Section: Pharmacology

Original Research Article

PERCEPTION OF E- ASSESSMENT IN MEDICAL EDUCATION AMONG MEDICAL STUDENTS AND MEDICAL EDUCATORS

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ABSTRACT

Background: The transition from paper to e-assessments needs to translate well across all involved stakeholders to bring about an effective change. Therefore, the present study was planned to elucidate perceptions of medical students and educators regarding e- assessments. This study was designed to assess the perceptions of medical students and medical educators regarding e-assessments in medical education

Materials and Methods: Post approval from institutional research committee, the validated google form questionnaire was administered to phase I and phase II MBBS students and medical teaching faculty of AIMSR, Hyderabad. It was divided into two components of knowledge and attitude towards e assessments and Likert score was applied. A pilot study was done involving five students and five medical educators for validation. Suggestions for improvement of questionnaire were incorporated before administration. The responses were documented and analysed using percentages and mean by unpaired' test.

Results: Both the groups had a fair knowledge about e-assessments. Majority felt that it was a fast and error free assessment method but had scope for cheating.

Conclusions: The e-assessments can complement overall assessments. They can test mostly knowledge-based questions and not skills. It should not be used for high stakes or summative examinations.

Keywords: e-assessments, perception, medical students and educators.

INTRODUCTION

Medical education was highly influenced by the COVID-19 pandemic which still continues and it is important to develop creative ways of teaching and assessment which maintain the standards of medical education as well as continue to accommodate the present environmental and social limitations brought by coronavirus.[1]

Several studies have claim that sudden conversion from face-to-face to online education will have adverse effects on education because educators as well as students, did not have ample time to make the transition gradually. Secondly, being stuck at home meant additional responsibility for other family members for example younger siblings who were also not attending school.[2-4] While on the other hand it is also believed that COVID-19 would give a boost to online educational tools which otherwise would have taken many years.[5] Assessment is not only essential for grading the performance of students, but it is also an important tool that drives learning. A paradigm shift has occurred in recent years regarding assessment in medical education; the focus is now on formative assessment rather than summative assessment.[6]

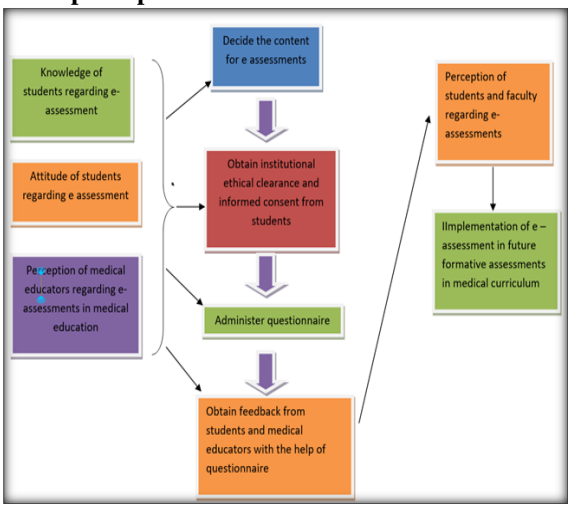
E-assessment can be done in various ways, digitalizing paper-based methods involving analytical problems, multiple choice questions to using virtual reality techniques for assessing surgical skills. Different methods include quiz (Google forms), group online assessments, electronic portfolios, wikis, blogs, online oral examinations (Skype, zoom, Google duo), group multiple choice questions and peer mediated testing.[7] There are benefits and anticipated challenges, as with any other new start. The transition from paper to e assessments should

translate well across all sections involving students and medical educators and how strong is our intent to bring about an effective and fruitful change. With above reference, this study was designed to evaluate the perspectives of medical students and medical educators on the use of e-assessments in medical education.

MATERIALS AND METHODS

This cross-sectional questionnaire-based study was conducted in the Department of Pharmacology at Apollo institute of medical sciences & research (AIMSR), Hyderabad during Augus 2023 to June 2024. A source of 100 Undergraduate students of Phase-1 and Phase -II MBBS and 50 teaching faculty of various departments of AIMSR were recruited. Students and faculty unwilling to participate were excluded. Written informed consent was obtained from all the participants. Study proposal was approved by the institutional research committee and institutional ethics committee.

Concept map



The validated and structured questionnaire was administered through Google forms to phase I and phase II students and medical teaching faculty. The questionnaire was divided into two components of knowledge and attitude towards e-assessments. A Likert score was applied to collect the information. A pilot study was conducted by involving five students and five teaching faculty. The questionnaire responses were documented and analysed by SPSS version 26.0. The analysed data was represented in percentages and mean by un-paired 't' test.

RESULTS

Among the participants 138 responses were received out of that 92 students and 46 medical educators were responded to the questionnaire. Both the groups had a fair knowledge about e-assessments and feel that it should not be used for summative assessments. 64.3% of respondents feel that it is fast and error free feedback procedure, but it can test only factual knowledge (Table 1). 42.9% responses were neutral about positive impact of e assessments on learning outcomes. 57.2% were ready to accept online viva voce as a reliable approach in testing knowledge. Both the groups had similar opinion about e-assessments.

Table 1: Assessing knowledge regarding e-assessments in medical education on Likert scale

SI. No	Knowledge questions	Average responses of participants (%)	
		Yes	No
1	e-assessment is also known as online assessment whereinformation technology is used	93	7
2	e-portfolio is a tool used to track students' progress andoutput	87	13
3	Computer skills are needed to conduct e-assessments	48	52
4	SCORM and LCMS are e-assessment systems	45	55
5	SCHOLAR and Hot potatoes are e-assessment tools	56	44
6	In e-assessment the design, application of test, documenting responses, giving feedback are allcompleted using information and technology	76	24

Table 2: Assessing attitude regarding e- assessments in medical education on Likert scale

S.N	Survey question	1 (SA)	2 (A)	3 (N)	4 (SD)	5 (D)
1	e-assessment have a positive effect on learning outcomes	-	35.7%	42.9%	-	21.4%
2	e-assessments are not useful in end of the course (university) Exams	35.7%	14.3%	28.6%	-	21.4%
3	Automated, fast and error free feedback is achieved through e-assessments	21.4%	42.9%	14.3%	-	21.4%
4	e-assessments can test factual knowledge and not practical skills	35.7%	21.4%	35.7%	-	7.1%

5	Only MCQs, true/false, short answers and fill in the blanks can be tested through e-assessments	21.4%	50.1%	21.4%	-	7%
6	Internet availability and connectivity is a serious concern for e-assessments	71.6%	20.4%	7%	-	1%
7	Feedback after e-assessments is inadequate compared to offline exams	14.3%	35.7%	42.9%	-	7.1%
8	Easier to cheat and cross consult in e-assessments than offline exams	35.7%	14.3%	28.6%	7.1%	14.3%
9	e-assessments are less stressful than offline exams	35.7%	50%	-	-	14.3%
10	Online viva voce (one to one) is reliable in testing knowledge and you are ready to accept such method	14.3%	42.9%	14.3%	7.1%	21.4%

**SA-Strongly agree, A- Agree, N- Neutral, SD- Strongly Disagree, D- Disagree*

DISCUSSIONS

Assessment is a critical component of medical education, both in its formative and summative aspects. In order to ensure the effective continuation of medical education during COVID-19 pandemic, it is imperative that dependable online assessment methods be developed. e-assessment is the term used to describe the comprehensive use of electronic methods for the entire assessment process. This means that electronic devices are used to complete the test design, test implementation, recording the response, and providing feedback.[8,9] The objective of this study was to evaluate the perspectives of medical students and medical educators on the use of e-assessments in medical education. The majority of participants (42.9%) were neutral in this study, while 35.7% agreed that e-assessment has a positive impact on learning outcomes. Despite the fact that 35.7% of respondents firmly concurred that e-assessments are not beneficial in summative assessments, such as university examinations, 14.3% agreed, and 28.6% maintained a neutral stance. 35.7%, 21.4%, and 35.7% of participants were strongly agreed, agreed, and neutral regarding the possibility of e-assessments testing factual knowledge rather than practical skills. Only MCQs, true/false, brief answers, and fill in the blanks can be tested through e-assessments, as 50.1% of participants agreed. The internet availability and connectivity were reported as a significant concern for e-assessments by 71.6% and 20.4% of participants, respectively. In comparison to offline examinations, 50% of respondents concurred and 28.6% were neutral regarding the ease of cheating and cross-consultation in e-assessments. According to 85.7% of participants, e-assessments are less burdensome than offline exams. 57.2% of the participants agreed that online viva voce (one-on-one) is a reliable method for testing knowledge and are prepared to embrace this method. However, 28.5% of the participants disagreed with the aforementioned statement (Table 2).

In their study, Ziehfreund S et al. evaluated the perceptions, concerns, and needs of 1077 medical students in relation to e-assessment during the COVID-19 pandemic. They discovered that 70.3% of the students preferred in-person exams and expressed apprehensions regarding the technological framework, privacy, and examination guidelines. Participants in both surveys requested consistent platforms and procedures for all subjects. This study offers evidence of the positive, complementary function of student participation in the successful implementation of e-exams.[10] Kumar LR et al. discovered that phase-I medical students found the e-assessment to be simple to assess, unique in that they received immediate feedback, and flexible. In addition, the post-test scores significantly differed from the pre-test scores.[11] According to Sundus Iftikhar et al., network issues, academic dishonesty, a hostile home environment, and a lack of time cause students to view online exams as less reliable and effective than classroom tests. However, if MCQs are deemed unavoidable, students tend to respond more favourably to them than SEQs.[12] During the COVID-19 pandemic, Dhanya SP et al. conducted six online formative assessments using a Google Form to understand medical undergraduates' perceptions of these formative electronic tests. Kahoot found that most participants viewed online assessments favourably, but the majority preferred traditional assessments.[13] Mondal H et al. conducted online assessments with five questions related to ongoing classes at the conclusion of the one-hour lecture. They discovered that nearly half of the students attending online classes chose to participate in an anonymized, optional, and online self-assessment quiz. The online questionnaire is a rapid formative assessment method that necessitates only a few minutes.[14] Snekalatha S et al. used a questionnaire with five-point Likert scale-rated items to find out how one hundred phase-1 medical undergraduates felt about the reliability, usefulness, and practical challenges of online tests. The results indicated that viva voce by video conferencing was the most reliable method, while MCQ-based online assessments were the most feasible, providing faster feedback than classroom assessments.[15]

E-learning actively engages instructors in responding to the demands of new generations, who rely more on the internet for personal and professional reasons. Students and others gain from this strategy. Students gain most from e-learning because it permanently archives and distributes interactive sound, picture, text, and instructor explanations.[16] E-learning pioneer Bernard Luskin calls it vibrant, energetic, passionate, emotional, prolonged, and informative. It is self-paced, flexible, and media-reach, making it simple to grasp.[17] This research confirmed the preceding results, although many participants disputed that e-assessments

improve learning outcomes, summative assessment, and quick, error-free feedback. However, a few individuals believed that online viva voce is unreliable and as difficult as classroom exams. Future medical education research should seek to improve e-learning infrastructure and explore continuous self-assessments or virtual reality-based e-assessment applications through collaboration between interdisciplinary academic teams and students.

CONCLUSION

Participants (both medical students and medical educators) have knowledge about e-assessments which is fast and error free, but leaves scope for cheating and should not be applied for high stakes/ summative assessments.

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