

## Original Research Article

# Perception of undergraduate students towards online teaching during COVID-19 pandemic in a medical college in Hyderabad, India

Abhishek Pokkuluri, Mouna Raparthy, Vinod Kumar Parvatham,  
Sunil Pal Singh Chajhlana, Harika Merugu, Phani Raj Nakkarakanti,  
William Peddapanga, Vineesh Allenki\*

Department of Community Medicine, Kamineni Academy of Medical Sciences and Research Centre, Hyderabad, Telangana, India

**Received:** 05 December 2022

**Revised:** 02 January 2023

**Accepted:** 05 January 2023

### \*Correspondence:

Dr. Vineesh Allenki,

E-mail: [vineeshtheunbeatable@gmail.com](mailto:vineeshtheunbeatable@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** The emergence of the COVID-19 pandemic has affected medical education and clinical training and forced medical schools to switch over to online teaching. To assess the success of online learning, knowing students' perceptions is an important criterion. The present study evaluated the students' insight toward online teaching and learning. Aim of the current study was to evaluate the students' perspective toward online teaching through an online questionnaire in the challenging time of the SARS-CoV-2 pandemic. Objective of the study was to assess students' perception of online teaching and barriers faced by them.

**Methods:** This institutional-based cross-sectional study was conducted between 1 September to 30 September 2021 at medical college, Hyderabad. Out of 600 students of MBBS 1 to 4 year, 329 agreed to participate. They were given an online questionnaire that included the Dundee ready education environment measure, to assess students' perception of the educational environment. A part of it was used, i.e., SPL (students' perception of learning) domain, to assess the student's perception.

**Results:** Overall score of perception of online teaching-learning according to the SPL domain was  $23.41 \pm 4.61$ , which was less than the optimal score of 25, which indicated many problems in this method of online teaching-learning. 67.5% preferred face-to-face teaching to online teaching.

**Conclusions:** The COVID-19 pandemic has drastically affected traditional teaching-learning methods, and online teaching has emerged as a boon to continue the learning process. However, many students faced many obstacles adapting to this new learning model. Hence, the offline mode of teaching was preferred over the online mode.

**Keywords:** COVID-19, DREEM, SPL, Online teaching

## INTRODUCTION

COVID-19 is a highly infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which originated in Wuhan city of China. COVID-19 is referred as pandemic due to its severity and fierceness and also as the greatest global health crisis till date. COVID-19's quick rise as a pandemic has had an impact on practically everyone's life and has transformed the way

people used to interact.<sup>1</sup> It has also had an impact on medical education and clinical training, forcing medical institutions to transition to an online teaching approach. Medical education and clinical training have traditionally emphasised classroom teaching and bedside training, while several e-learning methods have recently gained popularity among students and teachers.<sup>2</sup> COVID-19 has been a once-in-a-lifetime experience for medical teachers and students, and that is not an exaggeration. Given the lack of expensive

gadgets, high-speed network challenges, and a lack of experienced teachers for online education, this is especially difficult in a resource-constrained country like India.<sup>1</sup> Students have both opportunities and obstacles when learning online. Accessibility, the use of proper methodologies, and course content, all play a role in the success of online learning. The goal of this research was to find out how students felt about online teaching and learning.

## METHODS

### Study type, location, duration and population

Current study was an Institutional based cross-sectional study conducted at Kamineni academy of medical sciences, LB Nagar, Hyderabad from September 1 to September 30, 2021. Study was conducted on students in the first to fourth years of MBBS

### Inclusion and exclusion criteria

Inclusion criteria for current study were; should be a student of MBBS and should be willing to participate and give consent. Exclusion criterion for current study was students who are not willing to participate.

### Sample size

In the institution where the present study was conducted, there were 600 MBBS students, out of which a total of 329 students had given consent to participate in the study.

### Study tool and data collection

The data was collected using a semi-structured questionnaire that had been pre-designed and pre-tested. A pilot study was done, and appropriate improvements were made before the actual study began. Students were given a questionnaire to examine their perceptions of online teaching. Students' perceptions of learning domain (SPL) from the Dundee ready education environmental measure (DREEM) questionnaire were utilized in the survey.<sup>3,4</sup> The data was examined at the end of the study period.

### Statistical analysis

Data analysis was done using Epi info 7.2.5 and results were expressed in percentages, proportions, mean and standard deviation.

## RESULTS

A total of 329 students took part in the study, with the majority of them being between the ages of 20 and 21. Females made up 77% of the responders, while males made up the remaining 23%. The majority of the participants were third year MBBS students (46%), followed by second year MBBS students (24%) (Table 1). About 55% of the students used smartphones for online

learning (Figure 1), and 61% had W-LAN (Wireless connection) (Figure 2) as the most common type of internet connection.

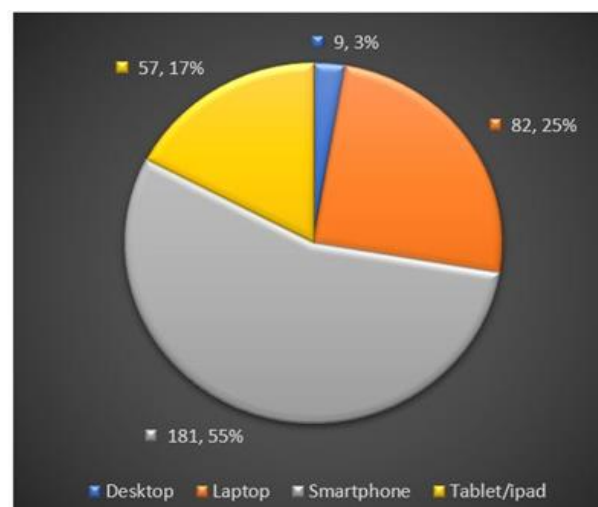


Figure 1: Device used for online learning.

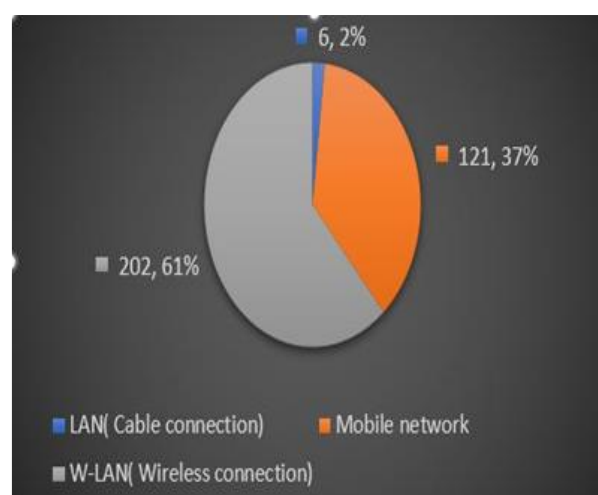


Figure 2: Type of internet connection.

Table 1: Demographic data.

| Parameters           | Frequency (%) |
|----------------------|---------------|
| <b>Age (years)</b>   |               |
| 18-19                | 24 (7.3)      |
| 19-20                | 49 (14.9)     |
| 20-21                | 123 (37.4)    |
| 21-22                | 117 (35.6)    |
| >22                  | 16 (4.9)      |
| <b>Gender</b>        |               |
| Males                | 76 (23)       |
| Females              | 253 (77)      |
| <b>Year of study</b> |               |
| First-year           | 38 (12)       |
| Second-year          | 79 (24)       |
| Third year           | 153 (46)      |
| Fourth year          | 59 (18)       |

None of the items on respondents' perception of online teaching-learning scored higher than 3.5 on an individual item-wise analysis of the rating scale SPL (Table 2).

On the rating scale of students' perceptions of online teaching-learning, the mean score of individual items was 1.95, suggesting that the domain is in a problematic area.

**Table 2: Mean score of individual items on a rating scale of students' perception of online teaching-learning (n=329).**

| Scale items                                                                          | Mean score | Interpretation    |
|--------------------------------------------------------------------------------------|------------|-------------------|
| I am encouraged to participate in the online class                                   | 2.14       | Could be enhanced |
| The online class is often stimulating                                                | 1.94       | Problematic area  |
| The online class is student-centred                                                  | 1.93       | Problematic area  |
| The online teaching helps to develop my competence                                   | 1.99       | Problematic areas |
| The online teaching is well focused                                                  | 1.85       | Problematic area  |
| The online teaching helps to develop my confidence                                   | 1.70       | Problematic area  |
| The online teaching time is put to good use                                          | 2.16       | Could be enhanced |
| Online teaching emphasizes factual learning                                          | 1.92       | Problematic area  |
| I am clear about the learning objectives of the course delivered in the online class | 2.06       | Could be enhanced |
| The online teaching encourages me to be an active learner                            | 1.79       | Problematic area  |
| Long term learning is emphasized over short-term learning in the online class        | 1.93       | Problematic area  |
| The online class is too teacher-centred                                              | 2.02       | Could be enhanced |
| Mean score                                                                           | 1.95       | Problematic area  |

**Table 3: Score of overall student perception of online learning (n=329).**

| Characteristics of Students' Perception of Online Learning | No of items | Obtainable score | Mean  | SD   |
|------------------------------------------------------------|-------------|------------------|-------|------|
|                                                            | 12          | 0-48             | 23.41 | 4.61 |

**Table 4: Experiences of online learning.**

| Barriers                                                      | Frequency (%) |
|---------------------------------------------------------------|---------------|
| Internet connection                                           | 255 (77.5)    |
| Family distractions                                           | 203 (61.7)    |
| Timing of lectures                                            | 155 (47.1)    |
| One-way lectures with no communication                        | 130 (39.5)    |
| Lack of devices                                               | 78 (23.7)     |
| Difficult sessions                                            | 68 (20.7)     |
| Lack of space                                                 | 66 (20.1)     |
| Isolation/Anxiety                                             | 50 (15.2)     |
| Others                                                        | 50 (15.2)     |
| <b>Benefits of online learning</b>                            |               |
| No travel                                                     | 270 (82.1)    |
| More comfortable                                              | 201 (61.1)    |
| Ability to learn at own space                                 | 201 (61.1)    |
| Cost savings                                                  | 175 (53.2)    |
| Flexibility                                                   | 160 (48.6)    |
| Ability to ask questions                                      | 73 (22.2)     |
| Interactive                                                   | 72 (21.9)     |
| Others                                                        | 51 (15.5)     |
| <b>Able to learn practical skills through online learning</b> |               |
| Yes                                                           | 62 (18.8)     |
| No                                                            | 267 (81.2)    |
| <b>Learning preference</b>                                    |               |
| Online                                                        | 107 (32.5)    |
| Face to face                                                  | 222 (67.5)    |

Furthermore, the overall score of respondents' perceptions of online teaching-learning was  $23.41 \pm 4.61$  (Table 3). The most common challenge students faced when learning online was a variable internet connection (77.5%), followed by family distractions (61.7%). Students could profit from the following: avoidance of travel (82.1%), learning in space and comfort rather than face-to-face learning (61%), and so on. Only 62% of respondents indicated that online learning helped them gain practical skills (Table 4).

## DISCUSSION

A cross-sectional study was conducted among 329 students to assess their perception of online teaching, among which 77% were females, and 23% were males, which was quite similar to a study in the United Kingdom done by Dost et al where 68.1% of respondents were women, 31.5% were men and 0.40% identified as other.<sup>5</sup> In the present study, the overall mean score of students' perceptions of online teaching-learning was 23.41, indicating many problems with the online teaching-learning method, which was a similar study conducted in Nepal by Singh et al where the mean score was 17.61.<sup>6</sup> This finding is in line with similar studies conducted in New Delhi by Hameed et al and Bangladesh by Sarkar et al where a majority of the students did not prefer online teaching-learning.<sup>1,7</sup> However, this contrasted with a study done by Ali et al where the nursing students had a positive attitude towards online teaching-learning.<sup>8</sup> The students shared vivid experiences regarding online learning. Impediments to online learning were disruption of online connectivity (77.5%) and family distractions (61.7%), similar to a study by Dost et al.<sup>5</sup> Isolation/anxiety was a significant finding reported by some respondents (15.2%). This may be attributed to the lack of interaction with friends and colleagues over a prolonged period. Similar findings were seen in studies by Dost et al in the United Kingdom and Abbasi et al in Pakistan.<sup>5,9</sup> Significant benefits the students derived from online learning were lack of travel (82.1%), ability to learn at their own pace (61.1%), cost savings (53.2%), flexibility (48.6%), etc. Similar responses were given in the study conducted by Dost et al and Al-Balas et al in Jordan.<sup>5,10</sup> One significant reported finding was that practical (clinical) skills could not be learned via online teaching by a majority of the study subjects (81.2%). This was similar to the study by Dost et al.<sup>5</sup> Finally, 67.5% of the study subjects preferred face-to-face teaching over online teaching. This was similar to studies by Abbasi et al (77%) in Pakistan and Singh et al (94.6%) in Nepal.<sup>6,9</sup> However, this contrasts with research conducted in Australia by Warnecke et al which found that 95% of students favoured online learning and 75% believed it was useful in improving their skills.<sup>10,11</sup>

## Limitations

Limitations of current study were; the study was based on a small sample of students who have volunteered to provide feedback. Secondly, given the short timeframe for

implementing this study, there was not enough time to create an effective training regimen for faculty members.

## CONCLUSION

The COVID-19 pandemic has drastically affected traditional teaching-learning methods, and online teaching has emerged as a boon to continue the learning process. However, many students faced many obstacles adapting to this new learning model. Hence, the offline mode of teaching was preferred over the online mode.

## ACKNOWLEDGEMENTS

The authors would like to express their gratitude to the principal, medical superintendent and institutional ethical committee of the institution for granting permission to conduct this research.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Hameed T, Husain M, Jain SK, Singh CB, Khan S. Online Medical Teaching in COVID-19 Era: experience and perception of undergraduate students. *J Clin Med.* 2020;15(4):440-4.
2. Singh K, Srivastav S, Bhardwaj A, Dixit A, Misra S. Medical Education During the COVID-19 Pandemic: A Single Institution Experience. *J Clin Med.* 2020;57:32.
3. Miles S, Swift L, Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Med Teach.* 2012;34(9):e620-34.
4. Umber A, Khan S, Hussnaian M, Ihsan S. Educational environment at university medical and dental college. *FSD Annals*, 2011;17(30):22-6.
5. Dost S, Hossain A, Shehab M. Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students. *BMJ Open.* 2020;10:e042378.
6. Singh R, Subedi M, Pant S, Rai P, Gupta KK, Pachya AT, et al. Perception towards Online Teaching-learning in Medical Education among Medical Students during COVID-19 Outbreak in Nepal: A Descriptive Cross-sectional Study. *J Nepal Med Assoc.* 2021;59(234):128-33.
7. Sarkar SS, Das P, Rahman MM and Zobaer MS. Perceptions of Public University Students Towards Online Classes During COVID-19 Pandemic in Bangladesh. *Front. Educ.* 2021;6:703-23.
8. Ali N, Jamil B, Sethi A, Ali S. Attitude of nursing students towards e-learning. *Adv Health Prof Educ.* 2016;2(1):24-9.

9. Abbasi S, Ayoob T, Malik A, Memon SI. Perceptions of students regarding E-learning during Covid-19 at a private medical college. *Pak J Med Sci*. 2020;36(4):S57-61.
10. Al-Balas M, Al-Balas HI, Jaber HM, Obeidat K, Al-Balas H, Aborajoo EA, et al. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and perspectives. *BMC Med Educ*. 2020;20(1):341.
11. Warnecke E, Pearson S. Medical students' perceptions of using e-learning to enhance the

acquisition of consulting skills. *Austral Med J*. 2011;6:300-7.

**Cite this article as:** Pokkuluri A, Raparthy M, Parvatham VK, Chajhlana SPS, Merugu HH, Nakkarakanti PR. Perception of undergraduate students towards online teaching during COVID-19 pandemic in a medical college in Hyderabad, India. *Int J Community Med Public Health* 2023;10:624-8.