RESEARCH ARTICLE

Perception of medical students for online learning and assessment during the COVID era

Ishita Jana, Alpna Mathur, Dharitri Parmar, Nisha Dabhi

Department of Physiology, Government Medical College, Surat, Gujarat, India

Correspondence to: Alpna Mathur, E-mail: alpna.rishi@gmail.com

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ABSTRACT

Background: Online learning became a popular mode of education in the recent Corona Virus Disease-2019 (COVID-19) pandemic. For medical field in India, online mode of learning and assessment is novel. Aims and Objectives: This study aims at determining the attitude of students, identifying unacknowledged problems and their possible solutions associated with online learning, and to explore the future scope of online learning and assessment for medical education in India. Materials and Methods: The study population consisted of 199 medical students who had taken continuous six months of online learning and assessment in the 2020 COVID-19 pandemic period over various platforms such as Google Classroom, Zoom Meet, Cisco Webex etc. A questionnaire was made on Google form and distributed through online platforms, and students’ responses with informed consent were collected and analyzed. Responses were in form of Likert scale that ranged from “Strongly agree” to “Strongly disagree.” Results: About 41.4% of participants agreed that online learning and assessments save time and resources. About 78.3% of students agreed that technical errors make it difficult to continue online classes. About 78.3% of students agree that responsibility of learning is on students. About 77.7% of students agreed that academic integrity and honesty are vital in online assessment. Conclusion: If online classes can be improved by solving technical errors, better infrastructure, and faculty training, it may be continued as a supplement to classroom education for lectures, but not for practicals.

KEY WORDS: Perception; Medical Students; Online Learning; Online Assessments, Corona Virus Disease-2019

INTRODUCTION

Coronavirus disease-2019 (COVID-19) was declared a pandemic on March 11, 2020 by the World Health Organization. In India, to contain the increase in the number of cases, nation-wide lockdown was started on March 25, 2020. The lockdown had many economic, social, and other impacts on the country. It also affected the education system. As the schools and colleges were shut down, online mode of education became the most widely used and preferred mode of education delivery. Ministry of Home Affairs, Government of India on April 15, 2020, released a circular encouraging online teaching/distance learning.

Khan (2005) defined online learning as “an innovative approach for delivering a well-designed, learner-centered, interactive, and facilitated learning environment to anyone, anyplace, anytime by utilizing the attributed and resources of various digital technologies along with other forms of learning materials suited for open, flexible, and distributed learning environments.” Modes of online education delivery have been classified as synchronous, asynchronous, and hybrid.
In medical field in India, online learning was limited to being able to search and critically evaluate the medical literature on the internet and apply the information for the patient care.[6] With the recent implementation of Competency-Based Medical Education by National Medical Commission (NMC), the goal has become to produce an Indian Medical Graduate who is an effective lifelong learner and should be able to use technology, multimedia and Internet appropriately for self-directed learning.[7] That is why online learning and assessment have become inevitable in the medical field in India.

In India, online learning is quite recent and novel for medical education. There have been a few studies across the world from other discipline regarding students’ perception towards online education, but the medical field is different from any other field in the sense that it is heavily dependent on kinaesthetic stimulation, practical learning, and a hands-on approach. COVID-19 pandemic has dramatically changed the medical education environment and made the shift to online learning inevitable, hence, this study was conducted with the objective of (1) obtaining and analyzing medical students’ perception regarding online learning and assessments, (2) identifying the problems faced during online education and their possible solutions and (3) exploring the future scope of online learning in medical education.

**MATERIALS AND METHODS**

An observational cross-sectional study was conducted using a predesigned, semi-structured questionnaire on 199 MBBS students who participated in online learning and assessment for 6 months during the COVID-19 pandemic and consented to participate in the study after approval by the Institutional Human Research Ethics Committee (letter no: GMCS/STU/ETHICS/Approval/1769/dated 27-4-2021).

The medical students were oriented and experienced online learning and assessments for 6 months on various platforms such as Google Classroom, Zoom Meet, Discord, YouTube Live, Telegram, and Cisco WebEx during the Covid era.

Inclusion criteria was medical students who experienced 6 months of online E-learning and gave their consent to participate in the study. Non-medical students, students who had not attended online classes, and students who did not give their consent were excluded from the study.

The questionnaire was prepared using Google Forms. It included informed consent. 18 questions were asked about their overall experience, perceptions and attitude, pros and cons regarding online classes. Responses were recorded in form of a Likert scale of 1–5 where 1 was strongly agree, 2 was agree, 3 was neutral, 4 was disagree, and 5 was strongly disagree. A few open-ended questions were asked to assess their overall judgment, limitations, suggestions, and future scope of online learning and assessments in medical education.

**RESULTS**

**Quantitative Results**

Among the 199 responders, only 33% had previous experience of online learning and assessment before COVID-era, whereas 66% did not. About 43.4% of the responders said that they gained more technical knowledge of online learning and assessment during the Covid period. Likert scale analysis in form of percentages of the total is given in Table 1.

About 71.2% of responders agreed that it is easier to revisit the lectures and learn in their own time and pace. About 78.3% of responders agreed that learning responsibility is more on the students due to lack of personal interaction and many were motivated for self-directed learning. Technical and internet issues make it difficult to continue online classes was agreed by 78.8% of students. Academic integrity and honesty of students play the most vital role in online assessments as agreed by 77.7% of students.

About 49.5% of students said that immediate feedback and score available in online assessments helped in improving their studies. About 64% of students found that stress-free environment makes tests easier in online assessment than in examination hall.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Positive response</th>
<th>Negative response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online learning and assessment saves time and resources</td>
<td>41.4%</td>
<td>29.8%</td>
</tr>
<tr>
<td>Online asynchronous learning is a time convenient and flexible method for both teachers and students</td>
<td>38.8%</td>
<td>33.2%</td>
</tr>
<tr>
<td>It is easier to revisit the lecture as per my requirement and pace through online teaching</td>
<td>71.2%</td>
<td>12.7%</td>
</tr>
<tr>
<td>The responsibility of learning is more on students due to lack of personal interaction in online teaching</td>
<td>78.3%</td>
<td>8.6%</td>
</tr>
<tr>
<td>There are so many technical and Internet issues that it is difficult to continue these online classes</td>
<td>78.8%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Online examination gave immediate feedback and score which helped in improving my studies</td>
<td>49.5%</td>
<td>25.3%</td>
</tr>
<tr>
<td>Academic integrity and honesty of students play the most vital role in effective online assessment</td>
<td>77.7%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Tests are easier in the online mode because there is no stress of examination hall</td>
<td>64%</td>
<td>14.7%</td>
</tr>
<tr>
<td>I did not like giving online tests because I kept feeling that other students were not honest in their tests</td>
<td>52.1%</td>
<td>17.2%</td>
</tr>
</tbody>
</table>
Qualitative Results

The students’ responses to open-ended questions are given in Table 2.

In this, the limitations of online classes were cited to be lack of practical learning, technical, network, and video quality issues, lack of personal interaction, lack of discipline, teachers’ proficiency, and distractions of internet access. It was suggested that a better platform, a good pre-planned schedule, more interactive sessions, and newer technology can help improve the online learning and assessments. Majority agreed that online classes may not be continued as a mainstay due to lack of practical learning and other technical issues, but may be kept as a supplement to lectures, due to the convenience of revisiting lectures.

DISCUSSION

This observational cross-sectional study was conducted on 199 students who attended online learning and assessments for MBBS students during the COVID era with the objective to obtain their perception and attitude towards online learning and assessments through a predesigned, semi-structured questionnaire. Online learning in medical education is quite recent and novel. It has become an unavoidable and inevitable part of medical curriculum in India since the pandemic.

A good orientation program and six months of online learning exposure helped 43.4% students gain more technical knowledge. This is similar to findings of a study conducted by Abdous (2019) where students who were satisfied with their orientation program were 85% more likely to show greater academic self-efficacy.[8] 71.2% students agreed that ease of revisiting the lectures, flexibility and time-conveniency was an advantage. The online classes can be recorded and can be very helpful for students to learn at their own pace especially for the slow learners. This is similar to findings of Bączek et al. (2021) where 64% students agreed with advantages of being able to learn at their own pace.[9] However, with increased flexibility of course comes responsibility of the students towards their own academics, as agreed by 78.3% participants. In contrast, Joshi and Bodhka in their study with medical students found that classroom learning made

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subtheme</th>
<th>Students’ quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The main limitations of online learning</td>
<td>1. Practical learning</td>
<td>“Practicals cannot be performed”</td>
</tr>
<tr>
<td></td>
<td>2. Technical issues that cause disruptions</td>
<td>“Technical issues which disrupt the continuity and smoothness of the class”</td>
</tr>
<tr>
<td></td>
<td>a. Network</td>
<td>a. “Network connectivity based on different time slots of the day”</td>
</tr>
<tr>
<td></td>
<td>b. Video quality</td>
<td>b. “Major problem is the video quality”</td>
</tr>
<tr>
<td></td>
<td>3. Lack of interaction in pre-recorded videos</td>
<td>“Lack of interaction and lack of seriousness”</td>
</tr>
<tr>
<td></td>
<td>4. Honesty in online assessments</td>
<td>“Online assessments don’t provide actual data of the students’ study progress as many students are not honest in the tests and they do not regularly attend classes”</td>
</tr>
<tr>
<td></td>
<td>5. Teacher’s proficiency in using online platforms for education</td>
<td>“Professors are not used to this mode, so are not able to give their best like they do in actual lecture hall”</td>
</tr>
<tr>
<td></td>
<td>6. Social media distraction</td>
<td>“I could not resist the lure of social media”</td>
</tr>
<tr>
<td>Methods to improve online learning and assessments</td>
<td>1. Better platform to overcome technical issues</td>
<td>“Online learning can be improved by using apps that allow 2-way communication rather than sites which only give 1-way interaction”</td>
</tr>
<tr>
<td></td>
<td>2. Pre-planned schedule</td>
<td>“Proper schedule should be there, there should not be everyday surprises for students”</td>
</tr>
<tr>
<td></td>
<td>3. Interactive doubt sessions</td>
<td>“For the feel of the class, there should be doubt session once/ twice a week where teachers and students can interact”</td>
</tr>
<tr>
<td></td>
<td>4. Modern technology for ease of teacher</td>
<td>“Modified technology which is used in online platform of PG Classes etc., should use tab board than traditional black board”</td>
</tr>
<tr>
<td>Online classes in medical education in the future</td>
<td>Not as a mainstay</td>
<td>“It should be restricted to covid era only”</td>
</tr>
<tr>
<td>Reasons to continue as a supplement</td>
<td>Convenience of revisiting the lectures</td>
<td>“It can be continued as it is very good for students as we can revisit lectures if we want to revise a topic and it is quite easy to just see the lecture again than read the whole book for some students”</td>
</tr>
<tr>
<td>Reasons to discontinue online classes</td>
<td>Lack of practical skill development</td>
<td>“Theory classes can be continued but practicals cannot”</td>
</tr>
<tr>
<td></td>
<td>Ineffectiveness of Online assessments</td>
<td>“Online assessment is pretty good for quicker analysis, but I feel it shouldn’t be used for any official exams”</td>
</tr>
</tbody>
</table>
them more disciplined due to restriction of time and place that
tack in online learning.\textsuperscript{[10]} Bambara et al (2009) in
their findings highlighted the significance of ownership,
responsibility and self-motivation in high-risk online
courses.\textsuperscript{[11]} Online classes may trigger the student to focus on
self-directed learning for being a life-long learner as proposed
by NMC. Technical problems arising in the online classes
as experienced by 78.8% participants was a major hurdle.
Joshi and Bodhka in their study also cited lack of devices
and network issues as a major hurdle in online classes.\textsuperscript{[10]}
Students opined that faculty proficiency is a must for smooth
sailing of online classes. This is evidenced by the studies of
Joshi et al. (2020) where technical knowledge of faculty
increased for 82.5% of participants after the orientation
session.\textsuperscript{[12]} Online assessments gave immediate feedback
which helped 49.5% students in improving their studies.
According to NMC, online assessment enables provision of
individualized feedback which plays a very important role in
enhancing student learning.\textsuperscript{[13]}

Tsai and Tsai (2003) concluded that teachers should be encouraged
to help students develop web-based learning strategies by
direct demonstration or by strategy embedded curriculum.\textsuperscript{[14]}
Muthuprasad et al. in their recent study with agriculture students
concluded that appropriate content, connectivity, recorded
videos along with proper follow up makes online classes on par
with the traditional classroom situation.\textsuperscript{[15]} They also suggested
adapting to changed time with the help of innovative solutions
like 3D virtual labs for practical skills. In our study students
opined that practical skill learning which is a major component
of medical studies cannot be learnt in online learning. These
kinds of innovative methods may also be tried with medical
students for practical and psychomotor skills. Using a modern
tool, as suggested by a student, such as the pen-tablet, Google
Jam board and Microsoft whiteboard may be more convenient
for teachers who are more comfortable with chalk-and-talk and
can bring more interactivity in online classes.

The strength of this study is that it was conducted after the final
exams of the students were over, negating any selection bias
of vulnerable population. The predesigned, semi-structured,
amonymous questionnaire was validated by Institutional
Scientific Review Committee to obtain detailed response of their
overall experience of online learning and assessment. The
limitation of this study is that majority of the participants were
from the state of Gujarat, so the perceptions obtained cannot
be generalized due to the difference in training, techniques,
previous experience and exposure, as well as institutional and
infrastructural support. Therefore, similar studies should be
conducted with a greater sample size.

\section*{CONCLUSION}

From this study we can conclude that medical students preferred traditional classroom lectures over online classes
due to technical errors, lack of practical learning, lack of
teacher’s proficiency, and distractions caused by social
media. According to them, online learning as a mainstay
for the medical field should be restricted to covid era only.
It can be used as a supplement to classroom lectures. They
suggested that better internet connectivity, gadgets, advanced
software and proper learning management system along with
more faculty training is required for effectively continuing
online learning and assessment in future in the medical field in
India.

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\section*{REFERENCES}


2. Government of India. Government of India Issues Orders
sites/default/files/PR_NationalLockdown_26032020_0.pdf

3. Government of India. Guidelines on the Measures to be Taken by Ministries/Departments of Government of India, State/UT
www.mha.gov.in/sites/default/files/MHA%20order%20dt%20


5. Amam A, Shiratuddin N. Holographic video conferencing for fostering communication and participation: Pre-


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