

PERCEPTION OF DENTAL STUDENTS REGARDING ONLINE CLASSES DURING THE PANDEMIC

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ABSTRACT

Objective: To evaluate the perception of dental students regarding online classes during COVID-19.

Study Design: Cross sectional study.

Place and Duration of Study: Various institutes of Pakistan, from Jun 2020 to Jun 2020.

Methodology: The study was conducted amongst the dental students of various institutes of Pakistan. Both male and females students from all four academic years were included. Sample was collected by distributing an online well-structured and validated questionnaire through different social media platforms and by sending the survey link in Electronic-mails. SPSS version-25 was used for statistical analysis.

Results: Majority of the participants, 191 (42.4%) were from 18-20 years of age. 269 (59.8%) preferred synchronous teaching method. Most of the participants responded negatively when asked about the improvement of clinical skills from online classes, 315 (70%) disagreed/strongly disagreed. Though most had a positive response towards interaction with teachers 69 (15.3%) and 150 (33.3%) responding strongly agreed and agreed. 294 (65.3%) were in favor of conventional/traditional learning and 270 (60%) were not confident enough to sit in the exam after the online interactive classes. Lastly, 200 (44.5%) participants suggested agreement towards hybrid learning system for the future.

Conclusion: It is concluded that a hybrid type of teaching should be incorporated in the future to make the teaching and learning process for both the teachers and the students more favorable and easier. Furthermore, continuation of online teaching as a part of hybrid teaching will keep the students accustomed with it and help in improving the quality of online teaching.

Keywords: COVID-19, Dental students online classes, Perception.

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INTRODUCTION

History reveals that contagious disease outbreaks have a great impact on human population¹. Presently novel Coronavirus disease 2019 (COVID-19) is one of the worst known pandemics in human history and is compared to Spanish flu, causing governments to impose strict lockdown. It has left the world to deal with sinking economy, unemployment, education and overburdened health care system². The best way to control this contagious disease and to modulate health measures worldwide is to get people quarantined at home; causing closure of all markets and educational institutes and hence

putting a stop at all live face-to-face interactions such as in OPDs, and all educational activities^{1,3}. In modern times e learning is routinely practiced for courses and other educational activities, so for continuation of education during this pandemic online classes is seen as both effective and beneficial way of learning from homes firstly and moreover most of the students were already proficient and accustomed with internet and technology⁴. Nevertheless the COVID-19 has spread at a much faster rate than predicted, leaving teachers and students appalled and the transition from live sessions was not well received by students and teachers who now have to engage in online virtual sessions which though has harnessed cognitive abilities but not the clinical skills thereby leaving a gap and an everlasting impact

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on student grasp of complete knowledge^{5,6}. Teaching faculty, academics and healthcare experts are laboriously working to develop new skills and get accustomed to e-learning sessions to better inculcate knowledge in students during the quarantine period. During this pandemic the virtual learning demands students to be decisive and independent, making learning possible for the students everywhere without any time constraints⁷. The concerned administration should consider e-learning as a substitute to face to face learning though it depends solely on the teacher's way of understanding and incorporating in study design⁸. Thus it is vital first to evaluate the learning channels which will then help in improving and advancing the technology accordingly⁹. In this vulnerable situation we have no clue of the actual student engagement in virtual classes and their acceptance of imparting the knowledge from different style of teaching through various platforms. That's why its urgency of time to find out the real worthiness of these online platforms to better predicts the desired outcomes. However, there are unique benefits attached with the online learning which segregates from the other learning such as face to face, therefore it is now more important to access the student insights originating from online sessions"¹⁰. Moving forward our aim of the study is to extract the baseline data with respect to perception of students related to health profession and experience with virtual sessions during COVID-19 nationwide.

METHODOLOGY

This cross sectional survey was conducted from 1st June 2020 to 10th June 2020; to assess the perception of dental students regarding e-learning during the COVID-19 pandemic. Prior approval was taken from ethical committee of Jinnah Medical and Dental College; letter no 00037/20. For data collection, a well-constructed online questionnaire was designed through literature search⁸, and a pilot study on 30 participants was conducted to check the reliability of the questionnaire. The consistency of response evaluated by Cronbach's alpha was 0.76. It was then uploaded at www.surveymonkey.com and the on

survey link was circulated through social media and via e-mail. All the undergraduate dental students were included in the study. Postgraduate students or those studying other medical fields were excluded. WHO sample size calculator was used to calculate the sample size of this study. Considering the anticipated population proportion 77%¹⁴ and keeping 95% confidence interval and 80% power of test. The total sample size calculated was 273. Nonprobability convenience sampling technique was used and a total of 450 completely filled forms were included in the study while 53 partially filled forms were excluded.

The consent statement for voluntary participations was included in the questionnaire. The questionnaire was divided into two sections; First section addressed the demographic details. The second section was designed to gather information regarding the perception of online classes amongst the dental students, a total of 10 close ended questions were created; (1) mode of classes: synchronous or asynchronous (2) Increasing knowledge (3) learning clinical skills (4) Traditional lectures are better; as clinical skills are involved (5) Interaction with the teachers (6) Attending classes from home is difficult task (7) favorable environment for learning (8) sufficient knowledge/confidence to appear in final exams (9) Future learning preferences (Hybrid learning) (10) internet connectivity

A 5-point Likert scale; Strongly agree (5) Agree (4) Neutral (3) Disagree (2) Strongly Disagree (1).

The data obtained were finally entered in SPSS version 25 for statistical analysis. Frequency and percentages were calculated for demographics and perception of dental students. A Kruskal-Wallis H test was used to evaluate the difference in learning from traditional teaching system between the different academic years (1st year to 4th year BDS) and difference in the response related to confidence in sitting in the exam with different academic years (1st year to 4th year BDS). A p -value > 0.05 was considered significant.

RESULTS

With a response of 89.4% (450 forms), 329 (73.1%) females and 121 (26.8%) males participated in the study. Majority of the participants, that is, 191 (42.4%) were from 18-20 years of age. A total of 154 students (34.2%) belonged to 1st year BDS, 68 (15.1%) from 2nd year BDS, 120 (26.6%) from 3rd year BDS and (24%) 108 from 4th year BDS. Based on the data collected, 269 participants (59.8%) preferred synchronous teaching

method whereas 181 (40.2%) preferred asynchronous method. Most of the students had a positive response when asked about the interaction with teachers during an online teaching and interactive session with 69 (15.3%) and 150 (33.3%) responding strongly agreed and agreed respectively while 102 (22.7%) had a neutral response. Ironically majority of the participants had a negative response when asked about favorable learning environment in online classes with 111 (24.7%) and 184 (40.9%) responding disagreed and strongly disagreed.

Table-I: Response of participants regarding traditional teaching system and difficulty in learning from home. Teaching Based on Conventional / Traditional Education System

Response	Strongly Agreed n (%)	Agreed n (%)	Neutral n (%)	Disagreed n (%)	Strongly Disagreed n (%)	Not Applicable n (%)
	294 (65.3%)	51 (11.3%)	26 (5.8%)	23 (5.1%)	40 (8.9%)	16 (3.6%)

Response	Strongly Agreed n (%)	Agreed n (%)	Neutral n (%)	Disagreed n (%)	Strongly Disagreed n (%)	Not Applicable n (%)
	234 (52%)	97 (21.6%)	51 (11.3%)	35 (7.8%)	22 (4.9%)	11 (2.4%)

Table-II: Analysis of learning from traditional teaching system between the different academic years using kruskal-wallis H-test.

Learning from Traditional Teaching System	Academic Year	Number of Students	Mean Rank	Chi Square $\chi^2(2)$	p-value
	1st Year	154	240.43	4.438	0.218
	2nd Year	68	222.10		
	3rd Year	120	216.91		
	4th Year	108	215.89		

Table-III: Analysis of confidence in sitting in the exam from online classes with different academic years using kruskal-wallis H-test.

Confidence in Sitting in exam from online classes	Academic Year	Number of Students	Mean Rank	Chi Square $\chi^2(2)$	p-value
	1st Year	154	213.03	13.574	0.004
	2nd Year	68	247.29		
	3rd Year	120	239.72		
	4th Year	108	188.09		

learning environment in online classes with 111 (24.7%) and 184 (40.9%) responding disagreed and strongly disagreed. Majority of the participants were in favor of conventional/traditional learning, that is, 294 (65.3%) and mostly responded that learning from home through online lectures is a difficult task 234 (52%) as shown in table-I. Most of the participants were not confident enough to sit in the exam after the online interactive classes with a combine response of 270

responded with disagreed and strongly disagreed respectively and only 15 (3.3%) responded with not applicable. Most of the students had a positive response when asked about the interaction with teachers during an online teaching and interactive session with 69 (15.3%) and 150 (33.3%) responding strongly agreed and agreed respectively while 102 (22.7%) had a neutral response. Ironically majority of the participants had a negative response when asked about favorable learning environment in online classes with 111 (24.7%) and 184 (40.9%) responding disagreed and strongly disagreed. Majority of the participants were in favor of conventional/traditional learning, that is, 294 (65.3%) and mostly responded that learning from home through online lectures is a difficult task 234 (52%) as shown in table-I. Most of the participants were not confident enough to sit in the exam after the online interactive classes with a combine response of 270

(60%). 200 (44.5%) participants suggested agreement towards hybrid learning system for the future. Lastly, a total of 190 (42.2%) students strongly agreed that internet connectivity poses hindrance towards learning.

A Kruskal-Wallis H test showed that there was no statistically significant difference in learning from traditional teaching system between the different academic years (1st year to 4th year BDS), $\chi^2(2) = 4.438$ and p -value = 0.218 as shown in table-II. Whereas using the same test showed that there was a statistically significant difference in the response related confidence in sitting in the exam with different academic years (1st year to 4th year BDS), $\chi^2(2) = 13.574$ and p -value = 0.004 as shown in table-III.

DISCUSSION

The COVID-19 pandemic has changed the education dramatically with a distinctive rise in online learning/classes. In this study the perception of 450 dental students regarding the online classes during the pandemic was evaluated. Majority of the participants, (42.4%) were from 18-20 years of age with 73% females. 59.8% of the participants preferred synchronous teaching method whereas 181 (40.2%) preferred asynchronous method. Both are types of learning through online courses. Synchronous learning refers to classes' occurring on set schedules and time frames, while asynchronous classes let students listen to the recorded lectures and completion of the task on their own time. Our results were in agreement with a study by Malik¹¹ in which the significant difference was found between the mean score of student's responses enrolled in different master's program; with participants been more inclined towards the synchronous method of e-learning instead of the asynchronous. In another study on the post graduate dental students by Kunin¹²; they rated their ability to learn highest in the face-to-face format, followed by asynchronous format significantly higher than the synchronous format, whereas before taking the lecture series, there was no difference between the two ($p=0.21$). The residents

rated their ability to learn, in the asynchronous format significantly higher after experiencing that format ($p<0.001$). They preferred the asynchronous method over the synchronous in terms of level of comfort, format effectiveness, presentation clarity, and technology. These findings were in contrast to our results as the participants preferred synchronous maybe because they feel involved, in real time, with the class experience along with a dire need of case based discussion and learning in dental education. One may find it rewarding to ask a question, offer a comment and receive an instant feedback.

In our study, Majority of the participants, 294 (65.3%) were in favor of conventional/traditional learning, with most of them responding negatively when asked about the improvement of clinical skills from online classes with 104 (23.1%) responding disagreed and 211 (46.9%) strongly disagreed. Although regarding gain of theoretical knowledge, the response was neutral (28.7%) or (26%) agreed. In a study conducted by Abbasi¹³, 75.7% of the medical and dental students have negative perceptions towards e-learning. Moreover, other studies, concluded that online learning appears to be more effective than conventional learning in terms of knowledge and skills gain¹⁴⁻¹⁸. Furthermore, in a systematic review¹⁹, 29% and 40% of the studies showed significantly higher knowledge gain and greater skill acquisition along with 14% of the studies showing higher satisfaction with online e-learning than traditional learning. These results are in contrast to our findings probably because the emergency and abrupt introduction of online learning in Pakistan during the pandemic, though in the developed countries, everyone is familiar with the concept. Adding to this, online simulation with dental training manikins is extremely difficult, they are scarce in educational institutions, are not portable, do not cover all areas of dentistry, and are very expensive.

When asked about the interaction with teachers, most of the students had a positive response with 69 (15.3%) and 150 (33.3%) responding strongly agreed and agreed respectively while

102 (22.7%) had a neutral response. These findings are in contrast to the findings of Kunin¹² in which after the participants took the lecture series, they still rated face-to-face (conventional teaching) interaction highest ($p < 0.001$). Bourzgui *et al*²⁰ reported that 65.4% of the dental students thought teacher-students interaction during online classes was not sufficient. The possible reason for this difference dependent upon the learner himself that how much he values the interaction and communication with the instructor.

Moreover when asked about the favorable learning environment in online classes, 111 (24.7%) and 184 (40.9%) participants responded disagreed and strongly disagreed which is in accordance with a study in which the author concluded that online learning can contribute to professional isolation, decreased learning experiences and difficulty in keeping them attentive and engaged²¹.

In our study, 52% of the participants felt that learning from home through online lectures is a difficult task, which is in agreement with Machado *et al*, who found that no e-learning strategies can replace their experience with the patients. It should also be considered that the sudden start of e-learning can be a stressor for students, considering that not everyone will adequately adapt to this teaching modality²².

In this study, most of the participants did not feel confident enough to sit in the exam after the online interactive classes with a combine response of 270 (60%). This is in contrast to another study done on the university students²³ in which positive attitude category was 63-93%, as compared to 0-12% under the 'disagree' category. Most of the participating students had positive attitudes towards e-learning; they felt confident in using computers, believed in the benefits of e-learning, and were interested in studying courses that used e-learning. In particular, students believed strongly that e-learning would give them the opportunity to acquire

new knowledge and improve their learning experiences.

Furthermore, when asked about the preference of teaching methodology for future, 200 (44.5%) participants suggested agreement towards hybrid learning system for the future. Which is in accordance with another study²³ in which hybrid learning is considered more advantageous than conventional for teaching by 41.7% ('very' advantageous) and 45.8% ('enough' advantageous).

In addition, when asked about the internet connectivity, majority (42.2%) of the students strongly agreed to that internet connectivity pose hindrance towards learning, mainly because of limitations in bandwidth, which often contributed to slow speed and poor audio or video quality. This is corroborated in another study by Frehywot *et al*²¹.

Keeping in mind these unexpected circumstances, it is adequate to continue teaching theoretical content, though with improved accessibility to quality internet in mind. Changes in the curriculum should be considered. This pandemic highlights a need for further research on how to improve the dental education including clinical learning in a more systematic manner.

CONCLUSION

Within the limitations of this study it is concluded that a hybrid type of teaching should be incorporated in the future to make the teaching and learning process for both the teachers and the students a more favorable and easier. Furthermore, continuation of online teaching as a part of hybrid teaching will keep the students accustomed with it and help in improving the quality of online teaching.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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