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"e-Learning: The Panacea During Covid-19 Pandemic"

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Abstract
Background: *In early 2020, a global pandemic (COVID-19) broke out and the nationwide lockdown restrictions to control the spread of disease and flatten the curve have impacted all the aspects of life., severely affected the progress of education in various countries' universities and institutions inevitably medical education, with the halting of lectures, clinical placements and key examinations.* ***Objectives:*** *The objectives of the study include a) to investigate perceptions of medical students on the role of online teaching in facilitating medical education and b) to analyse the comparison of online and onsite theoretical teaching, aiming at providing a reference for college educators to carry out teaching reform.* ***Materials and Methods:*** *A cross-sectional online survey study was conducted for a duration of one week in the month of June 2021. The questionnaire is devised following a literature search on current online teaching methods and the effects of COVID-19 on medical education in Google Scholar.* ***Results:*** *In our study, we found that, that students rated the e-classes to be equally effective w.r.t to all the parameters that were assessed. We assessed rating of online classes, we found that, 48.4% had rated average, 27.9% rated good, 12.1% rated poor, 6% very poor followed by 5.5% rated excellent. Majority of the students prefer regular face to face classroom as compared to online and recorded videos.* ***Discussion and Conclusion:*** *Online classes worked well in the present scenario of sudden lockdown due to COVID pandemic. However, they have their own drawbacks to be used in a regular scenario. In general times, online classes can be used as a supplement to live face-to-face classes. Proper technical equipment should be procured and kept ready to handle such exigencies.*

Key-Words: *online teaching learning, onsite teaching, COVID-19, pandemic, medical education.*
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I. Introduction:

In early 2020, a global pandemic (COVID-19) broke out and the nationwide lockdown restrictions to control the spread of disease and flatten the curve have impacted all the aspects of life., severely affected the progress of education in various countries' universities and institutions inevitably medical education, with the halting of lectures, clinical placements and key examinations. [1-3] Such measures have resulted in sudden shift in teaching methods towards e-learning via online classes thus the online education has been popularized and developed. [4-6] The epidemic increased not only the importance and urgency of online education, but also provided an opportunity for an in-depth discussion of online education.[7-10] Over the recent years online teaching has played the vital role in medical education and demonstrated several benefits in enhancing students learning.[11] A recent systemic review has suggested that offline teaching and online teaching are equivalent in terms of outcomes of examinations.[12] The unprecedented COVID-19 pandemic has caused a sudden shift towards the exclusive adoption of online teaching, forming the primary source of medical education and enabling students to continue to learn remotely.[13] Therefore, it is likely that e-learning and telemedicine will continue to form vital sources of medical education. Many authors have suggested that digital health platforms for both patients and students will remain an integral part of care even after the COVID-19 pandemic. Thus, having a greater understanding of the perceived advantages and drawbacks will allow medical schools to improve their delivery of online teaching. In view of this background, the present study was conducted to

evaluate student's perception towards onsite and online teaching-learning methods and to evaluate the efficacy of online teaching-learning process versus onsite teaching-learning.

II. Aim And Objectives:

Aim: The aim of the study is to find out the perceptions of medical students on the role of online teaching in facilitating medical education during the COVID-19 pandemic. **Objectives:** The objectives of the study include a) to investigate perceptions of medical students on the role of online teaching in facilitating medical education and b) to analyse the comparison of online and onsite theoretical teaching, aiming at providing a reference for college educators to carry out teaching reform.

III. Materials And Methods:

Place of Study: A cross-sectional survey on "**e-LEARNING: THE PANACEA DURING COVID-19 PANDEMIC**" was conducted at Raipur Institute of Medical Sciences, after taking informed consent and institutional ethical committee clearance.
Study Population: Medical students of first and second year MBBS.
Sample Size: 300
Inclusion Criteria: First and second year Medical students (CBME 2019 & 2020 batch) of Raipur Institute of Medical Sciences, Raipur were included in the study.
Exclusion Criteria: Patients, general public and students form other Medical Institutions will not be included in the study.
Sample Selection: This will be a cross-sectional online survey study conducted for a duration of one week in the month of June 2021. The questionnaire is devised following a literature search on current online teaching methods and the effects of COVID-19 on medical education in the UK. Questions exploring the experiences of online teaching were based on sections I to IV of the Dundee Ready Education Environment Measure (DREEM), a validated questionnaire designed to measure the educational environment of medical schools and healthcare professionals. These were 5-point Likert-type questions, ranging from strongly disagree to strongly agree. The remaining items in the questionnaire will comprise a mixture of question styles. Certain questions were conditional. Open-ended text responses were collected and the responses were categorised. The question items were initially drafted and informally discussed with a group of medical students before undergoing a careful review and editing process.
The final questions will have the following two themes.

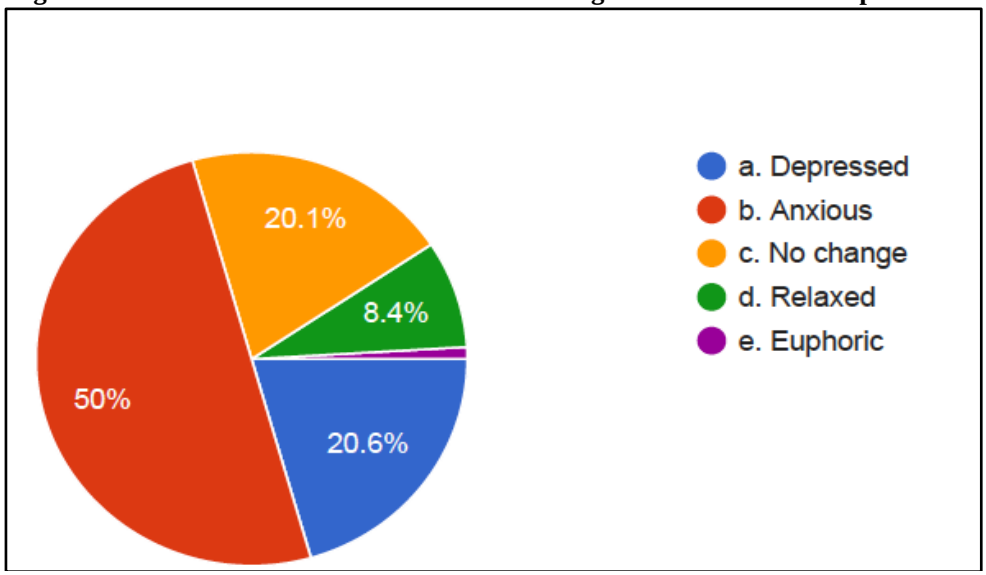
1. Assessing the effectiveness of online teaching versus onsite teaching during the COVID-19 pandemic.
2. Assessing the student's satisfaction level during online teaching versus onsite teaching learning.

Methodology: Out of the 300 students, 215 students participated in the study**.** After taking voluntary written informed consent from all the participants. Before giving the questionnaire, the students were asked about their state of mind during the lockdown. The survey questionnaire was created using Google forms and the link was sent to registered mobile number through WhatsApp or email. Once they submit the filled Questionnaire form they posted thumb sign in the group. This was to ensure their participation.
STATISTICAL ANALYSIS: Data will be expressed in mean and SD. Students unpaired t test will be used for the comparison. P value <0.05 will be considered statistically significant.

IV. Results:

Out of 300 first and second MBBS students of 2020 and 2019 batch, 217 students in the age group of 20-25 years participated willingly in the study and responded to the questionnaire. Before posting the questionnaire, we asked about the mental status/state of mind during lockdown period of COVID 19 pandemic.

Figure 1: Shows state of mind of the students during lockdown COVID-19 pandemic



Out of 217 students 214 have responded to this question. It is quite evident form the figure 1 that 50% of the students were Anxious, 20.6% were Depressed, 20.1% had no change, 8.4% were relaxed, and 0.9% were Euphoric.

We posted the google form questionnaire link in the group and all the students were asked to complete and submit in the given time frame. The following tables and figures represent the responses.

Table 1: Rank the effectiveness of online learning in comparison to traditional onsite learning (1-Much less effective, Somewhat less effective, equally effective, somewhat more effective, 5 much more effective)

Sl/No	Questionnaire (total responded out of 217)	Medical Students Responses				
		1	2	3	4	5
1	Enthusiasm in class (213)	8.9%	14.6%	**43.7%**	28.6%	4.2%
2	Comfort and convenience level of class (215)	8.8%	10.2%	**40.9%**	37.2%	8.83%
3	Concentration levels on the class (215)	10.2%	21.4%	**40.5%**	24.2%	3.7%
4	Meeting individual learning needs (208)	9.6%	9.1%	**52.9%**	25.5%	2.9%
5	Building skills and knowledge (214)	9.3%	12.1%	**45.8%**	28%	4.8%
6	Interaction level (215)	10.7%	15.8%	**37.7%**	31.6%	4.2%
7	Doubt sessions (213)	8%	13.6%	**37.1%**	35.7%	5.6%

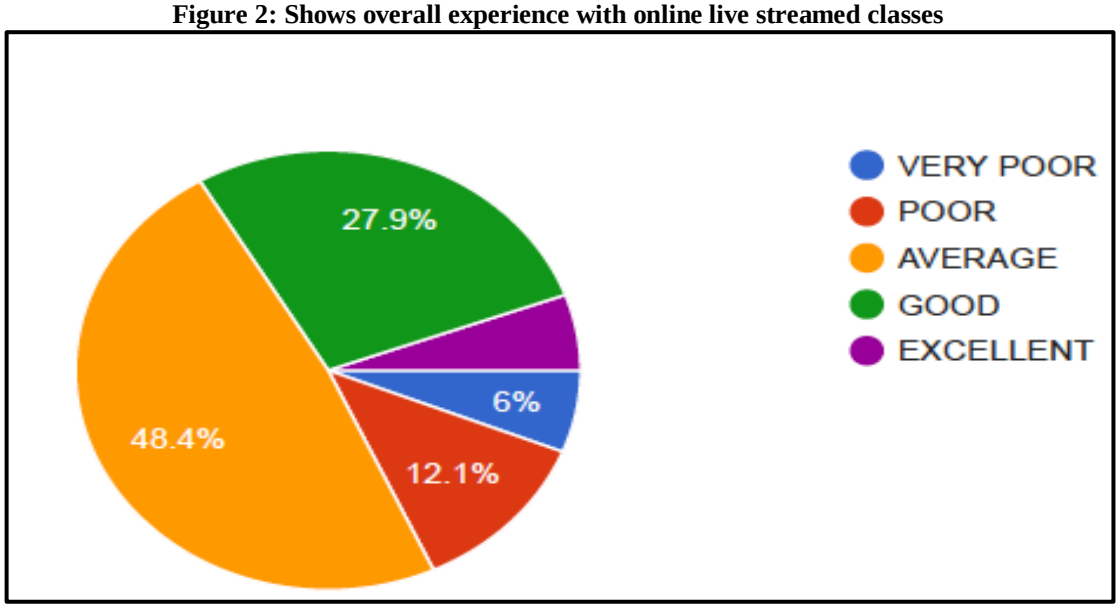
It is quite evident from the table 1, that students rated the e-classes to be equally effective w.r.t to all the parameters that were assessed.

Table 2: The Satisfaction level of students with respect to online classes

Sl/No	Questionnaire (total responded out of 217)	Medical Students Responses				
		1	2	3	4	5
1	Please set your level of satisfaction for the curriculum set for the class? (215)	5.3%	13%	**44.2%**	33.5%	4%
2	How satisfied are you with the practical classes conducted during online teaching? (209)	23.4%	**34.4%**	31.6%	9.1%	1.5%

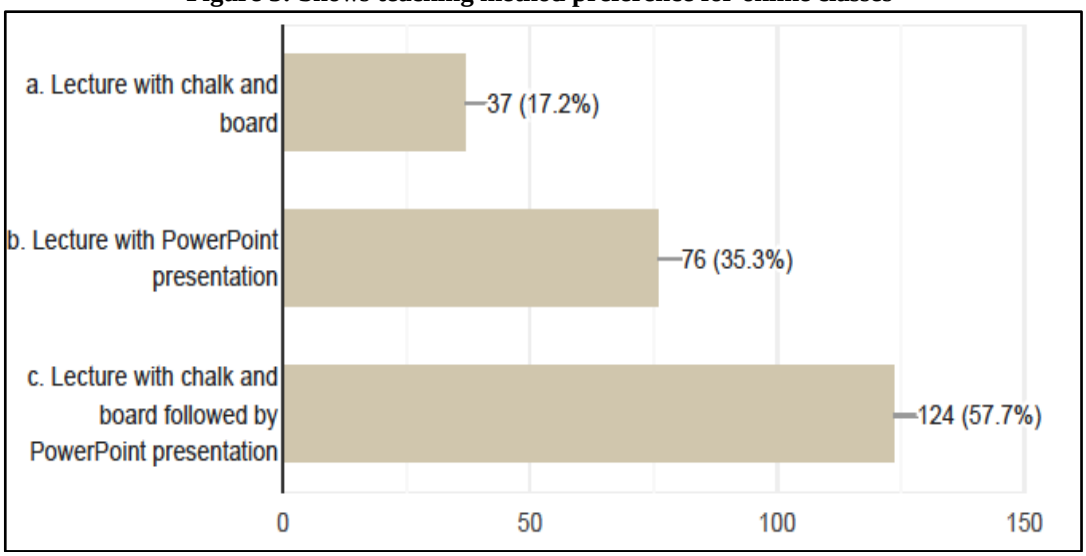
It is quite evident from the table 2, that students were equally satisfied with the curriculum set for the class but students felt somewhat less effective about the practical classes conducted online.

Figure 2: Shows overall experience with online live streamed classes



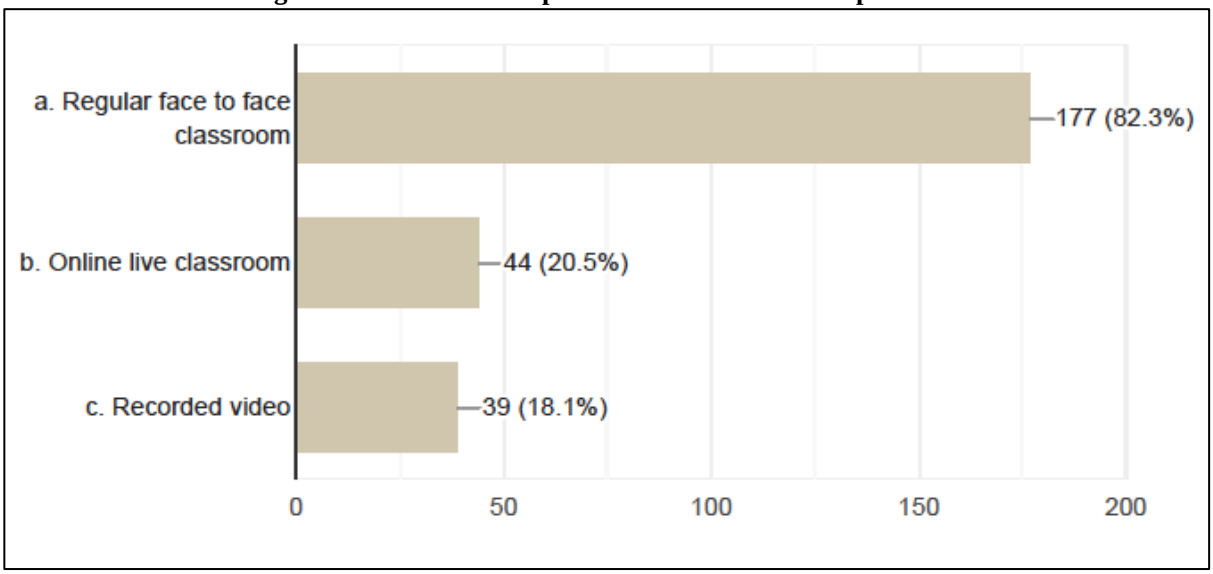
It is quite evident from the figure that, 48.4% had rated average, 27.9% rated good, 12.1% rated poor, 6% very poor followed by 5.5% rated excellent.

Figure 3: Shows teaching method preference for online classes



It is quite evident from the figure 2 that, majority of the students prefer lecture with chalk and board followed by PPT presentation.

Figure 4: Shows students preference for classroom experience



It is quite evident form the figure 3 that, majority of the students prefer regular face to face classroom as compared to online and recorded videos.

V. Discussion:

There has been a sudden drastic shift in pattern and mode of teaching since the time COVID-19 pandemic which has hit the world in each and every sector. COVID-19 pandemic being double edge sword, one hand it made universal the safe and clean practices and thought us hygiene, had lot of influence on ecosystem by decreasing the amount and rate of pollution and promoted the healing of ozone layer that has been damage since decades.

Medical Education has taken a shift in the form of e-learning, which is virtual and purely technical which is been far different from traditional onsite teaching and learning. In our study, we evaluated several parameters and checked students' satisfaction levels.

Classes were taken in the department as virtual lectures (without students) in front of the laptop. These lectures were broadcast through Free Conference Call app in Google classroom. Some faculty had posted few PowerPoints. These classes were received well by the students, inspite of several students (87) having technical difficulties. The most common difficulties faced by the students were because of internet bandwidth (74.4%).

Several students residing in remote areas have no access to good internet connection. The classes were received well by the students and they liked them, as they felt difficulty in reading text books without prior classes.

In our study, we found that (table 1), that students rated the e-classes to be equally effective w.r.t to all the parameters that were assessed. The parameters which were taken into the study were Enthusiasm in class, Comfort and convenience level of class, Concentration levels on the class, meeting individual learning needs, Building skills and knowledge, Interaction level and Doubt sessions. Students were equally satisfied with the curriculum set for the class but students felt somewhat less effective about the practical classes conducted online (table 2).

We assessed rating of online classes, we found that, 48.4% had rated average, 27.9% rated good, 12.1% rated poor, 6% very poor followed by 5.5% rated excellent. Majority of the students prefer regular face to face classroom as compared to online and recorded videos (figure 4). It implies that online learning is not as effective or superior teaching method for every student in the learning context especially medical students. Our study goes in accordance with the study of author Subramanian *et al*.[16]

A study by conducted by Ni et al[17] concluded that the social and communicative interaction between teacher and student has been an important part of classroom teaching. The main difference between types of classes is the mode of interaction between instructor and students as well as among the students. A study by Bettinger *et* al[16] also shows that to some extent, online learning might not compete with aspects of other learning, such as interactive knowledge building between teacher and students. Such limitations could create opportunities for students to obtain self-learning methods through information technology.

VI. Conclusion:

'A model using e-learning in education' by Algahtani states that e-learning can be used as an adjunct to the traditional education system or can be blended with it or can be completely online. Blended teaching–learning method is the best way to balance the shortcomings of the two pedagogic approaches of learning in medical education. Online classes worked well in the present scenario of sudden lockdown due to COVID pandemic. However, they have their own drawbacks to be used in a regular scenario.

In general times, online classes can be used as a supplement to live face-to-face classes. Proper technical equipment should be procured and kept ready to handle such exigencies.

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