occurring during the COVID-19 pandemic.

In our study, the majority of respondents were ophthalmologists in-training, post-graduates, and fellows. The webinars were well organized with relevant and comprehensible content as per the majority of the respondents. The engagement of respondents in the webinars was average or above average, with the majority being able to recall and

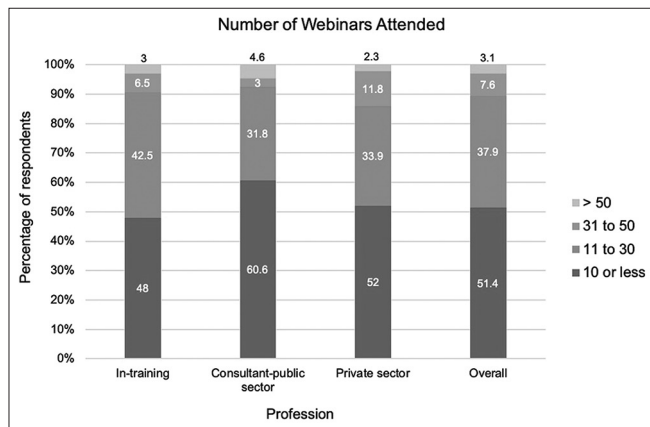


Figure 1: Distribution of number of ophthalmology webinars attended during COVID-19 pandemic

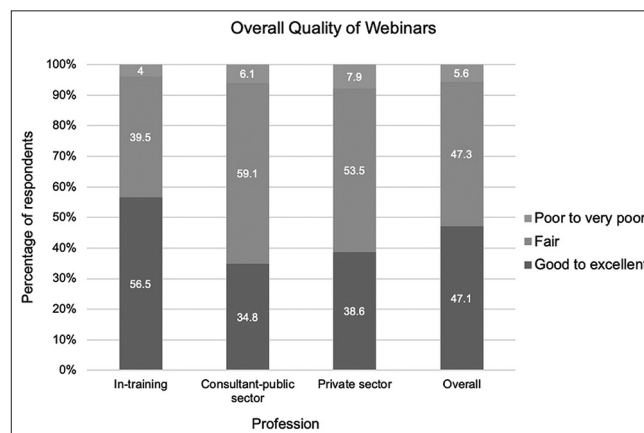


Figure 2: Perceived quality of ophthalmology webinars during COVID-19 pandemic

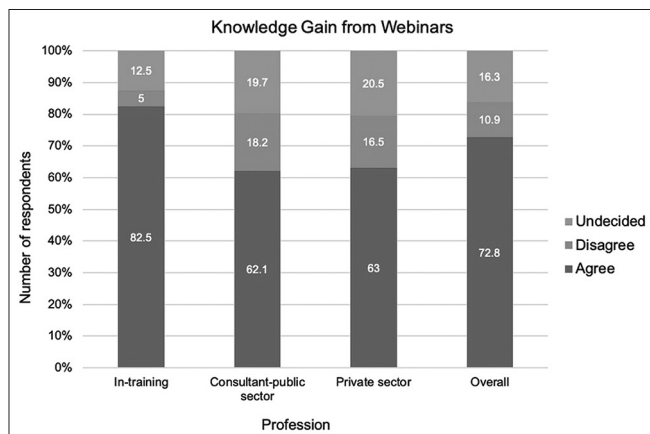


Figure 3: Perceived knowledge gain from ophthalmology webinars during COVID-19 pandemic

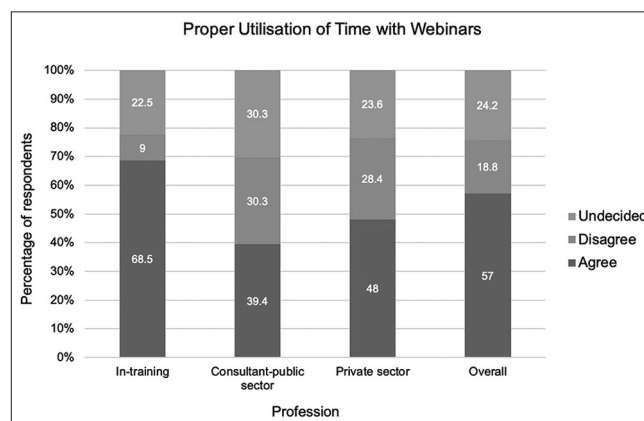


Figure 4: Perceived utilization of time by attending ophthalmology webinars during COVID-19 pandemic

Table 3: Response to survey questions depending upon the number of webinars attended

Q. No.	Question	Response	Group 1 (10 or less webinars), n=202	Group 2 (>10 webinars), n=191	P (Chi-square test)
6	Do you think you got confused regarding "which webinars to attend and which not"?	Agree	165 (81.6%)	152 (79.6%)	0.53
		Disagree	18 (8.9%)	22 (11.5%)	
		Undecided	19 (9.4%)	17 (8.9%)	
7	Do you think there was repetition of the same topics in the webinars?	Agree	144 (71.3%)	152 (79.6%)	0.80
		Disagree	16 (7.9%)	20 (10.5%)	
		Undecided	42 (20.8%)	19 (9.9%)	
14	How in your opinion was the quality of webinars overall?	Good/excellent	71 (35.1%)	114 (59.7%)	<0.001
		Fair	117 (57.9%)	69 (36.1%)	
		Poor/very poor	14 (6.9%)	8 (4.2%)	
17	Do you think the webinars added to your existing knowledge of the subject?	Agree	130 (64.4%)	156 (81.7%)	0.005
		Disagree	31 (15.3%)	12 (6.3%)	
		Undecided	41 (20.3%)	23 (12%)	
18	Based on the knowledge gathered from the webinars, do you think you would be able to deal with clinical and surgical cases positively?	Agree	77 (38.1%)	120 (62.8%)	<0.001
		Disagree	53 (26.2%)	21 (11%)	
		Undecided	72 (35.6%)	50 (26.2%)	
19	Do you think attending webinars was proper utilization of your time?	Agree	90 (44.6%)	134 (70.2%)	<0.001
		Disagree	54 (26.7%)	20 (10.5%)	
		Undecided	58 (28.7%)	37 (19.4%)	
20	Do you think webinars can be equivalent to the talks in physical conferences or CME?	Agree	70 (34.7%)	95 (49.7%)	0.005
		Disagree	98 (48.5%)	66 (34.6%)	
		Undecided	34 (16.8%)	30 (15.7%)	
21	Do you think overall the webinars are important in clinical practice and should continue post-COVID?	Agree	114 (56.4%)	137 (71.7%)	0.047
		Disagree	44 (21.8%)	28 (14.7%)	
		Undecided	44 (21.8%)	26 (13.6%)	
9	Which specialty webinars do you think were the most beneficial?	Retina	57 (28.2%)	45 (23.6%)	-
		Cataract	43 (21.3%)	49 (25.7%)	
		Cornea	43 (21.3%)	33 (17.3%)	
10	Which sub-specialty webinar do you think was given less importance but needs to be conducted more often?	Neuro-ophthalmology	53 (26.2%)	52 (27.2%)	-
		Squint	35 (17.3%)	33 (17.3%)	
		Ocular oncology	28 (13.9%)	27 (14.1%)	
		Oculoplasty	27 (13.4%)	20 (10.5%)	

COVID: Coronavirus disease; CME: Continued medical education

describe the concepts discussed in the webinars. Overall, the quality of webinars was good to excellent according to nearly half of the respondents.

Regarding the usefulness of webinars, most of the respondents perceived that the webinars improved their theoretical knowledge and clinical and surgical skills. Also, webinars were considered equivalent to physical academic gatherings (conference and CMEs) by many respondents. There was a consensus among most respondents that webinars are essential in clinical practice and should continue even after the COVID-19 pandemic subsides. The response is consistent with resident's perception in other fields of medicine that online education should be maintained after the COVID-19 crisis.^[14-16] The volume of webinars attended concurred with the perceived quality and usefulness of webinars as a greater number of respondents who had attended >10 webinars responded favorably than those who had participated in ≤10 webinars. It is also possible that those who found webinars excellent and useful went on to attend further webinars.

The perception of webinars was distinct for different professional groups for certain domains. A significantly greater number of in-training ophthalmologists found attending webinars to be proper utilization of their time, and that webinars were of good to excellent quality and more knowledge-imparting than consultants in the public sector

and private practitioners. This highlights that webinars can be a useful method of enhancing the knowledge of in-training ophthalmologists, at least until physical classes resume their normal pace. The in-training ophthalmologists and consultants in the public sector found webinars on "Retina and Uvea" to be most beneficial, while ophthalmologists in the private sector found webinars on "Cataract" more useful. This goes hand-in-hand with the observation that most ophthalmologists in the private sector rely on cataract services^[17] and find webinars on this topic more valuable.

Despite the overall good perception regarding webinars, certain demerits of the webinars were perceived by the attendees. First, there is an epidemic of ophthalmology webinars in recent times, and the attendees often found it difficult to choose which webinar to attend and which one to let go. Second, the topics discussed in webinars were often repetitive and redundant as per the respondents, and they may fear a waste of their valuable time in attending such webinars. Third, the increased volume and the repetition of webinars increased the boredom themselves. Fourth, as compared to one-way passive learning from lectures, webinars can promote interactive learning for the audience. However, less than 40% of the respondents felt sufficient opportunity to interact with speakers during the webinars. Fifth, the limited interaction may be why nearly 40% of the respondents think that the webinars may not be equivalent to physical conferences and CMEs.

Sixth, the webinars relied heavily on disciplines like “Cataract,” “Retina,” and “Cornea,” and others were grossly neglected, such as “Neuro-ophthalmology,” “Squint and pediatric ophthalmology,” and “Ocular oncology.” This is particularly important for in-training residents who need comprehensive training and ophthalmologists enrolled in fellowships in these disciplines. Lastly, although 95% of the respondents agreed that there were an overt number of webinars occurring in COVID times, only half of the respondents attended more than ten webinars. This implies the presence of barriers to e-learning, which may be learner associated such as poor motivation, concern about the validity of online training, time constraints due to COVID duty, and poor technical skills or organizational factors such as poor design of the webinar, and lack of interaction with speakers/trainers.^[18-20] Identification of these barriers was out of the scope of this survey, and further studies may evaluate the same. Apart from these, other possible demerits of webinars that were not assessed by this study include inadequate access to e-learning platform and technical problems related to web connectivity.

The survey highlights the need to improve the e-learning experience of attendees from webinars. First, the organizations conducting the webinars should coordinate with the national or state ophthalmic boards to plan and execute the webinars. This may avoid repetition of the topics in webinars and avoid overlap in time of multiple events. Second, the target population (in-trainee/consultants/practicing ophthalmologists) for the webinar and the webinar’s objectives need to be mentioned in the promotions and invitation links. Perhaps, this will reduce the confusion about which webinars to attend to a certain extent. Third, webinars need to be more interactive.^[21] Adding questions and answer sessions to the webinar, dispersed strategically throughout the webinar, rather than only at the end, is one sure way to increase the audience-presenter interaction.^[21] A live conversation or chat with the presenters may further improve the experience for the attendees. Multiple other social media platforms such as Twitter, Facebook etc., may be used to extend the interaction beyond the webinars, and the key highlights of the webinar may be posted. A poll at the end to rate the webinar and to review the knowledge gained by attendees, their interests, suggestions, and challenges faced may help organizers in improving webinars in the future.^[21] Lastly, there should be equal weightage given to all the core disciplines of ophthalmology for webinars concerning the in-trainee ophthalmologists.

The study has limitations inherent to most surveys like coverage bias, sampling bias, non-response bias, short duration of the survey, reliability of the questionnaire, and recall bias of the respondents. The reasons for the relatively low response rate in this study may include overlap in the participants in different social media groups, lack of interest to participate in the survey, lack of incentive, short duration of survey, and use of a single digital platform. By taking care of these constraints, the response rate may be improved. Being a cross-sectional survey, the data were collected at a single point in time. However, the attendee’s perceptions regarding webinars may change over time, especially with the transition through the lockdown to the post-lockdown phase.

Conclusion

To conclude, most ophthalmologists in the survey had a positive attitude towards webinars as a method of CME during the COVID-19 pandemic. However, the survey results highlight the need for improvisation in the current pattern of webinars. The key aspects that need to be addressed include linking webinars

to the ophthalmic boards, target-audience-based delivery, novelty of the content, and better presenter-attendees interaction. These changes may add value to this newly added dimension of learning, which had been less explored in the pre-COVID era.

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Conflicts of interest

There are no conflicts of interest.

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OPHTHALMOLOGY WEBINARS IN COVID-19 ERA

Dear Doctor,

COVID-19 has affected almost everyone. The halt of previous activities has encouraged the replacements for the time being. Webinars are one of them, which have emerged as an alternative way for physical seminars and CMEs. But are these as useful as they are being bombarded in the COVID times or just smattering? This study tries to seek the answer for the same.

Based upon your responses we can actually figure out the effectiveness of webinars and relay the thoughts to the effective teams. So that proper steps might be taken for future improvements in the quality as well as quantity of webinars. This survey is conducted by Dr. Devesh Kumawat from Department of Ophthalmology, AIIMS Rishikesh, India.

We request you to kindly take the survey, **only if you have attended at least 5 webinars during the COVID-19 pandemic.**

CONSENT

Your personal data may be collected and processed for the purpose of survey. You must click 'Yes' in order to take the survey.

- Yes
- No

GENERAL DETAILS

Name (Optional):

Email address:

Age (years):

Gender:

- Male
- Female

Current professional status:

- Postgraduate/junior resident
- Senior resident
- Fellow
- Consultant (public sector)
- Practicing in private sector

Years of experience in Ophthalmology including training:

Which subspecialty do you practice? (if applicable)

- Cataract
- Cornea
- Retina and uvea
- Squint and pediatric ophthalmology
- Refractive surgery
- Glaucoma
- Neuro ophthalmology
- Oculoplasty
- Ocular Oncology

QUESTIONNAIRE

1. During the total duration of COVID crisis, how many webinars related to Ophthalmology have you attended?
 - 10 or less
 - 11 to 30
 - 31 to 50
 - >50
2. Have you been attending the webinars before the COVID crisis?
 - Always
 - Often
 - Sometimes
 - Rarely
 - Never
3. Has your frequency of attending the webinars during the COVID crisis increased?
 - Definitely
 - Probably
 - Possibly
 - Probably Not
 - Definitely Not

4. Was the purpose of you attending webinars, to get out of the boredom of COVID?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
5. Do you think there were overt numbers of webinars in the COVID pandemic?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
6. Do you think you got confused regarding “which webinars to attend and which not”?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
7. Do you think there was repetition of the same topics in the webinars?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
8. Did the webinars themselves increased the boredom during the COVID pandemic?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
9. Which specialty webinars do you think were the most beneficial?
 - Cataract
 - Cornea
 - Retina and uvea
 - Squint and pediatric ophthalmology
 - Refractive surgery
 - Glaucoma
 - Neuro-ophthalmology
 - Oculoplasty
 - Ocular Oncology
10. Which sub-specialty webinar do you think was given less importance but needs to be conducted more often?
 - Cataract
 - Cornea
 - Retina and uvea
 - Squint and paediatric ophthalmology
 - Refractive surgery
 - Glaucoma
 - Neuro ophthalmology
 - Oculoplasty
 - Ocular Oncology
11. Do you think the presentations in webinar were clinically relevant, clear and understandable?
 - Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
12. Do you think that webinars were well organized with presenter keeping to the devoted time?
 - Strongly Agree
 - Agree

- Undecided
 - Disagree
 - Strongly Disagree
13. Do you think there was sufficient opportunity provided for interaction of participants during the webinars?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
14. How in your opinion was the quality of webinars overall?
- Excellent
 - Good
 - Fair
 - Poor
 - Very Poor
15. Do you think you can recall the contents of the webinars you have attended?
- Very much so
 - Above average
 - Average
 - Below average
 - Not at all
16. If asked will you be able to discuss or describe the contents of the webinars (you attended) properly?
- Very much so
 - Above average
 - Average
 - Below average
 - Not at all
17. Do you think the webinars added to your existing knowledge of the subject?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
18. Based on the knowledge gathered from the webinars, do you think you would be able to deal with clinical and surgical cases positively?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
19. Do you think attending webinars was proper utilization of your time?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
20. Do you think webinars can be equivalent to the talks in physical conferences or CME?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree
21. Do you think overall the webinars are important in clinical practice and should continue post-COVID?
- Strongly Agree
 - Agree
 - Undecided
 - Disagree
 - Strongly Disagree

Click Submit to submit your responses. We thank you for sparing your valuable time.