

ORIGINAL ARTICLE

Perception of E-Learning During COVID-19 Among Undergraduate Dental Students

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ABSTRACT

Objective: This survey study was carried out to assess the satisfaction of e-learning among undergraduate dental students.

Materials & Methods: The questionnaire-based study was conducted in April 2020. The main target of research was undergraduate dental students of University of Health Sciences (UHS) affiliated dental colleges of Punjab. 1095 students were surveyed through online forms and data was analysed by SPSS 23. Convenient sampling method was used.

Results: The results showed that the students were well aware of the current situation and almost all institutions offered online classes. Almost half of the respondents showed acceptance to E-learning. Majority of students faced difficulties in continuing their education through e-learning although a significant portion of them were in favour of home assignments. Majority of students wanted the online system to end and to cover the syllabus later.

Conclusion: The dental students were well aware of the current situation and almost all institutions offered online classes. Almost half of the respondents showed acceptance to E-learning.

Keywords: E-learning, COVID-19, Dental education

INTRODUCTION

A pandemic is an epidemic occurring worldwide crossing international borders usually affecting large number of people.¹ It can enormously upsurge the morbidity and mortality causing monetary, communal, educational and political instability. The probability of such pandemics has increased over the last century due to globalization, urbanization, faster travel and climate change.²

World Health Organization (WHO) declared a public health emergency against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on 30 January 2020 leading to lockdowns, travel bans, shutting down borders and quarantining millions of people in many countries.³⁻⁵ Pakistan devised a strategy of "smart lockdown" in which areas of large gatherings including educational institutes were closed and targeted lockdowns were imposed on focused hotspots and strict implementation of SOP's was imposed along with social distancing.

Many activities were put to a standstill as COVID-19 pandemic ravaged the world; educational institutes were one of them.⁶ This commotion in educational system could have a higher impact on learning activities of students, therefore it was deemed necessary to make timely modifications and come up with methodologies that would alleviate detrimental effects on students' education and help them productively utilize this time, especially for medical and dental undergraduates, as they belong to higher vulnerability groups. Therefore, a shift from physical to virtual/E learning was a necessary decision.⁷⁻⁸

Dental curriculum has been divided into four academic years. First and second years are concerned with non-clinical subjects, whereas, third and final years are clinical years.⁹ Shifting such a comprehensive plan of study from physical to virtual system was a difficult task.¹⁰

E-learning has revolutionized the way of teaching all over the world.^[11] It is electronically supported learning using all electronic media and telecommunications such as internet, satellite broadcasting, audio/video lectures, digital classrooms, CD's and interactive TV. Recent research done around the world has proved the success of e-learning in medical fields including dentistry.⁷⁻¹⁰ This study was carried out with aim to assess the perception and experience of e-learning among undergraduate dental students.

MATERIALS AND METHODS

This was a questionnaire based descriptive cross-sectional study conducted from 7 April 2020 to 7 May 2020 with the approval of Institutional Review Board (IRB) of de' Montmorency College of Dentistry. The questionnaire consisted of 10 questions targeting demographic details of students, their current year of education, their perception and experience about e-learning and whether their institutes have been shifted to e-learning or not.

A pilot study was performed on 10 students from each year in de' Montmorency college of dentistry using purposive sampling and modification were made accordingly. Inclusion criteria were undergraduate dental students from all years studying in University of Health Sciences (UHS) affiliated dental colleges of Lahore. Online version of questionnaire was distributed using google forms through social media (WhatsApp) in their respective class groups. The consent was added in online questionnaire and was taken before to ensure willful participation. All data was kept confidential and used for research and educational purposes only. A total of 1095 students volunteered for survey via online form using convenience sampling technique.

RESULTS

A total of 1095 students participated in this study. 24% of 1st year, 26.8% of 2nd year, 22.6% of 3rd year and 26.4% of final year took part in the survey.

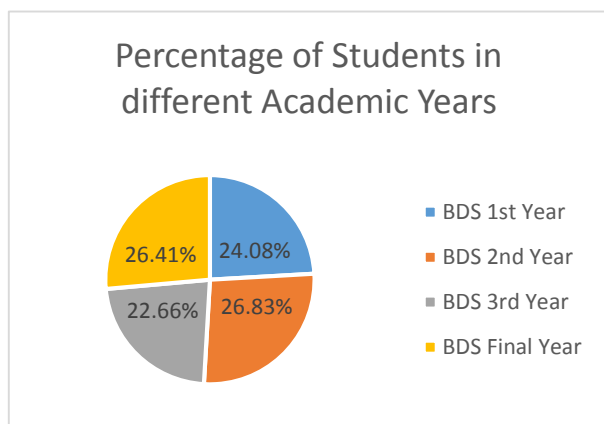


Figure 1: Pie Chart Showing the Percentage of Students in Different Academic Years

Almost all of the students were fully aware of the current situation of the pandemic however Chi square test revealed a statistically significant portion ($p=0.02$) of students who were not only aware of the current situation of COVID-19 pandemic but also its impact on educational institutes.

When compared to the students of clinical years (3rd and 4th), half of preclinical students (1st and 2nd year) were in favor of online mode of teaching and two-third of them preferred to delay the online mode of teaching and cover the syllabus afterwards. However, 79% of the students of all year at average wanted this online system to end after the pandemic is over.

In addition to online classes, half of the students from all academic years favored home assignments to be a part of online educational activity. Majority of the students were not able to grasp on their studies under this stressful situation of corona highest being reported by final year (80.4%) students.

Table 1| Comparison of perception and experience of online classes among students of four academic years.

Awareness of COVID-19 pandemic				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	99.7%	0.3%	10.27	0.02
2 nd year students	97.8%	2.2%		
3 rd year students	100%	0.0%		
Final year students	99.4%	0.6%		
Closure of educational institute due to COVID				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	100%	0.0%	8.90	0.03
2 nd year students	99.4%	0.6%		
3 rd year students	99.3%	0.7%		
Final year students	97.8%	2.2%		
Acceptance of Online mode of teaching				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	54.7%	45.3%	4.01	0.26
2 nd year students	50.6%	49.4%		
3 rd year students	47.8%	52.2%		
Final year students	47.3%	52.7%		
Home assignments to be part of online system				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	54.7%	45.3%	4.01	0.26
2 nd year students	50.6%	49.4%		
3 rd year students	47.8%	52.2%		
Final year students	47.3%	52.7%		
Grasp on the studies under stressful COVID situation				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	22.8%	77.2%	1.5	0.68
2 nd year students	23.0%	77.0%		
3 rd year students	22.8%	77.2%		
Final year students	19.6%	80.4%		
Ending of online system and covering syllabus later on				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	70.2%	29.8%	7.67	0.05
2 nd year students	72.7%	27.3%		
3 rd year students	62.5%	37.5%		
Final year students	67.5%	32.5%		
Continuation of online system after pandemic				
Academic year	Agree	Disagree	X ²	Sig.
1 st year students	20.8%	79.2%	0.07	0.99
2 nd year students	20.5%	79.5%		
3 rd year students	21.3%	78.7%		
Final year students	20.5%	79.5%		

However, a significant number of students reported that their institutions have been shifted to E-learning. On average 93.3% of 3rd year and final year and 79.0% of 1st year and 2nd year shifted to E-learning.

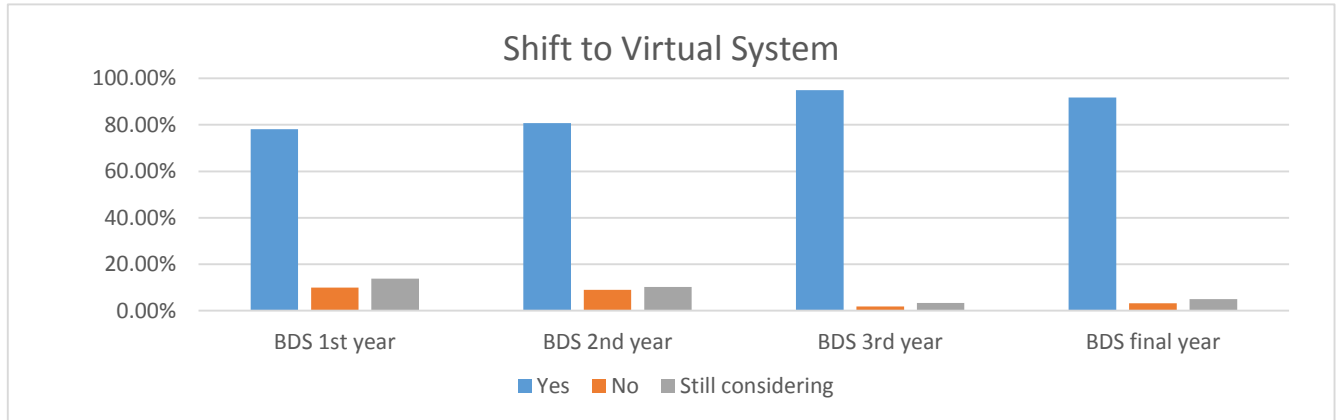


Figure 2: Shift of educational system to virtual system

Around 71% students were attending online classes regularly. The highest frequency was reported by 3rd and final year students (75.4%).

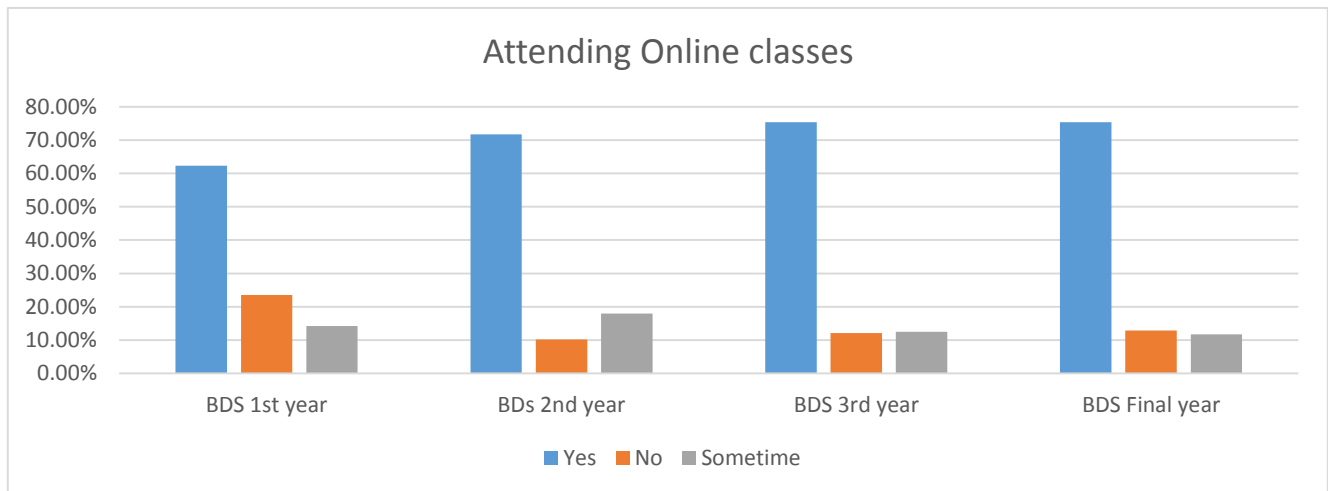


Figure 3: Percentage of students attending online classes

DISCUSSION

This survey was done to evaluate the perception and experience of online classes among undergraduate dental students. Almost 1/4th students from each respective year participated in this study. The COVID cases were first reported in Wuhan, China and later on globally made it a pandemic.¹²⁻¹⁵ Previous studies done in Istanbul (82%)¹⁶, Syria¹⁷ and Mangalore city¹⁸ revealed that more than 90% medical practitioners and undergraduate students were fully aware of the Covid-19 situation. Our study revealed that the students of all years were not only aware of the pandemic but also its impact on their education. People became more aware of the situation in very less time due to the faster telecommunications, social media and a worldwide health alert by WHO during COVID-19 outbreak.¹⁹

The disease being highly contagious spread within a shorter period of time affecting a large population leading to social distancing and lockdown.^{6,20} Worldwide lockdown in

different countries resulted in closure of almost all the educational institutes to ensure the safety of the students and staff.²⁰ Almost all students in this study reported the closure of their educational institutes, coinciding with studies carried out in Indonesia and Europe.¹⁹⁻²⁰

This sudden closure affected students around the globe, therefore, resuming the educational facilities during this period of lockdown was a major concern.²⁰ Continuation of dental education utilizing this lockdown period was important, thus a shift was made from physical learning to the virtuale-learning.¹⁹ Our survey depicted that almost all educational institutes offered online classes during this pandemic.²¹ Students of Clinical years, third (94.9%) and final year (91.8%), were immediately shifted to the online system of classes to minimize exposure and risk of spreading clinical settings. However, later on, students of remaining academic years were also shifted to the system of e-learning.

Studies conducted in developed countries like United States²², United Kingdom²³, Australia²⁴ and Italy²⁵ showed that medical student favored online method of teaching and appraised its effectiveness. However, in developing countries like Nepal²⁶, Iran²⁷ and Brazil²⁸, reduced engagement and attendance of students was reported due to multiple reasons including lack of digital resources, difficulty in curriculum development for e-learning, untrained staff and lack of investment.^[28-30] Our study reported that almost 75% students of clinical years and 62% students of pre-clinical years were attending the classes regularly, but only one half of respondents were in favor of virtual learning and liked this method of teaching. Pakistan, being a developing country has limited internet resources, therefore a sudden shift from physical to virtual learning not only affected the attendance of students, but also stressed the educational institutes as majority of these institutes were devoid of properly developed IT departments. The similar trend was noticed worldwide in developing countries.^[21]

Students all over the world faced difficulties in studies due to sudden shift from traditional-learning to virtual-learning especially in developing countries.^[23-26] Almost 80 percent respondents in this study reported difficulties in continuing education and getting a hold on their studies. Lack of familiarity with online learning, limited resources, lack of funding or stress due to Covid-19 pandemic on the everyday lives of students may be the cause of such response.

Almost one-half of the students from all academic years were in favor of home assignments in addition to online classes. Home assignment are part of learning process from the beginning and with the shift from physical learning to e-learning, home assignments now have an even bigger role as virtual learning cannot completely replicate the experience of physical learning. Moreover, with limited internet resources, home assignments can effectively improve students' cognitive skills, especially among the students of non-clinical years.

When asked about continuation of e-learning even when the pandemic is over, only 20% of students were in favor, while rest of them wanted a shift back to the physical type of learning. Unexpected pandemic and sudden shift to online learning stressed the institutes as well as students. In developing country like Pakistan, it was a new and different experience for students as well as teachers, moreover, limited internet resources and lack of experience and development in IT departments in most of the institutes may be the reason students wanted to revert back to physical learning. Furthermore, clinical learning is skill-based learning which can only be taught in clinics with hands on experience, even with good internet resources, it is very difficult to replicate clinic-based learning in the online mode of education. Similar trend was noted worldwide, however, some studies reported higher knowledge gain through e-learning when it comes to non-clinical subjects.^{[31][32]}

Therefore, in countries like Pakistan and other developing countries, e-learning needs improvement and funding to be more effective and student friendly. Developed IT departments, use of digital gadgets including tablets, high-end software and apps along with good

internet access are necessary to make this online system better and more effective for students.

The dental students were well aware of the current situation and almost all institutions offered online classes. Almost half of the respondents showed acceptance to E-learning.

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