

The Pedagogical Shift During COVID 19 Pandemic: Online Medical Education, Barriers and Perceptions in Central Kerala

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ABSTRACT: Owing to COVID 19 pandemic, all educational institutions including medical colleges were closed by the second week of March 2020 in Kerala, India. This college started online classes using various e-platforms by the third week of March. In this study, we report the barriers and perceptions of undergraduate students by an online questionnaire after 2.5 months of e-classes. The study participants were 364 students who responded in a week's time. Most of the faculty used platforms like Google class room or recorded YouTube videos. The department of Physiology used the Impartus platform. Among the respondents 72.8% were using mobile data and 17.8% were using broadband facilities. Among network providers Jio was the most used. Only first year students were exposed to 3 different online platforms. Among those students, 63.6% reported in favor of Impartus, followed by YouTube and Google class room. Most of the students preferred recorded classes (69.2%) over live classes (33.5%). Submissions were mainly through the online platform itself (69.5%), email submission to the department (17%) or to the faculty (13.5%). Forty seven percent of the students wanted the classes to be of 30 to 45 minutes duration and 42% felt that the classes should be short and below 30 minutes. Only 28.3% of the students favored centralized online class by the university. Providing education to students cannot be discontinued for long. In the present study students are able to follow the online classes and have good learning experience on in the Didactic part. The medical educators could rise up to the challenge of continuing to teach even in times of crisis.

KEYWORDS: Online classes, COVID 19, MBBS, pedagogical shift, Central Kerala

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Introduction

The Novel Corona Virus Disease (COVID-19) outbreak was declared as a pandemic by World Health Organization on March 11, 2020 and there was a sense of fear and panic all around the globe. Before that it was a Public Health Emergency of International Concern as on January 30, 2020. This Medical College, being an institution in the epicenter of the first report of COVID in India¹ also had to follow the instructions from the Government to contain the spread of the disease. Amidst all the uncertainty and shock, medical colleges along with other educational institutions are obliged to stick to their basic values and ethical responsibilities, which give academics a sense of direction and credibility.²

The Medical colleges had to be closed down in the midst of ongoing university examinations. The students were to return to their homes, some of them abroad. The paradoxical dual role of medical students was that, as the future health-care workforce, they potentially form part of a health-care system's response to public health emergencies but, now they are considered non-essential in clinical delivery.³ Due to rising number of COVID 19 patients following the return of Non Resident Indians (NRIs); Government of Kerala started contact tracing and quarantine of individuals

at risk. Government of India clamped a lock down of the Nation on March 25, 2020.

In the wake of this emergency situation, educational institutes around the globe have shifted their operations to online learning. The educational institutions of India like Indian Institute of Technology Delhi, Delhi University, Jawaharlal Nehru University, Jamia Millia Islamia, Netaji Subhas University of Technology and more have stopped their offline operations and have shifted to their teaching-learning procedure online.⁴ This college also started online classes using various e-platforms. In this article, we report our experiences with undergraduate students in the online learning process.

Methodology

This medical college offers undergraduate (MBBS) and post graduate (MD/MS/DM) programs. The post graduate students were working in the hospital uninterrupted. The study participants included only the MBBS students of this medical institution for whom regular online classes were started as soon as the college had to shut down. An online questionnaire was prepared and sent to all the students through emails and other social media after 2.5 months of online classes. The questionnaire was given on June 5, 2020 to the students and they were



given a time of 7 days to complete the survey. The Google survey was used for collecting the responses. The questionnaire included details on basic demographics followed with pre requisites for attending the online class, like the availability of electricity, internet and gadgets for the same. The preferred method by each student was also requested. The contents of the questionnaire are the following. The questions were mainly multiple choice questions, with an option to write down; if it was none of the options:

Students were asked the following few questions related to the present online classes

- 1 What was the main barrier faced in attending online courses?
- 2 Which online method is preferred?
- 3 Are the Timetable shared beforehand and how many days back?
- 4 How are assignments being submitted and is it more than what can be done?
- 5 How was attendance noted in the online classes?

Certain questions for future planning of online classes were also collected

- 1 How long would you prefer each online class to be?
- 2 Would you need repetition of online classes when we restart usual classes?
- 3 Would you like the online classes be continued after regular classes start?
- 4 Would you like to have your practical sessions also online?
- 5 Would you like to have your online sessions to be available for later usage?
- 6 Do you have access to online classes of other medical colleges?
- 7 Would you prefer a centralized online classes conducted by KUHS rather than each MCH?

A total of 402 MBBS students of which 104 were first year, 100 students from second year, 95 of third year Part 1 and 103 students of third year Part 2 took part in the study. The online platforms used for taking classes in the college were not uniform. Various platforms were used by different departments and faculty. Most of them used either Google class room or recorded YouTube videos. The Department of Physiology used the Impartus platform. The selection of the platform was done by the Faculty with the consent of the Head of Department.

The data collected were analyzed and reported here.

Observations

A total of 364 students (90.5%) responded to the survey out of the 402 available students. The mean age of the study population was 21.2 years. Female students comprised around 69% of

Table 1. The response rate of students about online platform.

YEAR OF STUDY	TOTAL	RESPONDENTS	PERCENTAGE
First year	104	87	83.7
Second year	100	93	93.0
Third year Part 1	95	85	89.5
Third year Part 2	103	99	96.1
All batches	402	364	90.6

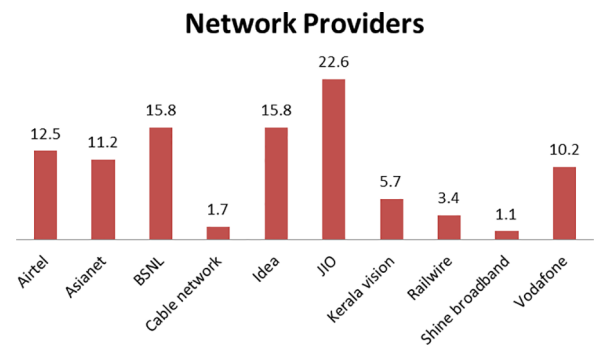


Figure 1. Networks and user percentage.

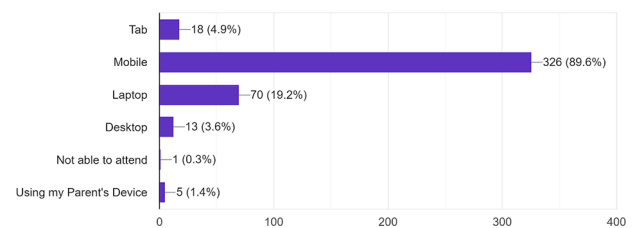


Figure 2. Type of gadgets used.

the study population. The response rate was higher from third year Part 2 and second year students (Table 1). One third responders (37.6%) were living in the same district of Medical college. A few students were from outside the state and outside the country.

Among the respondents 99.7% were attending online classes, of which 72.8% were using mobile data and 17.8% were using broadband facilities for their internet needs. Around 8.8% had access to both and the rest 1.2% were using other modes for internet connection. The various network providers were also assessed, showing Jio (an Indian telecommunications company by Reliance) the most used (Figure 1). Various types of gadgets were used by the students for availing the online facility. Mobile (89%) being the most common followed by laptop, Tablet, and desktop, respectively (Figure 2). Five students had to use their parent's device to attend to the online classes. Most of the students could attend the online classes without many problems. The main barrier faced were the problems with network connectivity and power failure (Table 2). Only first year students were exposed to 3 different online platforms as the selection of the Platform was by the faculty. They

Table 2. The type of barriers and the percentage of respondents.

BARRIERS	PERCENTAGE
Continuous use of mobile causing eye problems	1.2
Over loading of classes	1.7
Not interested in online classes	4.5
Power fluctuation (electricity)	13.8
Not facing any problems in attending online classes	35.1
Network issue (poor range)	43.7

Table 3. Duration of classes preferred by students.

DURATION OF CLASS	PERCENTAGE
30-45 min	47.1
Less than 30 min	42.5
Fine with any duration	5.5
Not less than 1 h	3
1 h	0.3
Anything under 2 h	0.3
Around 30-40 min	0.3

were asked about the most student friendly platform. A total of 63.6% reported in favor of Impartus, followed by YouTube and Google class room.

Most of the students preferred recorded classes (69.2%) over live classes (33.5%). Some students (6.3%) did not like online class in general. Fifty four percent of the students stated that the Timetable was shared beforehand. Submission of assignments was the method used for receiving attendance. Submissions were mainly through the online platform itself (69.5%), email submission to the department (17%) or to the faculty (13.5%). A few students (2.5%) were apprehensive of no acknowledgment to their assignment submission and attendance. Forty eight percent of the students felt that the amount of assignments were more than what they can do.

Forty seven percent of the students wanted the classes to be of 30 to 45 minutes duration and 42% felt that the classes should be short and below 30 minutes (Table 3). About 96% of the students wanted the recordings of these online classes to be available for later viewing. Around 82% of the students did not want the practical classes also to be made online. Forty four percent of the students wanted a repetition of online classes to be taken once college reopens. A good number of students (39.3%) felt that the online classes should continue even after regular classes resume. Only 28.3% of the students favored centralized online class by the university.

Discussion

The COVID-19 pandemic is posing challenges to our health care system. Ensuring effective training to medical students in the present scenario is one such challenge for medical teachers. The conventional teaching methods face hindrances due to fall in routine clinical load, inability for examination in closeness due to social distancing and students living away from hospitals due to quarantine or lock down.^{5,6} Use of methods ranging from self-study to e-learning technologies⁷ are some of the methods for facing the challenges.

The technological solutions -video-conferencing⁸ and e-learning platforms^{9,10} are of help to deliver lectures or tutorials while students can attend staying in remote ensuring social distancing. With hand-held devices and laptops teachers and students can log in at convenient and designated times for discussions, even in real time using teleconferencing applications.

In this study report we are presenting responses received from students regarding their experience with use of e-learning facilities for medical subjects. The responses received were analyzed systematically. The large number of responses shows the interest and penetrance of technology among the Medical students. The availability of Gadgets and network connection was not a big problem for any of the students. Some of the students experienced temporary disruptions to weather related network or electricity disruptions. There are reports showing medical students with high level usage of webinars for lectures to learn.¹¹

Recorded classes were preferred by majority of the students as they felt they could attend at their convenience. Some opined they could adjust to their speed of learning by pause and restart. The students exposed to 3 different teaching rated Impartus as most student friendly. But being a paid online teaching tool, it had to be discontinued on financial reasons of the current times.

Most of the students wanted the duration of each class to be capped at a maximum of 45 minutes, which could be attributed to maximum attention span a student can have. Many of the students wanted a repetition of the classes when college resumes as they felt that real time classes would be more useful and memorable.

Most of the students did not want the practical sessions to be made online as they felt it can never be learned virtually. Information from across the world showed simulation and demonstration along with various e-learning would be the way forward especially in medical education.⁸ Lack of "patient contact and time in the wards" cannot be provided through online methods are hence reported as limitations.¹² The scope for online teaching of preclinical subjects is not new or a matter of dispute. But compromises will happen in developing communication skills and interpersonal relatedness. Speaking to patients with confidence, discussing care plan with colleagues or even presenting academic work are

necessary skills to be learned by a medical student. Minimal in-person teaching in e-learning is a matter of concern. Need for more doctors entering into practice by the end of every academic year is a requirement, but compromise on standard can negatively influence patient safety and public health. It will be medically unethical also.¹³ A shift to online teaching-learning, lowered face to face contact and changes in current methods of examination are anticipated in the post COVID 19 period globally.¹⁴

The transition to online medical education has also seen a change in examination methods. The Imperial College London successfully conducted online examination for final years.^{15,16}

Almost all the students wanted the recordings of the online classes to be available for later viewing which would be useful for revision and last minute brush up before examinations. Only a few students were of the opinion of continuing online classes after resuming regular class room programs. Only a few favored centralized classes by the university. This could be due to unfamiliarity with teachers in other colleges, anxiety about the bureaucratic hindrances to smooth conduct of classes or lowering prestige of own college.

Providing education to students cannot be discontinued for long. Conducting effective distance education in the background of inexperience and immediate need is a real challenge.¹⁷

Conclusion

Any disaster including public health crisis like Covid-19 adversely affect medical education. In long term crisis situations especially, alternate methods for continuing the training have to be implemented. Technology can be harnessed for such purpose. In the present study students are able to follow the online classes and have good learning experience on the Didactic part. An active involvement of faculty would facilitate identifying the barriers and resolving it. The medical educators could rise up to the challenge of continuing to teach even in times of crisis, though the effective use of e-learning platforms.

Author Contributions

AMR ,PRV, and PK jointly developed the structure and content of the paper. All authors agreed on and approved the final manuscript.

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