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Original Research Article

Students' perception on online learning during COVID pandemic in a tertiary care teaching hospital

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ABSTRACT

Background: Medical and Dental students are exposed to online classes for the first time during the COVID pandemic. The current study was planned to understand their perceptions about these online classes in contrast to classroom teaching and suggest strategies to improve them.

Materials and Methods: A cross-sectional study was carried out among all the students of Malla Reddy Medical College for Women and Malla Reddy Dental College for Women during September 2020. The study questionnaire containing 20 questions was prepared, prevalidated and distributed to all the study participants as google form. Data from completed questionnaires was entered into an excel sheet and analyzed using descriptive statistics.

Results: Analysis of data from 279 students revealed that the 69% of the students used smartphones to attend online classes, 96% of them reported having internet problems and 42% of the students enjoyed the online classes. Understanding of the topic and knowledge gained during online classes were rated average and above average by 59% and 53% of the students respectively. Many students felt that long screen hours have made the classes less interesting and caused health issues like headaches, eyestrain, and backache. They also felt that online classes were less interactive and did not provide much clinical and practical knowledge.

Conclusion: Students showed a negative response to online classes. There is a need to make online classes more interactive and interesting by using certain strategies like problem-solving activities, quizzes, discussions, surveys, and polls. Faculty should be trained in good online teaching practices to ensure its success.

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1. Introduction

The novel coronavirus — COVID19 pandemic has disrupted the normal routine of all people, especially students. The only preventive measures from this deadly virus are to maintain social distancing and the use of masks. Following the guidelines issued by the Government of India, schools, and colleges are to be kept shut for a prolonged time to prevent the spread of the virus. The medical and dental colleges are no exception to this, as each classroom has at

least 100 students. This has placed unprecedented strain on the medical education system. Emphasis is to be laid not only on teaching the curriculum but also to ensure that the students attained the required competency. At times like this, virtual classrooms, Information and Communication Technologies (ICT) have become a boon.

Online learning overlaps with broader category of distance learning, which encompasses earlier technologies as correspondence courses, educational television, and videoconferencing.

It is defined as the learning that occurs entirely (purely online) or partially (Blended learning) through

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the internet.¹ Online teaching- learning can be delivered through synchronous and asynchronous modes. The former mode of online delivery requires that all participants be present at the same time requiring an organized timetable, while latter is a mode of online delivery where participants can access the course materials on their schedule and are not together at the same time.² Comparing and contrasting between online teaching and traditional teaching — the educational cycle, learning process, need for interactivity, integration, assessment and feedback are similar in both but the use of technology, the spatial distance between the teacher and student, and learner isolation stand out as prominent differences.³ Online Learning has its own pros and cons. It can be done from the safe environment of our house, maintaining social distancing and it helps us to continue education at our own pace. But there is a complete absence of physical interaction among the students and the faculty. Not all students will be able to concentrate on the material being provided online. A virtual classroom and online mode of teaching requires the teacher to be proficient in the use of technology. There is also a requirement for basic gadgets like a phone, tablet, laptop, or desktop. Along with this, there should be good internet connectivity.

Even though online learning was in our auditory and visual horizons from quite some time, the corona pandemic has given the first opportunity for the students to experience this mode of learning. The present study was therefore planned to assess the medical and dental students' perceptions on online learning.

2. Materials and Methods

After taking permission from the Institutional ethics committee, a cross-sectional study was carried out in the month of September 2020 among the medical and dental students of Malla Reddy Medical College for Women and Malla Reddy Dental College for Women, Suraram, Hyderabad. All the students studying from first to final year who have been attending online classes during the corona pandemic were included in the study. The study questionnaire containing a total of 20 questions was prepared and prevalidated by the departmental faculty members. The validated questionnaire was administered as a Google Form and a request to participate in the study was sent to all the students. Filling out of the google form was accepted as a consent to participate in the study. The questionnaire included a first section on demographic information of the students -age, year of study, devices used to attend online classes and how frequently they faced problems with access to internet during online classes. Second section had 11 questions to assess their perception on online learning in terms of its content and structure, timing, as well as interactivity for which five-point Likert scale was used to collect responses. Five narrative questions were included in the third section of the questionnaire

seeking their experiences on Online learning. Data from completed forms was entered into an excel sheet and analyzed and expressed in percentages. Kruskal Wallis H test was performed to understand if there are statistically significant differences in the perception of medical and dental students and a p value < 0.05 was considered significant.

3. Results

A total of 279 students — 161 students of Malla Reddy Medical College for Women and 118 students of Malla Reddy Dental College for Women completed the questionnaire. The age distribution and class distribution of the students are presented in Figures 1 and 2.

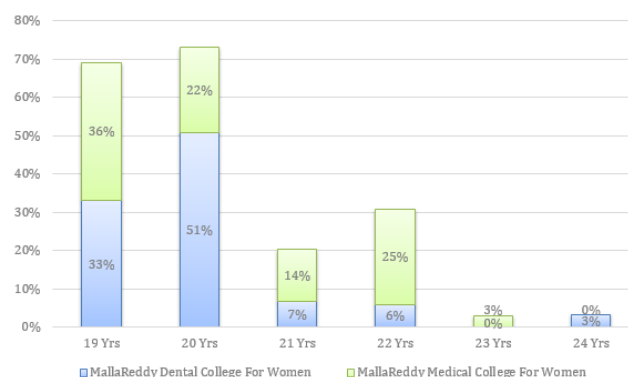


Fig. 1: Age distribution of study participants (in percentages)



Fig. 2: Class distribution of the participants (in percentages)

Since there were no students studying second year of MBBS in Malla Reddy Medical College for Women, no responses were recorded.

Figure 3 Shows responses of students on the devices used to attend online classes. It is to be noted that none of the students used desktop to attend the classes.

86% of the students reported that they sometimes had problem with access to internet during the online classes, while 9% of the students always had a problem and only

Table 1: Responses of the students (in percentages) to questions on their perception about the content/structure of online classes

Question	Course	Excellent	Above Average	Average	Below Average	Very poor	p value
1. Rate your understanding of the topic taken during online classes	MBBS	2	17	58	11	0	0.001*
	BDS	5	32	52	11	0	
2. Rate the amount of subject material covered in online classes	MBBS	6	33	43	17	1	0.056
	BDS	13	37	40	10	0	
3. Rate how logically and clearly the content was delivered	MBBS	4	30	42	20	3	0.063
	BDS	12	30	42	13	1	
4. Rate the availability of the faculty during online classes for discussion or clarifications via WhatsApp/phone /any other medium	MBBS	23	39	23	13	4	0.000*
	BDS	42	37	14	6	1	
5. Rate how confident you feel about your knowledge on the subject.	MBBS	1	21	43	20	15	0.004*
	BDS	4	29	50	11	6	
6. Rate your enjoyment of the online classes	MBBS	4	17	30	22	27	
	BDS	7	19	40	20	14	0.132

* p value < 0.05 considered as statistically significant

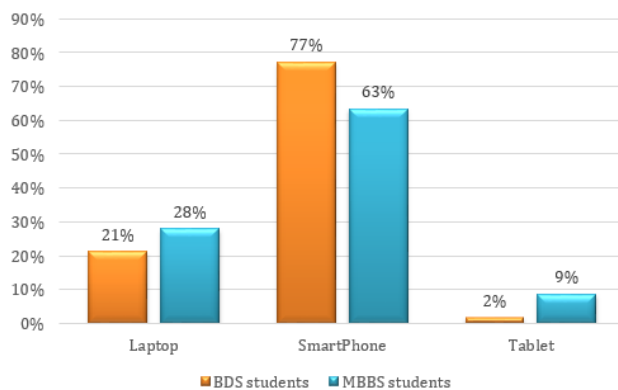


Fig. 3: Devices used by the participants to attend online classes (in percentages)

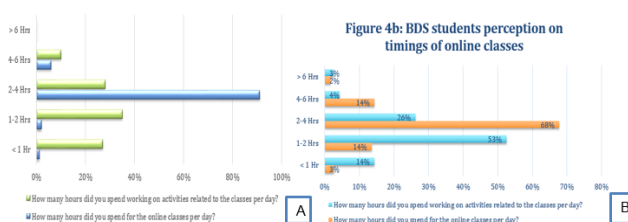


Fig. 4: MBBS Students perception on the timings of online classes (in percentages) and 4b: BDS Students perception on the timings of online classes (in percentages)

4% of the students never had problem with internet access.

The responses of the participants to questions related to time spent on online classes is given in Figure 4a and 4b.

Statistically significant difference (p = 0.009) was obtained for the number of hours the MBBS and BDS students spent on activities related to the classes.

Figure 5, Given below represents the responses of the students to questions on interactivity during online classes.

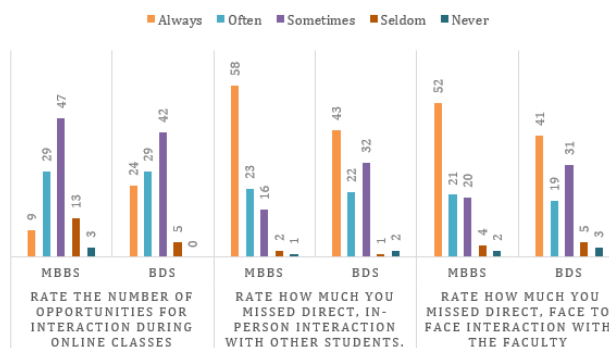


Fig. 5: Responses of students to questions on interactivity during online classes (in percentages)

In response to the question on what they liked the most about online learning, most of the students perceived it as

Table 2: Responses of the students to the question: What you liked most about learning through online classes? (In students' own words)

Category	Responses of Students
Content/structure of the classes	<ol style="list-style-type: none"> 1. Only thing which I liked the most is we can see ppt clearly 2. Better concentration 3. Better understanding 4. We get engaged in studies and activities related to it 5. Faculty teach the same as they teach in the classroom 6. Easy information access, giving me various opportunities to search and collect material for my knowledge 7. No need of writing notes as faculty provides us with PPTs 8. For quick revision of subject 9. Everyone has a chance to answer to the questions and hear clearly to the lectures. Unlike 1st bench last bench discrimination
Timing/pace of online classes	<ol style="list-style-type: none"> 1. This has given me a chance to work according to my schedule and assign time to when and how I would want to study a particular topic, helping me to cover a particular portion at my suitable time. 2. Easy accessibility 3. The gap between two classes gives us the time to revise the daily topics 4. We can spend nice time doing other activities also. We have much time to spend time with books and other things.
Interactivity	<ol style="list-style-type: none"> 1. Interaction with faculty through messages 2. No face-to-face interaction with faculty so I told answers darily 3. It's very easy to ask questions and clear doubts, interact with using the chatbox /messages 4. Faculty notices every single student and makes sure all the doubts are cleared it's like everyone sits in the first rows of the live classes 5. No distraction from friends
Logistics	<ol style="list-style-type: none"> 1. Advancement in technology 2. Convenient and comfortable 3. Can attend from anywhere 4. We can record and play anytime 5. Travelling time for college is saved. So, no exhaustion and tiredness 6. Don't need to dress up for lectures 7. Can eat or drink water without disturbing the faculty.

a new experience which helped them to be connected with the subject during the pandemic. The other responses of the students (in their own words) are categorized, checked for redundancy and presented in Table 2. The students considered the network issues during online classes as most problematic. The other disliking issues mentioned by the students are categorized and tabulated in Table 3 after removing duplicates. Most of the students felt that even though the faculty were doing their best, there is always a feeling of virtuality during these sessions. The suggestions given by the students for improvement of online classes are given in Table 4. 88% of the students shared that they faced technical problems during online classes due to which they either had to be absent or join late for the class. They had issues in timely submission of their assignments; some of the students could not even attend online exams. There were audio visual disturbances during the class. The technical issues were more common when there were multiple users in the same house, in rural areas and during monsoon season when power cuts were rampant. They lost interest to learn due to these interruptions. Sharing their personal experiences most of the students felt that learning through online is a new experience. The initial

enthusiasm of attending online classes faded with time; after 2-3 weeks many of them started disliking these classes. They felt that these are not as effective as regular classes and preferred attending college. They missed practical classes. Some students felt that online classes have given them an opportunity to attend live conferences and webinars which help boost up their resume. They expressed their gratitude to the professors who were trying different methods to boost their understanding of the topic.

4. Discussion

The results of the present study show that the medical and dental students felt learning using technology was a savior in the current pandemic situation. It served the purpose of maintaining the social distancing measures required to prevent the spread of COVID 19, as well as be connected with their studies. Majority of the study respondents were in MBBS first year (32%). Of the total study participants, 69% of them reportedly used smartphones to attend online classes. 86% of the students had problems with access to internet. 72% of the students rated their confidence levels on the knowledge gained during online classes on a five -point

Table 3: Responses of the students to the question: What you disliked most about learning through online classes? (In students' own words)

Category	Responses of students
Content/structure of the classes	<ol style="list-style-type: none"> 1. The interest of learning is slightly decreased 2. Not that much informative as compared to offline 3. Lack of 100% grasping power...minimal energy involved from both ends in receiving and delivering knowledge 4. Could not concentrate more as we do in theory class 5. Difficulty in understanding most of the topics covered during the class 6. Practical, Clinical knowledge and patient doctor bonding is lacking 7. Just reading the ppt; no explanation 8. Unable to take notes 9. We never listen to the online classes properly and we just attend the class to get the attendance
Timing/pace of online classes	<ol style="list-style-type: none"> 1. Restricted time 2. It is the fact that various subjects have their own designated norms to be fulfilled in a given time, this has been causing a few clashes in my ability to meet the requirements of few subjects. 3. Frequency of online classes/online exams is too much
Interactivity	<ol style="list-style-type: none"> 1. Teacher to student interaction is comparatively less 2. Unknown people are drawing on the screen and creating mess while class is going on 3. Teachers cannot concentrate on all the students 4. Sitting alone sometimes makes it less lively and boring
Logistics	<ol style="list-style-type: none"> 1. Network/Internet issues 2. Power cuts 3. Health issues - Increasing stress, depression and anxiety, Strain on eyes, headache and backache 4. distracted by social media

Table 4: Suggestions given by the students for improvement of online classes

1.	Will be helpful if notes and ppts are shared for each topic especially if given priorly
2.	Will be helpful if sessions are limited to 30 mins at a stretch
3.	Will be helpful if there is a gap of 10-15 min between the sessions to minimize eye strain
4.	Will be helpful if mcqs/quiz are discussed in the end of every lecture for the last 5 to 10 mins as it puts the students concentrated the whole session in order to answer the daily quiz.
5.	Inclusion of diagrammatic and pictorial presentations instead of stereotypic textural explanations.
6.	Share related videos like for example on examination or performance of test on YouTube
7.	Letting the students take seminar on related topics...which would enhance self confidence instudents and also keep the students working on the subject
8.	Faculty need to explain slowly, as these are tough times, we are unable to get them
9.	Faculty need to precisely explain the concept, how to approach that particular case or topic,
10.	What key points to focus on, give the outline and summary of that class. so that we get a clear idea, easy understanding and interest to further read that topic
11.	Faculty to enlist any important questions related to that topic
12.	Explain the class using whiteboards to make it more interactive
13.	Recorded ppts can be shared for revision and for the absentees
14.	Make sure the audio and video are clearly visible and seen to the students
15.	Faculty to check the students. They are listening or not...to call students roll numbers. Ask questions .so students' concentration not shift to other sides.... otherwise, they will on the class to watch the tv etc.
16.	Free high-speed internet

Likert scale to be average and above average. Understanding of the online classes and enjoyability of Online learning was rated average and above by 83 % and 57% of the students respectively. There were statistically significant differences in the understanding of the topic and confidence in the knowledge gained through online classes between the medical and dental students. Majority (81%) of the students spent 2-4 hours to attend the online classes and 1-2 hours (42%) to complete the activities related to online classes. Most of them always missed face to face interaction with their teachers (47%) and other students (52%). Many complained of eye strain, headache and backache due to continuous use of screen. They also felt they did not gain practical and clinical knowledge with online classes. The students suggested that using videos or images for explanations, giving assignments in the form of MCQs or quizzes and conducting doubt clarifying sessions in small groups would help improve their learning experience.

In previously reported studies, 76% the medical and dental students at a private institute,⁴70% of the medical students in another private college⁵ and 77% of nursing students had negative perception about online learning.⁶ Another study reported that 55.4% of the BDS students found online classes ineffective.⁷ In comparison, we found that 43% of our students did not enjoy the online classes. In a study conducted by Agarwal et al., 95% of the postgraduate students found online learning to be interesting and enjoyable.⁸ The pros and cons of online learning reported by the current students were consistent with those reported by polish medical students.⁹

There are several factors that should be considered to ensure students' positive response and success of online teaching-learning. The key is to adopt twelve good online teaching practices as elucidated by Saiyad et al.¹⁰ There is a need for more interactivity, monitoring, feedback and learning support in online learning. Students should be involved in authentic problem-solving activities to promote higher order thinking skills. Student interactivity can be increased by conduction online discussions, real-time polls, surveys, MCQs and Quizzes during the lectures. Faculty should be empowered with technical, managerial and augmented communication skills necessary for online teaching.¹¹

Major limitation of this study is that it was conducted in a women's college, therefore, gender-based differences in the perceptions were not elucidated. Also, the perception of the student might vary with the device they used to attend the classes, which was not studied. This study did not measure the variations in perception of students over a period of time which can be expected to change due to several factors like habituation to the use of technology and changes in the technical constraints faced.

In conclusion, although the COVID pandemic has given us the first exposure to online learning, it is likely to find

its place in regular teaching in near future. This study found that students showed positive response to online learning, but they did not enjoy them. There is a scope for improvement of online classes. It requires that faculty be trained through workshops on different newer methods of online teaching — learning. The latest Competency Based Medical Education also focusses on using e-learning to promote Self-directed learning, inculcate the habits of using electronic means for searching and critically evaluating medical literature. It is therefore imperative to ensure that all efforts must be placed in right direction to make online learning more prolific.

5. Source of Funding

None.


6. Conflict of Interest

None.

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