



Perception Regarding E Learning Among Indian Medical Students

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ABSTRACT

Introduction: Medical education encompasses both pre-clinical and clinical teaching methods, aimed at establishing a robust knowledge base and clinical exposure for medical students. There is a shift from traditional classroom teaching to an E-learning modality post COVID-19 which may lead to changes in students' perceptions of this teaching method. This study aimed to evaluate the effectiveness of E-learning compared to traditional classroom methods, assess medical students' perceptions of E-learning during the COVID-19 pandemic, and evaluate their knowledge of electronic gadgets used in E-learning.

Materials and Methods: This online study was conducted among 1st-year MBBS students, totaling 145 participants, who had already completed online classes. A self-designed questionnaire was administered to gauge the effectiveness of learning through online classes and students' satisfaction levels across various parameters.

Results: In our study, majority of students reported that E-learning was a beneficial decision. Among them, majority preferred live lectures over recorded ones. Additionally, half of students reported experiencing stress after the pandemic, and a majority reported an increase in screen time exceeding 4 hours. Regarding examinations, half of students preferred traditional classroom exams. A small percentage reported technophobia. Connectivity issues were noted, with 50% of students reporting internet errors and 53% citing surrounding disturbances during E-learning sessions.

Conclusion: During emergencies such as a pandemic, online teaching can serve as a viable option to continue medical education. However, it is important to note that online learning cannot entirely replace traditional teaching and learning methods.

Keywords: E-learning, Medical education, COVID-19, perception, students

INTRODUCTION

The COVID-19 viral infection, which originated in December 2019 in Wuhan, China, spread rapidly across the globe. Recognizing its global impact, the World Health Organization (WHO) declared it a pandemic on March 11, 2020. In response to the escalating spread of the infection, the government of India implemented a nationwide lockdown on March 25, 2020, for 21 days, emphasizing social distancing, physical isolation, hand hygiene, and the use of masks and sanitizers [1, 2]. This pandemic-induced lockdown affected all sectors, including educational institutions. Faced with the closure of institutes, professional education adapted by introducing E-learning through online classes to ensure continuity in teaching and learning processes for medical students. Our institute initiated online classes from continuing until the end of the academic year, and intermittently thereafter following the guidelines of the Indian government. Overall, we conducted E-learning for a total of eight months.

Bernard Luskin describes E-learning as "exciting, energetic, engaging, extended learning", highlighting its benefits in incorporating visual and interactive elements such as pictures and videos to enhance student understanding. E-learning has been widely recognized in tele-education over the past few decades, particularly in biomedical education, where it is often utilized as a blended learning approach. For instance, lectures are delivered using E-learning methods, while practical demonstrations are conducted through traditional teaching methods. Nowadays, E-learning leverages information and communication technologies to enhance knowledge and performance [3-5].

Given the nature of COVID-19 as a viral disease, its treatment primarily focuses on symptomatic relief, antiviral medications, and immunization. Since specific antiviral drugs and vaccines were initially unavailable, social distancing and isolation emerged as the most effective preventive strategies. Consequently, COVID-19 posed significant challenges to educational institutions worldwide, including medical colleges and healthcare systems. Many experts have suggested that E-learning platforms will remain integral even after the pandemic ends [6-8] and have created a unique environment for evaluating and conducting online teaching programs in medical colleges. Numerous students have recognized the impact of COVID-19 on their academic performance and have actively contributed during the pandemic [9-12]. The present study aims to investigate medical students' perceptions regarding the role of online teaching in facilitating medical education after the COVID-19 pandemic.

MATERIALS AND METHODS

A cross-sectional questionnaire study, consisting of both open and closed questions, was conducted in a Medical College and Hospital in India. This online study was conducted using Google Forms, targeting a total of 154 first-year MBBS students who had completed online E-learning classes. E-learning classes were conducted in both types-live and recorded. Live classes were conducted using Zoom platform, whereas recorded classes were sent to students via WhatsApp groups. Out of the 154 students approached, 145 students responded, while 9 students did not participate in the study. All students who provided consent were included in the study. A self-designed questionnaire was utilized to assess the effectiveness of learning through online classes, understanding and satisfaction levels across various parameters.

The questionnaires focused on the effectiveness of E-learning, the role of E-learning in facilitating medical education, and difficulties during E-learning activities. Specific questions included evaluating the students' perception of online teaching as a good option, the compatibility of devices for attending classes, the duration of screen time use, technophobia, comparisons between online and offline learning methods, difficulties and disturbances encountered during online classes, and preferences for teaching methods. Gentle reminders were provided during the survey period to minimize errors.

Statistical analysis of the data was performed using frequency and percentage distribution. Microsoft Excel 2007 and EPI Info were utilized for data analysis purposes.

RESULTS

Table 1 presents students' feedback regarding their preferences for E-learning. The majority of students viewed E-learning sessions as a positive decision. Additionally, most students utilized smartphones for attending lectures. Interestingly, a significant majority preferred live lectures and traditional classroom teaching over online instruction.

In Table 2, the perception of first-year MBBS students regarding E-learning's role in facilitating medical education is outlined. The majority acknowledged the effectiveness of online sessions. Many students noted an increase in screen time following the COVID-19 pandemic. However, most did not favor online classes or open-book exams.

Table 3 illustrates the difficulties encountered during E-learning sessions. Although the majority of students were comfortable attending online lectures, they faced challenges such as connectivity issues and disruptions from their surroundings.

Table 1: Students' feedback on preferences about E learning

Questions	n	%
On which device did you attend E-learning lectures?		
Smartphone	119	82.07
Desktop	1	0.69
Laptop	19	13.10
Tablet	6	4.14
Was E-learning a good decision for your education even after COVID-19 pandemic?		
Yes	89	61.38
No	55	37.93
Couldn't say	1	0.69
Did you feel flexibility while attending online lectures?		
Yes	46	31.72

No	60	41.38
Sometimes	39	26.90
In your opinion, which type of online lecture was preferable?		
Live	92	63.45
Recorded	53	36.55
What would you prefer for the future?		
E-learning	6	4.14
Classroom teaching	112	77.24
Blend of both	27	18.62

Table 2: Perception of FY MBBS students about E-learning facilitating medical education

Questions	n	%
Was the efficacy of E-learning considered positive?		
Yes	89	61.39
No	55	37.62
Uncertain	1	0.99
Do you experience heightened stress levels post-COVID 19 pandemic?		
Yes	76	52.48
No	10	6.93
Occasionally	59	40.59
Did you experienced anxiety during the lockdown period?		
Yes	66	44.55
No	24	15.84
Occasionally	55	37.62
What was your screen usage duration before COVID-19?		
0-30 minutes	32	21.78
1-2 hours	92	63.37
3-4 hours	18	12.87
More than 4 hours	3	1.98
What was your screen usage duration after COVID-19?		
0-30 minutes	0	0.00
1-2 hours	3	1.98
3-4 hours	24	16.83
More than 4 hours	118	81.19
Do you favor online teaching over traditional classroom teaching?		
Yes	13	8.91
No	116	80.20
Occasionally	16	10.89
Do you prefer online examinations?		
Yes	33	22.77
No	95	65.35
Occasionally	17	11.88
Do you prefer traditional classroom examinations?		
Yes	117	80.20
No	12	7.92
Occasionally	16	10.89
Do you prefer open-book examinations?		
Yes	47	31.68
No	76	52.48
Occasionally	22	14.85

Table 3: Difficulties encountered during E-learning sessions

Questions	n	%
Did you experience technophobia before starting E-learning sessions?		
Yes	18	11.88
No	106	72.28
Occasionally	21	13.86
Did you encounter internet connectivity issues during E-learning classes?		
Yes	72	49.50
No	27	18.81
Occasionally	46	31.68
Did you experience disruptions during E-learning sessions?		
Family	52	35.64
Friends	30	20.79
Surroundings	76	52.48
Occasionally	50	34.65
None	22	14.85

DISCUSSION

The field of medicine encompasses various aspects of health, including diagnosis, treatment, and prevention of diseases, medical research, and more. The COVID-19 pandemic has necessitated a shift towards E-learning in medical education, prompting a study to evaluate its effectiveness and the perception of medical students towards it. Our study suggests that E-learning was a beneficial decision during the lockdown period. Similarly, Prageetha et al. found that the majority of students are confident in using E-learning platforms for their studies [13].

Smartphones emerged as the most preferred device for E-learning due to their compactness, cost-effectiveness, and ease of operation. Several studies have also supported the use of smartphones for online classes [14,15]. However, challenges such as affordability of internet charges and availability of electronic gadgets like laptops, smartphones, and tablets were noted to be unfavorable [13]. In terms of flexibility, most students were not flexible in attending online lectures, with traditional classroom teaching being favored over online teaching methods [16, 17].

Regarding the perception of medical students on E-learning, our study revealed an increased level of stress and anxiety post pandemic. This aligns with a study by Nishita Gadi et al., which showed increased levels of anxiety and stress among healthcare-related students [18]. Students spent significantly more time on screens during the pandemic, with an average increase from 1-2 hours to over 4 hours. Similarly, another study reported an average usage of 7-10 hours on online teaching platforms, compared to 4-6 hours before the pandemic [19]. Despite this, majority of students preferred face-to-face teaching and exams over online alternatives, as reported by Pravesh Kumar et al. [14].

A minimal number of students reported technophobia during online classes, likely due to their familiarity with technology over time. Approximately half of the students encountered internet errors while attending E-learning classes, a finding supported by other studies. Common disturbances during online classes were attributed to surroundings and family, consistent with previous reports [17, 20, 21].

CONCLUSION

The conclusion drawn from our study indicates that during emergencies such as a pandemic, online teaching can serve as a viable option to continue medical education. However, it cannot completely replace the traditional method of teaching and learning activities. Our recommendation is to blend online teaching with traditional methods to enhance medical education effectively. This blended approach can leverage the strengths of both online and offline teaching, providing students with a comprehensive and enriched learning experience.

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