RESEARCH ARTICLE
Perception of the medical faculty for online teaching and assessment in coronavirus disease 2019

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ABSTRACT

Background: Online teaching assessment was the only available choice for faculties and students during coronavirus disease 2019 (COVID-19) pandemic to continue medical education. Because of this sudden transition, there were many challenges faced by both faculties and students.

Aim and Objectives: To determine perception of faculty and to evaluate the feasibility of online teaching-assessment in medical education.

Materials and Methods: An observational cross-sectional study was conducted after obtaining institutional ethical approval, using pre-designed and semi-structured questionnaire administered through Google form to 101 participants who gave consent for participation. A 5-point Likert scale was used for collecting responses regarding perception and attitude. Responses were collected, tabulated and analyzed statistically in Microsoft excel by calculating percentages, mean score, and standard deviation. Chi-square test was used to analyze qualitative data.

Results: Out of 101 participants, 46% wanted to restrict online teaching to the COVID era only. 71% thought that they required more training, better infrastructure, and technical resources for effective online learning and assessment. 84% agreed that online teaching has a limited role in learning of practical skills which is a very important aspect of medical studies.

Conclusion: Perception of faculties about online teaching-assessment is that it should be restricted to COVID era only or as a supplement with better infrastructure and training for effective learning and to enhance self-directed-learning in medical students along with routine off-line teaching-assessment.

KEY WORDS: Online Teaching and Assessment; Faculty; COVID-19 Pandemic; Perception; Medical Education

INTRODUCTION

The coronavirus disease 2019 (COVID-19) affected not only health, social, and economic condition of the people but also caused a very drastic disturbance in the education delivering system all over the world making a history. The World Health Organization on March 11, 2020, declared the novel coronavirus (COVID-19) outbreak a global pandemic.1 This led to sudden shut down of education system, suspension of examinations, and immediate stoppage of almost all educational activities. As a result, the need of e-learning arose to continue the teaching-assessment in education field to maintain the academic calendar as guided by UGC, Ministry of Home Affairs, Government of India, and NMC.2 Hence, there was an immediate switchover of offline education to online mode without allowing much preparations for it.

Feldman et al. in their handbook defined that Online teaching and learning is faculty-delivered instruction via the Internet and Online instruction includes real-time (synchronous) and anytime, anywhere (asynchronous) interactions.3 With recent implementation of Competency-based medical education and more advances in technologies, there are significant

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changes in students needs and learning techniques. To fulfill this changing demand Medical Council of India started the “Faculty Development Programme” to sensitize teachers about new concepts in teaching and assessment methods and the use of technology to improve self-directed learning in students.\(^4\)

Online teaching assessment was novel in medical education so it was important to obtain the perception of the medical faculty in order to evaluate their readiness and training for effective online teaching assessment.

The objectives of this study were
1. To obtain perception of faculties for online teaching assessment
2. To find out the limitations and possible solutions
3. To explore the future of online teaching-learning for medical field in India.

MATERIALS AND METHODS

A cross-sectional observational study was conducted using a pre-designed semi-structured questionnaire, after completing 6 months of online teaching assessment. The study was approved by the Institutional Ethical Committee of GMCS (Approval letter NO. GMCS/STU/ETHICS/ APPROVAL/12218/21). The classes were conducted on various platforms such as YouTube, Videos, PowerPoint presentation, Google Classroom, Zoom, Cisco Webex meeting, and Google Meet.

Inclusion Criteria

Medical faculties who were involved in online teaching assessment during COVID-19 pandemic and consented for the study.

Exclusion Criteria

Faculties other than medical branch and faculties who were not involved in online teaching-assessment during COVID-19 pandemic.

A pre-designed and semi-structured questionnaire was prepared using Google form and circulated for 1 month through online mode among the faculties who were involved in online teaching assessment. Google form included informed consent, demographic details of participants, and 18 questions about overall perception and attitude towards online teaching-assessment. The responses were collected in the form of Likert scale ranging from 1-Strongly Disagree to 5-Strongly Agree. Few open-ended questions (50 words limit) regarding limitations, suggestions, and overall judgment were asked. A total of 101 medical faculties including both male and female, >25 years of age completed this survey.

Statistical Analysis

The quantitative responses were collected and analyzed using Microsoft Excel sheet in form of mean and percentages and then tabulated. Chi-square test was used to analyze qualitative data. Value of \(P < 0.05\) was taken as statistically significant.

RESULTS

A total of 101 faculties gave their informed consent and participated in the study, out of which 53% were females and 47% were males. Around 63% of participants did not have previous online teaching-assessment experience. About 57% of participants were from our institute and remaining 43% were from other medical colleges across the state. Around 71% of respondents were from non-clinical branches of medical field. About 35% of responders used multiple online platforms such as YouTube Videos, Google Classroom, Zoom, and Google Meet. About 89% of faculties agreed that they gained technical knowledge during the past 6 months of online teaching assessment. About 64% of faculties felt that online asynchronous teaching is a time convenient and flexible method for both teachers and students. Around 46% of participants believed that it is easier even for shy students to participate or ask more in online class. Around 82% of faculties agreed that technical and Internet issues lead to difficulty in conducting online classes.

Percentages of the faculties’ perceptions for various aspects of online teaching-assessment based on their responses are mentioned in Table 1. About 82% of faculties believed that the responsibility of learning is more on students and there is less student-teacher interaction leading to a feeling of less job satisfaction. About 50% of participants felt that online examination gave immediate feedback and score to students which help them in improving their studies. Around 71% of faculties agreed that extra training is required for online teaching and assessment.

Mean score of positive responses of faculties for online teaching restriction in the COVID era is shown in Table 2 with \(P < 0.05\) which is statistically significant. Faculties of our institutes preferred face-to-face teaching-assessment when compared to other medical college faculties.

Few noteworthy responses for open-ended questions are mentioned in Table 3. Faculty were also concerned that the availability of modern gadgets for poor students is difficult, moreover excess of screen time may cause harmful health effects on students in long term. Faculty felt that network issues create hurdles in effective online learning-assessment. For improvement, faculties suggested that frequent training, use of better gadgets and Internet connectivity for both students and teachers are required for better online teaching experience.
In our study, 84% of faculties felt that online classes have limited role for teaching practical skills. This may be due to the lack of advanced software and proper learning management system for skill learning in our setup. In this study, 78% of faculties felt that online teaching requires one-time preparation and can reuse recorded lectures for ease and convenience. Similarly to it Nguyen (2015) mentioned in his article that online learning will be able to provide a world class education to anyone, anywhere and anytime as long as they have access to the internet.[7] Dhir et al. (2017) stated in their article that teachers perceive that E-learning saves time in editing and updating of content, setting-up laboratory equipment, which could be utilized for face-to-face classes.[8] In our survey, 71% of faculties wanted extra training to conduct online classes. Similar to this, Culp-Roche et al. (2021) concluded that previous online teaching training was the only variable that predicted higher levels of online teacher self-efficacy.[9] In our analysis, 50% of faculties felt that online examination gives immediate feedback and score to students which helped them in improving their studies. As comparable to this, Walsh (2015) mentioned in his article that online assessment in medical education offers many advantages over traditional forms of assessment: Students can be provided instant feedback on their progress.

The strength of our study is that it was conducted after 6 months of online teaching assessment which is novel in our region in medical field. The limitation of our study is that majority of the study participants were from Gujarat state, so perceptions obtained can not be generalized because of the difference in faculty training techniques and experience along with infrastructural differences. Hence, the study should be conducted with more sample size and wider geographic distribution.

### Table 1: Faculty perceptions of online teaching and assessment according to responses in percentage (n=101)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Positive response (%)</th>
<th>Negative response (%)</th>
<th>Neutral response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online classes have limited role for teaching practical skills</td>
<td>84</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Online teaching requires one-time preparation and can reuse recorded lectures for ease and convenience</td>
<td>78</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Online teaching and assessment require more preparation and it is cumbersome</td>
<td>58</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>Online teaching and assessment give less job satisfaction</td>
<td>72</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>The responsibility of learning is more on students due to lack of personal interaction in online teaching</td>
<td>82</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Online examination gives immediate feedback and score to students which help them in improving their studies</td>
<td>50</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>Online teaching should be restricted during COVID era only</td>
<td>46</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Extra training for the faculty is required for online teaching and assessment</td>
<td>71</td>
<td>9</td>
<td>20</td>
</tr>
</tbody>
</table>

### Table 2: Score of faculties for perception on online teaching-assessment (n=101)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean±SD</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GMC, Surat</td>
<td>4.33±0.48</td>
<td>0.021</td>
</tr>
<tr>
<td>Others</td>
<td>4.35±0.49</td>
<td></td>
</tr>
</tbody>
</table>

*GMC: Government medical college, Surat; P<0.05 statistically significant, SD: Standard deviation

**DISCUSSION**

This observational cross-sectional study was conducted on 101 faculties to obtain and analyze their perception and attitude towards online teaching assessment during the COVID era through a pre-designed, semi-structured questionnaire. Due to the COVID pandemic, there was a sudden shift of medical education to online mode which was challenging for both teachers and students. This study focused on overall perception and attitude of faculties for online teaching, problem faced and their possible solutions to explore the future scope of E-learning in medical education.

In our study, 89% faculties felt that they gained technical knowledge after conducting online classes during COVID era. Similarly, Joshi et al. (2020) concluded that knowledge of faculty about online teaching techniques increased from 56% to 82.5% after orientation.[2] In our study, 82% faculties felt that responsibility of learning is more on students due to lack of personal interaction. Similar to this Khanna and Gupta (2021) found that 70.5% of students were either not or less connected with teachers and thus 75.6% of students were missing the regular online teaching classes during lockdown.[3] This may be due to poor internet accessibility, lack of faculty training for bringing interactivity in online lectures, and lack of students’ motivation for learning during lockdown. Wang et al. (2021) found that online medical education was suitable for theoretical teaching, preparation for the class, and test.[6] In our study, 84% of faculties felt that online classes have limited role for teaching practical skills.
CONCLUSION

From the current study, it can be concluded that medical faculties preferred face-to-face classes over online classes due to Internet hurdles, lack of infrastructure, and less job satisfaction in E-learning. According to them in medical education online teaching assessment should be restricted to the COVID era only or can be a supplement to face-to-face teaching. They suggested that better internet connectivity, gadgets, advanced software, and proper learning management system along with more faculty training is required for effective online teaching assessment to continue its use in the future for medical education in India.

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