

Evaluation of E-learning among Medical Undergraduate Students during Covid-19 Pandemic in a Government Medical College, Nellore, Andhra Pradesh

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ABSTRACT

BACKGROUND

Coronavirus pandemic ever since its beginning has impacted all aspects of human life. Its impact on education was more evident as all schools, colleges had to be shut down. However, Covid-19 has forced educational institutions to search for new modes of teaching. Every school and college was forced to adopt the digital medium of education or e learning. Following the preventive measures of social distancing, all conventional classroom classes were suspended due to the ongoing Covid-19 pandemic. Considering the prevailing lockdown imposed by the government and the necessary physical distancing, an online teaching session was conducted everywhere in all the medical colleges. We used a free version of Zoom for teaching classes for medical students. Students' perceptions were collected at the end of the lecture series. We wanted to understand and analyse the perception of medical students regarding e-classes, to collect feedback for further improvement of e-classes and optimum utilisation of online platform for undergraduate medical students and to assess the perceptions of medical students towards e-learning during the ongoing Covid-19 pandemic.

METHODS

A cross-sectional study was conducted at AC Subba Reddy Medical College, Nellore, in the month of September 2020 among 476 medical students of all the professional years. A pretested self-administered questionnaire was used to conduct the study. After taking verbal consent over telephone, data was collected from questionnaire sent through Google Forms. Students were asked to read each choice carefully and choose the response which best expresses his / her feelings. SPSS version 23 was used for data analysis.

RESULTS

A total of 476 students' responses was received; 137 were males and 245 were females. Around 3 / 4th were (77 %) having negative perception towards e-learning. Almost 3 / 4th (76 %) of the students used smartphone for e-learning.

CONCLUSIONS

Overall, the students felt that e-learning is not at par with conventional classroom learning but felt it to be an extremely useful mode of learning during the period of Covid-19 pandemic.

KEYWORDS

E-Learning, Conventional Classroom Learning, Covid-19 Pandemic, E-Class Material, Smartphone Devices

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BACKGROUND

Electronic (e) or online learning can be defined as the use of electronic technology and media to deliver, support and enhance both learning and teaching and involves communication between learners and teachers utilising online content".¹

E-learning involves technology and simulation, which can be repeated any number of times, exactly the same way or in changed scenario to improve the levels of learning. Innovations in technology and devices have brought a revolution in learning.² The integration of e-learning in medical education is the need of the hour. Medical Council of India, the regulatory authority of medical education in India has recognised the importance of technology in this crux situation & has included the use of electronic means in the broad competency "lifelong learner committed to continuous improvement of skills and knowledge".

Due to SARS coronavirus 2 induced Covid-19 pandemic, all the medical institutions were instructed to stop conventional classroom teaching to avoid spread of pandemic. The United Nations and World Health Organization (WHO) have acknowledged e-learning as a useful tool in addressing educational needs in healthcare workers, especially in developing countries.^{3,4} E-learning can help them achieve the goal of continuously updating their knowledge and professional skills during these already overburdened schedules. Interaction and repetitions are the cornerstones for learning any skill and e-platform stands as useful tool to enable repetition & learning.

Due to the lockdown situation however, now a lot of schools, colleges and even undergraduate medical and dental institutes across the country are moving towards e-learning. Medical and dental colleges' administrators and teachers are taking necessary measures to conduct effective e-learning via e-lectures, e-tutorials, e-case based learning, etc. so that continued education can be provided without exposing the students to Covid-19.^{5,6,7} Also various e-teaching software's are being explored by teachers to bring maximum possible ease for their students.

Despite these efforts, e-learning has reached very few medical colleges. The usage of technology in medical education is not free of challenges and following are few of hurdles which prevent the widespread usage of e-learning. Hardware and software issues: The technological infrastructure in form of hardware and software is compulsory to run e-learning program. The issues related to the hardware are cost, shortage of units, and lack of technical knowledge to operate them.⁶ The software issues include obtaining licenses and upgrading the hardware required to support them. 24-hour Internet access at both home and off-campus is necessary for e-learning to have maximum impact.

Connectivity

The success of e-learning also depends upon the Internet connectivity. Adequate bandwidth would be needed at various levels to ensure proper downloading – lower speed or interruptions lead to sub-optimal use of this modality.

Financial Issues

The impetus of starting these programs means financial burden for installation, running, and maintenance of the e-learning program. It would also need developing the infrastructure and recruiting the staff. This puts additional burden on the institution's resources, and the administrators may be reluctant to invest on e-learning.

Faculty and Support Staff Shortage

One of the most important challenges would be to ensure the availability of faculty and support staff. The medical fraternity is already overburdened and doctors are doubling up as academic persons. There is dire need of more staff for designing, teaching, and tutoring the new students about e-curriculum and modification of the existing system to complete or blend e-learning.^{1,5} The support staff is also required to maintain the equipment required for e-learning.

Technical Support

Even if the infrastructure is present, the technical support to run the system, awareness about the support materials, quick solutions to the technical glitches is lacking. The trainers are frequently not aware of the type of support required in new software. Awareness about computer technology and competency as well as proficiency in usage of computers at learners' level is 'a must' to adopt this technology.

Conventional classroom teaching has traditional face-to-face interaction; its non-availability in e-learning is a well-recognised challenge. The lack of tutor support, especially in understanding the complex and 'difficult-to understand' topics, have also been cited as a disadvantage of e-learning

Psychological Issues

There is resistance to need of change in both the teachers and students alike, especially when there are no guidelines.⁵ The need of information or guidance for grasping the concepts of this seemingly difficult topic makes learners even more sceptical. Prevailing myths about the e-learning may also discourage the learners. The attitudinal aspect is one of the hindrances in implementation of e-learning strategies in India.

Considering the drastic change of this teaching methodology in India, both teachers and students are still in the process of becoming familiar with the new system.⁸ At this point in time, it is important to find out students' opinion and viewpoint regarding this virtual approach to teaching and learning.^{5,9} Whether the students get accustomed to the new way of teaching, or would suggest any modifications or would they want to go back to the conventional classroom teaching is yet to be seen. The future implications of this method of e teaching need to be studied for making it better. Hence, this study was undertaken to know the perceptions of students towards e-learning during the lock down period.

METHODS

A cross-sectional study was conducted in September 2020 at AC Subba Reddy Medical College, Nellore, Andhra Pradesh. Total number of students in the College were 600. i.e. 1st yr. MBBS to final year MBBS. Students who gave consent and who were available at the time of the study were included. A total of 476 students participated in the study.

A pretested self-administered questionnaire was used for conducting the study. Institutional ethics committee approval was obtained. The purpose of the study was explained by E-mail. After taking verbal consent over telephone, data was collected through questionnaire sent through Google Forms. Students were asked to read each choice carefully and choose the response which best expresses his / her feelings.

Statistical Analysis

SPSS version 23 was used for data analysis.

RESULTS

A total of 476 MBBS students from first year to final year participated in the study. Among the 476 students, 193 (40.5 %) were males 283 (59.5 %) were females. Majority, 196 (41.2 %) of them were residing in urban areas. The demographics of the participants along with the choice of gadgets used for their e-learning are shown in Table 1.

It was found that 451 (94.7 %) of the students were using smartphone for their e-learning. Very few, 8 (1.7 %) and 3 (0.6 %) were using laptop and desktop respectively. About 250 (52.5 %) felt e classes gave opportunity to clear their doubts.

255 (53.6 %) wanted a 5 minute break within the duration of the class. 358 (75.2 %) were willing to listen the class again in case they missed the class due to some unavoidable reasons. 361 (75.8 %) wanted the summary of the previous class to be discussed at the beginning of the class. About 361 (75.8 %) of the students have negative perceptions towards e-learning.

The overall perception and category wise responses of students towards e-learning are shown in Table II. Many students were of the opinion that the duration of class should be around 45 minutes. Almost 3 / 4th of the students, 356 (74.8 %) preferred class timings to be between 10 - 12 pm. Majority of the students 298 (62.6 %) opined to get class related material beforehand for better understanding of class. Around 211 (44.3 %) wanted extra time to set aside for clearing of their doubts.

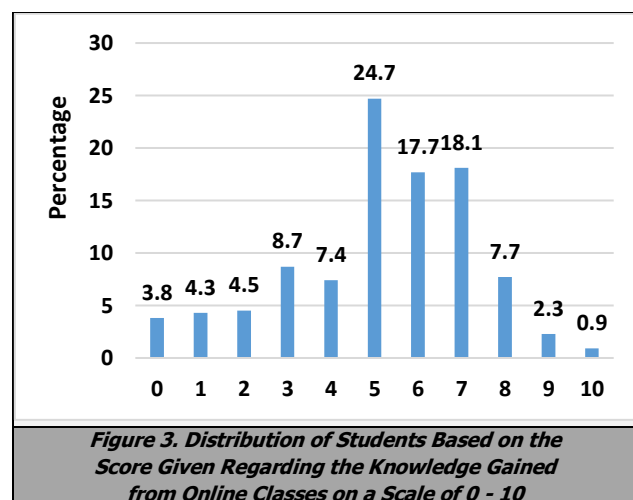
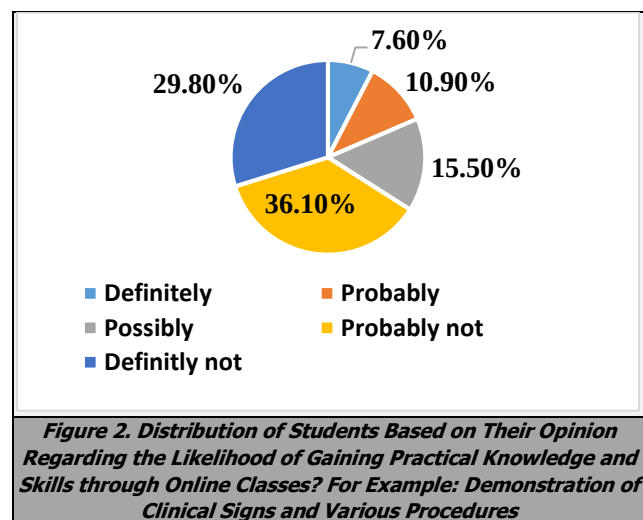
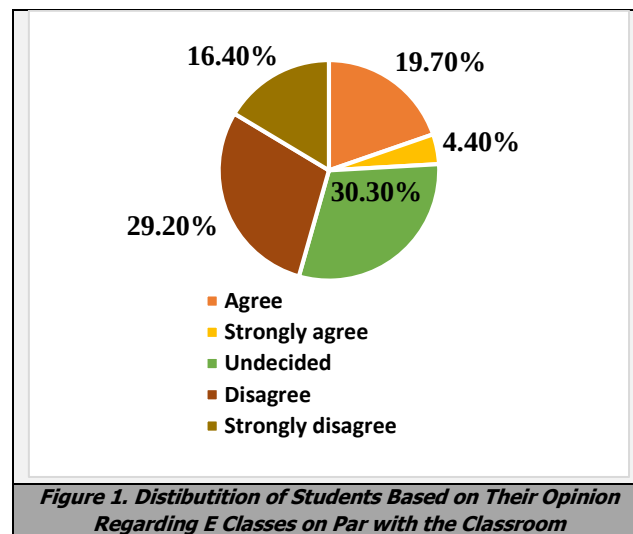
Figure 1 shows that 74 (16.4 %) strongly feel that e classes are not in par with conventional classroom while a meagre 21 (4.4 %) strongly felt that e classes are on par with conventional classroom. 30.3 % were undecided.

Figure 2 shows that 7.6 % felt that online class will definitely help them gain skill and knowledge, while 29.8 %

felt the opposite i.e., did not help them gain skill and knowledge.

Figure 3 shows that when students were asked to respond regarding the knowledge gained through online classes on a scale of 0 - 10, majority of the students (24.7 %) rated 5 on a scale of 10.

Around 17.7 % rated it as 6, 18 % as 7, 7.7 % as 8 respectively. Only few 0.9 % rated it as 10 i.e., gained more knowledge through online classes.



DISCUSSION

Our study showed 476 students, 94.7 % of them used smartphone gadgets for their e-learning. This is in contrast to a study done on university students by Abbasi S et al.¹⁰ where only 76 % of them used smartphone gadgets for their e-learning.¹¹ In a study done by Robert V only 66 % used smartphones for e-learning.

In our study most of the students 361 (76 %) showed negative perception about e-learning. Almost half of them 219 (46 %) students felt e-learning has little impact on their learning. Majority of the 361 (76 %) students preferred conventional classroom teaching over e-teaching. Similar findings were observed in a study done by Abbasi S et al.¹⁰ The key outcome of the result shows that the students are not yet ready for e-learning.

Smartphone has become the most popular devices among students for e-learning as compared to laptops and tablets.¹² A research done in Spain revealed that students chose smartphone over other devices like laptop, tablet, and desktop for their learning as student-teacher interaction was much easier on smartphones.¹³ Another very common reason for this is that learning can take place anytime and anywhere as discussed in the article by Angela Murphy and her co-authors.¹⁴ The results of this study were contrary to our study results as smartphone was the second choice for e-learning after laptop, whereas, in our study laptop was number two preference after smartphone. This is consistent with the students' preference in many other countries like China, Malaysia, and Singapore etc.¹⁵⁻¹⁷ Raymond Selorm also revealed in his study that in comparison to face to face learning, students were more satisfied with e-learning.¹⁸ However,^{19,20} in our study student's preference was 75.8 %.

Post Covid-19 outbreak, students in India were forced to move to online learning, however, they have found online teaching less appealing due to its limitations with respect to practical aspects of learning in the lab / clinical environment. E-learning will potentially change the face of medical education in India in the coming years.

For this to happen, institutions and teachers need to be prepared to accept the change, and put-in the necessary resources whether manpower or time or money. Motivation and self-discipline; ability to study independently or schedule study time; understanding the e-learning process; and adequate equipment and dedicated workspace and support are the most essential attributes for successful integration of e learning in the existing curriculum. It is up to the faculty in medical colleges and academicians to incorporate these modalities, and up to researchers to test these in the Indian settings and inform the decision-makers. Limitations of the study is that it was done among students of a single government medical college. Similar studies have to be done in other colleges in different places to generalise the results.

CONCLUSIONS

Despite huge popularity gained by the digital medium of education in India, medical students have not welcomed it

as the next teaching modality. Students still prefer the conventional didactic classroom teaching rather than e-teaching. The medical faculty and administrators should take proactive measures in improving quality of e-teaching to make e-teaching more interactive and interesting.

We recommend optimizing the timing & duration of e-classes to 45 minutes & provide e-class material to the students few days beforehand for better understanding of the class & optimal use of e-platform. Students also suggested to dedicate 5 minutes of the class for clearing of their doubts related to class.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

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