Original Article

Teachers' perception in medical university towards online assessment of students conducted during the COVID-19 pandemic

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Abstract

Background & Objective: During this COVID-19 pandemic a large number of institutes have undertaken an online assessment of medical students such as zoom meets, online objective structured clinical examination [OSCE] google forms, etc. The present study was undertaken to determine the perceptions and opinions of teachers towards online assessment so as to plan the future strategy regarding the assessment system.

Materials & Methods: An online questionnaire was validated and distributed among 120 teaching faculty of a tertiary care hospital in North India and informed consent was obtained. It consisted of standard Likert scale questions which comprised 22 questions. The questionnaire was grouped into 4 categories: demographics, Comparison between traditional and online assessment, Advantages and limitations, different teaching methods, and acceptance of online assessment. The responses were collected and analyzed by using descriptive analyses.

Results: The mean age was 41.25 ± 9.35 out of which the majority were females (55%). Most teachers found online exams less stressful, within the COVID norms, and more comfortable. The main limitation was no interaction between the patients & students followed by poor internet connection. 70.30% of the teaching faculty prefers traditional face-to-face assessment to online assessment, 23.40% select the blended mode, and only 6.30% of teachers prefer online assessment.

Conclusion: The results from our study depicted that 70% of the teaching faculty prefer traditional assessment. The responses provided us with the viewpoint of the medical institute's teaching faculty, which will help us improve the logistic of the assessment program.

Keywords: COVID-19, Online assessment, Survey, Teachers

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Introduction

In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (1).

Generally speaking, there are two main types of assessment, each occurring at different levels in the learning process: formative, which occurs both before and during the learning process, and summative, which occurs at the end of key segments in a learning cycle or the end of the learning process. Formative assessment is usually applied in classes as ongoing feedback to improve teaching and learning. Summative assessment measures what students have learned at the end of instructional content (2).

Assessment in medical education is often described as a necessary evil. Both formative assessments and summative deserve equal importance in medical education (3). In medical education, clinical examination, the interaction between the patients and students, and the demonstration of clinical skills are of extreme importance (4). Assessment of medical

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students differs from others as it involves written theory tests, practical examinations, clinical examinations of patients, etc which presents a limitation in conducting the assessment online.

The COVID-19 pandemic, in addition to its effect on global health and economy, has had its impact on medical education and assessment too. Medical institutions all over the world have resorted to online teaching platforms and students are being assessed by online methods only. Therefore, it has become essential for medical educators to devise new teaching-learning and assessment strategies to continue medical education unhindered (5).

Online assessments are online tests conducted with the purpose of evaluating, measuring, and documenting the academic readiness, learning progress, skill acquisition, or educational needs of the test takers (6). Online assessment in higher education offers a number of advantages and disadvantages.

Ridgway cited in Howe et al. (2020) states that online assessment improves the reliability of scoring and helps to reduce the drawbacks of the traditional paper-based assessment system, especially in terms of grading (7). Appana (2008) (8); Bączek et al. (2021) (9); Barbour, 2013 (10); Basuony et al., 2020 (11); Harvey et al., 2014 (12) have affirms that online assessment has the advantage of giving feedback to a large number of students thus saving marking time. Online learning and assessment can make it easier to present assessment tasks to students and to track and record student progress.

Despite the various advantages of online education and assessment multiple challenges have been emerging. Some of the disadvantages of online assessment is that it facilitates cheating, lack of technological knowledge and skills among teachers & students, and unstable internet connection (13).

In the wake of this pandemic, online assessment method has been opted for by many medical institutes and our institution was no exception. The present study was carried out to find out the perceptions of teachers of medical colleges about this new method of assessment and to understand their perspective on online assessment.

Materials & Methods

Design and setting(s)

An online survey was created and distributed among the teaching faculty of a tertiary care hospital in north India from October 2021 to February 2022.

Participants and sampling

In total, the survey was distributed among 150 faculty members out of which 120 responded with a response rate being 80 %.

Prior to their participation in the study, the participants were provided with knowledge about the survey, and their consent was taken.

Tools/Instruments

After doing a thorough literature search, a self-administered questionnaire was developed. A pilot study was first formulated which comprised 24 questions in total and was distributed to 50 faculty members and experts in health profession education. The questionnaire was validated by circulating it to other faculty members of the institute and experts in health professions education after which it was revised and corrected.

The corrected version of the questionnaire after validation comprises 22 questions. For an understanding of the data, the questionnaire was grouped into 5 categories such as demographics, Comparison between face-to-face assessment and online assessment, Advantages, and limitations of online assessment, types of assessment, and Acceptance of online assessment.

The responses were collected by using a 5-point Likert scale format: 1- strongly disagree, 2- disagree, 3- neutral 4-agree, 5- strongly agree, close-ended questions, and open-ended questions. For performing analysis, the number of teachers who responded with “Agree” and “Strongly agree” were pooled. Similarly, “Disagree” and “Strongly Disagree” were pooled.

Data collection methods

The validated version of the questionnaire was distributed among 150 faculty members of a north Indian medical institute. The questionnaire was made via google forms and was emailed to the teaching faculty and they were requested to read the form and fill the questionnaire. The teacher’s confidentiality was maintained and any incomplete submission of the form was excluded from the study after which a total of 120 responses were registered.

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Data analysis

The responses received from the teachers were analyzed using descriptive statistics/analysis. The other categorical variables used in the survey were described as frequencies and percentages.

Results

The survey questionnaire was administered to 150 teaching faculty out of which 120 consented to this study.

The mean age of the faculty members was 41.25 ± 9.35 and 36 (30%) belonged to the age group of 20-35yrs, 43 (35.84%) were in the 34-45 yrs age group, 31 (25.83%) in 45-55yr age group and only 10 (8.33%) were more than 55 years. There were 66 (55%) females and 54 (45%) males. 55.80 % said that they have conducted an online assessment before (Table 1).

Table 1. Demographic details of teachers (n = 120)

S no		Frequency	Percentage
1	**Age**		
	25-35	36	30
	35-45	43	35.84
	45-55	31	25.83
	>55	10	8.33
2	**Gender**		
	Male	54	45
	Female	66	55
3	**Conducted online assessment before**		
	Yes	67	55.80
	No	39	32.60
	Maybe	14	11.60

Comparison between face-to-face assessment and online assessment

55% and 70.30% of the teachers disagreed that online assessment is effective in terms of assessing knowledge and clinical skills respectively. The majority of the teachers (42.20%) believed that online assessment helps teachers improve their technical skills compared to a small percentage (20.30%) who disagreed. Around ¾th of the teachers (74.90%) disagreed that online assessment is equivalent to the traditional face-to-face assessment but (76.50%) found face-to-face assessment to be more organized as compared to online assessment (Table 2).

Perception of Advantages and limitation of online assessment

As shown in Table 3, 90% of teachers felt that online assessment can be conducted as per COVID – 19 norms. It allowed stay at home and provided a stress-free comfortable environment. Other advantages included that it facilitates recording of the examination and instant feedback can be provided to the students (Table 3).

Table 2. Comparison between face-to-face assessment and online assessment (n = 120)

Item	Strongly disagree(%)	Disagree(%)	Neutral(%)	Agree(%)	Strongly Agree(%)
Effectiveness of online assessment in terms of assessing knowledge	31.60	23.40	21.90	17.20	5.90
Effectiveness of online assessment in terms of assessing clinical skills	37.50	32.80	17.20	10.90	1.60
Helps teachers improve their technical skill	6.30	14	37.50	34.40	7.80
online assessment is equivalent to the traditional face to face assessment.	53	21.90	17.20	6.30	1.60
Assessment is more practically feasible when done online	18.80	23.40	31.20	21.90	4.70
Face-to-face assessment is more organized	7.80	6.30	9.40	23.40	53.10

Table 3. Response of teachers toward the advantages of the online assessment (n = 120)

`	Variables	Number	Percentage
A	Can be conducted asper COVID - 19 norms	58	90.60
B	Allows staying at home	29	45.30
C	Stress-free comfortable surrounding	29	45.30
D	Allows interaction with the examiner	10	15.60
E	Facilitates the recording of the examination	30	46.90
F	Provides instant feedback	80	67

The main limitation experienced by the teachers in assessing the students was no interaction between the patients & students followed by poor internet connection. Around 46.60% of the teachers complained that the assessment of the students was difficult due to bad video quality. 40.60% & 21.90% of teachers believed online assessment to be socially isolating and more stressful respectively (Table 4).

Table 4. Response of teachers toward the limitations of the online assessment (n = 120)

S no	Variables	Number	Percentage
A	Less interaction with the examiner	44	68.80
B	No interaction with the patients	55	85.90
C	More stressful	14	21.90
D	Socially isolated atmosphere	26	40.60
E	Internet connection	43	67.20
G	Video quality	56	46.60

Perception towards different types of assessment methods

32% of the teachers disagreed that self-assessment is an effective online assessment method while 34.40 % agreed and the rest remained neutral. 31.30% of the teachers agreed that formative online assessment with timely and appropriate feedback throughout a course is an effective online assessment technique while half of the participants choose to stay neutral on this. Around half of the teachers (53.20%) agreed that the assessment of students in virtual classes along with their participation in discussion is an effective tool for the assessment of the students. 51 % of the teachers disagreed with the point that Summative online assessment to measure the progression of overall learning outcomes is an effective assessment technique while 34% agreed with it (Table 5).

Table 5. Response of teachers towards different types of assessment (n = 120)

Item	Strongly disagree(%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree(%)
Self-assessment is an effective online assessment method .	10.90	21.90	40.60	18.80	7.80
formative online assessment with timely and appropriate feedback throughout a course is an effective online assessment technique	4.70	17	47	26.60	4.70
Assessment of students in virtual classes along with their participation in the discussion .	6.20	10.90	29.70	34.40	18.80
Summative online assessment to measure the progression of overall learning outcomes is an effective assessment technique	14	37	15	19	15

Perception towards preferred assessment method

70.30% of the teaching faculty prefers traditional face-to-face assessment to online assessment. 23.40% were in favor of the blended mode of assessment while only 6.30% of the teachers preferred online assessment (Table 6). & (Figure 1)

Table 6. Response of teachers related to better assessment method(n = 120)

S no	Type of assessment	Frequency	Percentage
1	Traditional face to face	84	70.30
2	Online assessment	8	6.30
3	Blended method	28	23.40

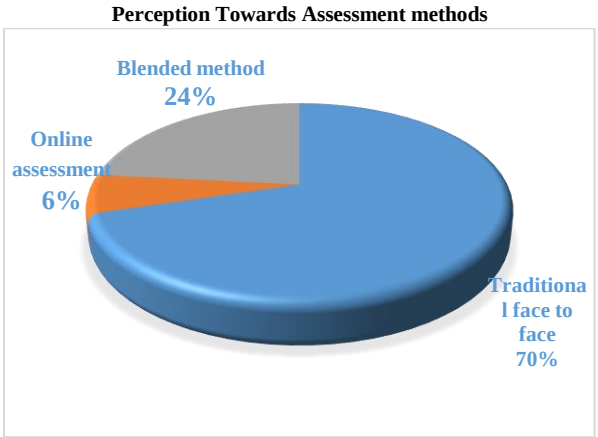

Figure 1. Comparison of different types of assessment methods favored by the teachers

Discussion

As a result of the COVID-19 pandemic, learning and assessment have migrated online in most schools, colleges, and universities around the world.

In our study, the main advantages of online assessment as perceived by the teachers are: 1. Provides a stress-free environment; 2. Can be conducted as per COVID-19 norms; 3. Helps teachers to improve their technical skills as the faculty gets to understand the technicalities of various modes of online assessment tools; 4. Can provide instant feedback to the students. The advantages of online assessment in our study corroborated with the findings of studies such as (Appana et al 2008 (8); Bączek et al., 2021 (9); Barbour et al, 2013 (10); Basuony et al., 2020 (11); Harvey et al., 2014 (12).

One of the major limitations faced by the teachers in our study was technical difficulty while assessing the students. Around 67% of teachers had trouble conducting online test due to poor internet connection. Our results corroborated the findings of Hanadi. (2021) (14) in which he found that their most significant challenge was to tackle the problems caused by the country's poor infrastructure, i.e., power cuts and poor internet connection. Similarly, the technical difficulty

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faced by students and teachers in online assessment has been mentioned in many other studies also Bączek et al., 2021 (9); Muilenburg & Berge, 2005 (15); Niemi & Kousa, 2020 (16).

Academic dishonesty is present in traditional classrooms, but when the assessment has moved online, the problem has become more complicated. In a study by Meccawy et al. (2021) (17), among the many challenges faced by faculty, cheating was by far the most severe, where 87.80% of teachers felt that online invigilation cannot be as efficient as in traditional assessment which leads to grade inflation (77.40%) and did not reflect student performance (59.60%). These resonated with our findings where 59% said that online assessment facilitates cheating.

To overcome these issues of concern, Kayed et al. (2014) (18) suggested that teachers should devise further safeguards to ensure integrity, such as the use of multiple assessment techniques, designing online take-home exams where students' knowledge rather information recollection is tested, using various software to detect plagiarism, and arranging controlled exams sittings at the university or a common location.

In the study by Meccawy et al. (2021) (17), faculty believed that online and traditional assessment differed in quality and method (78.90%) with 46.40% preferring traditional assessment methods. Also in a study done by Hanadi (2021) (14) regarding teachers' perception of online assessment, all the participants wanted the exams to be held in a traditional manner and not online. Bastian K¨uppers (2020) (19) in his study found that the teachers do not support the online assessment methods of the students. All these studies resonated with our findings in which 70.30% of teachers prefer traditional face-to-face assessment while 23.40% said that the blended method of assessment can be a powerful tool for assessing the students.

Although this study is still preliminary, it offers a well-grounded overview of how the teachers at a medical university have managed to conduct assessments of students during these COVID times. We also came to the conclusion that 23.40% preferred the blended mode and the rest 6.30% were in favor of the online mode of assessment. By doing this study we realized that despite the various advantages of online assessment, there are various limitations and the teachers are still not well acquainted with this new method of teaching and assessment. The responses provided us with the viewpoint of the teaching faculty of the medical institute which will help us in improving the logistic of the assessment program. In the future care would be taken to avoid the pitfalls in assessment and whether online mode should be conducted post-COVID or not.

The main limitation of the study was the small sample size of the study and the main focus on the difference between the traditional and online modes of assessment. Further studies should be conducted with much larger sizes to know more about the benefits of the blended mode of assessment as well.

Conclusion

The results from our study show that 70% of the teaching faculty prefer traditional assessment. The responses provided us with the viewpoint of the teaching faculty of the medical institute which will help us in improving the logistic of the assessment program. In the future, care would be taken to avoid the pitfalls in assessment and when there is a decline in COVID -19, further studies can be conducted again using the blended mode of assessment.

Ethical consideration

This study was approved by the Institutional Ethics Review Board (ECR/717/Inst/UP/2015/RR-21) of ELMCH Lucknow, and the study was carried out in accordance with the declaration of Helsinki and was approved by the local clinical research ethics committee.

Disclosure: None.

Contribution

The authors have no conflict of interest regarding the material of the paper.

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