ORIGINAL ARTICLE

Challenges of Online Learning Environment Faced by Undergraduate Medical Students During Covid 19 Pandemic

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ABSTRACT

Objective: This study aimed to define the challenges faced by medical students rotating in the orthopedics department and their suggestions regarding improvement during covid-19 pandemic.

Study Design: A mixed method cross sectional study design.

Place and Duration of Study: It was conducted on 4th and 5th year MBBS students at Shifa college of Medicine with clerkship rotation in the department of orthopedics from 16th March 2020 to 23rd August 2021.

Materials and Methods: Students were enquired about their comfort levels while using the internet and computer for online sessions. Data was collected through an online questionnaire and analyzed using Google forms. Frequencies, percentages, and standard deviations were calculated for qualitative variables.

Results: Out of 147 study participants, 64(43.4%) students strongly agreed that they had no difficulty and were extremely comfortable using internet and computer during covid-19 pandemic. Eighty-five (58%) students used online available reading material shared on Google classrooms and what's app groups. While only 23(16%) agreed to concentrate during online sessions. One hundred and eighteen (80%) agreed with a lesser desire to study for online classes as compared to on campus. Major problems faced by the students during the pandemic included very limited patient centered learning, limited hands-on experience, less interactive sessions, problems with internet connections, technology handling and class timing issues due to time zone differences.

Conclusion: We conclude that our students faced lot of challenges during Covid-19 pandemic including internet issues, lack of awareness of technology, distractions because of family, siblings and homely environment and lack of conducive learning environment like learning at bedside. Flexible class timings, multiple breaks, recorded lectures and online interaction of real patients can improve online clinical learning.

Key Words: *Medical Education, Medical Students, Online Learning, Pandemic.*

Introduction

Online education is becoming increasingly common as the situation of the world progresses especially after recent COVID 19 pandemic.[1] Although there are quite a few benefits of online learning, like worldwide accessibility, convenience and cheaper education.[2] But developing countries face their own set of challenges when it comes to teaching students online, especially in the field of clinical medicine where patient interaction makes up a huge component of the education.[3] Many colleges have adapted virtual clinical experiences as a method for providing students with patient interaction.[4] Lack of prior experience in online learning and the competency of people using these online learning systems may also be a challenge to deal with in developing countries.[5, 6] The various factors that were found to be a barrier to online learning are (a) administrative issues, (b) social interaction, (c) academic skills, (d) technical skills, (e) learner motivation, (f) time and support for studies, (g) cost and access to the Internet, and (h) technical problems.[7] Increased need for self-discipline and lack of desire to compete with others are also problems encountered in online learning.[8] Increasing interaction, practice exercises and feedback is associated with improved outcomes. The attitudes and motivation of students towards online

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education is also important as studies have shown that some students do not view it as a formal means of education.[9] In literature, few studies have been done to understand the attitudes and experiences of students when exposed to online clinical learning during the lockdown from Pakistan.[6,10,11]

Our present study was planned to determine the challenges faced by medical students and their suggestions regarding that, in orthopedics surgery clerkship during the pandemic lockdown period.

Materials and Methods

We conducted this mixed method designed study (both qualitative and quantitative) at Shifa college of medicine from 16th March 2020 to 23rd August 2021. Total 160 students of 4th and 5th year MBBS rotating through orthopedics surgery clerkship were included in this research survey. At Shifa College of medicine medical students of 4th year MBBS have orthopedics clerkship of 2 weeks; during this time medical students have clinical encounters with orthopedics cases in out-patient clinics, in-patient wards, emergency room and operation rooms. Students also get experience of visualization of live orthopedics surgical procedures and have hands on sessions on mannequins as well. As during COVID-19 pandemic majority of these sessions were shifted to online teaching only. Hence, orthopedics clerkship was squeezed to online sessions only including lectures, demonstrating skills by the teachers on mannequins, sharing videos of surgeries; clinical methods and history taking, and interactive sessions of problem-based scenarios of orthopedics diseases. We analyzed the students prospective and suggestions regarding these online sessions using convenient sampling technique. Study was approved by the institutional review and ethical committee (IRB no: 4459-1279-2020) before commencement. Data collection was done through a self-constructed online questionnaire which was already piloted on a small group of students. The questionnaire was sent to the students via emails as Google forms. Only those students who did not fill the questionnaire or filled it incomplete were excluded from the study. Total 160 students rotated through orthopedics department during study period, out of which 147 responded to our questionnaire and gave consent to participate in the study. In first section of the questionnaire students were asked questions regarding different aspects of online learning and their responses were recorded on the Likert's scale. The participants of the study also had to give three problems they faced in online classes and three suggestions for what they felt could be improved upon. Similarly, the students were enquired about the level of comfort while using the internet and computer for the online classes. In the second part of the questionnaire open-ended questions were asked with questions regarding the three problems they faced during online sessions and their three suggestions for some improvements that could be made. Data was analyzed using SPSS version 21.0. Descriptive statistics (frequency and percentage) were used to analyze data for quantitative variables. Qualitative data was collected on Google forms and analyzed using thematic analysis.

Results

A total of 147 students participated in the study, out of which there were 47.3% males and 52.7% females. 65(44.5%) of the students believed the teacher has full control over the class during the online sessions while 29 (19.9%) disagreed this. 64(43.4%) students strongly agreed to the fact that they had no difficulty and were extremely comfortable while using the internet and the computer, 19.3% of the students were neutral and 15.9 % disagreed that the usage of computer and internet was a comfortable experience for them. 85(58%) of the students agreed that they used online available reading material shared on Google classrooms and what's app groups. 23(16%) agreed that they were able to concentrate during online sessions. Figure 1 and 2 shows the counts of student's agreement/disagreement on questioning about that subject is easier to understand online than on campus and motivation to study the subject online was the same as it would have been if classes were face to face on campus respectively.

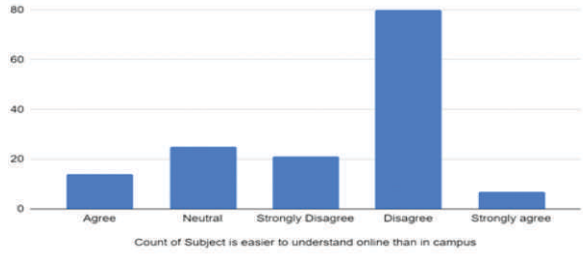

Figure 1: Subject Is Easier to Understand Online Than on Campus

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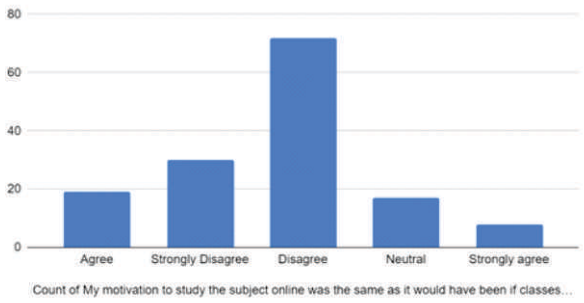

Figure 2: Count of My Motivation to Study the Subject Online was the Same as It would Have Been If Classes Were Face To Face On Campus

118(80%) agreed that they had a lesser desire to study for online classes as compared to on campus. Table I and II are reflecting the main problems and suggestions of the students regarding online sessions.

Table I: Main Problems Faced During Online Sessions of Orthopedics Clerkship.

S no	Main problems identified
1	I had far less motivation to learn and study
2	I felt lack of non-verbal communication with peers, teachers and patients
3	Missed my student-to-student interaction a lot
4	Faced lots of Internet issues and had lack of awareness of technology
5	Felt hypothetical scenarios were not so effective as compared to communicating patients directly
6	Missed actual patient-based learning; this modality of teaching should be reserved for non-clinical subjects only actually
7	Short attention spans because of monotony and too comfortable environment at home; sometimes even went to sleep in between sessions
8	Distractions because of family and siblings, many a times became too difficult to concentrate.
9	The environment was not conducive like learning at bedside and out-patient departments
10	I had stress of covid pandemic & was waiting when it would end, there was un-certainty
11	I had eye strain because of increased screen time
12	There was very limited hands-on experience as a result students felt very in-confident while performing in examinations
13	I had time management issues while at home

Table II: Main Suggestions for Improvement of Online Clinical Sessions of Orthopedics Clerkships

S. No	Suggestions of Students
1	More quizzes should be added
2	Practice questions/exercises between the sessions so that we can learn to apply that knowledge. Time allotment for questions and answer session.
3	Workshops for online teaching and learning
4	Shorter lectures because looking at screen for too long is causing headaches
5	Make it standardized, shorter class duration, multiple breaks for concentration to come back, and using cameras would be nice.
6	There should be no attendance for online sessions and this mode of teaching should be for basics and not for clinical learning.
7	Online sessions should not be mandatory to attend and especially for the clinical sessions and clerkships it's useless.
8	Discussion of questions and MCQs. Going through online videos with students step by step and explaining them. Focusing on clearing key concepts before moving onto advanced learning.
9	More flexibility in timings, access to lectures after classes, recording lectures for later re-viewing
10	Make attendance fluid or non-mandatory and add student presentations to encourage self-learning and participation
11	Provide some website/online platform which uses less data so easier for people with connection issues
12	Patient online appointment sitting with consultants
13	Classes should be in evening with more flexible timings in evening
14	Online learning is non preferred form of learning you cannot improve it so stop it
15	There should be online clinical tutorials, patient interaction online, recorded lectures
16	There should be more teacher student one to one interaction in online sessions rather than in groups

Discussion

Online learning being a relatively new concept came with a lot of pros and cons during Covid-19 pandemic.[5,10] We have identified the factors impacting medical students' ascension or slumps in proportion to concurred online learning. Some of the undergraduates in our research were stimulated by the fact that learning hours were less in time as contrary to studying on campus. They employed modernized techniques needed for students and promoted student-centered learning. Moreover, majority of undergraduates in our study found online learning more feasible as they had ample time dedicated to their families and were safe at homes during the pandemic that had caused havoc. The overall level of comfort with electronic learning and usage of modern technology was high in our group of students(43.4%). However, our students were of the view that usage of e-learning was more productive in preclinical years and basic medical science subjects. They pointed out that it was quite a challenge for clinical years as there was limited patient exposure, on basis of this we carried out the present study.

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Contrary to this, in 2008, Cardall S. conducted a study, concluding that pre-clinical years prefer live lectures when they were given an option.[12]

Our study participants highlighted an important factor lacking in e-learning was one to one patient interaction. According to them nothing is equivalent to seeing a real patient, hence patient interaction is extremely important for learning during clinical years. Distant and e-learning could serve as an efficient resource for clinical students by integrating modalities such as virtual simulated patients, online clinics, and live recordings of real-life processes. This opinion of our group is like many others reported in literature.[13,14] Our group of students identified many barriers to adapt online learning. The most common among these was technical issue, including poor internet connectivity and less familiarization with computer skills; these aspects are backed up by few previous studies as well (shown in table 1).[15,16]

The lack of gestures by preceptors /tutors during online learning was also identified as a significant drawback for the students participating in the study (20%) as reported by others as well that psychological closeness felt by student with teacher is based upon the nonlinguistic signs.[17,18] Body language and kinesics, such as one to one eye contact, gesticulations, and poses entail majority of communications and divulgence, which were certainly not provided by the online classes.[19] Thus, making it even more difficult for the students to cope up with the on line classes.

Our data found many suggestions for improvement of e-learning and making e-content more useful; more of student presentations should be encouraged and teachers delivering the lectures need to be well prepared, concept of formative multiple-choice questions incorporated at the end of learning sessions which added to interest and active engagement during the online session. They suggested that there should be some brainstorming questions and short quizzes in between the lecture to avoid monotony and maintain some level of interest during class. The suggestions highlighted by our study is also supported by the previous research that emphasizes flexible learning, a student-centered approach which provides students with various learning choices to make the learning less monotonous, exciting, and productive.[20] The pandemic taught us that its need of the hour to prolong and sustain online education. Traditional learning has more face-to-face interactions thus motivates one to learn better.[21] The feeling of solidarity in learning and sharing opinions makes it easier for the students to maintain the level of concentration.[22] This is one of the major aspects that is lacking in online learning. Our study also advocated, that if we teach the same topic and amount of content through both methods of teaching, students were more likely to prefer classroom learning. Our group of students preferred classroom learning because according to them self-discipline is better acquired through being physically present in the classroom. Studying while being in the comfort of the home makes it harder to focus on the class and the added distractions in the home are a major factor that makes the students prefer classroom learning over online learning.[23]

Another concern pointed out by our data was regarding excessive screen time, some of the students' experienced headaches, eye strains and blurring in visions. This was another factor that made online learning less suitable for them as they did not have any way to socialize physically with their peers.[24,25]

Our study has a big limitation that we only analyzed student's perspective in one small sub-clerkship of orthopedics. So, we cannot globalize our results for all clinical clerkships and e-learning. Further studies should be conducted to record student's views and challenges faced in other clinical disciplines/ clerkships as well.

Conclusion

We conclude that our students faced a lot of challenges during Covid-19 pandemic including internet issues, lack of awareness with modern technologies, distractions at homely environment because of family and siblings and lack of conducive learning environment like learning at bedside. Flexible class timings, multiple breaks, recorded lectures, workshops for online learning and online interaction of real patients can improve online clinical learning.

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CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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DATA SHARING STATMENT

The data that support the findings of this study are available from the corresponding author upon request.

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