

## **EFFECT OF COVID-19 ON UNDERGRADUATE MEDICAL EDUCATION DURING PANDEMICS – AN OBSERVATIONAL STUDY.**

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### **Abstract:**

### **INTRODUCTION**

COVID-19 as the name its self suggest Corona virus disease 2019 was found primarily in December 2019, in Wuhan, Hubei Province, China. COVID declared as pandemic by World Health organization in march 2020.<sup>2</sup>The gap in the medical education of undergraduate students was demanding something more than traditional teaching which has led to opening of newer ways teaching learning methods. In such a case support of ongoing technology was taken by the teachers of medical institutions.

**Key words: COVID 19 pandemic, Effects, Medical education.**

### **Methodology:**

This prospective, cross sectional, observational study was undertaken at medical teaching institutes. A pre validated questionnaire was developed with nearly 23 open ended very short answer questions

Results :In present study 27 % of students accepted that both virtual and traditional teaching will be more effective than traditional teaching methods. In present study nearly 41% students were satisfied with the virtual training .

Discussion: In present study we observed that during pandemic era keeping an eye on students progress and academics was highly essential. This virtual contact with students has helped them performing better in academics and has kept their ethics high during pandemic associated stress. Students also had adopted to a newer technique of teaching learning modalities with positive response for use of both online and off line curriculums as and when needed

Conclusion: This virtual contact with students has helped them performing better in academics and

has kept their ethics high during pandemic associated stress.

## **INTRODUCTION**

COVID-19 as the name its self suggest Corona virus disease 2019 was found primarily in December 2019, in Wuhan, Hubei Province, China. The disease was having multisystemic involvement basically targeting respiratory system showing pneumonia like symptoms initially.<sup>1</sup> Which was later declared as pandemic by World Health organization in march 2020.<sup>2</sup>

As result of the COVID-19 abruption global health care and education systems were affected drastically. At this time there was a huge demand of developing and enhancing newer education policies to overcome the gap in knowledge created at the time of pandemics.<sup>3</sup>

The higher rate of spread and mortality of the virus again was having a challenge in front of medical education students and teachers to continue with the routine and traditional ways of teaching.<sup>[3]</sup> Pandemic has also affected worldwide psyc-social behavior of general population and it has led to increased mental stress related disorders.<sup>4,5</sup>

All over the world lock down and social distancing were thought to be the preventive measures for limiting spread of the disease. This has also lead to cessation of traditional teaching amongst all medical colleges in India to prevent spread of the disease from medical students to the society.<sup>6,7</sup>

This gap in the medical education of undergraduate students was demanding something more than traditional teaching which has led to opening of newer ways teaching learning methods. In such a case support of ongoing technology was taken by the teachers of medical institutions. This has started a new era of online teaching methodologies which was helping distance learning methodologies. Concerning todays situation it might be beneficial to students if both traditional and online methods of teaching learning processes go hand in hand.<sup>8</sup>

By the end of first pandemic wave NMC has also laid down competency-based medical education for UG curriculum which includes formative and summative assessments of the students. To cope up this burden of exams students must be prepared before hands to get required outcomes by institutions. Hence blended teaching or distant teaching during pandemic plays a key role in continuing the education. This demand of time can be made clear by use of online teaching-learning modules.<sup>9, 10, 11</sup>

Hence, we have undertaken the present study to observe the efficacy of online teaching learning methods in relation to the students for enhancing their knowledge and complete the acadmic tenure with in stipulated period of time. The findings of the present study may also help teaching institutions for developing their own modules as per the need of students to simplify the process of learning and make it more effective and result oriented.<sup>11</sup>

**Methodology:**

This prospective, cross sectional, observational study was undertaken at medical teaching institutes. For this study Under graduate students of all the professional were selected and provided with a consent form to participate in study. Those students who had provided with their consent to participate were explained about study protocol.

For commencing the study students were asked to complete academic modules made by the teaching institute for a duration of one month which has included a minimum of 4 hours teaching by all the departments of concerned professors. After successful completion of one month of module A google form-based questionnaire was filled by students having different grades of questions regarding their one-month online teaching experience.

In present study primary focus group students were nearly 448 students studying in different professionals of MBBS. Out of which only 339 students gave their consent for the present study with completely filled forms. Incomplete forms or information were not considered for the observations of present study.

**Study Design:**

A pre validated questionnaire was developed with nearly 23 open ended very short answer questions. Questions were simple and easy to understand any student having any query with question was solved through email.

Confidentiality was maintained by making analysis by third party and double blinding technique was used to avoid biasing. Google form was shared by posting the link in various social media groups. And after the retrieval of the data analysis was done using Microsoft office 2013.

**Results:**

A total of 448 of all four Phases medical students were asked to fill questionnaire out of which 339 students were participant of the present study (n=339). In the total study population 194 female and 145 male students were final participants. Majority of the students had used their mobile hand sets for attending the classes which were 263 and rest 76 used either laptop or tablets for their study purpose.

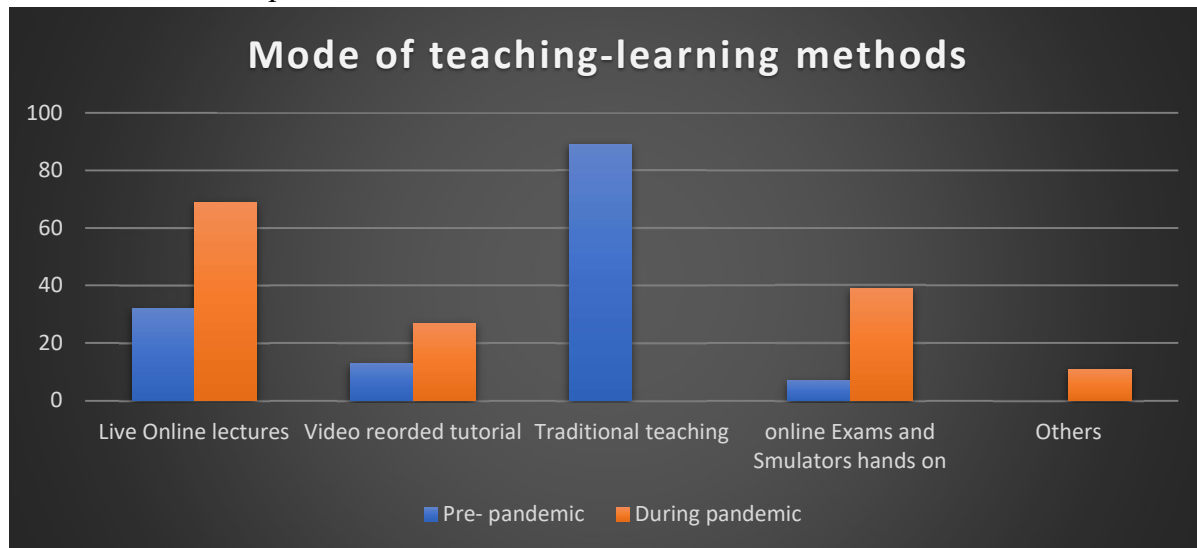
All students were asked about mode of teaching-learning methods used by them in pre-pandemic and during pandemic era. In which nearly 69% of all the students were taking lesson from live online lectures which were part of institutional academic activity. While nearly all that is 89% of all the students were dependent upon traditional teaching in pre pandemic era.

Mode of learning	Pre- pandemic	During pandemic
Live Online lectures	32	69
Video recorded tutorial	13	27
Traditional teaching	89	0
online Exams and Simulators hands on	7	39
Others	0	11

Table 1: Mode of teaching learning methods.

Similar changes are depicted in Graph 1. Demarcating the change in trend in teaching learning

methods because of pandemics.



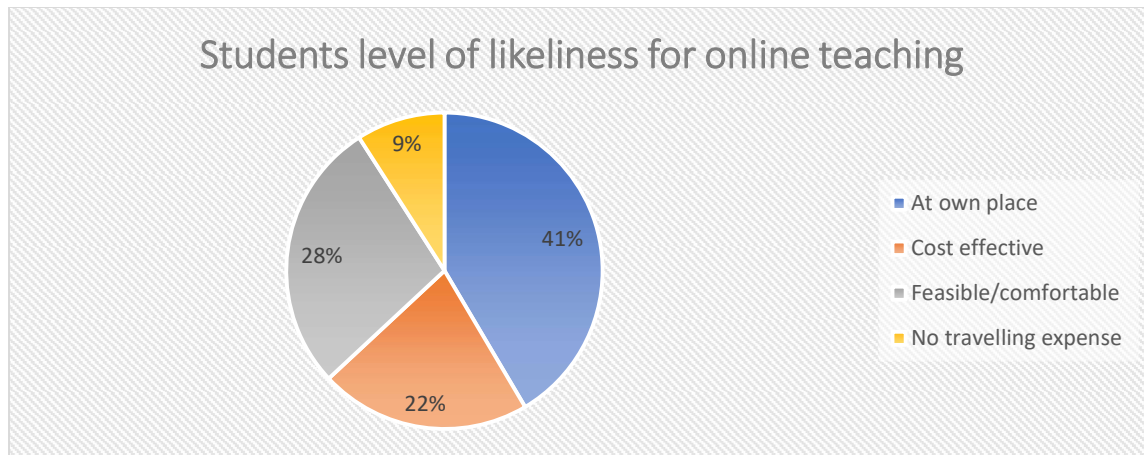
Graph 1: Mode of teaching learning methods.

Institution has a redecided academic time table for the students which was a minimum of 4hours of daily teaching. In this program college has provided online theory lectures followed by query discussion sessions. For practical purposes short videos or pre-recorded videos and printed Study material in soft copy were provided to the students and it was observed that 78% students used online lectures for study purpose and only 41% students of all had also undergone self-directed learning by using various other platforms online whose details are depicted in table 2

Online lectures by college	78%
Digital resources provided by department	67%
Self-learning resources	41%

Table2: Study material used by students.

While learning with a distant learning programme majority of students were satisfied as they were learning from their own homely place which were accounting to be 41% of the total study population. Nearly 53% students found that this process is benefiting them cost effectively and by residing at their own place. Even 9% of students were satisfied as they were not travelling anywhere during the pandemics and were safe at their own place details of which are portrayed in graph 2

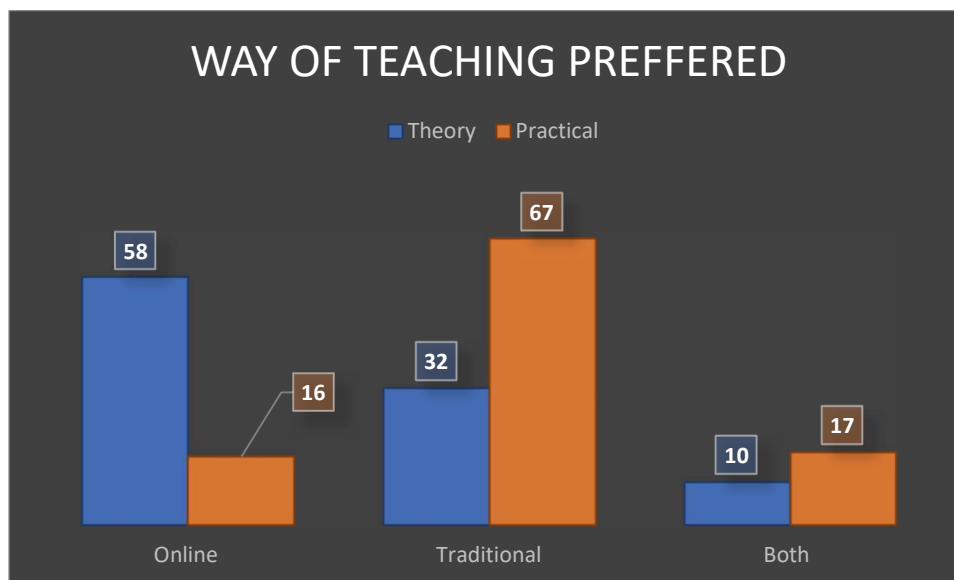


Graph 2: Students level of likeliness for online teaching.

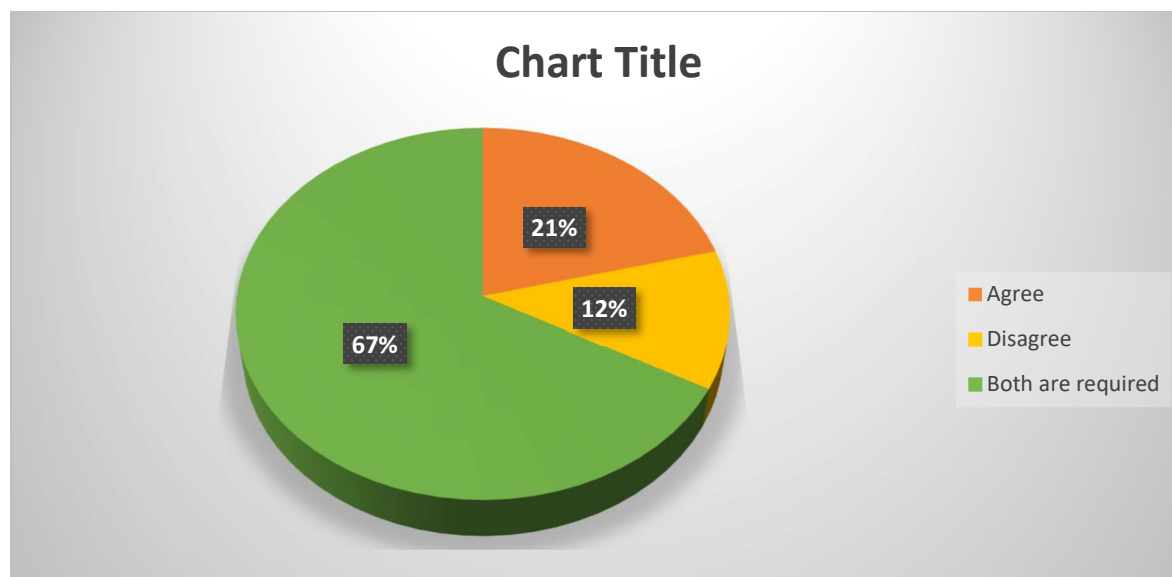
After completion of online teaching for 1 month of online teaching preferences were asked from students for their future curricular activities which showed that 58% will prefer online theory classes with 67% preferred traditional practical classes and nearly 27% students felt that both online and offline modules will be beneficial for their future studies details of which are depicted in table 3 and graph 3.

	Online	Traditional	Both
Theory classes	58%	32%	10%
Practical classes	16%	67%	17%

Table 3: Way of teaching preferred by students after completion of one month of online teaching



Graph 3: Way of teaching preferred by students after completion of initial month of online teaching Summing up the effect of online and traditional teaching 67% students feel that both the ways they should be taught so that it may help them score good in their academics or may improve level of understanding of the subjects’ details of which are depicted in graph 4:



Graph 4: Impression of students for future study purpose

### Discussion:

During the pandemics not only social life but also academics of students was also hampered drastically. There was a need to find some way out through this chaos. Hence nearly all the medical institution in India has started with online teaching learning methods. This distant learning has benefited students in two ways first they were breaking the chain of spread of infection at institution level and second, they got ample of free time to study at home by enduring in contact with the medical teachers.

At the start of this study majority that is 89% students were dependent upon traditional ways teaching this might be due to in pre pandemic era no trails were made on other ways of teaching learning methods. But during pandemics this has completely changes and more than 93% students were following online theory lecture in recorded or live streaming format. This shows that new methodologies of teaching should be developed in accordance with the need of students which will be beneficial for them. Similar findings were observed by Williams DE et al has also emphasised use of synchronous technology for enhancing students learning abilities during such period. They have also extended their observation towards future of medical studies and use of flip classrooms.

<sup>12</sup>

In present study 27 % of students accepted that both virtual and traditional teaching will be more effective than traditional teaching methods. As virtual and traditional methods help them improve understanding level of the subject which may enhance the motor skills of students as well. Similar results were observed by Dodiya D suggesting use of virtual and traditional teaching will improve the learning abilities of medical students supporting observations of present study.<sup>13</sup>

Similar results were also observed by Kumar S suggesting combination of virtual and traditional in improvement of teaching learning abilities of medical students but traditional

teaching is having its own place and newer modalities should be developed for online teaching practises which might be a permanent solution in future perspectives.<sup>14</sup>

In present study nearly 41% students were satisfied with the virtual training of the course as the training was provided at their own known place or infection free area mostly at their residents. Also, nearly 53% students found it beneficial and cost-effective way of learning. This has led to stoppage of infection spread amongst the medical students at hostel or college premises. Similar results were conveyed by Yee E in order to declare student education, medical schools may contemplate offering distant education with online technology which will benefit in both ways by encouraging students' education and avoid spread of infection.<sup>15</sup>

In present study we observed that despite of taking efforts on virtual teaching has affected their future planning as compared to pre COVID era medical students because of lack of on ground practical or patients' interaction. Similar results were observed by Pandey U making a statement about hike in anxiousness and stress levels in medical students during pandemic. Hence more emphasis should be provided on teaching learning abilities of students to strengthen Indian medical education and its future outcomes.

### **Conclusion:**

In present study we observed that during pandemic era keeping an eye on students progress and academics was highly essential. This virtual contact with students has helped them performing better in academics and has kept their ethics high during pandemic associated stress. Students also had adopted to a newer technique of teaching learning modalities with positive response for use of both online and off line curriculums as and when needed. The need of time is to develop academic calendars including blended teaching that is both online and offline modes which should be result oriented and support students for their brighter future. Findings of present study could be a stepping stone in development of newer ways academic activity for the students taking India towards the horizons of medical education. This will undoubtedly strengthen the Medical facilities in every corner of our country.

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