

PERCEPTION & ACCEPTANCE OF E-LEARNING AMONG DENTAL STUDENTS DURING THE COVID PANDEMIC IN TELANGANA STATE: A CROSS-SECTIONAL STUDY

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Abstract:

Background: The pandemic has certainly changed the method of teaching. It has brought far-reaching changes in all aspects of our lives. The present study aims to evaluate the perception & acceptance of e-learning among dental students in Telangana state.

Methods: The present cross-sectional study is based on a questionnaire that was designed and delivered to dental students in their clinical year third year(final year dental undergraduate students and internship students). The estimated sample size (n = 681) is derived from the Raosoft sample size calculator for this study. The students responded to each statement by using 4 points Likert scale.

Results: When asked to rate their online learning experience (in comparison to traditional classes) out of 5, 41.6% rated it a 3/5. Even though 44.2% of students said they found online learning user-friendly, most students (50.4%) opted for traditional learning.

Conclusion: Although online teaching was a hopeful & fast expanding endeavour in the pandemic situation, it is a relatively new concept of the hour that may take time for both the students and the teaching staff to adapt themselves. Addressing challenges in near future e-learning should be considered a part of the curriculum to improve the technological knowledge for both students and teachers.

Key words: Clinical year, Dental students, e-learning, Perception.

Introduction:

The COVID-19 pandemic has created a huge impact on education systems in human history. It has brought far-reaching changes in all aspects of our lives. The essence of medical and dental education is that it demands the content which is contemporary and evidence-based and hence the educational methods be highly sensitive and experiential [1]. In dentistry, the nature of most operative procedures is that the student must possess the clinical skills and talent for delivering patient treatment with utmost care and caution. Thus, it differs from the medical vocation, where only a particular subclass of specialities consistently require a defined set of surgical psychomotor skills, whereas dentistry encompasses a broad spectrum of procedures, each requiring a task-specific skill base. As a practical niche, dentistry has always played an essential part in the stimulation of Student's clinical education.

The Pandemic has been affecting the entire educational structure, thus disrupting the age-old culture of blackboard teaching to Online e-Learning platforms. e-Learning is designated as 'learning in a way that makes use of information and communication technologies (ICT) [2]. The e-Learning programme has played a pivotal role during this pandemic, helping the institutions to facilitate student learning. As Privateer (1999) stated, "It makes limited sense for the academic community to continue with a heritage of learning remarkably at odds with telecommunications that are currently very dissimilar on how humans learn, teach and interact with each other in new schooling sections"[3]. However, the educational researchers remain perturbed by the utilization of technology in teaching and learning. On one hand, there is difficulty in adjusting to the new curriculum while on

the other hand, the need of the hour is to innovate and implement the alternative education system and assessment strategies for the welfare of the students. Technological and infrastructural resources are outlined to be the major challenges for implementing distance learning, therefore understanding Technical, Institutional, and Student barriers are essential prerequisites to be monitored for the successful implementation of distance learning in Dental education.

Definitive frameworks for development of e-learning conditions have been proposed in the literature. However, there is still gaps in the evaluation of effective designing of e-learning curriculum with many challenges from students and teachers and developers side [4-8]. The present study aims to evaluate the impact of Online teaching and e-Learning on III, IV undergraduate dental students & Internship students in the state of Telangana.

Methodology:

The present cross sectional study with 16 questions designed by the team of faculty members. After obtaining Institutional Ethical approval a pilot study was conducted on 15 subjects to check the reliability of the Questionnaire. The reliability of the questionnaire was good (0.87). The online Raosoft sample size calculator was used for the estimation of sample size [9]. The sample size was calculated based on a response rate of 50%, a confidence interval of 99%, and a margin of error of 5%, with a total 3rd, 4th, year undergraduates and internship dental student population around 1740(from 7 dental colleges in Hyderabad includes MNR Dental college Army college of Dental Sciences Secunderabad, Malla Reddy Institute Of Dental Sciences, Mallareddy Dental College For Women, Government Dental College And Hospital, Sri Balaji Dental College, Panineeya Institute of Dental Science & Hospital) the largest required sample size is 315. Accordingly, this study included a convenient sample of 681 students who are currently enrolled in their clinical years. Questions were in multiple-choice format. The questionnaire consisted of two sections. Section A collects personal information (age, gender, academic years) of students. Section B about perception, benefits, drawbacks, challenges, attitudes towards the effectiveness of e-learning in dental education, the future of e- learning in dental education. A convenience, snowball sampling with an online questionnaire in Google forms was used as the study instrument. The questionnaire was distributed on May 2nd, 2021 using students Facebook and WhatsApp groups that were adopted by dental schools for communication with their students.

Results:

The collected data were tabulated and analyzed using descriptive statistics with a simple percentage.

The survey was conducted for 3rd and 4th year Undergraduate students and Interns. A total of 681 students took part in the online survey, out of which, 574 (84.3%) were female and 107 (15.7%) were male. Out of this, 322 (47.8%) of the participants were 3rd year students, 267 (39.7%) were 4th year students and 84 (12.5%) were interns.

Students perception about e-learning were assessed using 6 multiple choice questions. When asked about whether e-learning was better than traditional learning 50.4% of people said no and only 21.6% answered yes, while 28.04% were unclear in their opinion. 44.2% of students said that they found online learning was user friendly while 22.9% of people answered no. However, 32.9% were not clear about their opinion on the topic. 36.1% of students answered that the explanation of concepts via e-Learning was not as clear as that when done "face to face", while 30.25% of students answered that the explanations were clear in online learning. When asked about their opinion on the problems associated with online learning (choosing one among the 4 most common identifiable problems), 40.38% of students pointed to poor quality of internet connection. 21.59% complained about the lack of both the students' and teachers' awareness about the software and its issues that interrupted their online lessons. 21.15% complained of distractions in their environment and 16.89% complained of a lack of motivation.

78.9% of students answered yes their opinion on clinical skills would remain a barrier especially in the online education of dental students and while only 7.3% answered no. It was noted that 73% of students were in favor of a mixture of both online and in person learning, while 6.5% were not in favor. 20.6% were unclear on their opinion on the question. (Table 1)

Table: 1 Students Perception regarding e-learning:

S.no	Question /Response	Yes	No	May be	I'm not sure
1	Is e-learning teaching as effective as traditional teaching?	147 (21.6%)	343 (50.4%)	107 (15.71%)	84 (12.33%)
2	Do you believe that e-learning platforms are user friendly?	301 (44.2%)	156 (22.91%)	177 (25.99%)	47 (6.9%)
3	Is the explanation of concepts clear through e-learning?	206 (30.25)	246 (36.12%)	143 (21%)	86 (12.63%)
4	Do you think Clinical skills will remain a barrier to online teaching of dental students?	537 (78.85%)	50 (7.34%)	64 (9.4%)	30 (4.41%)
5	Do you think Online education can affect the Patient Management during practice?	473 (69.46%)	76 (11.16%)	104 (15.27%)	28 (4.11%)
6	What according to you is the most troubling problem with online classes?	275 (40.38%)	144 (21.15%)	115 (16.89%)	147 (21.59%)

When asked if the students were able to participate more actively in online learning platforms as compared to traditional classes 54.3% answered No while 26.9% answered yes. 18% of students were not clear in their opinion. 41.1% were not comfortable with clearing their doubts/Queries online as compared to offline classes. 37.9% of students were comfortable with this and 21% were unclear about their opinions. Another overwhelming result was noticed when asked about whether online education would affect their patient management in practice. 44.2% of students said that they would like to continue with online learning if the COVID 19 pandemic were to persist while 27.9% did not want to continue with online classes. 27.9% were unclear about their opinion. 40-60% of the students thinks video assisted learning, small group teaching and problem based learning will improve their clinical orientation. When asked to rate their online learning experience (in comparison to traditional classes) out of 5, 41.6% rated it a 3/5 which gives a mean of 2.81 out of 5. (Table 2)

Table: 2 Students Acceptance regarding e-learning

S.No	Questions/Response	Yes	No	May be	I'm not sure
1	Are you able to participate more actively in online classes as compared to traditional classes?	183 (26.87%)	370 (54.33)	80 (11.75)	48 (7.05%)
2	Do you think a mixture of online theory and in person practical teaching should be used to improve the learning experience?	497 (72.98%)	44 (6.46%)	100 (14.68%)	40 (5.87%)
3	Do you think video assisted learning will improve clinical orientation?	276 (40.53)	214 (31.42%)	148 (21.73%)	43 (6.31%)
4	Do you think Comparative SGT (Small Group Teaching) Methodology like tutorials, problem based learning & Case study interactions improve your academic e-Learning performance?	418 (61.38%)	70 (10.28%)	144 (21.15%)	49 (7.2%)
5	Are you comfortable in clearing doubts / queries through Online teaching compared to Offline Teaching?	258 (37.89%)	280 (41.12%)	88 (12.92)	55 (8.08%)
6	In case if COVID 19 Pandemic persists ,would you like to continue with Online Learning ?	301 (44.2%)	190 (27.9%)	106 (15.57%)	79 (11.6%)

Discussion:

The pandemic has certainly changed the method of teaching as the e- Learning platform is the trend of latest times. Lockdown and social distancing norms due to the COVID-19 pandemic have led to many drastic consequences such as shutting down of training institutes, colleges and other higher education facilities across the globe. There is a sudden paradigm shift in the teaching methodology of the tutors through various online

platforms which may require judicious amount of time to accommodate. The online distance learning, for continuing education has become a sole solution for this unprecedented global pandemic, despite the difficulty in striking a balance between the challenges faced by both the educators and the learners. Adapting from traditional face-to-face learning experience to the recent online e-Learning can be an entirely different affair for both, the students as well as the tutors, which they ought to reconcile to as there may be little or no better alternatives remaining. The entire education system in dire need have adopted to "Education in Emergency" policy through various online platforms like Zoom, Microsoft teams, Google teams., etc and are necessitated to adopt to a system that they are not yet inclined for. The current study gives an outline on the opinion of students about their experience with online learning. It was found that a majority of students preferred traditional in classroom teaching over online teaching methods.

In the present study the target population was students attending clinical posting.

Distance e-Learning is defined as a way of formalized teaching with the help of computer technology and other electronic media which facilitates schooling, in a digitally supported manner learning either online, off-line, or sometimes both [10]. Distance E-learning has indeed been proved as a well organized and structured learning modality in different educational and governmental studies conducted [11-13]. Data obtained from the Institute of Educational Studies in Canada showed that the learners exhibited a more dynamic interest and approach in learning the concepts when various other methods such as e-books, digital files and online articles were implemented along in the teaching process [11,14]. It was noted that the explanation of concepts and active participation was not as good as that of traditional classes. A majority of students were also not comfortable getting their doubts cleared online as compared to the traditional approach. The flipped classroom is an unornamented, straightforward strategy which is based on providing learning resources such as related study research articles, pre-recorded videos and YouTube links before the class which can prepare the student better to understand the concepts taught later in the class. The online classroom time can then be profitably utilised to deepen understanding through discussion with faculty and fellow peers [15]. This can prove to be a very effective and efficient way of uplifting and stimulating skills such as problem-solving attitude, critical and creative thinking which all leads to self-directed learning.

Dentistry can be defined as an amalgamation of three fundamental components: Theory, Laboratory, and Clinical practice; under this triage, a vast number of social programs, research projects, and interdisciplinary learning experiences are intricate [16]. In the present survey majority of students were not comfortable getting their doubts cleared online as compared to the traditional approach. Students also noted that the lack of clinical teaching could be a barrier to their education and the shift to online education can affect their patient management skills.

Predominantly, the noticed hurdles with e-Learning are easy accessibility, affordability, resilience, learning pedagogy, life-long learning and educational policy [17]. Many countries also face fundamental, basic issues like a reliable Internet Connection and access to digital devices. While, in many developing countries around the world, the scene of economically backward children is deplorable as they are unable to afford online learning devices. Also, one of the major concern which is of paramount importance is that the online education poses a risk of subjecting the learner to increased screen time. Therefore, it is crucial for learners to engage in other offline ventures and invest in self-exploratory learning to gain clear concepts [18]. There are various practical affairs around physical workspaces conducive to contrasting ways of learning. In the present study when presented with 4 commonly identified problems, most students found that a lack of stable internet connectivity was the main hindrance to their learning experience, followed by lack of understanding of the platform software, environmental distractions and lack of motivation.

Limitations of this study are uneven spread of responses among third years, fourth years and interns and relatively small sample size.

Conclusion:

Within the limitations of the present study, although Online teaching was a hopeful & fast expanding endeavour in the pandemic situation, it is a relatively new concept of the hour which may take time for both, the students as well as the teaching staff to adapt themselves. The current standard of online education is far from being as effective as traditional teaching techniques. Online education is an evolving, potential tool encouraging Dental students to explore new advancements which may prove more beneficial when small scale improvements are made towards the approach to improve the proficiency of the student. It is of utmost importance to understand & improve the situation and quickly reconcile it for a highly effective and flexible learning. The key is that, though the current pandemic situation may subside, online teaching should be continued as this would assist and prepare the students for any such uncertainties in the coming times.

Recommendation:

- ✓ At present times, an important requirement is access to technology and internet. So, the digital Capabilities and the essential infrastructure must reach to the remotest and poorest communities to facilitate the students to continue their education during the pandemics. There is a need to arrange public funds to fix the internet gap and ensure that students continue to learn digitally. The state governments & private organizations should come up with ideas to address this issue of digital education. To cut down the cost of internet and connection issues colleges can provide the pre recorded educational videos.
- ✓ The quality of online learning platforms should be assessed time to time. In view of rapid growth of the online learning platforms, establishment of quality assurance mechanisms and quality level for online learning programmes must be developed and offered by Higher Education Institutions in India.
- ✓ By adhering to COVID-19 guidelines, institutes can Continue the educational activities with maintaining social distancing, 30-40% students and teachers may attend colleges in two shifts per day.
- ✓ To overcome this kind of emergencies, e-learning should be considered as a part of the curriculum to improve the technological knowledge for both students and teachers.

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