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Original Research Article

A Cross Sectional Study on Perception of Medical Students on Online Medical Teaching in Present Scenario of COVID 19 in a Tertiary Care Medical Institute.

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Abstract

Introduction: The present pandemic caused by COVID 19 has affected the world as a whole and social distancing became a part of our lives. Medical education like any other form of education was affected and online classes came to the rescue. **Methods:** This study was conducted with the rationale to find out how effective are online classes and what measures can be taken to further to simulate online classes as near as possible to physical classes. Google forms were given to undergraduate medical students. 183 students participated in this study. Likert's scale was used to grade the scores from strongly agree to strongly disagree. **Results:** The observations revealed that only 2.73% students strongly agreed being comfortable with online classes and 6.55% participants strongly agreed that their internet connectivity was good. 1.64% strongly agreed and that they were able to follow the class and 14.98% strongly disagreed that there were no distracting agent. 16.94% strongly agreed that they are accustomed with the smart devices being used. About 25.13% disagreed that voice quality was good. Majority strongly agreed that recorded videos and hard copies of the class material would be helpful. On being asked if online classes are as good as the physical classes for theoretical knowledge and practical knowledge, most of them disagreed. **Conclusion:** Online classes is the important resource in hand for continuing medical teaching during pandemics, there is need to take more efforts for making it student-friendly by incorporating audio, video and texts which are interesting for the students. Technological support should be provided by institution and appropriate Faculty training is needed.

1. Introduction

Since the inception of COVID 19, education system of the world has been affected. Social distancing has restricted upon students and teachers attending educational institutions.

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Hence, studies are affected and courses are delayed. Exams in many places are postponed and even e-mark sheets were provided based on previous scores. Medical education has also seen upheavals in this respect. To cope up with this hurdle online training and assessment has become the need of the hour. Through video conferencing classes are being conducted. But digitalization has its own pros and cons. Due to poor internet connections and unavailability of smart devices online teaching may also be hindered. Different video conferencing applications have their own time limits and are not user friendly, hence online classes have become challenging. Practical classes and Clinical postings, which are the integral parts of medical education, cannot be properly taught through online teaching mode. People have to be technology savvy to understand the functioning of such devices. Online training has been started at every medical college since a couple of months. It has been received well by the students as well as teachers but different lacuna is persisting and the trainers and the trainees are facing them every day.

Many researchers have studied about online teaching methodology and its evident boon in the current scenario. An article published in International Journal of Applied and Basic Medical Research states about the history of online teaching "Actual online learning began as intranet in 1960, wherever coupled computer terminals were accustomed to give educational material to students. With the appearance of web in 1994, digital acquirement unfolded its wings in teachers, paving means for formal, commissioned on-line courses and modules. Easy availability of mobiles, internet services, web, and social media provided opportunities to learners for personalized learning experience.[1] Online learning has advantages of transcending Online teaching has the potential to transcend geographical boundaries, is flexible, learner centered and can help students develop self-directed learning skills. One article published in JAMA focuses on how COVID-19 is changing medical education. The authors quoted "The requirement to prepare medical professionals of the future has never been as essential and determined as it is now, in the current context of this COVID-19 Pandemic, which has become an emergency worldwide. The profound effects of COVID-19 may forever change how future physicians are educated."[2] The authors also felt the need of standardized examination protocol when exam centers are closed. Association of American Medical colleges has released important guidelines for clinical postings during COVID-19.[3] One study conducted at Ghana has found out that eight groups of issues during online classes that emerged were social issues, lecturer issues, accessibility issues, learner motivation, academic issues, generic issues, learner intentions, and demographics.[4]

Another study conducted at Bangladesh has focused more on internet accessibility in rural parts. Similarly, in India too after the closures of educational institutes, majority of the students have gone back to their home, which might be in the peripheries, where accessing internet may be difficult at times.[5] With the advent of online classes, medical students in India also coped up with the trend. However, several issues were faced by them during the classes. This study was conducted amongst medical undergraduates in a tertiary medical institute in Northeastern part of India with the motive of finding out if online classes are at par with physical classes and to suggest remedial measures if required.

2. Methods

This was a cross sectional study done at a tertiary care medical institute. Undergraduate medical students, who gave consent for this study, were taken as study subjects. The study period was for a period of two months during the first wave of COVID in 2020. Google forms were provided to the undergraduate medical students through their email ids. Age, Gender, Year of MBBS, whether they stayed at home or in the In the Google form, the questionnaire was preceded by the consent form and once the participant agree to participate, then only he or she could proceed to the questionnaire part consisting 13 questions. Likert's scale for rating the answers were used for rating from one to five [for example – Strongly agree, Agree, Neutral, Disagree, Strongly disagree]. The responses were entered in Microsoft Excel 2007 and analyzed accordingly. The data were expressed in frequencies and percentages. Chi-square test was used to compare between different categorical variables.

3. Results

183 medical undergraduate students participated in this study. Out of them 95 (51.92%) of the participants were males and 88 (48.08%) of the participants were females. The Mean age of the

participants was 21.19 years ranging from 18 years to 26 years, as shown in **Table no. 1**.

According to their year of M.B.B.S, the distribution of participants is as follows- 23.49% were in 1st year, 22.96% were in 2nd year, 28.96% were in 3rd professional part-I and 24.59% were in 3rd professional part-II. During the study period, 31.15% of the participants attended their online classes from their home and 68.85% of the students attended their classes from their respective hostels in the Institute campus. The responses to the questions were noted and it was found out that only 5 students (2.73%) strongly agreed that they were comfortable with online classes, followed by 48 students (26.23%) agreeing to it. 12 participants (6.55 %) strongly agreed

Table no. 1: Age wise frequency distribution

Age in years	Frequency	Percentage (%)
18	1	0.55
19	10	5.46
20	27	14.75
21	32	17.48
22	50	27.32
23	34	18.57
24	19	10.38
25	8	4.37
26	2	1.09

Table no 2: Frequency and percentages of the participants according to their age.

Sr. No.	QUESTIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
1	I am comfortable with online classes	5 (2.73%)	48 (26.23%)	27 (14.75%)	54 (29.50%)	49 (26.77%)
2	My internet connectivity is good	12 (6.55%)	48 (26.23%)	17 (9.29%)	62 (33.88%)	44 (24.04%)
3	I can follow the class from start to end	3 (1.64%)	34 (18.58%)	28 (15.30%)	72 (39.34%)	46 (25.13%)
4	There is no distracting agent during the class	6 (3.28%)	33 (18.03%)	21 (11.47%)	75 (14.98%)	48 (26.23%)
5	I am accustomed with the smart devices I am using for the class	31 (16.94%)	106 (57.92%)	28 (15.30%)	14 (7.65%)	4 (2.18%)
6	I am aware of all the features of software used	30 (16.39%)	96 (52.46%)	29 (15.84%)	26 (14.20%)	2 (1.09%)
7	The speed of the presentation is comprehensible	9 (4.91%)	81 (44.26%)	55 (30.05%)	32 (17.48%)	6 (3.27%)
8	The voice quality of the presentation is good	3 (1.64%)	37 (20.22%)	83 (45.35%)	46 (25.13%)	14 (7.65%)
9	The content of the presentation is adequate	5 (2.73%)	61 (33.33%)	54 (29.50%)	46 (25.13%)	17 (9.29%)
10	Recorded videos of classes will be helpful	59 (32.24%)	80 (43.71%)	20 (10.93%)	13 (7.10%)	11 (6.01%)
11	Hardcopy of class materials should be provided	64 (34.97%)	95 (51.91%)	17 (9.29%)	6 (3.28%)	1 (0.54%)
12	Online classes are as good as the Physical classes for theoretical knowledge	10 (5.46%)	26 (14.20%)	25 (13.66%)	57 (31.14%)	65 (35.52%)
13	Online classes are as good as the Physical classes for practical knowledge	1 (0.54%)	6 (3.28%)	16 (8.74%)	59 (32.24%)	101 (55.19%)

that their internet connectivity was good, followed by 48 (26.23%) agreeing to it. Only 3 (1.64%) strongly agreed and 34 (18.58%) agreed that they can follow the class from start to end. About distracting agent, 75 (14.98%) strongly disagreed, 48 (26.23%) disagreed that there were no distracting agent. The rest felt distracted by homely affairs or sounds from outside. Most of them (n=31, 16.94%) and (n=106, 57.92%) strongly agreed and agreed respectively that they are accustomed with the smart devices they are using for the class. About awareness of all the features of software used, majority (n=30, 16.39%) and (n=96, 52.46%) strongly agreed and agreed respectively. Responses to comprehensibility to speed of the presentation stated the majority (n=9, 4.91%) and (n=81, 44.26%) strongly agreed and agreed that it was

comprehensible. Out of the participants, many disagreed (n=46, 25.13%) and strongly disagreed (n=14, 7.65%) that the voice quality of the presentation was good. There were nearly equal responses strongly agreed (n=5, 2.73%), agreed (n=61, 33.33%), disagreed (n=46, 25.13%) and strongly disagreed (n=17, 9.29%) when being asked if the content of the presentation was adequate. Majority strongly agreed (n=59, 32.24%) and agreed (n=80, 43.71%) that recorded videos of classes would be helpful. Most of them strongly agreed (n=64, 34.97%) and agreed (n= 95, 51.91%) that hardcopy of class materials should be provided. On being asked if online classes are as good as the physical classes for theoretical knowledge, most of them disagreed (n=57, 31.14%) and strongly disagreed (n=65, 35.52%). Similarly, when asked if online classes are as good as the physical classes for practical knowledge, most of them disagreed (n=59, 32.24%) and strongly disagreed (n=101, 55.19%). (**Table no 2**)

4. Discussion and Conclusions

Before the vaccines for this disease become full-fledged, social distancing is the only way to keep the spread of this contagion at bay. Because of this social distancing, national policy makers of various countries have initiated implementation of nation-wide partial to complete lock-down. This has inadvertently affected the education system since educational institutes were closed. Medical education alike other streams of education too suffered at the hands of the present pandemic. However, this pandemic has shown us a surge in the need of front line workers and doctors as foremost. However, medical education must go on despite the threat of diseases since health professionals are to be made to combat the present pandemic and any future pandemics to come. Perseverance of the medical students have been showcased in the current pandemic when this extraordinary time called for less physical classes and more online classes. Some researchers focus more on the teachers' challenges faced since, teaching staff of all backgrounds and ages have had to prepare and deliver their classes from home, with all the practical and technical challenges this entails, and often without proper technical support.[6] Also, it has been seen that attention at the computer screens are poorer compared to the old modality.

The Covid-19 crisis has brought forth an excessiveness of recommendation geared toward academicians. A lot of this recommendation focuses on tools and materials that academicians will use to switch from their Physical classes.[7] This requires the knowledge principally associated with coming up with and organizing for higher learning experiences and making distinctive learning environments, with the assistance of digital technologies. Some authors pointed out about cheating threats which might be a hindrance to online examinations and how to minimize them.[8] Also, the privacy issues related to different video conferencing apps have created hesitation amongst the minds of the users.[9]

In our study we have found out that online learning, though, is the only modality in times of crisis like the present pandemic, yet it has many shortcomings which must be addressed if we are to be prepared for natural calamities. Participants disagreeing that they were comfortable with online classes were more in number to those agreeing to the matter. This highlights our inertia as a learner of newer modalities and technologies and since for ages we have been taught the physical way of classes and as direct human to human interactions are being reduced through e-learning, it would take a certain period of time for the learners to find e-learning modality pleasant and congenial. Majority agreed to the fact that they were accustomed with the devices, software and applications. Students mostly used their mobile phones as compared to their laptops as they found it to be easily portable and could carry on with their learning hours from anywhere. Majority were not satisfied with the speed, voice quality and content of the presentation. For these issues, training of the educators is essential as how to modulate their voices, which part to emphasis on, etc. Speed of their delivery should be maintained so that each word is comprehensible by the students. Institutes can buy business packs of video-conferencing apps which can go beyond stipulated time of free packages so that the educators do not have to rush to complete their topics of presentation. Majority agreed that class materials and pre-recorded videos would be helpful. This can also resolve issues like poor quality of voice during presentation or network issues. Through pre-recorded video lectures, testing the content of the presentation previously and by handing over the class materials, many technical issues can be resolved. These courses should be made interactive and interesting so as to grasp the attention of the learners as many students felt they were being distracted.

Through different groups or forums on the social media or texting, communication can be made and students can reach out to the teachers with queries if time limit of online classes has been exceeded.[10]

Creative forms of the classes should be made so that the interest of the students is not lost. Group based tasks may be given so that the pupils communicate with each other like projects and case studies.[11] Though it is evident from this study and many other studies done earlier that online learning is not satisfactory in terms of theoretical and practical knowledge, however use of simulators and procedural videos can be incorporated in the curriculum, which may prove to be useful. Although vaccines have been on the run and frontline COVID warriors have received it and will go the masses soon, still we must be prepared for any drift from the scenario and must develop our e-learning for future pandemics and or disasters.

Online classes are becoming part of the modern teaching system, so it is to be decided how to make it more attractive and student as well as teacher friendly. Moreover, in all such type of teaching and learning tools, there remains one issue of the technology, one have to be careful while choosing the appropriate tool for the same. During the study, it has been observed that the slow internet connection was one of the major snags in the online teaching method, and the students have rightly pointed out the same. In India, we are yet to have the proper internet connections up to the remote areas, and so for the persons in the remote areas, it is still not easy to access the online classes. Therefore, better connectivity is utmost essential for any such exercise.

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