### **Original Research Article**

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20210232

# E-learning in COVID 19 period: first year students' perspective: a web-based Google form descriptive study

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**Received:** 22 November 2020 **Accepted:** 08 January 2021

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#### **ABSTRACT**

**Background:** The current COVID-19 pandemic has drastically changed the paradigm of medical education. Face-to-face mode of teaching was the basis of traditional medical education. In this crisis situation, e-learning has become the only method of education for continuous learning. In this study, we attempt to find out the students' perspective of various aspects of e-learning.

**Methods:** For the purpose of the study, a questionnaire was prepared to understand student's attitude towards elearning, their likes and dislikes about e-learning and also suggestions from their end to improve the existing modes of e-learning. The set of questionnaire (Google forms) along with informed consent was shared via whatsapp group at the end of physiology theory teaching session.

**Results:** 175 first year MBBS students gave their consent and participated in this study. The most preferred method of e-learning was power-point with recorded narration and the least preferred method was live classes. Poor connectivity issue is the major challenge faced by the students in our study.

**Conclusions:** In this COVID-19 era, the future of medical education has changed forever. E-learning is the new normal method of teaching. In order to be effective, students require support from Government, faculties and parents.

Keywords: COVID-19, E-Learning, Web-based survey

#### INTRODUCTION

Worldwide, people have been grappled by the corona virus pandemic which has destabilized the normal lives. People are still living with the norms of social distancing and personal hygiene. In this context, the education system has been upended drastically. Medical education has not been spared too. In order to maintain social distancing, educational institutions including medical schools have been closed indefinitely. According to estimations, there are 1.5 billion learners affected by school and university closures (UNESCO, 2020). Inperson classroom teaching has been suspended and replaced by virtual classrooms. The profound effects of coronavirus disease 2019 (COVID-19) might forever change how future physicians are educated and we as

medical educators can play a huge role in this resourcechallenging times. In this crisis, e-learning is one of the important modalities for continuous learning.

E-learning is the form of learning in which information is passed between student and teacher via numerous technologies without any physical presence. From many aspects, it differs from the traditional format of teaching which is mainly based in face-to-face classes and also from self-learning programs in which students engage themselves in independent private studies as well as from the other use of technology for education. E-learning is based on the theories of general education and distance education. E-learning is not a mere set of infrastructure but rather a concept of learning that promotes the use of different technologies and media. Evidence shows that

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e-learning can support traditional curricula by supporting clinical decision making, constructing a sense of learning responsibility. The biggest advantage of e-learning is the flexibility it offers both in terms time and location.

### Advantage for learning disabled and for those with mental disability on medication

The provision to save and repeated practice are advantage for slow learners and those who miss classes because of health issues and those on frequent counselling and on medications which need more sleep (antiepileptic).

E-learning also helps students in developing positive attitudes regarding their learning abilities. Studies have shown the need of effective technology to make sufficient time for self-learning and personal relaxation. Students should be given a chance to study or choose the time when he feels to study. There are certain challenges in elearning too. For e.g. not all parts of healthcare education are suitable for e-learning. Learners can be in different environments at the time they are engaged in e-learning activities; home, lunchroom, library, cafeteria, etc. Each environment has its distractions. Learners can have trouble maintaining self-discipline for studying; there can be connection issues (firewalls, available bandwidth), risk of technical failure and providing equipment for learners in need.

Under normal circumstances, traditional education and elearning have been used in a "blended" format, since both methods have their advantages and disadvantages. But in this COVID 19 times, e-learning can be the future of medical education if applied and utilized with proper and judicious use of technology tools. There are different approaches to e-learning. It can be synchronous or asynchronous. Synchronous e-learning involves online studies through video conferencing like webinars. This kind of learning is real-time. Asynchronous learning occurs through online channels without real-time interaction.

The structure of medical education lies on the basic foundation of patient-centred approach with equal importance given to classroom teachings as well as practical demonstrations. The students learn the techniques and develop skills in these practical sessions. Recently, this very ecosystem has been severely disrupted raising doubts about the future of medical condition. In this context, one might think that this is going to reshape medical education. How we will teach the medical students remotely? What could be the possible ways to make the medical students competent enough as medical graduates? How will this e-learning help us to mentor a student that shapes their career? As part of the medical teaching fraternity, these questions are now too difficult to avoid. Therefore, through a feedback from the students by this study, we attempt to find out these answers from the students themselves by a qualitative analysis of student perspective on different electronic teaching methods using to teach physiology theory classes in Government medical college Alappuzha. This will help us to blend the most appropriate e learning methods into the competency based medical education curriculum.

Medical education has unique attributes which make it arduous. A graduate doctor has to perform many intellectual, communicative and psychomotor skills which are complex and difficult for most students to master within a short duration of course of medical studies. There is need for a strategy of solving the broad problem of knowledge expansion by defining a narrower core to gain basic concepts to build on, while at the same time trying to make the material relevant and contemporary to develop skills they will need in the workplace. In fact, CBME curriculum emphasized elearning to accomplish the dream of role model Indian medical graduate. Of course this pandemic has fast-tracked the implementation of e-learning in medical education.

E-learning offers the students a chance to continue learning at anytime, anywhere. This is actually beneficial to the students since time management is one of the biggest challenges faced by medical students. Studies have shown that due to improper time management, students often fall prey to mental stress which reduces their academic performance and overall wellbeing.<sup>2,3</sup> Studies have shown that not all time management works for everyone. It rather depends on individual circadian rhythm.<sup>4</sup> Some students prefer to study in the early morning while some prefers to read late night. Studies conducted at the University of Zurich led by Steven Brown showed that the natural biological rhythms of 50% of participants in the study were more or less out of step, and these participants often reported suffering from problems of insomnia or insufficient ability to concentrate on a task.<sup>5</sup> Liaghatdar et al also described the sleep-wake rhythm and internal rhythm of the body as having an effect on the cognitive activities of people and different people show different performances at different hours of the day. 6 So it is very essential and logical to implement e-learning which suits all types of students. This will give them a chance to self-learn at their own pace and comfort.

Studies have also shown the benefit of incorporating multimedia during lectures. This creates more interest in the students and they are more engaged.<sup>7,8</sup>

Clear statistics on how medical students are affected in this pandemic are currently not yet available. In the recent past, SARS pandemic affected the world which disrupted medical education. Studies have shown how distance learning played a prominent role in continuing medical education during the outbreak. 9,10

Since there are no clear predictions on how the pandemic will navigate through time, medical education seems to have transitioned to e-learning for the near future. Therefore, the need of the hour is to conduct studies to

understand a student's perspective of dealing with this sudden change in medical education.

#### **METHODS**

This study was designed as a descriptive web-based survey. The study population included all first year MBBS students of 2019 August admission at Government TD medical college, Alappuzha. All the students who were willing to participate in the study were included after obtaining consent.

#### Questionnaire preparation

For the purpose of the study, a questionnaire was prepared to understand student's attitude towards elearning, their likes and dislikes about e-learning and also suggestions from their end to improve in the existing modes of e-learning. For this, we have divided the questions in the manner given in Appendix.

Having set up the questionnaire, we then did piloting of questionnaire on a small sample of respondents.

#### Data collection procedure

After obtaining Ethical Committee Clearance, a whatsapp group was created in which all the first year MBBS students were included. The objectives of the study were explained through whatsapp chat. The set of questionnaire (Google forms) along with informed consent was shared via whatsapp at the end of physiology theory teaching session. It took almost 3 weeks to receive all the students' response. A total of 175 first year MBBS students of Government TDMC Alappuzha, participated in the study.

#### **RESULTS**

The primary objective of this study was to examine the preference of the students regarding the online classes. The secondary objective of the study was to get suggestions to improve the existing e-learning methods

being followed for physiology theory classes at Government TDMC, Alappuzha.

Findings from the analysis of data gathered from the present study are presented below.

#### Students' preference for e-learning/online class

The students were asked some open-ended questions regarding their likes/dislikes about various aspects of e-learning that they are exposed to and also to state the reason for the same.

Table 1: Students' most preferred method of e-learning.

Response	Frequency	Reasons
Google class room	47	Students could access the material at their own convenience
Power-point with recorded narration	49	Easy accessibility; convenience
Power-point without recorded narration	4	Convenience
Pre-recorded videos	23	Convenience
Pdf	9	Convenience and easy storage; no connectivity issue
Whatsapp chat	4	Material can be saved in mobile gallery and hence easy accessibility
live class	13	Students are more serious, more attentive and won't procrastinate the topics
None	3	Mobile only available, not comfortable to sit before the screen, never used gadgets

Table 2: Students' least preferred method of e-learning.

Response	Frequency	Reason
Live class	100	Poor connectivity issues; difficulty in following the pace of the class, taking down notes; consumption of large amount of internet data; power disruptions, hence unable to attend; inability to access the material in the future; strains the eye to look at the screen for long time; classes are fixed at times without schedule
Power-point with recorded narration	1	Inability to follow power-point slides with poor narration
Power-point without recorded narration	18	Doubts cannot be cleared; difficulty in understanding; inability to follow power-point with too many slides
Pre-recorded videos/ lectures	3	Tends to pile up; doze off
Whats app	8	Difficulty to sync the power-point and the voice; uninteresting; reading material gets lost

Continued.

Response	Frequency	Reason
PDF	8	Difficult to understand
All modes	3	difficult to stare at the screen for long hours
None of the modes	2	no reason specified

Out of 175 students, 152 students responded. Power-point with recorded narration was the most preferred method (Table 1).

Out of 175, 125 students responded. 100 students considered live class in any platform is the least preferred method of e-learning (Table 2).

## Suggestions from the students for improvement in the existing e-learning method

In our study, students have shared their opinion as well as suggestions to improve the existing e-learning method. These are:

"Difficulty in studying with the phone/gadgets". "No laptops". "Major textbooks are at the hostel". Hence not comfortable with e-learning.

"Some relaxations in sending assignments"

"No Webex" "no live classes"

"Audio in power-point should have more clarity"

"Please don't delete the lectures from Google classroom"

"Very much satisfied with all the classes. More videos would be helpful"

"Appreciate the efforts of the teachers during this crisis"

"Less number of slides should be there in power-point". "Should be more interactive rather than asking mere questions"

"Assignments and MCOs can be more and better"

"All the power-points including those taking prior to lockdown should be put up in a common platform to access"

"Please hand out notes in the form of pdfs if live classes are taken"

"E-learning is not effective for practical classes. Unable to understand"

"Stop e-learning"

"The pacing of the narrated videos could be a bit slow"

"Provide technical assistance for students and faculties"

"More technical knowledge and better content or resource provision for students"

"Internet facility should available at rural areas". "Availability of resources is the main problem". "Technical difficulties to be addressed."

"Thanks a lot for all the care in learning even in this time of crisis and we all respect the efforts taken by all the facilities".

#### **DISCUSSION**

In our study, the most common method of e-learning that the students were exposed during lockdown period was power-point with recorded narration. Interestingly, this was also the most preferred method of e-learning among the students followed by Google classroom. According to the students, power-point with recorded narration is easy to access and convenient in taking down notes. Thus, this points out that the students in our study are more comfortable with the asynchronous method of e-learning. Google classroom was the next preferred method. The reason being that the reading materials can be stored easily and can be retrieved when required. The least preferred method of e-learning is live classes through Webex. In our study 100 students responded that they don't like live classes because of the poor connectivity issues and consumption of large amount of data. Some of the students have never been exposed to gadgets since childhood hence they are not comfortable with the current e-learning method. Also, it is difficult for some students to stare at the screen for long hours which strains the eyes. From this, we can think of giving breaks in between online classes so that the students get enough time to relax themselves. In our study, the major technical difficulty faced by the students during online classes was poor connectivity issue. 92% of the students in our study use mobile phone for attending online classes. This is tiring for both their eyes and brain. 76% use mobile phone data as the source of internet. Students are shelling out their own money to attend online classes by investing in mobile internet data which is a cause of concern. In our study some of the student's annual family income was less than one lakh and few of the students annual family income was one lakh to less than five lakh. It is difficult for these students to invest money on mobile data pack. The reading materials provided by the teachers are stored in the mobile phone by most of the students (93.7%). None of the students take print out. When the students were asked about their preferred method of storing the

reading materials, out of 175 students, 116 students preferred storage in device as there is no fear of loss of teaching materials. Some of the students pointed out that taking print outs is costly and in the current pandemic situation, storage in device is much more convenient. 56 students said that they prefer taking print outs because it is less eye straining and can be accessed when the device is lost or damaged. 3 students preferred both methods (print-out and device) of storage of reading materials convenient.

Table 3: MCQ responses which got maximum support.

Question	Response (%)
Which are the modes of e-	Power-point with
learning you are exposed to	recorded narration (52)
What is the online course platform used by your faculties?	Webex (84)
Do you face any difficulties while attending online lectures?	Poor internet connectivity problem (62.2)
What type of internet access you have at home?	Mobile phone data (76)
What device are you using for attending online classes	Mobile (96)
How are you saving the teaching material?	Mobile (93.7)

In our study, we also wanted to know students level of satisfaction regarding the various aspects of e-learning methods used by the faculties. 52% considered the format of online classes as good. 56.5% considered the learning outcome coverage as good. 38.8% considered the faculty's technical knowledge as good and 34.2% considered it as very good. 44% considered the educational content used in lectures as very good. 38.8% considered the level of interaction done by the faculty as good. 37.1% considered the faculty's promptness in answering the queries as good. 32% considered the internet access as good, 31.4% considered it as average and 16% considered it as below average. In our study 36% students considered the learning environment as good, 25.1% considered it as average and 20% considered it as very good.

Thus, we can say that in our study students were overall satisfied with the e-learning but the students are finding it difficult to overcome the following challenges: 1) poor internet connectivity; 2) large cost of internet data pack; 3) being engaged on mobile phone for long hours.

Most of the students have suggested keeping sessions for discussion where the students can clear their doubts and queries. For this we can go for small group teaching consisting of 6-8 participants with one faculty as trainer/mentor. Students want the lectures to be more interactive. More pictures should be included to make the

content more engaging. The number of slides in the power-point should be reduced. Faculties should provide the teaching materials prior to classes so that students get an idea of the lesson. Notes in the form of pdf should be provided at the end of live classes. Mentoring sessions should be implemented periodically where the students can share their concerns. More frequent online exams or revisions should be scheduled.

#### **CONCLUSION**

E-learning is the future of medical education. But its successful implementation is very much challenging in developing country like India because of varied socioeconomic profile and demography. Thus, government interventions are desperately needed. Along with that equal support from faculties as well as the parents should be there to make it a grand success. Thus, the hindrances can be overcome only when we approach it holistically.

#### Recommendations

We could cover up most of theory part of physiology via online, power-point with recorded narration, pdf effectively. In the post COVID period we can have a hybrid method of both e-learning and face to face classes. In Kerala, students will need free Wi-Fi in the campus to support e-learning. Faculties should have training for effective e-learning. Institution's medical education unit should support faculty with manpower and electronic facilities, uninterrupted power supply.

COVID pandemic taught us that changes are inevitable and changes are possible with overall support and effort.

#### **ACKNOWLEDGEMENTS**

Authors would like to thank all the first year MBBS students who participated in this study.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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Cite this article as: Rose DC, Mani K. E-learning in COVID 19 period: first year students' perspective: a web-based Google form descriptive study. Int J Community Med Public Health 2021;8:743-9.

#### **APPENDIX**

- 1. Students perception about e-learning- These were a set of multiple choice questions
- Which are the modes of e-learning you are exposed to
- What is the online course platform used by your faculties?
- Do you face any difficulties while attending online lectures?
- What type of internet access you have at home?
- What device are you using for attending online classes
- How are you saving the teaching material?
- 2. Students overall experience about e-learning- These were a set of questions put into a 5-point Likert Scale format. Please rate the following questions using the below mentioned rating scale: (1: below average 2: average 3: good 4: very good 5: excellent)
- How much are you satisfied with the online class format?
- How much are you satisfied with the learning outcome coverage in lectures?
- How much are you satisfied with faculty's technical knowledge/preparedness?
- How much are you satisfied with the educational content used in lectures?
- How much are you satisfied with the resources provided by your faculty?
- How much are you satisfied with the level of interaction done by the faculty?
- How much are satisfied with the faculty's promptness in answering your queries?
- How much are you satisfied with the internet access?
- How much are you satisfied with the duration of online classes?
- How much are you satisfied with the learning environment?
- 3. Students preferences for e-learning- These were set of open-ended questions
- Which of the e-learning method do you like the most and give reasons
- Which of the e-learning method do you dislike the most and give reasons
- Which of the methods of saving the teaching material do you prefer?
- Please mention your annual family income