

Perception of Medical Undergraduate Students towards Online Education during COVID- 19 Pandemic

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Abstract

Background: COVID 19 pandemic has almost curtailed the traditional classroom teaching of the medical students. In order to fulfill the educational needs of the medical students and to complete their prescribed syllabi, most of the Medical institutions have adopted online teaching using various online teaching platforms. In this study we intended to know the perception of students regarding online education and various attributes which could make the online learning more effective and successful.

Aim: The study aimed to determine the attitude and perception of medical undergraduate students towards online learning and to study the advantages and disadvantages of online learning.

Settings and design: A cross sectional study was conducted in a private medical institute among the undergraduate medical students

Methods and material: After taking Ethical Approval from the Institutional Ethical Committee, the study was carried out among the undergraduate MBBS students of tertiary care institute. Study was conducted by distributing the online questionnaire to the students. The questionnaire was circulated amongst the medical students through Google forms and the students were asked to answer them with a single most appropriate response.

Statistical Analysis: Data was analysed using SPSS software version 18.0. Chi-square tests were used to find association of gender and year of MBBS with perception of students towards online learning.

Results: A total of 239 medical students participated in the questionnaire survey of all the phases of MBBS. The students underwent their regular academic sessions through online teaching. Out of 239, 125 were female students and 114 students were male. Most of the students are comfortable with smart phone (n=185), 52 were using laptops and 29 use tabs for online teaching. 95 students from phase 1, 79 students from phase 2 and 65 students from phase 3 participated in the study.

Conclusion: The study showed that e-learning is the effective method in teaching medical students. Majority of the students has positive perception towards e-learning. However there are also some limitations of e-learning and effective strategies should be made to overcome the limitations.

Keywords: E-learning, flexibility, social distancing, student-teacher interaction

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Introduction

The pandemic of COVID 19 has curtailed the education system throughout the world. Teaching and learning in the medical institutions has also been hampered to a greater extent. Moreover as a result of social distancing, the most effective preventive strategy since the emergence of COVID 19 pandemic,¹ medical education has been profoundly disturbed as it involves in-person didactic lectures and tutorials, clinical rotation exposure, laboratory experiences, observing and assisting relevant medical and surgical procedures²

Fortunately, current technology enabled E-learning to be the core method of teaching the curriculum during the COVID 19 pandemic³. To continue the teaching and learning process, various medical colleges have adopted e-learning system as a core method of teaching for the MBBS students to overcome the hurdles in the pandemic situation. Electronic (e) or online learning can be defined as the use of electronic technology and media to deliver, support and enhance both learning and teaching and involves communication between learners and teachers utilising online content⁴. E learning has both advantages and disadvantages. Convenience of learning, flexibility of time and also less air pollution are some of the advantages of E learning.⁵⁻⁷ Poor internet connectivity, lack of student-teacher interaction, no hands-on experience in clinical setting are some of the limitations of online learning. As online teaching turns out to be the best alternative method of teaching for medical institutes, perception of students towards online education is also equally important. Whether the learners are attuned to the new methodology, would prefer any modifications, or rather would want to go back to conventional learning altogether, would be an interesting point to explore.^{8,9} The present study was conducted among the medical students to know about their perceptions towards online education during the pandemic of COVID 19 and

various attributes which could make the online learning more effective and successful.

Methodology:

This was a cross-sectional research to find out perception of students towards online Teaching-Learning. After taking Ethical Approval from the Institutional Ethical Committee, the study was carried out among the undergraduate MBBS students of tertiary care institute of Nashik, Maharashtra. It was decided to include all undergraduate medical students after their voluntary informed consent. A standard questionnaire was developed through literature search. It had 10 items together. The questionnaire was given after one year of online teaching –learning during COVID-19 pandemic. The scale was based on 5 point likert scale 1-Strongly disagree, 2-Disagree, 3-Not sure, 4-Agree, 5-Strongly agree. Before administration of the questionnaire, validation was done by five members of Medical Education Unit of the institute. The questionnaire was circulated amongst the medical students through Google forms and the students were asked to answer them with a single most appropriate response.

Data was analysed using SPSS software version 18.0. Chi-square tests were used to find association of gender and year of MBBS with perception of students towards online learning.

Results

A total of 239 medical students participated in the questionnaire survey of all the phases of MBBS. The students underwent their regular academic sessions through online teaching. Out of 239, 125 were female students and 114 students were male. Most of the students were comfortable with smart phone (n=185), 52 were using laptops and 29 use tabs for online teaching. 95 students from phase 1, 79 students from phase 2 and 65 students from phase 3 participated in the study

Table 1:

	Frequency	Percentage %
Gender		
Male	125	52.3
Female	114	47.69
Phase		
One	95	39.7
Two	79	33.0
Three	65	27.1
Choice of device/gadget.		
Mobile	185	77.4
Laptop	52	21.7
Tablet	29	12.1

Overall 48.4% students had positive perception and attitude towards online learning while 36.5% students had negative perception and attitude towards online learning and 15.1% students were not sure about their perception and attitude for online learning.

Table 2:

Questionnaire items	Disagree (%)	Agree (%)	Not sure (%)	Total
1. Online teaching is more effective than offline teaching	70.7	10.5	18.8	100.0
2. The quality of teaching is improved in online teaching	59.0	18.0	23.0	100.0
3. Online teaching is not preferred due to internet connectivity issues and voice quality	10.5	82.4	7.1	100.0
4. Student teacher interaction is better in online teaching than traditional teaching	74.5	13.8	11.7	100.0
5. Online teaching is not preferred as hand on experience is not given/only demonstration is done	6.3	88.7	5.0	100.0
6. Online teaching is preferred due to flexibility of time	15.5	66.5	18.0	100.0
7. Students are more comfortable at home in online teaching than traditional teaching	34.7	51.9	13.4	100.0
8. Online teaching is the best teaching learning method in pandemic situations like COVID-19	3.8	87.4	8.8	100.0
9. Assessment of theory and practical should be done online	49.4	26.4	24.3	100.0
10. Online viva voce is more comfortable than offline	41.0	38.5	20.5	100.0

Advantages of online learning:
Students showed positive attitude and perception towards online learning and

87.4% students agreed that it is suitable teaching learning method in pandemic situations like COVID-19, 66.5% students

preferred online learning due to flexibility of time while 51.9% students found it suitable due to comfort ness of sitting at home.

Disadvantages of learning:

Students showed negative perception and attitude towards online learning due to lack of hands on experience (88.7%), poor internet connectivity and voice quality

(82.4%), poor student-teacher interaction (74.5%) and less effectiveness (70.7%).

When perception and attitude were studied for gender, it was found that female students significantly showed positive attitude and perception towards online learning for flexibility of time (70.1%) while all other aspects of online learning had comparable proportion of perception and attitude among gender.

Table 3:

Questionnaire items	Response	Femal e (%)	Male (%)	Chi-square value	P value
1. Online teaching is more effective than offline teaching	Agree	10.3	10.7	0.426	0.808; Not significant
	Disagree	69.2	72.1		
	Not sure	20.5	17.2		
2. The quality of teaching is improved in online teaching	Agree	15.4	20.5	6.327	0.042; Significant
	Disagree	54.7	63.1		
	Not sure	29.9	16.4		
3. Online teaching is not preferred due to internet connectivity issues and voice quality	Agree	85.5	79.5	1.576	0.455; Not significant
	Disagree	8.5	13.1		
	Not sure	6.0	7.4		
4. Student teacher interaction is better in online teaching than traditional teaching	Agree	12.0	15.6	1.315	0.518; Not significant
	Disagree	74.4	74.6		
	Not sure	13.7	9.8		
5. Online teaching is not preferred as hand on experience is not given/only demonstration is done	Agree	93.2	85.2	4.099	0.129; Not Significant
	Disagree	3.4	9.0		
	Not sure	3.4	5.7		
6. Online teaching is preferred due to flexibility of time	Agree	70.1	63.1	6.718	0.035; Significant
	Disagree	9.4	21.3		
	Not sure	20.5	15.6		
7. Students are more comfortable at home in online teaching than traditional teaching	Agree	55.6	48.4	2.348	0.309; Not significant
	Disagree	29.9	39.3		
	Not sure	14.5	12.3		
8. Online teaching is the best teaching learning method in pandemic situations like COVID-19	Agree	91.5	84.4	3.551	0.169; Not significant
	Disagree	1.7	5.7		
	Not sure	6.8	9.8		
9. Assessment of theory and practical should be done online	Agree	26.5	26.2	1.380	0.502; Not significant
	Disagree	46.2	52.2		
	Not sure	27.4	21.3		
10. Online viva voce is more comfortable than offline	Agree	34.2	42.6	5.279	0.071; Not significant
	Disagree	39.3	42.6		
	Not sure	26.5	14.8		

There were comparable attitude and perception towards online learning among students of all phases of MBBS

Table 4:

Questionnaire items	Response	First MBBS (%)	Second MBBS (%)	Third MBBS (%)	Chi-square μ value	P value
1. Online teaching is more effective than offline teaching	Agree	11.0	11.8	8.2	2.148	0.709; Not significant
	Disagree	69.9	73.1	68.5		
	Not sure	19.2	15.1	23.3		
2. The quality of teaching is improved in online teaching	Agree	24.7	14.0	16.4	7.064	0.133; Not significant
	Disagree	60.3	55.9	61.6		
	Not sure	15.1	30.1	21.9		
3. Online teaching is not preferred due to internet connectivity issues and voice quality	Agree	75.3	87.1	83.6	4.619	0.329; Not significant
	Disagree	13.7	8.6	11.0		
	Not sure	11.0	4.3	5.5		
4. Student teacher interaction is better in online teaching than traditional teaching	Agree	13.7	16.1	11.0	4.607	0.330; Not significant
	Disagree	71.2	77.4	74.0		
	Not sure	15.1	6.5	15.1		
5. Online teaching is not preferred as hand on experience is not given/only demonstration is done	Agree	90.4	88.2	89.0	0.933	0.920; Not Significant
	Disagree	6.8	6.5	5.5		
	Not sure	2.7	5.4	5.5		
6. Online teaching is preferred due to flexibility of time	Agree	63.0	72.0	63.0	3.646	0.456; Not significant
	Disagree	17.8	15.1	13.7		
	Not sure	19.2	12.9	23.3		
7. Students are more comfortable at home in online teaching than traditional teaching	Agree	49.3	46.2	61.6	5.873	0.209; Not significant
	Disagree	35.6	41.9	24.7		
	Not sure	15.1	11.8	13.7		
8. Online teaching is the best teaching learning method in pandemic situations like COVID-19	Agree	87.7	88.2	87.7	0.510	0.973; Not significant
	Disagree	2.7	4.3	4.1		
	Not sure	9.6	7.5	8.2		
9. Assessment of theory and practical should be done online	Agree	26.0	24.7	28.8	1.376	0.848; Not significant
	Disagree	50.7	52.7	43.8		
	Not sure	23.3	22.6	27.4		
10. Online viva voce is more comfortable than offline	Agree	43.8	38.7	32.9	5.213	0.266; Not significant
	Disagree	32.9	46.2	41.0		
	Not sure	23.3	15.1	24.7		

Discussion:

The aim of the present study was to assess the perception of medical students towards online education. Ease of access to educational materials and the ability to choose the time and place are the strongest advantages of online learning. In the present study it was found that the 87.4% students preferred online teaching during the pandemic situations like COVID-19. This finding is consistent with the findings of Emmanuelle Motte-Signoret et al¹⁰, in which they found that 89% per cent of students strongly agreed that online teaching was an appropriate way of delivering courses during the COVID-19 pandemic. 72 per cent of the students preferred online learning due to flexibility of time.

Mobile has become a very popular device among the students. The ease of using and comfort has made mobile phone preferred device for online learning. In our study it was found that 77% of the students use mobile device for learning. This is in congruence with the study carried out by Sahar Abbasi et al¹¹, in which it was found that 76% of students use mobile device for online learning. Similar study was done by Martinez IG¹² et al in which they found that students chose mobile for their learning.

E-learning in medical education enabled the students to increase their knowledge to the same extent as traditional learning. However, it is less effective in teaching clinical and practical skills.³E learning has its own advantages and disadvantages. It was observed that students had negative perception towards online learning due to internet connectivity issues. In a study done by Gismalla et al¹³, connectivity issue and communications infrastructure are the most significant factors in restricting E-learning.

While teaching medical students, student-teacher interaction is more important aspect. In our study we found that students had negative perception towards online

learning due to lack of interaction among the teachers and the students. This finding is consistent in a survey study done by Michal Baczek et al³, in which they found that the only 4% of the respondents chose class interactivity as an advantage of e-learning during the COVID-19 pandemic. In another study by Docherty A et al¹⁴, it was found that poor interaction between learners and facilitators can impede the online learning process.

Learning from the real patients in a clinical setting is crucial for medical education.¹⁵

In online education, teaching the students on real patients is not possible. In our study we found that 88 % of the students did not prefer online teaching as hands-on experience is not given. Similar observation was made by Thomas A et al¹⁶.

Students responded to the open ended questions that during online teaching innovative methods of power point presentations, use of 3D software, and use of recorded videos should be made for proper understanding. Students also suggested that online teaching is best during pandemic like COVID 19 but should not be replaced by traditional teaching.

Due to pandemic situation, assessment of students also became difficult due to norms of social distancing and restriction in gathering. In our study, we found that the 49.4 % students disagree, 26.4 % agree while 24.3% students are not sure regarding online assessment methods and online viva voce.

Limitations of the study:

The study was conducted on a small sample size and in only one medical college. There is a need to cover more than one medical college for better understanding of the situation. So the results cannot be generalised.

Conclusion:

The study showed that E-learning is the effective method in teaching medical students. Majority of the students has positive perception towards E-learning. However there are also some limitations of E-learning and effective strategies should be made to overcome the limitations.

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