



Perceptions of Dental Students towards Online Teaching during the COVID-19 Pandemic: A Cross-Sectional Survey

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Abstract

Background: With the unprecedented outbreak of COVID-19, massive impact on our health structure and economics was noticed. Above all, the education system suffered a significant setback. Most of schools and colleges were forced to shut, for almost two years. In this study we investigate the perceptions of dental students towards the online mode of teaching by close ended questionnaire survey in dental colleges.

Aim: To study the perception of dental students towards online teaching and to give recommendation based on our study findings.

Materials and Methods: A questionnaire based Cross sectional study was conducted in dental undergraduates from 2016 to 2020 batch in Dental Colleges & hospital of Chhattisgarh for period of one month using convenience sampling in order to evaluate perceptions of dental students towards online mode of teaching.

Results: Student's perception was evaluated using a close ended questionnaire. Majority agreed on grounds like online teaching is more interactive (50.2%), more comfortable (37.8%), enhanced their technological skill (41.5%) and received support and resources from respective teachers (53.2%). On the other hand, students were having trouble to concentrate for longer time (63.6%), learning practical's online (60.8%), poor internet connection (70.5%) and family distraction (44.2%).

Conclusion: We need to accentuate ways to integrate this online teaching with traditional method of teaching, this can open new vistas for better teaching opportunities worldwide.

Keywords: COVID-19; Pandemic; Perception; Online teaching; Dental students

Introduction

The ongoing pandemic of COVID-19 is a challenge for the whole world including the scientific and medical society. This also brings along the biggest educational crises ever witness till date. The most popular change in the education structure is that many disciplines have restricted their

education to virtual teaching and learning. Online teaching gives alternative to face-to-face teaching and brought many advantages like accessibility of time and place, efficiency, affordability etc. but it came with disadvantages as well.

Contact with patients is essential in educating dental students as they cannot solely rely on books for dental

knowledge and aptitude [1]. During the period of COVID-19 pandemic most of dental colleges has shifted towards the online teaching mode to prevent the spread of COVID-19. Teachers and students were required to explore new horizon and this led them to online teaching/learning. Online learning assumes various forms such as online classes, live web simulations, webcasting, and online chat rooms [2].

There is limited understanding of the impact of exclusive online teaching and its use in clinical years. Concerns have been raised regarding the quality of resources produced during the pandemic due to time constraints, particularly as these resources aim to compensate for lack of exposure [3].

In this study we investigated the perceptions of dental students towards the online teaching.

Methods

This cross-sectional study was conducted among the dental colleges of Chhattisgarh, India through convenience sampling method. The questionnaire-based study was conducted via social media platform such as WhatsApp, mails and messengers to provide the link for the evaluation of online teaching programme for Dental students from 2016 to 2020 batch during COVID -19 Pandemic. The dental undergraduates from batch 2016 to 2020 who gave consent for the study and have attended online teaching were included in the study, whereas those who didn't gave consent or who have not attended the online teaching programme were excluded from the study. Statistical Analysis was done via Simple percentage calculation using MS-excel version 2108.

After taking proper consent, a brief idea of the study was given to all the participating subjects. Before starting survey, all participants were informed that data collected was non-identifiable and would only be used for research purposes. All the information for assessing the perception of dental students towards online teaching was collected through a questionnaire. A total of 312 undergraduates were registered for the study.

The questionnaire consisted of two main parts:

1. Socio-demographic data: that includes participant's age, gender, residence (urban/rural), parents' occupation, education and income.
2. Students' perception towards online teaching: which includes the data related 30 different questions to access the perception of students towards online teaching.

Results

The study was conducted in dental colleges and hospital in Chhattisgarh. The questionnaire was mailed to 500 graduate dental students (BDS students 2016 to 2020 batch) of which 312 responded (response rate = 63%).

Table 1 shows the demographic data of the study subjects in which majority of responses were females 76%. Mean age of all subjects was 22 ± 1.6 and majority students use smart phone (92.9%) as tool for online mode of learning 66% parents of students had income more than 5 lakhs. Before the COVID-19 pandemic only 3.9 % students were spending more than 6 hours on online platforms but after COVID-19 it increased up to 23.9%.

75.7% students said that that they got more marks in offline teaching as compared to online teaching.

Sociodemographic Characteristics Count (%) (n=312)		
Gender	Male	75 (24%)
	Female	237 (76%)
Age (Years)	Mean SD	22±1.6
BDS Year	First Year	30(9.6%)
	Second year	73(23.4%)
	Third year	73(23.4%)
	Final year	99(31.7%)
	Internship	37(11.9%)
Parents Job	Government	117 (37.5%)
	Private	56 (17.9%)
	Self employed	100 (32.1%)
	Others	39 (12.5%)

Parents income	Less than 5 lacks	106 (34%)
	5 to 10 lacks	158 (50.6%)
	More than 10 lacks	48 (15.4%)
Tools used for online learning	Smart phone	290 (92.9%)
	Laptop	22 (7.1%)
How many hours do you spend on online platform before COVID-19?	Less than 2 hours	110 (35.4%)
	2 to 4 hours	159 (51.1%)
	4 to 6 hours	30 (9.6%)
	More than 6 hours	12 (3.9%)
How many hours do you spend on online platform after COVID-19?	Less than 2 hours	35 (11.3%)
	2 to 4 hours	79 (25.2%)
	4 to 6 hours	124 (39.7%)
	More than 6 hours	75 (23.9%)
In which type of teaching, you got more score?	Online	76 (24.3%)
	Offline	236 (75.7%)

Table 1: Demographic characteristics and information about online teaching/learning among dental undergraduate.

Table 2 shows the student perception of online teaching that contained the data of experience of students of their online teaching/learning. Student's perception was evaluated using a pre tested questionnaire. The students found it is

easy to engage in online teaching (62.5%). They found online teaching was enjoyable (53.6%) and easy to ask question in online teaching (31.7%).

Questionnaire	Agree	Neutral	Disagree
1)The teaching is often stimulating	49 (15.4%)	201(64.4%)	62(19.9%)
2) I find it easy to engage in the lesson	67(21.6%)	111(35.5%)	134(42.9%)
3) I feel able to ask the questions I want	106(33.9%)	131(41.9%)	76(24.2%)
4) I enjoy the online teaching	57(18.32%)	121(38.8%)	134(42.88%)
5) I would like the online teaching to be more interactive	157(50.2%)	96(30.7%)	60(19.1%)
6) I feel that online teaching is as effective as face-to-face teaching	30(9.7%)	53(16.9%)	229(73.4%)
7) I prefer online teaching to face-to-face teaching	47(15%)	73(23.5%)	192(61.5%)
8) The teachers are well prepared for the teaching sessions	167(53.6%)	107(34.4%)	37(12%)
9) I feel I am being well prepared for my profession	70(22.4%)	115(37%)	127(40.6%)
10) My Internet connection can be problematic	220(70.5%)	79(25.4%)	13 (4.1%)
11) I have positive impact on my studies due to online classes	47(15%)	122(39.1%)	143(45.9%)
12) Online classes have increased my technological literacy	129(45.1%)	115(36.7%)	68(21.8%)
13)I feel online classes help me to gain more knowledge	53(17%)	127(40.7%)	132(42.3%)
14)I feel comfortable using online learning tools	118(37.8%)	108(34.5%)	86(27.7%)
15)I feel learning is same in class and at home on the internet	39(12.4%)	59(18.9%)	214(68.7%)
16)I find it hard to stick to a study schedule of the online course	153(49.1%)	106(33.9%)	53(17%)
17)I receive enough support and resources from my teacher	166(53.2%)	115(36.9%)	31(9.9%)
18)My teacher encourages discussion in an online class	177(56.7%)	106(33.9%)	29(9.4%)

19) My teacher sets guidelines for effective communication and interaction in an online class	152(48.8%)	128(41%)	32(10.2%)
20) I face difficulty learning practical online	213(68.4%)	73(23.4%)	26(8.2%)
21) I can perform practical offline after learning them online	52(16.7%)	70(22.5%)	190(60.8%)
22) I save travelling time	189(60.5%)	95(30.4%)	28(8.9%)
23) Online teaching is cost effective	85(27.2%)	132(40.3%)	95(30.5%)
24) I feel online teaching is more flexible	92(29.4%)	112(35.9%)	108(34.7%)
25) Online teaching provides ability to learn at own pace	126(40.3%)	126(40.3%)	61(19.4%)
26) While using online classes I feel issues because of family distraction	138(44.2%)	86(27.5%)	88(28.3%)
27) I have sufficient space in my house for attending online classes	186(59.7%)	86(27.5%)	40(12.8%)
28) I feel anxiety due to online lectures	70(22.4%)	138(44.1%)	105(33.5%)
29) I cannot concentrate longer time for online classes	198(63.6%)	73(23.3%)	41(13.1%)
30) I feel puzzled and frustrated with the content delivered in online classes	93(29.8%)	151(48.5%)	68(21.7%)

Table 2: Perception of dental students towards online teaching/learning (N=467).

Majority of student agree that there are several advantages of online teaching like it saves students time on travelling (61.2%), provides the ability for students to learn at their own pace (48.7%) and flexibility (36%), it is more comfortable and cost effective (27.3%). On the other hand, students were having trouble to concentrate for longer time (76.3%), learning practical's online (72.2%), perform practical offline after learning them online (70.9%), poor internet connection (73.2%) and distraction due to family (68.7%). Majority of students did not find online teaching is effective as face-to-face teaching. In the dental field online teaching method cannot replace traditional face to face teaching (clinical teaching) method that students received via direct patient contact.

Discussion

During the COVID-19 pandemic most of the educational institutes including dental colleges were closed across the globe, to prevent the spread of virus in the community. There was an acute need of some alternative to the offline teaching to continue the education for the students without time lag which leads to the huge shift towards online teaching programme. Even though online education has been used before this pandemic as webinars and e-meets, it wasn't popular and also has its own merits and demerits. However, this drastic change especially in the field of dental education system were difficult to implement and even harder to accept and comprehend. It has been established that the barriers to dental e-learning are due to time constraints, limited technical skills, poor infrastructure, lack of institutional strategies, and a general negative attitude towards the huge shift in education methods [4]. On contrary, the online teaching programme has benefited all of us by providing the

common platform to share their knowledge or learn from other's experience from the faculty across the world. This has saved the expenses and the logistic which was required to travel to the venue.

In this study we wanted to see the perception of dental under graduates towards online teaching. We have found that 92.9% of students were using smart phones for online learning and only 7.1% were using laptop. Similar were study findings in other studies also.

And almost 48.8% mentioned it as more interactive than traditional teaching. Similar were study findings in other studies [5-9].

Only 21.6% students said that it was easy to stick to a study schedule of the online course, similarly very few 15 % mentioned that online teaching had positive impact on their study.

This low number possibly could be explained with the fact that pandemic had affected students both physically and psychologically.

Majority of students found it difficult to concentrate, and to gain knowledge (42.3%) from online teaching. Similar were study findings in other studies also.

40.3% mentioned that online teaching provides the ability to learn at their own pace and 29.4% said this mode has flexibility, which is understood since teaching mode was exclusively online and majority of students were at home during the lockdown period, which can be comparable to other studies as well [10,11].

Our studies support the finding of Tuladhar SL, et al. (68.7%) mentioned that learning online is not same as in class and almost (73.4%) agreed that online teaching is not effective as face-to-face teaching [12]. This is true since there is less possibility of active learning through online mode.

Learning by doing is the process of learning through actions. It is a key component of good learning experience. There are many benefits to learning by doing, such as increased retention and reduced confusion which lacks in online learning programmes. This can be a reason for majority (68.4%) students faced difficulty to do practical offline after learning it online.

Similar to the finding of Cao W, et al. 22.4% of students mentioned that they feel anxiety because of online lectures. Which can be due to lack of social contact and interaction with teachers [13].

Online teaching has been the part of dental education since some time now, therefore enough resources and materials are present for students. In our study also (53.2%) students mentioned that they received support and resources from their teachers. Which were in accordance with the other studies done by Dost S, et al. [7].

In general, the majority of students believed that the quality of session is poor which is again common with the study done by Brandon T, et al. [14] There were be several factors that affected the session quality in our study such as poor internet connection (70.5%), family distractions (44.2%) and the timing of the tutorials (49.1%).

Limitations

The main limitation of the study was that it was conducted with a smaller sample size. A more generalized survey across the country can give the better perception of students. We considered online teaching as whole, no separate consideration was given to different techniques/methods of online teaching when investigating students' perceptions and hence we cannot evaluate different types of online teaching provided.

Conclusion

As we all know the most common route of spread of COVID 19 virus is oral, which is the primary working area of the dentists. The other factors like proximity to the patient's oral cavity and generation of aerosol during the dental treatment brings the greatest risk for a dental practitioner, dental college staff, students as well as patients.

Due to this, there was a need to shift the offline training

programme to online platform to continue the education of the dental students during this challenging time of pandemic. The online teaching programme has many merits with certain demerits, which needs to be addressed. There is a need to find different ways of teaching which can be incorporated in online teaching to make it more useful, in particular about the practical aspect of the subjects. The online teaching programme can open a whole new horizon for better teaching opportunities even in remote locations.

Recommendation: Although online teaching was started due to COVID 19 pandemic, and has slowly become an integral part of education system. However, we need to strengthen this teaching mode so that students get maximum benefits from this mode of teaching.

Following measures can be done to achieve this:

- Setting Clear Expectations.
- Being Mindful of Issues at Home.
- Expect the unexpected and remain flexible.
- Request regular feedback.

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