

Online teaching and learning during COVID era: Medical students' feedback and their perspectives

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Abstract

Purpose

The Nationwide lockdown due to COVID-19 has prompted medical faculty all across Indian sub-continent to start online classes, with no prior sensitization and experience. This study was planned to assess the perceptions of medical students on online teaching.

Methods

The data was collected from medical students across India, through an anonymous online survey. Their feedback and perceptions regarding online teaching were recorded and analyzed.

Results

Of the 1256 complete responses received, > 60% of the students reported online lectures to be less interesting, less interactive and less engaging. They disagreed that online learning gives stronger sense of community among students and are capable of replacing the traditional didactic lecture format but were of the opinion that online learning encourages medical students to exert greater control over their learning by allowing flexibility over content and pace. The majority of students felt online teaching is a better opportunity for introvert students to express themselves through chat messages and it requires more self-direction and discipline.

Conclusion

The results showed that students were not much satisfied with online teaching. The possible reason could be lack of awareness of faculty about the available online teaching-learning strategies. To make online teaching more interesting and interactive, medical educators should more often engage in E-learning in an effort to come up with innovative approaches to train medical students. Teachers must undergo faculty development training to learn the use of technology in teaching. Students should also be sensitized on the various online tools available for learning and assessment.

Introduction

The COVID-19 pandemic has uprooted our daily routines and has forced us to change our working as well as learning conditions. Amidst apprehensions about the spread of the coronavirus, all schools and colleges, at all levels of education have announced closures. Due to nation wide lockdown, all the teaching activities in the colleges have been suspended, students have been sent off campus and teachers have been instructed to run their classes distantly. This also includes suspension of teaching activities in medical colleges all across Indian sub-continent. The impact of the pandemic on medical

education has been enormous [1]. Medical faculty as well as students are struggling with the changes that have been made and endeavoring to strengthen the almost non-existing online teaching. Apart from cognitive knowledge that can be gained through online lectures, medical students must gain expertise in clinical care by developing psychomotor and soft skills like communication, empathy and team-based skills. Despite advancement in online teaching, this facade of medical education remains questionable even in developed countries [2]. In India, as per the instructions from the Medical Council of India (MCI) and the State Medical Education Department, immediate online teaching–learning techniques were introduced in almost all the medical institutions without undergoing regular approval process. Use of heterogeneous formats and platforms for executing online teaching across the country and technical constraints has raised serious concerns over the standard of these classes. This survey was conducted among the medical students all across the country to take their feedback and assess their perspectives on online learning.

Methods

The study was conducted after obtaining ethical clearance from the Institutional Ethics Committee. As apart of the study, an anonymous online survey was conducted through Google form and the data was collected from 1st June to 30th June 2020. Eligible participants were undergraduate students from all the phases of MBBS course across the country. The link of the survey was shared through whatsapp and e-mails. At the beginning of the form, the purpose of the survey was outlined; the voluntary nature of participation and the anonymity of the survey were also emphasized on. This anonymous method of survey collection was chosen to encourage student participation. The survey responses were collected online and made available to the authors in a non-identifiable form. Completion of the survey was taken as implied consent. Demographic information included gender of the participant and location (state) of the medical college. The survey also contained few questions with single word answers like platform used for delivering the lectures online; whether lectures are live or pre-recorded; and device the students were using to access the lectures. The questionnaire used in the survey consisted of 11 items. The items of the questionnaire were evaluated and approved by experts from Medical Education Unit of the institute. Pilot testing was done on 30 students for checking reliability of the items. The items with Cronbach's alpha > 0.70 were included in the questionnaire.

The satisfaction index for each item was calculated using the following formula:

$$\frac{[(n_1 \times 1) + (n_2 \times 2) + (n_4 \times 4) + (n_5 \times 5)] \times 20}{(n_1 + n_2 + n_4 + n_5)}$$

where, n is the total number of students gaining the score mentioned in the subscript for that particular item.

The quantitative and qualitative analysis of the data was carried out. Quantitative analysis was done using Microsoft excel software. Data was expressed in percentage. For the qualitative analysis, the

responses to the open ended questions were reviewed, and thematically analyzed by two of the authors. Final agreement was reached after thorough discussions between the authors. The findings were clustered according to two themes: perceptions about online teaching; and suggestions for improvement. Few expressive codes are presented in Italics.

Results

Around 1300 responses were received from medical students from almost all the states and Union territories of Indian sub-continent. Out of these, only 1256 responses were complete. Around 62.7 % responders were males, 36.3% were females and remaining preferred not to disclose their gender. Among the responders, 36.2, 17.2, 32.2, 14.4% students were from MBBS phase 1, 2, 3 and 4 respectively.

Feedback from students about the various aspects of the online learning using a Likert scale is shown in Table 1.

Table 1

S.No.	Items	1	2	3	4	5	Satisfaction Index
1	Online lectures improve students' engagement during the class.	160 (12.9)	346 (27.5)	348 (27.7)	286 (22.7)	116 (9.2)	57
2	Online lectures are more interesting than traditional didactic lectures.	170 (13.5)	380 (30.3)	318 (25.3)	266 (21.2)	122 (9.7)	56
3	Online learning gives stronger sense of community among students.	172 (13.8)	498 (39.5)	320 (25.6)	190 (15.1)	76 (6)	49
4	Online lectures give time to think and reflect about the materials.	110 (8.9)	258 (20.6)	262 (21.1)	462 (36.7)	158 (12.7)	65
5	Online learning encourages medical students to exert greater control over their learning by allowing flexibility over content and pace.	94 (7.4)	192 (15.3)	334 (26.5)	462 (36.8)	174 (13.9)	69
6	Online learning requires more self-direction and discipline in order to get coursework completed on time.	66 (5.3)	136 (10.8)	200 (15.9)	544 (43.2)	310 (24.7)	77
7	Online lecture is a good platform for giving immediate feedback to the teachers.	96 (7.7)	180 (14.4)	316 (25.2)	496 (39.6)	166 (13.2)	70
8	Online lectures are capable of replacing didactic lectures all together.	342 (27.3)	336 (26.8)	294 (23.4)	178 (14.2)	104 (8.3)	47
9	Combination of online lectures and didactic lectures would be an effective way of learning (Blended learning).	48 (3.7)	90 (7.1)	252 (20.1)	550 (44)	316 (25.2)	80
10	Online lectures give silent students better opportunity to interact with the teachers through chat messages.	72 (5.5)	130 (10.3)	264 (20.9)	518 (41.5)	272 (21.7)	76
11	Online lectures are interactive way of teaching.	184 (14.6)	410 (32.8)	324 (25.8)	260 (20.6)	78 (6.2)	52

Values in parentheses are percentages. Scores were determined as follows: 1 - strongly disagree, 2 - disagree, 3 - neutral, 4 - agree, and 5 – strongly agree.

The average rating of the items in the questionnaires was less than 4. The minimum average score was 2.49 for item 8, which stated that online lectures are capable of replacing didactic lectures all together. The maximum mean score of 3.80 was for item 9, which specified that blended teaching would be an effective way of learning.

The satisfaction score for the items ranged from 45-80 on a 1–100 satisfaction index scale. The satisfaction score was highest (80%) for item 9 and lowest (47%) for item 8.

> 50% students disagreed that online learning gives stronger sense of community among students and are capable of replacing the traditional didactic lecture format. Students' satisfaction on these items was less than 50. Fifty-one percent students were of the opinion that online learning encourages medical students to exert greater control over their learning by allowing flexibility over content and pace in comparison to traditional classroom learning. Around two-thirds students considered online teaching to be a better opportunity for silent students to express themselves through chat messages. More than 60% students agreed that online learning requires more self-direction and discipline in order to get coursework completed on time than traditional classroom learning. Nearly two-third students considered blended learning as an effective learning tool.

The online platforms that were used by the faculty for delivering online lectures were:

1. ZOOM
2. Google classroom
3. GoTo Webinar
4. Google Hangout
5. Microsoft teams

Some students said that there were no live lectures; only power point presentations (PPT) were shared with them. In a small percentage of students, neither online classes were held, nor PPT was shared with them.

The devices used by the students for attending lectures:

1. Mobiles – 72 %
2. Laptop – 20%
3. Tablets – 6.5% and
4. Desktops – 1.3

When students were asked about effectiveness of different online teaching sessions, 75% expressed that theory lectures can be delivered online most effectively. Forty-four percent students felt that online

teaching stimulates self-directed learning. Another 17.7 % students said that online classes are good for early clinical exposure through online discussions on case scenarios, videos etc. A small percentage (0.2%) said that online classes are not at all effective.

Some of the responses to the open-ended question in the student feedback questionnaire, which asked them to specify any suggestions toward online teaching and the effects (beneficial or otherwise) that they perceived.

Perceptions about online teaching and learning:

....“Its ok, we have no other options so I am trying my best to cope up with the situation”

....“ I am missing face-to-face interaction with my teacher and my friends^”.

....“It is a good initiative and I am enjoying it”

....“I can ask questions through whatsapp from the teachers, which usually I hesitate to do”.

....“I don't like this, didactic teaching is any time better”

....“I have to work harder to comprehend the concepts”

....“Something is better than nothing&.”

....“Online teaching is making us more independent and I am liking this phase”

....“Teachers should be more innovative while using information technology”

Suggestions for improvement:

....“Students should be given assignments more often”

....“I have problem with inter net connectivity, something needs to be done to improve it”

....“We are not able to get proper feedback through online teaching”

....“Online assessments should be planned and implemented”

....“Some teachers should be trained on how to conduct online sessions”

.... “Practical classes should also be conducted”

Discussion

At the present time, in view of COVID-19 pandemic, shut down of medical colleges indefinitely before curriculum for the academic year got completed, prompted the medical colleges to start online teaching in

a hurry. Despite the use of technology in medical education being in a nascent stage in India and online classes being a challenge, it is commendable how easily medical colleges across India have moved to online classrooms with the help of available tools such as Zoom, Google Hangouts, Microsoft Teams etc. The present survey was designed to assess the perceptions and satisfaction of medical students on online teaching.

Learning in Medicine is an intricate process involving individual commitment, developing reading habits and building up of communication skills, which can be better inculcated through onsite teaching strategies [4].

Although e-learning in medical education in India is growing, but till date was limited to certain centers for postgraduate education [5]. It has been recognized by WHO that e-learning is a useful tool in addressing educational needs in healthcare workers, especially in developing countries [6]. With no other alternative, the COVID-19 pandemic has all of a sudden made online teaching learning expand its horizons. However the students as observed in this study were not very contented with online lectures in terms of students' engagement, interaction with teachers and capability to keep them attentive. The students reported online lectures to be less interesting, less interactive and less engaging. It has been reported that didactic lectures are better for keeping the students engaged and in improving their outcomes [7]. It is inequitable to anticipate the same level of engagement and interaction in online lectures as in the onsite traditional classroom. Online lectures can be made interesting and captivating by a structured plan that does not suffocate or burden the students. One of the possible reasons for less interesting and engaging lectures could be the technical difficulty faced by the faculty. There have been no prior experience and sensitization of most of the faculty in taking online classes. The sudden transition to online platforms for delivering lectures has made it difficult for them to navigate the Internet and manage the classroom mediated by a screen and microphone. Many of them are not comfortable teaching a large class over a new platform. Teachers' expertise in the online teaching techniques, students' readiness to move online, and quality of online contents and design are the factors that define and determine the success of online teaching [8].

The advantages pointed by students include control over the pace and content of the class, the component of self-directed learning and more involvement of silent students. In the present study, the students were of the opinion that online learning encourages medical students to exert greater control over their learning by allowing flexibility over content and pace in comparison to traditional classroom learning. Traditional teaching requires teaching and learning to take place at the same time and place. It is evident from the literature that online learning does not have the time and space limitations [9]. Similarly, Murphy and Collins [10] reported that students participated in discussions in online courses at their most convenient time, complete assignments and tasks at anytime according to their ease. According to the students, online teaching gives better opportunity to silent students to open up. It is also evident from the literature that in traditional class settings, students at times are reluctant to contribute, while online learning encourages more widespread participation by all students [11].

Similar to Eldeeb et al, who found that majority of students in their study preferred mixed mode of teaching, around 70% students in the present study felt that blended strategy would be a better and effective way of learning [12]. As per Sadeghi et al (2014), with majority of students having access to the Internet and email addresses, e-learning could be used as a supplement to traditional teaching methods as this method of teaching have shown to improve students' knowledge, satisfaction and attention [13]. Analogously, Asiry et al concluded that students reported online learning to be helpful as a supplement to didactic lectures rather than replacing them entirely [14].

Only \approx 20% students were in favor of online lectures as a sole method of teaching. Online learning as a sole means of teaching is not recommended and not feasible in medical education as developing psychomotor skills and affective domain requires face-to-face interaction with patients. Additionally, the students learn these skills from their exposure to real-life situations.

In this study, \approx 80% of students said that they were not being assessed online. As it is very well known that assessment drives learning. E-Assessments are an integral part of e learning and are as important as traditional assessments for giving feedback to students and improving the learning outcome. Numerous online assessment strategies are available ranging from online discussion, obtaining feedbacks to reflective writing. There are many e-assessment tools through which quizzes, multiple choice questions, small answer questions etc. can be given and assessed fairly [15].

The COVID-19 pandemic driven lock-down has undoubtedly created a significant impact on the environment in which future medical students will learn. The shift to E-learning has been abrupt, had it been gradual, it would have assisted the medical faculty in applying the adult learning theory, with teachers taking on the role of facilitators and assessors of competency.

Conclusion

Medical educators should continue to engage with e-learning in an effort to come up with innovative approaches to train medical students. If implemented whole-heartedly and wishfully, it has been observed that new educational methods are always valued and have the potential to provide better engagement compared with traditional didacticism. Teachers must undergo faculty development training to learn the use of technology in teaching. Students should also be sensitized on the various online tools available for learning and assessment. Institute must develop a separate IT department to aid and assist the online teaching-learning technology.

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Consent to participate – Filling of online form was taken as consent to participate

Consent for publication - Filling of online form was taken as consent for publication

Availability of data and material – The corresponding will make the data and materials available if required.

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