

Perception and opinions of dental health professionals regarding online webinars in COVID-19 scenario - A questionnaire-based cross-sectional study

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Abstract

Background: Digital learning environments are increasingly popular in higher education and professional training. Teaching and learning via webinars, and web conferencing more broadly, represents one widely used approach. In the current COVID scenario, Webinars have become an indispensable tool in higher education.

Aim and Objective: To assess the perception and opinions of dental health professionals regarding online webinars in COVID-19 scenario

Material and methods: A 21- item self-administered close ended questionnaire assessing Perception and opinions of dental health professionals regarding online webinars in COVID-19 scenario was shared through online portal. Statistical analysis was performed at 95%

confidence intervals with p value <0.05; statistically significant.

Results: A total of 288 dental health professionals participated in the study, amongst which about 170 (59.0%) practitioners agreed and 101 (35.1%) strongly agreed that webinars are a good e-learning tool. Furthermore; about 135 (46.9%) agreed that quality of dental education has improved through webinars and 70 (24.3%) practitioners said they don't know whether the quality has actually improved.

Conclusion: Our study results conclude that the dental health professionals prefer the use of webinars as a modern e-learning tool and further need-based training of faculty and students in dental colleges may improve the readiness and utilization of these webinars for education.

Keywords: Computer Learning, COVID – 19, , Dental Education, Dental Professionals, Webinars

Introduction

A webinar can be defined as web-based seminar, in which students and teachers are connected live across distant geographical locations using shared virtual platforms, and interact synchronously in real time via voice over IP and web camera equipment. Webinar is a tool that provides computer mediated communication. In comparison to other computer mediated communication tools, webinar is able to transmit video, audio, and images, webinar also enables users to share applications and to use whiteboard, the objective being to exchange information in a real-time and two-way format.¹ Webinar creates opportunities for both educators and learners to experience different levels of interaction online, and these opportunities are essentially different from other communication approaches such as discussion-board postings and e-mails.²

Digital learning environments are increasingly popular in higher education and professional training. Teaching and learning via webinars, and web conferencing more broadly, represents one widely used approach. Computer technology can be utilised for professional development as well as for student and patient education. The accessibility to computers and internet has made utilisation of computer-assisted learning (CAL) possible. In CAL personal computers/laptops are used as educational aids to implement a structured e-curriculum. This includes the use of computers for literature search, communication by e-mail, use of computer-based simulations, multimedia projection system, and wireless classroom.³

Teaching medicine and dentistry is a specialised job, as doctors/dentists are the frontline health care providers. The role of doctors is considered to be a fundamental professional activity that should not be undertaken

coincidentally. Conventionally, there has been a deficiency in proper teacher education in the field of medicine.⁴ Therefore, it is obligatory for every educator to take steps to cultivate and conserve appropriate and up-to-date teaching skills. Earlier, instructors' access to technology was restricted due to cost and competency; however, currently, access to technology is easier than ever, and it gives the educators an opportunity to deliver their teaching in a variety of ways. Many new audio-visual aids are now available to educators, and academics should take advantage of these tools to improve the teaching-learning nexus.^{5,6}

As globalisation is bringing people closer to each other via a number of Information and Communication Technologies, webinars have become an indispensable tool in ensuring online educational environment in higher education for closer inter-connections between students, educators, researchers and other participants of higher education.⁷

In the current COVID scenario, Webinars have become an indispensable tool in higher education. In the current COVID scenario, due to the social distancing norm, the only alternative solution for updated education and learning is the Webinars. Such is the case for dental professionals too. They are engaged with webinars conducted on a routine basis by a variety of dental companies and their representatives and hence, webinars have become an indispensable platform for learning.

Earlier the sessions conducted for dentists were hands on, there were live demonstrations of techniques and each participant could perform and practice the techniques during the course. The oral cavity is a very small space and it's visualisation become a very tedious process on videos and most of these sessions use videos to explain techniques. At the same these webinar's as mostly informative, how much of this the dentists are able to

understand and will be able to apply in their day to day practice also needs to be analysed.

The new generation dentists might be comfortable with webinars as they are familiar with the technology however the older generation of dentists who might not be that comfortable with this change in the learning process their views should also be analysed.⁸

The dental professionals' experience in use of webinars has not been analysed. Their opinions regarding the benefits, difficulties and ground realities in coping up with the webinars have not been understood thoroughly. Thus, it is essential to assess in-depth advantages and disadvantages of the same. Hence, this study was conducted with aim to assess the perceptions and opinions of dental professionals regarding online webinars in COVID-19 scenario.

Material and methods

The study was conducted after obtaining relevant permissions from the Scientific Advisory Committee and Institutional ethics committee. A cross-sectional questionnaire study was conducted amongst the dental practitioners from different parts India. A census sampling approach was used.

The sample size was estimated using Epi info sample size calculator (v.3.01) and by using the "Sample size for Frequency in a Population" formula, considering prevalence from previous study⁹, at 80% power of the study and 95% confidence intervals; a total sample size of 288 was derived. The eligibility criteria followed for the participants was all the dental practitioners who are willing to participate in the study and give informed consent were included in the study.

A pre-tested, pre-validated, 21-item Self-administered structured closed ended online questionnaire was formulated. All the 21- items comprised of Practice domain. The questionnaire was circulated online; using

google forms among the dental practitioners with the consent form. A completely filled questionnaire will be submitted online only to the investigator.

Statistical Analysis

Data obtained was entered in Microsoft Excel 2007. Frequency analysis was done by using Statistical Package for Social Sciences SPSS software (v.21.0). Chi-square test of proportion was performed to find out significant differences within the components of the questionnaire.

Results

A total of 288 dental health professionals participated in the study; amongst which there were 146 (50.7%) were males and 142 (49.3%) were females. In our study, about 128 (44.4%) participants were within the age group of 21-30 years, 117 (40.6%) were within the age group of 31-40 years, 37 (12.8%) within 41-50 years, 5 (1.7%) within 51-60 years and only 1 (0.3%) participant of more than 60 years. Our questionnaire recorded overall 21-items. For ease of analysis and interpretation, the 21-items of questionnaire were divided into 3 domains – General domain, Specific domain and Overall experience domain.

General Domain

In our study, six questions were addressed in the general domain. Out of the 288 practitioners that participated in the study 170 (59.0%) agreed and 101 (35.1%) practitioners strongly agreed that webinars are a good e-learning tool. However, 141 (49%) participants agreed and 77 (26.7%) participants disagreed on webinars are as effective as traditional teaching methods. 125 (43.4%) participants responded that Speciality Dentistry webinars were more relevant. In terms of depth of coverage 178 (68.1%) participants felt there was average coverage followed by 101 (35.1%) who felt there was good coverage and the rest 9 (3.1%) felt there was poor coverage. 162 (56.3%) participants in our study felt that the webinars are user friendly. (Table 1)

Table 1: Frequency (%) of the responses of the questionnaire (General domain)

Questions	Frequency – n (%)	Total (n = 288)	p value
1) Webinars as a new e-learning tool	Strongly agree	101 (35.1)	<0.05*
	Agree	170 (59.0)	
	Dont know	9 (3.1)	
	Disagree	6 (2.1)	
	Strongly disagree	2 (0.7)	
2) Webinars are as effective as traditional teaching methods	Strongly agree	28 (9.7)	<0.05*
	Agree	141 (49.0)	
	Dont know	33 (11.5)	
	Disagree	77 (26.7)	
	Strongly disagree	9 (3.1)	
3) Type of webinars that are more relevant	General dentistry	49 (17.0)	<0.05*
	Specialty dentistry	125 (43.4)	
	Infection control	103 (35.8)	
	Others	11 (3.8)	
4) Webinars are sufficiently interactive	Strongly agree	16 (5.6)	<0.05*
	Agree	138 (47.9)	
	Dont know	43 (14.9)	
	Disagree	85 (29.5)	
	Strongly disagree	6 (2.1)	
5) Webinars; in terms of depth of coverage	Good coverage	101 (35.1)	<0.05*
	Average coverage	178 (61.8)	
	Poor coverage	9 (3.1)	
6) How user-friendly are the webinars	Very good	51 (17.7)	<0.05*
	Good	162 (56.3)	
	Average	71 (24.7)	
	Poor	4 (1.4)	

*p value <0.05 statistically significant

Specific Domain

About 103 (35.8%) participants responded that morning time works best for webinars followed by 79 (27.4%) and 77 (26.7%) who felt afternoon and early evening respectively are the best times for webinars. 169 (58.7%) practitioners said that they had a good concentration during the webinar in this lockdown period and 85 (29.5%) had an average concentration during the webinars. 191 (66.3%) said they actively participated in the webinars and 97 (33.7%) did not participate. 177

(61.5%) felt their doubts were satisfactorily discussed during the webinars however 56 (19.4%) were not sure whether their doubts answered satisfactorily. 205 (71.2%) responded that only sometimes they were comfortable in understanding the topic and 65 (22.6%) participants responded they understood the topic almost every time. 162 (56.3%) of the participants think that the stimulated sessions in webinars are qualitative and satisfactory and 77 (26.7%) participants were not sure about the quality and satisfaction of the stimulated sessions. (Table 2)

Table 2: Frequency (%) of the responses of the questionnaire (Specific domain)

Questions	Frequency – n (%) Total (n = 288)		p value
1) Time of the day that works best for you for the webinars	Morning	103 (35.8)	<0.05*
	Afternoon	79 (27.4)	
	Early evening	77 (26.7)	
	Late evening	29 (10.1)	
2) Rate your complete concentration during the webinar in this lockdown period	Excellent	22 (7.6)	<0.05*
	Good	169 (58.7)	
	Average	85 (29.5)	
	Low	12 (4.2)	
3) Active participation in webinars	Yes	191 (66.3)	<0.05*
	No	97 (33.7)	
4) Speakers discuss the doubts of the participants during a webinar; satisfactorily	Always yes	40 (13.9)	<0.05*
	Often yes	177 (61.5)	
	Not sure	56 (19.4)	
	Often no	15 (5.2)	
5) Comfortable using computer screen as a learning and reading tool	Yes	161 (55.9)	<0.05*
	No	116 (40.3)	
	Dont know	11 (3.8)	
6) Interruption in internet connectivity and other technical difficulties affect your attentiveness	Sometimes	189 (65.6)	<0.05*
	Almost everytime	94 (32.6)	
	Never	5 (1.7)	
7) Personal study experience after attending the webinar	Very good	23 (8.0)	<0.05*

	Good	180 (62.5)	
	Average	81 (28.1)	
	Poor	4 (1.4)	
8) Are you comfortable in understanding the topic	Sometimes	205 (71.2)	<0.05*
	Almost every time	65 (22.6)	
	Never	18 (6.3)	
9) Nowadays do you think the simulated sessions in webinars are qualitative and satisfactory	Always yes	30 (10.4)	<0.05*
	Often yes	162 (56.3)	
	Not sure	77 (26.7)	
	Often no	19 (6.6)	

*p value <0.05 statistically significant

Overall Experience Domain

Six questions out of the 21; formed the last domain that was the overall experience domain. Out of 288, 135 (46.9%) agreed that quality of dental education has improved through webinars and 70 (24.3%) practitioners said they don't know whether the quality has actually improved.

148 (51.4%) agreed that the knowledge gained from webinars can be easily applied or reproduced and 97 (33.7%) were not sure about the same. 201 (71.5%) practitioners responded that the webinars can be made more interesting by altering the time limit, use of extra aids and using a two way interaction portal.

Table 3: Frequency (%) of the responses of the questionnaire (Overall experience domain)

Questions	Frequency – n (%) Total (n = 288)		p value
1) The quality of dental education has improved through webinars	Strongly agree	23 (8.0)	<0.05*
	Agree	135 (46.9)	
	Don't know	70 (24.3)	
	Disagree	52 (18.1)	
	Strongly disagree	8 (2.8)	
2) Knowledge gained from the webinars be applied/reproduced easily	Yes	148 (51.4)	<0.05*
	No	43 (14.9)	
	Not sure	97 (33.7)	
3) Webinars can be made more interesting by	Time limit	17 (5.9)	<0.05*
	Use of any extra aids	23 (8.0)	
	Two-way interaction portal	42 (14.6)	
	All of the above	206 (71.5)	

4) Webinars can be recorded as knowledge bank for future studies	Yes	247 (85.8)	<0.05*
	No	20 (6.9)	
	Not sure	21 (7.3)	
5) Rate your overall satisfaction towards attending the webinars	Excellent	29 (10.1)	<0.05*
	Good	173 (60.1)	
	Average	78 (27.1)	
	Low	8 (2.8)	
6) How likely are you to attend webinars in future	Looking forward to attend	80 (27.8)	<0.05*
	Depends on the topic	204 (70.8)	
	Won't attend	4 (1.4)	

*p value <0.05 statistically significant

Discussion

Despite the education challenges faced by healthcare professionals, the use of online technology (eLearning) to demonstrate competency for practicing dental health professionals in the acute care environment has only recently been explored. The authors discuss the implementation and usage of online-based seminar sessions as an effective education competency tool.^{10,11}

One of the essential roles of a good medical teacher is to be an effective information provider. It has been suggested previously that video-based teaching is appreciated and widely acknowledged by dental health professionals as a good way of attaining information. The outcomes of this study agree with the results of these previous studies^{12,13}, as the majority of male and female students considered the addition education through webinars to be useful. The probable reason can be attributed to the recognition of usefulness of webinars in teaching and the fact that webinars can include videos which lead to enhanced visualization and better understanding of the procedures/facts being explained during teaching, thereby leading towards a better clarification of facts, increased

interest in the lecture and easy reproduction of knowledge gained, as shown from the findings of this study.

The middle of the 1990s witnessed the slow advent of Internet-based education and early applications of online distance learning. This has gained more importance in the higher education and professional training contexts by increasing the number of available e-learning resources.¹⁴

The most advantage of webinars is the high degree of flexibility they grant to participants. In this COVID 19 scenario, due to the social distancing norm, webinars were considered as the tutoring modality. In the present study a total of 288 dental health professionals participated. In our 21-items of questionnaire which were divided into 3 domains - General domain, Specific domain and Overall experience domain the result obtained was p value < 0.05 statistically significant in all 3 domains. With the opinions of dental practitioners Webinars are considered as new e learning tool mainly in this period. Webinars can be also be recorded as knowledge bank for future studies.

Many such studies^{15,16} have been conducted earlier in which webinars have considered as e learning technology in educational contexts. In one such study conducted by Badr A et al¹⁷ in the year 2015 on the relevance of internet

based educational videos in dental education by third year dental students. They concluded addition of videos in the lectures would be useful. Borgerson et al¹⁸ conducted a study where a total of 12 synchronous webinars were conducted. Participants were particularly satisfied with the accessibility(96.7%), scope(96.7%), quality (94.7%) and interactivity(91.5%) of the webinar. The study concluded synchronous webinars are a feasible method to educate across institutional sites.

One more cross sectional study was conducted by Suprabha BS et al¹⁹ in year 2018 with the students and faculties of dental schools. In this study the majority of faculty preferred use of web based courses (63.2%) and computer learning packages(50.0%) while the majority of students preferred use of lecture handouts in a disc(54.9%) as part of structured computer assisted learning. A meta analysis study done by Ebner & Gegenfurtner²⁰ in the year 2019 on learning and satisfaction in webinar online and face to face instruction, the results showed that the webinars were descriptively more effective in promoting student knowledge than asynchronous online and face to face instruction.

With this study we conclude in this COVID 19 scenario where social distancing is the norm dental professionals consider webinars as a e-learning tool for update of knowledge and also quality of education can be increased through these webinars.

Conclusion

The results of our study demonstrate that the use of the eLearning format provides both a satisfactory and effective alternative learning medium. The study provides support for the use of online learning (webinars) for dental healthcare professionals. Based on the results of this study and considering the advantages of the addition of webinars, the level of use of the internet for academic purpose is better among healthcare professionals

worldwide. The only barriers identified are lack of awareness regarding available resources for dental education. However, both the dental health professionals favor the use of webinars and have a favorable attitude toward structured computer-based learning. Moreover, further studies should be conducted focusing upon the need-based training of dental health professionals may improve the readiness and utilization of webinars.

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