ORIGINAL ARTICLE

ANNALS OF PUNJAB MEDICAL COLLEGE

Online Teaching During COVID-19 Pandemic Challenges and the Solutions

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Submitted for Publication: 11-04-2020
Accepted for Publication 13-06-2021

How to Cite: Bilal A, Ehsan S, Tahir MM, Ahmad Z. Online Teaching during COVID-19 Pandemic Challenges and the Solutions. APMC 2021;15(4):245-249. **DOI: 10.29054/APMC/2021.1067**

ABSTRACT

Background: Covid-19 Pandemic has affected the human life to the highest extremes in every aspect, and education system is one among it. During lockdowns all educational institutes were closed to limit the spread. This period gave the boost to online education which was a total new paradigm shift both for faculty and students. Medical colleges were also dealing with this urgent shift and it was a challenging task to cover all the knowledge, skills and attitude domains in online education. This study has been designed to assess the experience of faculty for online teaching. **Objective:** The objective of this study was to explore the online teaching experiences of medical /dental faculty during this paradigm shift. **Study Design:** Cross sectional study. **Settings:** Faculty of Faisalabad Medical University, Faisalabad Pakistan. **Duration:** One month from April 2020 to May 2020. **Methods:** One hundred four (104) faculty members contributed to volunteer participation in the study. They were informed about the purpose of the study and were free to participate. After ethical approval, a validated Google form questionnaire was filled by the participant and it was analyzed on SPSS version 20. **Results:** The majority (76%) of the participants were from the clinical sciences departments, and the rest (24%) belonged to the basic sciences. 59% was aged 30-40 years, 15% between 41-50 years, and 25% in the range of 51-60 years. Most of the respondents (45%) had the teaching experience of fewer than five years. Using of online platforms, Zoom topped with 74%, Google Classroom stood second with a 4.8% response. Skype and other media were less than 1%. Most of the faculty (68%) started online teaching from April 2020, whereas the remaining 32% had been doing since March 2020 (before the formal training sessions). Furthermore, 38% of the members showed interest to continue online teaching as a supporting tool even after the lockdown and 24% didn't agreed. Around 37% of the participants were unsure if they were comfortable with it or not. Previous online teaching experience was 81%, and 45% attended workshops on the use of online teaching methods. 55.8% found it challenging to convert teaching material for online classes. As per teachers' response 77.9% of their students' encountered problems during online classes, and only 61.5 % were satisfied. 76% found it less useful than face to face sessions. **Conclusion:** This study will be helpful for the medical institutes while planning any learning management system (LMS) as a supportive learning management tool in future while moving to blended education.

Keywords: *COVID-19, Faculty, Students.*

INTRODUCTION

The SARS-CoV-2 infection was first identified in December 2019 in Wuhan, China.[1] In less than three months, it emerged as a global crisis. WHO announced the COVID-19 outbreak as a pandemic on 11 March 2020.[2] Besides it's potentially threatening effect on human life, this pandemic also slowed down every aspect of life. Education is also one of the disrupted fields in response to the pandemic across the globe. To prevent the spread of COVID-19, the governments have led to near-total closure of all educational institutions.[3] It caused a significant rise in online learning throughout the education sector.

For the past two decades, the concept of blended learning has influenced the medical institutions to a great extent.[4] Blended learning refers to the combination of digital

media with the traditional classroom teaching methods.[5] One of its forms is Enriched Virtual Blended Learning, which focuses on remote online completion of coursework independently while meeting with the teacher only as needed.[6] Contrary to this model, the Flipped Classroom is the most widely embraced form. A flipped classroom is the one where students study new content at home and practice it in the presence of a teacher.[7] This idea of using online resources with face-to-face teaching in blended learning has shown an increase in student's learning motivation and interest.[8]

In Pakistan, the Higher Education Commission (HEC) issued guidelines on the "Virtual Learning" system to launch online classes in universities.[9] As (information technology) sections were not that developed in most of the institutions to meet this urgent challenge, so it was a difficult task to shift to a total e-learning system. Moreover, many senior teachers are not much familiar with technology usage. The objective of this study was to explore the experiences of faculty during this paradigm shift.

METHODS

This research was carried out in a public sector medical institute where almost 1700 undergraduate students are enrolled in MBBS and BDS programs. In this institute there are about 200 faculty members including both the basic sciences and clinical science teachers. After the announcement of online teaching by the government of Pakistan, an official committee was constituted to engage faculty for the commencement of online classes. The faculty was trained for this purpose. All hands-on sessions were conducted in lecture theaters with proper protocols of physical distancing and following the SOPs.

After getting the ethical approval from the institutional committee, the faculty was requested to fill a pre- tested validated questionnaire online using Google forms. It was distributed among the members to complete after they completed the training sessions. The training sessions were organized from April 2020 to May 2020 and data was collected in this duration.

They were informed about the purpose of the study and were free to participate. Out of 138 members, only 101 contributed to volunteer participation for the study.

RESULTS

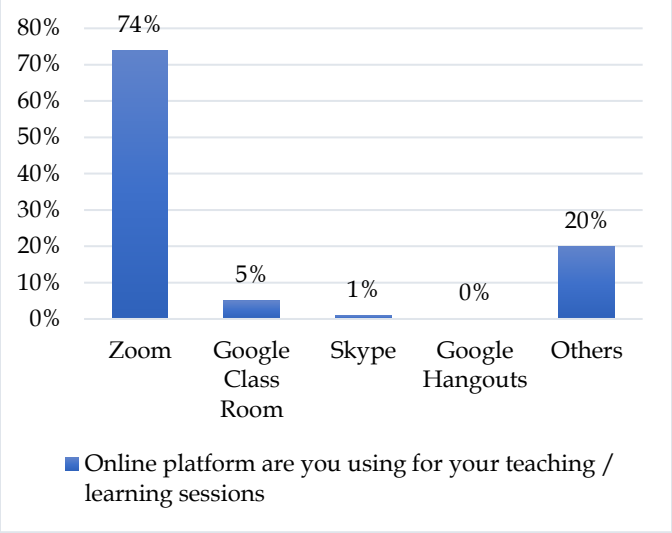
The majority (76%) of the participants were from the clinical sciences departments, and the rest (24%) belonged to the basic sciences. 59% of the staff was aged 30-40 years, 15% between 41-50 years, and 25% in the range of 51-60 years. Most of the responders (45%) had the teaching experience of fewer than five years.

Table 1: Demographic information (n=104)

Variable	Frequency	%	Mean / SD
Departments			
Basic Sciences	25	24%	.76/.429
Clinical Sciences	79	76%	
Age			
30-40 Years	62	59.6%	.65/.856
41-50 Years	16	15.4%	
51-60 Years	26	25.0%	
Teaching Experience			
less than 5 years	47	45.2%	.82/.833
5-10 year	29	27.9%	
more than 10 years	28	26.9%	

Among the online platforms used for teaching sessions, Zoom topped with 74% of participants using it. Google Classroom stood second with a 4.8% response. Skype and other media were used by less than 1% of the participants.

Figure 1: Online platform are you using for your teaching / learning sessions



Most of the faculty (68%) started online teaching from April 2020, whereas the remaining 32% had been doing since March 2020 (before the formal training sessions). Furthermore, 38% of the members would like to continue online teaching even after the lockdown is over, and 24% refused to carry on. Around 37% of the participants were unsure if they were comfortable with it or not.

Figure 2: Have you been teaching online since March 2021

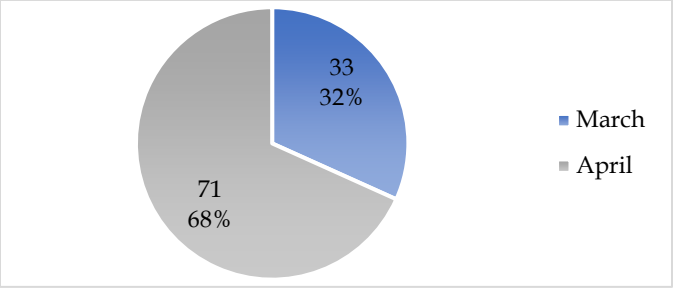


Table 2: Willingness to continue online teaching after the lock down is over

Online teaching	N (%)
No	25 (24%)
Yes	40 (38.5%)
May Be	36 (34.6%)
Missing	3 (2.9%)

The core questions of the survey focused on the challenges faced by faculty during online teaching. (Table 3). 81% of the members had previous experience, and 45% attended workshops on the use of online teaching methods. All faculty faced problems, 62.5% had difficulty using the online platforms. 55.8% found it challenging to convert teaching material to suit online lecture delivery. As per teachers' response 77.9% of their students encountered problems during online teaching, and only 61.5 % were satisfied.

Table 3: Online Teaching / Learning sessions

Online Teaching / Learning sessions	Yes (%)	No (%)	Significance P-Value
Previous experience	85 (81.7%)	19 (18.3%)	-
Attend any workshops on use of	47 (45.2%)	57 (54.8%)	0.069
Did you face any problem	104 (100%)	0 (0%)	-
Difficulty in using online platform	65 (62.5%)	39 (37.5%)	0.802
Teaching/ learning online stressful	45 (43.3%)	59 (56.7%)	0.101
Difficult to convert your material	58 (55.8%)	46 (45.2%)	0.004
Students ask questions	66 (63.5%)	38 (36.5%)	0.123
Students mentioned any problems to you	81 (77.9%)	23 (22.1%)	0.182
Are your students satisfied	64 (61.5%)	40 (38.5)	0.025
Do you get Feedback from students	85 (81.7)	19 (18.3)	0.23

Another key finding was that despite using the platform for the last few months, a majority of 76% found it less useful than face to face. Nevertheless, most of the responders felt that the time required for online teaching should be the same (36.5%) or shorter (44.2%) than face to face.

Table 4: Faculty Responses about duration of teaching sessions

Do you think the time required for teaching a topic online should be	N	Percent
Same as face-to-face teaching	38	36.5%
Longer than face to face teaching	20	19.2%
Shorter than face to face teaching	46	44.2%

DISCUSSION

The general public of Pakistan lacks proper internet accessibility and usage. In the inclusive internet index 2020 released by Economist Intelligence Unit (EIU), Pakistan has been ranked 76th out of 100 countries.[11] With this overall low digital literacy rate, it was tough to adapt to e-learning. Before the COVID-19 pandemic, the majority of teaching institutes has underestimated the necessity of IT infrastructure to use digital learning methods in routine. Most of the senior faculty still rely on whiteboard. It was observed by the faulty that it is easy to upload lecture on YouTube but faced issues while using Zoom and other software. They hesitate to use technology (e.g., PowerPoint), which resulted in great difficulty to implement online classes. Moreover, many students didn't have direct internet or computer access, which was another hurdle during the transition.

However, despite all the limitations, the medical universities in Pakistan managed to cope with the majority of the challenges and took responsibility to train the faculty and educate the students during online classes. There has been a rapid transformation to adapt e-learning in almost all medical colleges within weeks. For the faculty, special online training sessions and workshops were arranged to implement online delivery of lectures. On the other hand, members with limited internet access were provided with both synchronous and asynchronous learning methods, which made it easier for students to overcome the connectivity issues and access the content afterward with ease. The lectures were delivered live via Zoom or uploaded in recorded videos via YouTube or WhatsApp groups.

Most used online platform was Zoom in our study and as per teachers' response 64% of their students were satisfied with online teaching. E-learning in medical education turned out to be a considerable success. As reported by the Research Institute of America, it

improved learning retention rates from 8 to 10 percent for face-to-face training to 25 to 60 percent for e-learning.[12]

However, it will be a premature statement in our context at this moment. The future studies about blended learning programs would give a better idea about it.

Regarding the time allocation for the online sessions, majority of the faculty (44.2%) agreed for the shorter sessions. No doubt keeping the session interactive is bit exhaustive. Distance learning helps both the learners and instructors to access the content, no matter where they are. For the current situation, we were not able to develop ideal distance learning environment. The consistent and standardized learning in each online session personalizes and caters the individual needs. Kirkpatrick's model serves as a descriptive guide to understanding the role of e-learning in the cognitive domain for medical education and the healthcare industry.[13,14] Only longitudinal studies would help us to determine its success and contribution in developing deep learning. So far in our study as per teachers' response, 81% said that students inform them about their problems for online classes.

With a mixture of different techniques and platforms according to the convenience of the faculty and students, this pandemic has propelled the medical education in Pakistan towards digital learning. On inquiring about faculty interest to continue the online learning segment in routine, 38% agreed to continue and 34% were still undecided. So, a proper blended learning program will be best future plan if implemented by the institution. The blended learning fosters self-directed learning.[15] Even after the pandemic is over, it will prove beneficial to help revolutionize the existing learning methodologies and improve learning outcomes for medical students. With the cognitive domain well-trained through this technology, the incorporation of digital learning with the traditional system will dramatically enhance the participation rate of students in daily learning activities.[16]

Internet-based distance education had become a specific focus even before the pandemic, as stated by the Institute for Higher Education Policy (IHEP).[17] The introduction of Learning Management System has made idea of distance learning more feasible.[18] With the LMS, not only the educational material is delivered quickly in the form of videos, courses, and documents, but also the activities of students could be monitored efficiently. Web-based online education via LMS allows the faculty to conduct quizzes and tests for evaluation of the academic progress of all students.[19,20]

Despite the wide gap in the development of infrastructures, the majority of health institutions have come towards e-Learning systems during COVID-19 pandemic. An integrative view of barriers and solutions to online medical education will help the process of digital learning to continue.[21] It will include continuous training of students and teachers on the latest technology and its use within our existing environments. In addition to it, national-level policies are needed to improve internet accessibility across the country to offer equal opportunities for all the students.

CONCLUSION

Online teaching in medical institutions during COVID-19 was challenging at the beginning for most of the faculty members and students. Disrupted internet connection in some areas and lack of digital literacy were the main problems for most individuals. However, this study just represents the initial response of the faculty during their training courses, further response can be studied at the end of academic session and additional studies including students' responses would be helpful for the institutions to shift to a blended learning programs in coming years. So far, the response is positive.

LIMITATIONS

Shifting to online learning and teaching methodology is not good from the traditional method. Slow internet connections or old computers make accessing courses difficult for faculty and students. Lack of proper routine and human element raises concerns about clarification and understanding of the subject. Since it is still relatively unregulated, it is difficult to determine the quality and efficiency of online learning and teaching.

SUGGESTIONS / RECOMMENDATIONS

Like many other fields, education was one of the fields disrupted in response to the coronavirus pandemic. Lockdowns, SOPs, social distancing required a shift from traditional learning methods to online learning. But implementing these shifts posed challenges for faculty and students alike. This study recognized such issues and proposed solutions, such as training professors on how to use online platforms for teaching and conducting frequent surveys to verify that the recommendations were implemented.

CONFLICT OF INTEREST / DISCLOSURE

No conflicts of interest were reported during the study. No financial monetary benefits were reported during the study.

ACKNOWLEDGEMENTS

We would like to express my deep and sincere gratitude to the faculty members at Faisalabad Medical University for their cooperation in data collection for this study. Their contributions are sincerely appreciated and gratefully acknowledged.

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