

Attitudes, Perceptions and Challenges Faced by Dental Teachers in Online Teaching

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Abstract

Introduction: During the Covid 19 pandemic there was a shift to online teaching across medical and dental institutions. The objective of this study was to determine quantitatively attitudes, perceptions and challenges faced by dental faculty in online teaching.

Material and Methods: A questionnaire was designed by the authors whose content and face validity was carried out. Following approval from the Ethics Review Committee the questionnaire was distributed among 307 participants across dental institutes in Pakistan, and the data was analyzed using Statistical Package for Social Sciences (SPSS) 26.00.

Results: 32.25% participants were males and 62.25% were females. The mean age of participants was 36.3 years. Majority of the participants were confident in the use of computers for online delivery of lessons (75.9%) and were accustomed to the use of various required softwares (67.7%). 61.9% participants did not agree with the statement that they could teach better with distance education, whereas 50.5% participants considered flexible class times as a major advantage of online teaching. Teaching of skills was identified as the main challenge by 90.3% participants, followed by poor quality internet and increased time consumption in providing feedback for the assignments.

Conclusion: This study supports the use of online teaching for non-clinical, theoretical subjects provided that faculty training and high speed internet is made available by the teaching institutions.

Key words: COVID-19, pandemic, internet

Introduction

Distance learning utilizes technology to impart education to students without face-to-face interaction.¹ Also known as distance education, online learning and e-learning, it has long been in use for adult learners, full time workers and students in remote areas.² However, in today's world distance learning is an established reality with increasing integration in conventional courses.³

Medical universities worldwide have

conducted studies on the integration of online teaching into their programs, but online courses are not very common especially at the undergraduate level. Due to the covid-19 pandemic⁴ there was major transition from conventional physical classes to online lessons.¹ Previous studies have investigated the perspective of teachers on online teaching. Motte-Sinorette et al⁵ surveyed 146 learners and 22 instructors in France; in their study 69% of teachers responded that they were not satisfied with online teaching. Elshami et al⁶ conducted a similar study in the UAE. In their study 82% participants had no prior experience with online teaching, 69% of participants were not satisfied with online teaching and 42% would not recommend it.

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Previous studies carried out in Pakistan focus more on students' perspective on e-learning.⁷⁻⁹ In one of the studies carried out in Pakistan researchers investigated the teachers' perspective on online learning.¹⁰ It was a qualitative study carried out in a single private sector university which supported the use of online learning in medical and dental colleges. 12 faculty members and 12 students were included in this study and four focus group interviews were conducted and data were thematically analyzed. Total six themes, were extracted two each for advantages, limitations and recommendations. The faculty had an opinion that online learning came with ease of marking attendance and also students became self-directed learners. Limitations of online learning were mainly teaching of clinical and practical work. Teachers and students recommended faculty development and procurement of premium softwares for delivering of lectures and assessment of assignments to detect cheating and plagiarism.

This study aimed to determine quantitatively the attitude, perception and challenges faced by dental educationists in online teaching. The information gathered from this study will help in providing baseline data for possible incorporation of web-based learning in dental curricula. Also, the challenges for provision of online dental CPD courses will be identified.

Materials and Methods

A cross-sectional questionnaire-based survey was conducted among dental faculty registered with the Pakistan Medical and Dental Council (PMDC). The study protocol was approved by the Ethics Review Committee, Margalla Institute of Health Sciences, Rawalpindi. Informed consent was taken from all the participants. The study was conducted during Covid 19 lockdown, hence only verbal consent was taken from the respective institutes.

Sampling was done with non-probability convenience technique. A total of 307

participants took part in the study. Sample size was calculated using Openepi sample size calculator, with confidence level of 95% and confidence interval of 5%.¹¹ The data was collected from August 2022 to December 2022 across dental institutes of Pakistan. (Table I)

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|--|
| Armed Forces Institute of Dentistry, Rawalpindi |
| Margalla Institute of Health Sciences, Rawalpindi |
| Rawal College of Dentistry, Islamabad |
| Islamic International Dental College, Islamabad |
| HBS Medical and Dental College, Islamabad |
| Islamabad Medical and Dental College, Islamabad |
| School of Dentistry, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad |
| Foundation University College of Dentistry, Islamabad |
| Saidu College of Dentistry, Saidu Sharif, Swat |
| Institute of Dentistry, CMH Lahore Medical College, Lahore |
| Khyber College of Dentistry, Peshawar |
| De'Montmorency College of Dentistry, Lahore |
| Altamash Institute of Dental Medicine, Karachi |
| Nishtar Institute of Dentistry, Multan |
| University College of Medicine & Dentistry, University of Lahore |
| Liaquat University of Medical & Health Sciences (LUMHS), Jamsoro |

Table I: List of dental institutes included in the study.

Inclusion criteria of the study was: 1) Faculty members of Dental colleges registered with PMDC/PMC. 2) Who had taught an online distance learning course, at least once. The faculty members who had never taught an online distance learning course were excluded from the study.

The study was conducted using a self-structured questionnaire. The survey questions were divided into 3 main domains; Technical Skills questionnaire items to assess the skills of dental teachers regarding online teaching; Attitude/Perception questionnaire items to assess the perception of dental teachers regarding online teaching and Challenges questionnaire items to assess the challenges faced by dental teachers in online

teaching. In the present study, we used closed-ended questions.

The questionnaire was validated using face validity and content validity. The face validity was established by distributing the questionnaire initially among 60 participants and it was confirmed that the questions were easy to understand and there were no issues while completing the questionnaire.¹² The content validity was determined by three subject experts using Content Validity Index (CVI) score.¹³ Internal Consistency was measured using Cronbach's alpha which was 0.633. SPSS software 26.0 was used for statistical analysis.

Results

The data was analysed using Statistical Package for Social Sciences (SPSS) 26.00 (IBM Statistical Package). The gender distribution was 32.25% males and 67.75% females. The mean age was 36.3 years, minimum was 21 years and maximum was 65 years. The mean experience was 7.08 years (standard deviation= 6.07) with minimum being 6 months and maximum being 35 years (Figure 1).

33.9% participants strongly agreed with the statement "I use computers confidently for content delivery and demonstration." whereas 2.9% disagreed and 4.9% strongly disagreed with it. 46.9% participants agreed and 20.8% strongly agreed with the statement "I am accustomed to using interactive online teaching softwares/portals (MS Teams etc.) to communicate with my students."

In contrast only 2.6% participants strongly agreed with the statement, "I teach better with distance education." and 4.6% strongly agreed with the statement, "Theoretical concepts of medical/dental subjects can be communicated as effectively through distance education as with conventional learning." 26.4% participants agreed and only 4.2%

strongly agreed with the statement, "I think that distance education will be the future educational model." Only 18.9% participants agreed to teach as many online courses as possible in the future and a majority of them were convinced that lack of in-person interaction with students would hinder with their learning experience.

The teaching of skills was identified as a major challenge in online teaching. 49.8% participants agreed and 40.7% strongly agreed with the statement, "Many lessons cannot be offered through distance learning (e.g., teaching of skills)." Administration of tests was another challenge identified by majority of the participants. 48.5% participants agreed and 28.3% strongly agreed that administration of tests was difficult in online mode of teaching. 47.9% participants agreed and 19.9% strongly agreed that increased commitment of time for evaluation and feedback on assignments was required in online teaching. Poor quality internet hindered with efficient delivery of lessons for 43% and 42.3% participants, who agreed and strongly agreed with the statement, respectively (Table II).

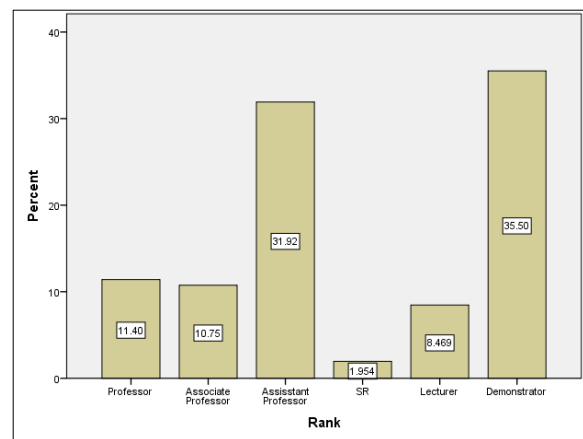


Figure 1: Percentage distribution of study sample according to rank.

Table II: Percentage distribution of responses to the questionnaire.

| Question | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|-------------------|----------|---------|-------|----------------|
| Technological | | | | | |
| 1T I use computers confidently for content delivery and demonstration. | 4.9% | 2.9% | 16.3% | 42% | 33.9% |
| 2T I am accustomed to using interactive online teaching softwares/portals (MS Teams etc.) to communicate with my students. | 3.3% | 12.7% | 16.3% | 46.9% | 20.8% |
| Attitude | | | | | |
| 1A I teach better with distance education. | 11.1% | 50.8% | 30.3% | 5.2% | 2.6% |
| 2A "One of the advantages, for the instructor, of teaching a distance education course is that class times are flexible." | 5.9% | 21.2% | 22.5% | 43.3% | 7.2% |
| 3A "The fact that distance education course has no structured classroom type environment appeals to me." | 19.5% | 43.0% | 15.0% | 18.6% | 3.9% |
| 4A Theoretical concepts of medical/dental subjects can be communicated as effectively through distance education as with conventional learning. | 21.2% | 42.3% | 18.6% | 13.4% | 4.6% |
| 5A I think that distance education will be future educational model. | 8.8% | 25.4% | 35.2% | 26.4% | 4.2% |
| 6A "In the future, I will teach as many online courses as possible." | 8.5% | 28.7% | 41.4% | 18.9% | 2.6% |
| 7A I do not feel comfortable communicating through audio/video. | 3.9% | 23.1% | 30.6% | 36.2% | 6.2% |
| 8A "Face to face interaction with students helps me to communicate course content better and to answer any queries efficiently." | 2.3% | 2.9% | 5.2% | 30.0% | 59.6% |
| 9A "The lack of student-to-student interaction in an online class would hinder their learning experience." | 1.3% | 8.1% | 11.1% | 46.6% | 32.9% |
| Challenges | | | | | |
| 1C Many lessons cannot be offered through distance learning (e.g., teaching of skills). | 1.3% | 2.6% | 5.5% | 49.8% | 40.7% |
| 2C Tests in a distance education course are more difficult to administer. | 2.0% | 8.8% | 12.4% | 48.5% | 28.3% |
| 3C It is difficult to design course material which is interesting for participants working at different locations and work conditions. | 0.7% | 12.1% | 22.1% | 51.5% | 13.7% |
| 4C Responding to student inquiries and providing feedback on assignments takes more time in online lessons than conventional teaching. | 0% | 14.3% | 17.9% | 47.9% | 19.9% |
| 5C It has happened very often that poor quality internet hindered with efficient delivery of lessons. | 1.3% | 7.8% | 5.5% | 43.0% | 42.3% |

Discussion

The current study investigated the attitudes, perceptions and challenges faced by dental faculty in online teaching during the COVID-19 pandemic. Despite the digitalization of resources and their usage in education, complete reliance on online teaching came as a challenging surprise. 11.1% participants in this study strongly disagreed and 50.8% disagreed with the statement, "I teach better with distance education." Similar results were seen in the study by Cobb SC¹² where only 11.2% participants reported positively about online dental teaching.

The majority of participants in the study were well versed with the use of technology and social media, thus 42% participants agreed and 33.9% strongly agreed that they were confident in the use of computers and were accustomed to the use of online teaching portals for interacting with their students. This was similar to the results of a Korean study by Lan Herr et al¹³ in which 93.3% participants were in acquiescence with the use of technology for delivery of online lectures. However, there was a sharp contrast seen in the attitude component of the questionnaire. In response to the first question of Attitude component (1A) of the questionnaire, "I teach better with distance education", 30.3% participants were neutral, 5.2% agreed with the statement and 2.6% strongly agreed with the statement. This was similar to the other studies¹⁴⁻¹⁶, which could be attributed to the novelty of online mode of education in dental teaching and to the anxiety associated with the pandemic.

Considering the possibility of online teaching in the future 8.5% teachers in the current study strongly disagreed with the statement, "In the future, I will teach as many online courses as possible" whereas 28.7% disagreed and 41.4% were neutral about it. This was in contrast to the study by Kim et al¹⁷ in which 48% of teachers expressed willingness to continue online teaching post COVID. And in another study¹⁸ were 62% participants considered a hybrid online and face to face

teaching as the best model. Similar results were seen in the study by Motte-Signorett et al⁵ in which 60% of teachers preferred some form of hybrid learning and 38.5% teachers responded that online teaching should continue post-COVID citing flexibility of timings as one of the main reasons.

Mohammad H Rajab et al¹⁹ highlighted the challenges in distance learning during the pandemic. They identified difficulty in communication, student assessment, use of technology and anxiety associated with pandemic as the main impediments in online teaching. In another study²⁰ 45.8% participants identified lack of practical education as the most common problem. But regardless of the challenges, respondents had a positive attitude towards online teaching following their experience during the first few weeks of the pandemic. A viewpoint published in Pakistan emphasized on the need of overcoming the challenges faced in online education which will require faculty's support in the universities.²¹

This study also identified the teaching of skills as a major challenge. Majority of the participants considered that, "Theoretical concepts of medical/dental subjects can be communicated as effectively through distance education as with conventional learning" which was similar to other studies.¹⁹⁻²²

Administration of tests was identified as a major hurdle in our study which was similar to the study by Samra et al¹⁰ in which 91.1% of the teachers reported on difficulty in conduction of online exams. In our study 28.3% participants strongly agreed with the statement, "Tests in a distance education course are more difficult to administer." whereas 48.5% participants agreed with it. Similar results were seen in the study by Singal et al²³ in which 83% participants identified administration of tests as a significant hurdle.

Disinterest in courses, and lack of attention were identified by other studies as a major barrier in online teaching which has been attributed to lack of physical presence, lack of

attention by students, online distractions and turning off video during classes.²⁴ Keeping the courses interesting and designing them such that they were interesting for participants working at different locations was considered difficult by participants of this study.

Increased commitment of time as compared to conventional learning was seen in this study which was similar to the findings of other studies, which also identified that teachers did not feel rewarded for their input in online teaching and faced internet network issues which hindered efficient delivery of lectures.²⁵ In the study by Fine et al²⁶ 77.6% participants agreed to the change in the way feedback was provided to the students 16.4% disagreed and 6% were not sure. This was similar to the results in this study, 14.3% participants disagreed to the statement, "Responding to student inquiries and providing feedback on assignments takes more time in online lessons than conventional teaching" and 67.8% agreed to the statement whereas 17.9% were not sure.

Based on the findings of this study the recommendations are:

1) "To invest in faculty training and resource development for online teaching. It is now widely acknowledged that medical educationists should be well versed with the use of technology, and be should be able to use it for online teaching. General Medical Council, UK reiterated the same in its mandate."²⁷

2) "Inculcate online teaching in the curriculum for some courses."

3) "Use case-based exercises and online tools which make clinical videos an interactive activity."

Limitations of this study were that only dental faculty was included and responses were not evaluated separately for clinical and non-clinical faculty. Additional studies with clinical and non-clinical faculty cohorts will give deeper insight on the subject. Furthermore, the transition from face to face to online teaching was unexpected and

unprepared which might have conditioned the attitude and perception to online teaching. Thus, online teaching experience in prepared circumstances, without a pandemic emergency might have yielded different results.

Conclusion

This study supports the use of distance learning for courses which do not require teaching of practical skills, provided that faculty training and investment on software and high-speed internet is done by institutes to facilitate it.

Ethical Approval

The study was approved by the Institutional Ethical Review committee of Margalla Institute of Health Sciences, Rawalpindi (MIHS).

Disclaimer

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Conflict of Interest

No conflict of interest

Authors' Contribution

ZHR: Conception of study, data analysis and interpretation.

HK: Drafting the work, data acquisition.

ZF: Drafting the work, data acquisition.

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