



## Undergraduate Online Teaching-Evolving Trends during COVID Pandemic

Cynthia Subhaprada S<sup>1\*</sup> and Chandrasekhar P<sup>2</sup>

<sup>1</sup>Department of Community Medicine, Kurnool Medical College, Kurnool, Andhra Pradesh, India

<sup>2</sup>Department of Cardiology and Principal, Kurnool Medical College, Kurnool, Andhra Pradesh, India

\*Corresponding e-mail: [drcynthiasubhaprada@gmail.com](mailto:drcynthiasubhaprada@gmail.com)

### ABSTRACT

**Introduction:** Currently, the world is experiencing a COVID-19 pandemic which led to the shutdown of educational institutions. One of the most immediate changes introduced has been canceling in-person medical classes, with most being replaced by recorded lectures or live streams. Hence, online undergraduate teaching has become the new normal in medical education. **Objectives:** The main aim of the study is to describe the perceptions of online teaching among MBBS undergraduate students and to determine the evolving trends during the COVID-19 pandemic. **Materials and Methods:** After obtaining IEC clearance, a mixed-method study design was conducted among MBBS students of Kurnool Medical College, Kurnool during the months of September-October, 2020. 100 MBBS students aged 19-24 years, who were willing to participate and gave consent were included. Data was collected using a pre-tested, semi-structured questionnaire sent to the participants via Google forms. Data were analyzed quantitatively using a five-point Likert scale and perceptions on improving online teaching were analyzed qualitatively. **Results:** Out of 100 participants, the majority were females (56%) and 20 years (36%) of age. 15% had online teaching experience before the COVID-19 pandemic. 48% strongly agreed that online teaching is more focused on theory part rather than practical aspects and 55% agreed that students assessment and feedback are difficult in online teaching. The reported challenges to online medical education during the COVID-19 pandemic were lack of in-person communication (56%), technical issues while attending online classes (41%), difficulty in time management (55%), confusion in understanding course expectations (56%). Some of them stated that “having online classes is the only option left for medical education during this pandemic”. **Conclusion:** Though undergraduate online teaching faces many challenges, it can be addressed by increasing interaction between faculty and students.

**Keywords:** Medical education, Undergraduate online teaching

### INTRODUCTION

Currently, the world is experiencing a COVID-19 pandemic which led to the shutdown of colleges, and hence, online teaching has become a key component in the continuity of education. It has had a widespread impact globally on health, education, and the economy. This pandemic put to a halt the traditional teaching/learning methodologies for students across all ages and the world. There is thus, a paradigm shift to exclusive online teaching as a means of routine teaching, worldwide, for the benefit of the students. COVID-19 pandemic has a profound impact not only on physical health but also on routine teaching. It has generated changes in the teaching-learning process in medical institutions and has influenced the interaction between teachers and students. It can be inferred that students and teachers were not ready for an entirely online experience. Medical education is affected as a result of changes in current teaching methodology due to the cancellation of classical “classroom teaching” [1,2]. With the recent emphasis on the active role of the learner, the teacher has become less of a transmitter of information and more of a facilitator of learning [3].

As there is uncertainty about the duration of this pandemic and social distancing measures are needed for long, education of future doctors requires intense and prompt attention. As physical distancing, better known as social distancing is the key preventive strategy outlined in the prevention and control of COVID-19, gathering of students in

lecture galleries is strongly prohibited [4]. With the closure of the medical colleges affiliated to respective universities and the large numbers of undergraduate admissions into nearly 500 medical colleges in India, it is of top priority to address their learning needs during the current pandemic to ensure continuity of medical education. Given today's uncertainties, it is vital to gain an understanding of students' online learning experience in times of the COVID-19 pandemic [5].

Exclusive online teaching program started in our institute from 27 May 2020 as per a teaching schedule circulated among the faculty and students from the Principal's Office. Cisco WebEx was used to conduct the sessions of 60 min each from Monday to Saturday (except Second Saturdays due to power cut). After the completion of three months of this online teaching/learning program, data were collected using a web-based questionnaire with the main aim of analyzing the perceptions on online teaching among MBBS undergraduate students and determining the evolving trends in online teaching during the COVID-19 pandemic. Taking into account the aspects mentioned above the authors strongly believe that the transition to exclusive online teaching can highly affect the educational process and students' perception about the use of the online environment in the process of teaching and learning, and this study stands at the basis of our research.

### MATERIAL AND METHODS

After obtaining IEC clearance from the institutional Ethical Committee and informed consent from the study participants, a mixed-method study design was conducted to collect data from MBBS students of Kurnool Medical College, Kurnool, during the months of September-October, 2020. By non-probability sampling, 100 MBBS students aged 19-24 years, with an attendance percentage of >90% during three months before the onset of the study, willing to participate and who gave informed consent were included in this study.

#### Study Tool

A pre-tested, semi-structured questionnaire was sent to the participants *via* Google forms. The participants in the study received information at the beginning of the questionnaire about the purpose of the survey. The questionnaire included both closed and open-ended questions. Closed questions included participants' demographic details and their experience as a learner through online teaching before and during the COVID-19 pandemic and it also included questions related to perceptions of students on online teaching and the challenges faced by them. The study was piloted among ten students and those students were not included in the present study. The quantitative analysis was done through survey questions on a five-point Likert Scale. Descriptive statistics were made (percentages). The data obtained through open-ended questions were analyzed qualitatively, by recoding them into categories that describe the basic conditions for successful online learning (technical conditions, teachers' and students' technical skills, teaching in the online environment according to the teaching rules in the offline environment, interaction with students/teachers).

### RESULTS

Out of 100 participants, the majority were females (56%) and 20 years (36%) of age. 15% had online teaching experience before the COVID-19 pandemic. The reported challenges to online medical education during the COVID-19 pandemic were lack of in-person communication (56%), technical issues while attending online classes (41%), difficulty in time management (55%), confusion in understanding course expectations (56%). 46% of students want online classes to be made part of their curriculum after COVID, by blending them with conventional teaching. Some of them stated that "having online classes are the only option left for medical education during this pandemic" (Table 1 and Table 2).

**Table 1 Perceptions of students on online teaching**

Student Perception	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly Agree N (%)
Online teaching/learning is difficult for those with less computer knowledge	1 (1%)	27 (27%)	26 (26%)	35 (35%)	11 (11%)

More focused on theory than practical aspects	1 (1%)	5 (5%)	8 (8%)	48 (48%)	38 (38%)
Uncertainty about future causing stress and anxiety	1 (1%)	5 (5%)	9 (9%)	54 (54%)	31 (31%)
Online teaching is better than traditional teaching	37 (37%)	44 (44%)	15 (15%)	0 (0%)	4 (4%)
Better if online teaching is integrated with traditional teaching	2 (2%)	8 (8%)	35 (35%)	46 (46%)	9 (9%)
Increased the confidence levels of students	29 (29%)	46 (46%)	19 (19%)	5 (5%)	1 (1%)

**Table 2 Challenges to online teaching**

Challenge faced	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly Agree N (%)
Lack of in-person communication during online teaching	2 (2%)	7 (7%)	21 (21%)	56 (56%)	14 (14%)
Facing difficulty in adopting to unfamiliar technology	6 (6%)	36 (36%)	23 (23%)	25 (25%)	10 (10%)
Technical issues during online classes	1 (1%)	6 (6%)	14 (14%)	41 (41%)	38 (38%)
Staying motivated is difficult	2 (2%)	8 (8%)	13 (13%)	51 (51%)	26 (26%)
Lot of confusion in understanding course expectations	0 (0%)	10 (10%)	18 (18%)	56 (56%)	16 (16%)
Facing difficulty in time management	3 (3%)	5 (5%)	15 (15%)	55 (55%)	22 (22%)
Lot of distractions while attending online classes	0 (0%)	5 (5%)	13 (13%)	52 (52%)	30 (30%)
Technophobia	7 (7%)	40 (40%)	31 (31%)	14 (14%)	8 (8%)
Difficult to be engaged and to actively participate in online teaching	2 (2%)	8 (8%)	17 (17%)	60 (60%)	13 (13%)
Worried that financial constraints would affect my attendance	1 (1%)	37 (37%)	34 (34%)	20 (20%)	8 (8%)
Students assessment and feedback is difficult	1 (1%)	6 (6%)	25 (25%)	55 (55%)	13 (13%)

Although it is not possible to replicate classical “classroom teaching” and clinical skill teaching through online teaching, it is feasible to deliver the curriculum to gain knowledge, maintain and improve the morale of teachers and students. Since there is no other option of continuing teaching during the pandemic, study participants felt that students should interact more with the faculty during online teaching. Most of the study subjects (60%) thought that student engagement during online class is a major concern and 55% went on to say that assessment and feedback were not adequate during online sessions. It was perceived by the study subjects (48%) that clinical skills and practical aspects were found to be difficult to imbibe online without bedside teaching/physical interaction with the patients and clinical educators. Online resource material of clinical procedures-examination videos and formative assessment in the form of MCQ/scenario-based questionnaires helped them to some extent; they opined (25%).

## DISCUSSION

The purpose of this study was to describe the perceptions on online teaching among medical undergraduate students during this pandemic, to bring out the challenges, and to address the same by studying the evolving trends in online teaching practices. This study was helpful to bring out the various challenges in online teaching taken up for the first time in this institution due to the pandemic. In the context of the crisis created by the Coronavirus pandemic, change that brought about digitalization and transition to the e-learning process took place in a relatively short period. A sudden shift from traditional to online teaching was challenging for both faculty and students of many medical institutions who have taken up online teaching. This requires a lot of faculty preparation and effort in a short time to meet the expected curriculum delivery [6]. Efforts by faculty to adapt their teaching style to the new conditions despite the existing technical difficulties and offer student support were appreciated by the study participants. Hence, considering the short period in which teachers and students had to adapt to the new teaching/learning conditions, most

of them managed to cope successfully with the change and challenges, but there is a need for newer trends and best practices to evolve.

The quality of the educational process in the online environment depends on factors like the level of training that teachers have in using technology, their teaching style, online interaction with students, strategies used to keep students engaged, encouraging contact between students and faculty, collaborative learning, quick feedback, and active learning. Students felt isolated because of the lack of interaction, especially with teachers, because they spend more time in front of the computer, and because of the pandemic, which forced them to follow social distancing. As the days progressed, some teachers evolved their teaching style by assigning team-based projects, student-led webinars, student-led assessments, used collaborative teaching tools and this helped the students to stay connected with their batch mates. Challenges to online education reported in the medical literature so far include issues relating to time management, use of technology tools, students' assessment, communication, and the lack of in-person interaction [7]. Most of the participants (85%) in the present study don't have online teaching experience before the pandemic whereas in a study done by Rajab, et al. 37.4% of medical students had no online experience [8]. Students opined that they got easily distracted and lost focus because of their lack of experience with this type of learning. While analyzing students' perception about their experience during this exclusively online learning, and what impact this type of learning had on their ability to learn, shortly, it was found that most of the participants preferred a blend of online and traditional teaching, even after the pandemic wanes off. A similar perception was observed in previous studies that hybrid learning is becoming more accepted because it combines "the best of both worlds" [9]. But, the effectiveness of hybrid learning depends on various factors, especially adequate training of faculty and institutional support [10]. Though teachers used diverse tools while delivering curriculum online to make it more attractive, sometimes feedback from students was delayed, tasks were not concise, and teachers often failed to express their expectations clearly. The reason why the online educational process encountered so many issues is represented by the fact that the traditional way in which teachers used to deliver the practical aspects of the curriculum could not be delivered to the extent expected, in the online environment.

### **Limitations**

This study provides the students' perspective on the online teaching and the educational process that took place in our institution during the pandemic, and challenges faced in the online teaching-learning process so that as the process evolves, it can be improved. However, the study also has some limitations. One limitation is represented by the fact that the sample was non-probabilistic and the research was conducted among 100 study participants. Thus, the results cannot be generalized to the entire student community in our institution.

### **CONCLUSION**

The challenges faced during the online teaching can be addressed by making the sessions more interactive to keep the students engaged and allow group work to enable them to interact with each other and their mentors. More emphasis should be put on self-directed learning, proper assessment, and prompt feedback. This paper concludes with the fact that online pedagogy helps learners to adapt, have engaging and self-directed learning opportunities through independent and collective learning activities when it aligns learning objectives, content, activities, assessment, and feedback.

While the academic educational community grapples with the continuing crisis due to the COVID-19 pandemic, it is important to learn from this experience and prioritize a forward-thinking and scholarly approach as practical solutions are implemented. Faculty developments workshops at the institutional level are recommended to help teachers have well-planned teaching strategies to improve student focus, thus increasing the quality of curriculum delivery.

### **Way forward**

In future studies, the focus would be on improving clinical skills teaching, online assessment and feedback practices, structured faculty development programs to keep them abreast with the changing technology and digital medical education transformation in these changing times. Keeping the students engaged online and communicating the best practices to the teaching faculty community on our campus will be another area of concern we look forward to addressing shortly.

---

**DECLARATIONS****Acknowledgments**

The authors thank the study participants and the class representatives, for their valuable cooperation to conduct this study.

**Conflict of Interest**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical Approval**

Clearance from the Institutional Ethical Committee obtained.

**REFERENCES**

- [1] Chick, Robert Connor, et al. "Using technology to maintain the education of residents during the COVID-19 pandemic." *Journal of Surgical Education*, Vol. 77, No. 4, 2020, pp. 729-32.
- [2] Ferrel, Meganne N., and John J. Ryan. "The impact of COVID-19 on medical education." *Cureus*, Vol. 12, No. 3, 2020.
- [3] Santhosh Kumar. "Teaching – Learning principles. In: Ananthakrishnan N, Sethuraman KR, Kumar S (eds). Medical education: Principles and practice." 2<sup>nd</sup> ed. *Jawaharlal Nehru Institute of Postgraduate Medical Education Research*, 2000, pp. 27-34.
- [4] Rose, Suzanne. "Medical student education in the time of COVID-19." *JAMA*, Vol. 323, No. 21, 2020, pp. 2131-32.
- [5] Barrot, Jessie S., Ian I. Llenares, and Leo S. Del Rosario. "Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines." *Education and Information Technologies*, 2021, pp. 1-18.
- [6] Li, Li, Qianghong Xv, and Jing Yan. "COVID-19: The need for continuous medical education and training." *The Lancet Respiratory Medicine*, Vol. 8, No. 4, 2020, p. e23.
- [7] Esani, Muneeza. "Moving from face-to-face to online teaching." *American Society for Clinical Laboratory Science*, Vol. 23, No. 3, 2010, pp. 187-90.
- [8] Rajab, Mohammad H., Abdalla M. Gazal, and Khaled Alkattan. "Challenges to online medical education during the COVID-19 pandemic." *Cureus*, Vol. 12, No. 7, 2020.
- [9] Orleans, Myron, ed. "Cases on critical and qualitative perspectives in online higher education." *IGI Global*, 2014.
- [10] Comas-Quinn, Anna. "Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in a blended learning course." *ReCALL*, Vol. 23, No. 3, 2011, pp. 218-32.