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Original Research Article

Insight of medical students on online teaching during COVID-19 pandemic-A survey

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ABSTRACT

Background: The Global disease (COVID-19 pandemic) has impacted our lives in various ways. Online teaching is the strange routine for studying platforms to continue with the process of educating students, Online classes have become a key component in the continuity of education.**Aims:** 1. This study aims to rank the usefulness of online teaching compared to classroom conventional teaching 2. Socioeconomic parameters related to online teaching in a medical college**Study Design:** The study is a cross-sectional study done on medical students. A questionnaire was prepared listing the various ways in which they discern online teaching trying to cope up during the pandemic.**Materials and Methods:** After the institutional Ethics committee clearance, online cross-sectional study was done on the medical students where from the 2nd and 3rd year. This online survey was done between 10th May 2021- 10th June 2021, A total number of 211 students participated out of 250, after completion of 18 months of online classes. A Set of 15 self -designed questionnaire based on 5 point Likert scale was given to the students to rank the effectiveness through online class usefulness levels and satisfaction levels on various parameters. Students were also asked about the demographic factors.**Statistical Analysis:** The data was analyzed using software SPSS software**Results:** The study results shows that online classes is less helpful in five parameters and equally helpful in five parameters but was not at all superior to conventional methods, we can come to the interpretation that students think that classroom teaching cannot be replaced by online teaching.**Conclusions:** We can conclude that online studies can only be a supplement and cannot be an alternate for the established order of learningThis is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Digital educating devices have become frequently used and has become current norm, instructional institutions all over the world are pursuing ways to teach students during the globally widespread disease efficiently.¹ Medical students are the future of maintainable health structures that are critically under duress during COVID-19, while ensuring the integrity and continuity of the process of medical

schooling. The COVID-19 pandemic has tested the limits of healthcare systems and challenged conventional practices in medical education challenges faced²

2. Materials and Methods

After the Institutional Ethics Clearance, this online cross-sectional survey was done on medical students. The information was anonymized and arbitrarily coded so as to make sure detachment with any identity of the participant. A total of 211 students participated out of 250 students from

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the first and the second year MBBS course, This online survey was carried out from May10, 2021, to May 20, 2021.

It is a cross sectional survey study based on set of questions. The first set of debrief consisted of demographic elements like age, sex, social and economic factors and gadget used for online learning.

After that a second set of questionnaire was given to the students which was based on the usefulness of learning through online classes and their understanding of usefulness level. This set of probing was self-designed based on 5-point likert system.³ This was pretested on 25 students for standardization. All the medical students willingly participated in the survey. All ages of students were between 18-19years

2.1. Questionnaire

The questionnaire (see Questionnaire, supplemental content) was developed by the authors for this study and it was assessed by the bioethics committee. The questionnaire consisted of two parts.

In the first part they were asked about the demographic details (age, gender, year of study, gadget used for online learning, yearly income, internet connectivity).

In the second part respondents were given questions regarding usefulness of online teaching on a Likert scale (1-much less helpful, 5-much more helpful).

In the third part students were asked whether they agreed or disagreed on a Likert scale (1-strongly disagree to 5-strongly agree)⁴

3. Results

In this cross-sectional survey conducted after 18 months of unprecedented global widespread disease, we capture a snapshot and gain insight into the effects of pandemic on Indian medical students learning and teaching. Many students responded (211). In this survey, a total of 211 medical students participated from the first and the second year MBBS. From the second year 110 and third year 101 participated. The survey was carried out after 18 months of online classes.

Descriptive statistics of 'Perceptions of medical students on online teaching' values are expressed as frequency, percentage, mean and S. D and graphical representation using bar and pi-chart. The evaluation of the reliability-internal consistency of the questionnaire was done using the Cronbach's alpha reliability test. We analyzed the data using SPSS Version 22 (SPSS Institute, Chicago, IL, USA).

3.1. Demographic data

Table 5 Showing online teaching to be much time saving 47 out of 211(22.3%) (mean 2.9) some what more helpful, and effectiveness of online learning is that constructive balance of practical and theoretical knowledge is less helpful (mean

Gender distribution

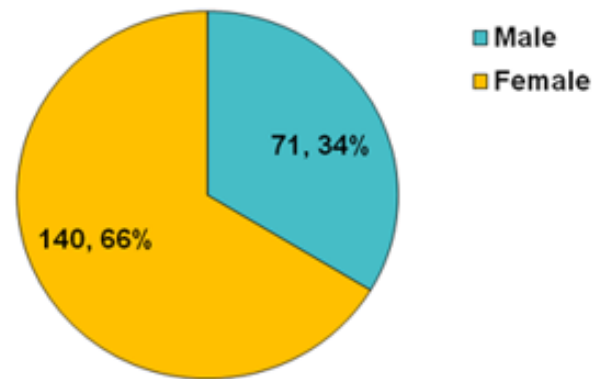


Fig. 1:

Table 1:

Gender	Frequency	Percent
Male	71	33.6
Female	140	66.4
Total	211	100

Table 1, Figure 1 showing percentage participation-females participated more >66%, where as male only 33.6%

Table 2:

Socioeconomic status	Frequency	Percent
Yearly income <5 lakh	95	45
Yearly income 5-10 lakh	74	35.1
Yearly income >10 lakh	42	19.9
Total	211	100

Table 2, Figure 2 showing most of the students (45%) 95 out of 211 yearly income is < 5 lakh, 19.9 % (42 out of 211) yearly income is >10 lakh and 35% (74 out of 211) yearly income is in between 5 and 10 lakh.



Fig. 2:

Table 3:

Which software gadget you use	Frequency	Percent
Laptop	39	18.5
Personal computer	2	0.9
Mobile	153	72.5
Tablet	17	8.1
Total	211	100

Table 3, Figure 3 shows maximum number 153 out of 211(72%) of students use mobile for online classes and very less number use 2 out of 211 (0.9) use Personal computer.

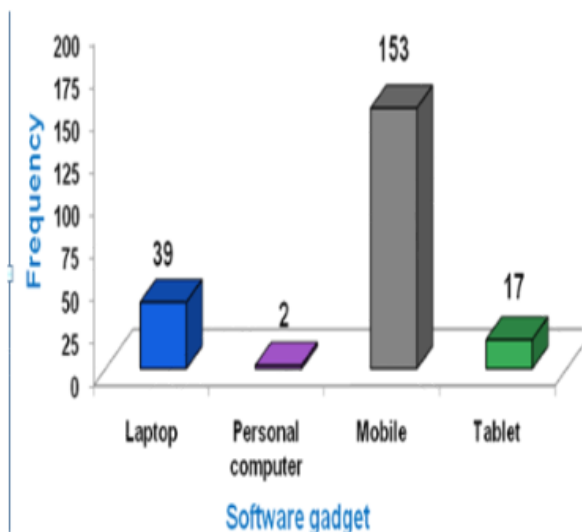


Fig. 3:

Table 4:

Network connectivity	Frequency	Percent
Poor	18	8.5
Moderate	127	60.2
Good	66	31.3
Total	211	100

Table 4 Showing in maximum areas the internet connectivity is moderate 127 out of 211 (60%), where as it is good only in 66 out of 211(31%) house holds and poor connection in 18 out of 211 homes (8.5%).

1.73). 115 out of 211(82.4%) say that constructive balance of practical and theoretical knowledge is not helpful. Effectiveness of online classes on the parameter of Reaching individual teaching demands 143 out of 211(67.2%) believe it to be less helpful. Effectiveness of online teaching on the parameter of Improved learning method, the students 139 out of 211(65.9) believe online method is less helpful. Only 29 out of 211 students 13.7% are able to Communicate effectively, so maximum do not communicate (less helpful) 92 out of 211(43.6%).128 out of 211(60.6%).

Effectiveness in clearing doubts is much less helpful 128 of 211 (60.6%), only 17 out of 211(11.1) are able to clear doubts. 174 out of 211(82.4%) are less helpful to adapt to

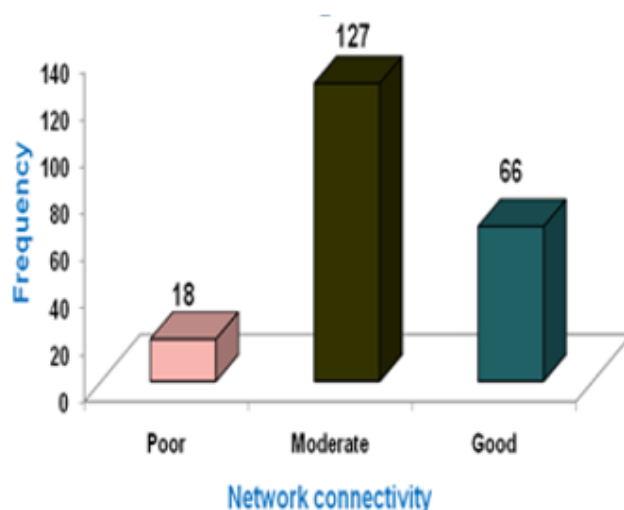


Fig. 4:

class timings where as 4 out of 211 are able to adapt(more helpful). Effectiveness of online learning in respect Easy accessibility to Faculty parameter 67 out of 211 (31.8) are less helpful and 97 out of 211 (46%) is helpful only 47 out of 211(22.3%) believe effectiveness of online teaching is more helpful in accessibility to faculty. In respect to effectiveness of online learning in self disciplined learning parameter the students 92 out of 211 (43.6%) the students feel it is less helpful and only for 37 out of 211 (17.5%) it is more helpful.

This table shows that most of the students mean score near to 2.5, which means that most of the students are agreeing (neutral) to the satisfaction level of students with regarding to online learning.

Satisfaction level of assessment of applied and academic proficiency provided by the classes by students is 62 out of 211 disagree 119 are neutral and 30 are agree that they are satisfied,

Satisfaction level of the class material provide to students was beneficial to 59 students(27.9%), 117(55.5%) agree and 35 students out of 211(16.6%) disagree that it is beneficial, satisfaction level of students with regard to competent approach to online medical education,83 students (39.3%), neutral are 84students (39.8%) and 44 students (28.9%) agree and are satisfied.

4. Discussion

Effectiveness of balance between practical and theoretical knowledge can be overcome by using immersive Virtual Reality technologies for educational purposes seems to be quite high, which is indicated by the variety of the research domains that have applied this technology in teaching.⁴

Many students desired to have in person classes which cannot be replaced by online teaching, which was found out in a multicentric study done by Harris and Lee⁵ yet others

Table 5: Shows effectiveness of online learning based on 10 parameters

Effectiveness of Online learning	Much less helpful (%)	Somewhat less helpful (%)	Equally helpful (%)	Somewhat more helpful (%)	Much more helpful (%)
Reaching individual teaching demands?	37(17.5)	106(50.2)	56(26.5)	9(4.3)	3(1.4)
Establishing ability and understanding?	34(16.1)	105(49.8)	60(28.4)	11(5.2)	1(0.5)
Improved learning method?	53(25.1)	81(38.4)	55(26.1)	18(8.5)	4(1.9)
Communicate effectively?	39(18.5)	53(25.1)	90(42.7)	19(9)	10(4.7)
Clearing doubts beneficially	49(23.2)	79(37.4)	66(31.3)	13(6.2)	4(1.9)
Constructive balance of practical and theoretical knowledge	52(24.6)	63(29.9)	76(36)	14(6.6)	6(2.8)
Adaptable to class timings	99(46.9)	75(35.5)	33(15.6)	4(1.9)	0(0)
Easy accessibility to faculty	27(12.8)	40(19)	97(46)	31(14.7)	16(7.6)
Self disciplined learning?	40(19)	52(24.6)	82(38.9)	25(11.8)	12(5.7)
Time saving ?	35(16.6)	43(20.4)	56(26.5)	47(22.3)	30(14.2)

Table 6:

Satisfaction level of students with regarding to online learning	Mean	SD
Do you agree with the assessment of applied and academic proficiency provided by these classes?	2.77	0.802
How beneficent was the class material provided to you	3.08	0.87
There is a competent approach as regards to online medical education	2.7	0.957

Table 7: Shows satisfaction level of students regarding online learning on 3 parameters

Satisfaction level of students with regarding to online learning	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
Do you agree with the assessment of applied and academic proficiency provided by these classes?	17(8.1)	45(21.3)	119(56.4)	29(13.7)	1(0.5)
How beneficent was the class material provided to you	15(7.1)	20(9.5)	117(55.5)	52(24.6)	7(3.3)
There is a competent approach as regards to online medical education	26(12.3)	57(27)	84(39.8)	42(19.9)	2(0.9)

Table 8: Showing mean is near 2.5 which means students hold online classes to be neutral (equally helpful). Many of them (mean <1.7) hold that balance of the oretical and practical knowledge is much less helpful, but it is time saving much helpful (mean >2.9).

Effectiveness of online learning	Mean	SD
Reaching individual teaching demands?	2.22	0.834
Establishing ability and understanding?	2.24	0.801
Improved learning method?	2.24	0.986
Communicate effectively?	2.26	0.948
Clearing doubts beneficially	2.33	1.011
Constructive balance of practical and theoretical knowledge	1.73	0.793
Adaptable to class timings	2.85	1.066
Easy accessibility to faculty	2.56	1.042
Self disciplined learning?	2.61	1.096
Time saving ?	2.97	1.291

like Lincango-Naranjo et al. felt that teaching institutions must reinforce students instruction while bearing in mind their individual growth and outlook.⁶

Although Dost and It has been advised to look into the negative inputs of the COVID-19 pandemic as well as early significant value to be given to address their tutoring requirements, giving cognitive assistance and carrier counselling.⁷ This crisis has given us chance to appraise substitute methodology of medical teaching and evaluation.⁸

Notwithstanding these defiance, the students have had during the first few weeks of the epidemic has escalated their trust in the usefulness of online medical teaching. While global diseases have historically generated difficulties, recognizing them is the first step in transforming them into providence.^{8,9}

Not withstanding these defiances, the students have had during the first few weeks of the epidemic has escalated their trust in the usefulness of online medical teaching. While global diseases have historically generated difficulties, recognizing them is the first step in transforming them into providence.^{7–10}

In a review article by O' Doherty, DromeyM, emphasis was laid on the importance that postgraduate training bodies, medical schools and their trainers must be aware about Institutional support as well when encouraging this (online) method of learning.¹¹

5. Conclusion

Development of internet telecommunications has lead about a revolt in the field of medical discipline with the metamorphosis of e-studying, e-guidance and e-analysis establishing the layout of e-education. This will facilitate flexible and collective studying by the trainee and the teachers. Although online teaching is time-saving it cannot be replaced by offline teaching. Online teaching can become effective means of communication provided it is used as blended type of learning as it would lead to more growth of expert skills and preparation of an effective professional career.

6. Source of Funding

None.

7. Conflict of Interest

None.

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