



Perspective of Indian Medical Undergraduate Students on Virtual Ophthalmology in the Covid 19 Era: A Descriptive Cross Sectional Study in a Metro city Of India.

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ABSTRACT:

KEYWORDS: The COVID-19 pandemic has had a profound effect on the Medical and Surgical education for the foreseeable future. As educators, while we must focus on providing care to our patients, we must also focus on the safety of our trainees and colleagues. The Government of India has recommended avoiding any large gatherings and suggested online teaching through various portals. As a result, in-person academic activities, including teaching conferences, and simulation labs had to be avoided

With most Medical colleges minimizing physical participants to essential personnel only, the traditional methods of teaching required to be modified rapidly to online and e learning resources and apps. The Aim of the study is to evaluate the perception about online learning among Undergraduate medical students just being introduced to Ophthalmology in a metro city in India during lockdown period of Covid -19.

I. INTRODUCTION

The Covid-19 pandemic has affected the educational system worldwide. United Nations Children's Fund (UNICEF) has estimated that there has been a disruption in the education of over 1.57 billion students in more than 190 countries constituting 91% of the worldwide learners.[1] Many Medical Colleges and institutions have made exceptional efforts to minimize this disruption by using technology to facilitate academic activities without compromising the safety of the faculty and the learners.[2] Ophthalmic education is not an exception to the upheaval. Previous studies have shown postgraduate students' perspective on these online classes [4, 5] but undergraduate students' perception is missing and is even more important. Postgraduates are less in number and they learn during their duties and on rounds whereas these aspects are lacking in undergraduates who are

entirely dependent on online teaching during this pandemic. With the upcoming digital era during this decade, the availability of education materials and resources to medical students has expanded rapidly. There is access to online learning tools and apps with the rapid expansion of mobile technology apart from traditional methods.

The need of the hour is to find out how medical students learn during this pandemic while institutes are closed. The present study was conducted with an aim to evaluate the perception about online learning among medical students in western India during lockdown period of Covid -19, and to analyze the factors influencing them along with the advantages and disadvantages of e-learning while evaluating the learning Pace of students with Online sessions.

AIM

1. To evaluate the perception about online learning in Ophthalmology among medical undergraduate students just being introduced to Ophthalmology as a subject during the Covid -19 era.

OBJECTIVES

1. To evaluate and Improve the teaching methods and modalities based on student suggestions particularly in terms of time allotted per session and ease of using different online tools.
2. Highlighting the Advantages and Shortcomings to make Online learning easier.
3. Evaluation of the Learning pace of students during Online sessions.

II. MATERIALS AND METHODS

Study AREA and Population:

Study included all 2nd year 1st Semester MBBS Professional Undergraduate students presently enrolled at K J Somaiya Medical College, Sion, Mumbai.

Study setting and design:

The present study is cross-sectional retrospective web-based study conducted at a medical college in



the metro city of Mumbai during the May -July 2021.

Sample size: Purposive sampling included participants of 2nd Professional MBBS students (2nd Semester), having internet access and willing to attend regular online lectures and it counted to around 50 eligible students. The purpose of the study was explained and informed written consent was obtained from all the study participants; and anonymity and confidentiality of the participants was maintained.

Sample size was calculated using Open epi free source sample size calculator (Perception about Online Learning among Medical Students in Northern India during Lockdown Period of Covid - 19: A Cross Sectional Study Gupta Uma, Tripathi Vartika, Gupta Narendra Kumar). Considering learning pace as an advantage of online teaching at 5% with absolute precision of 13.6% at confidence level 95% the sample size obtained is 50.

Statistical Analysis: Collected Data will be tabulated and analyzed using Microsoft EXCEL for Windows 2020, Categorical variables will be presented as percentage and suitable graphs will be made for data presentation.

Study Tool: A 25 item structured questionnaire with 23 close ended and 2 open ended responses was developed which covered the domains of participants characteristics, educational resources, level of satisfaction of online learning during covid 19 era. The questionnaire was developed and distributed using google forms.

Participation was voluntary and informed consent was obtained from each participant prior to participation. An Explanation of the aims and objectives of the study and the methods to complete the questionnaire were discussed in detail over an online session via google classroom.

The questionnaire was piloted among a small number (n =5) of undergraduate students and the average time taken to complete the survey was 10 min. The presentation and validity of the questionnaire were undertaken by 4 randomly selected faculty members for clarity, relevance, and acceptability. Modifications were made as required to facilitate better comprehension and to organize the questions before the final survey on google forms. The study questionnaire comprised three sections containing 25 items. Section 1 had 6 items that explored the characteristics of participants including age, gender, year of study, and access to smart phone. Section 2 comprised of 13 items and aimed to gather student's perception towards e-learning for acquiring knowledge, time spent on e-learning, device preferences, assignments and

resources provided. Similarly, Section 3 comprised of 6 items and aimed to gather student's experience of the educational resources for knowledge. The 6 items included "attending lectures online; disturbances at home, consulting medical literature like journals; watching online teaching videos; interactive online materials; using medical apps like normal labor minor procedure provided. Participants also responded to advantages and disadvantages with e-learning. The questionnaire was developed and distributed using Google forms.

Data Collection An online teaching program was started in our tertiary care teaching institute from 20th May 2021 to 20th July 2021 as per already circulated roster of didactic lectures which were conducted every day in a classroom setting. Google Classroom was used to take the classes which included the whole class of 50 students divided into 2 batches of 25 students each and every class was for time period of 45 mins. After 2 months of online Lectures, the Undergraduate students were approached through existing WhatsApp group. An introductory paragraph outlining the aims and objectives of the study as well as instructions to complete the questionnaire were explained to the participants over "Google Classroom" online portal especially mentioning that all questions were mandatory. Sufficient time was given to participants to read, understand, and answer all the questions and the participants could not change the answers after submission of questionnaire. The participants were given a 48 hours to voluntarily complete the questionnaire. All 50 students participated whose questionnaires were then analysed.

III. STATISTICAL ANALYSIS

The collected data were tabulated and analyzed using Excel for Windows 2020. Categorical variables were presented as percentage (%)

IV. RESULTS

The total number of participants was 50 out of which 28(56%) were females and 22 (44%) were males. The mean age of the students was 21.5 years.

The perception of students has been summarized in Figure 1. All of the students were using their email regularly every day. On enquiry Majority of students preferred Mobile phones 52.3% followed by Laptops (42%) and 13.6% preferred an iPad for online learning.

Majority of students used a wifi connection followed by a 4g internet connection.

Maximum number of students spent about 3 hours a day on e learning i.e. 34% and 18% of



students spent 2 hours a day on the same.64% of students regularly used the available online library and e-resource for study materials.

About 44%of the students believed that learning was faster and more effective by using online tools to supplement e-teaching and learning and 24% did not agree whereas the remaining 32% were unsure about the same.

When enquired about the most common application preferred and used by the students for online lectures 80% of the students preferred google classroom whereas the other 20% voted for zoom.

50% students preferred online teaching and were comfortable with it whereas 25% were unsure and 25% preferred classroom teaching

About 50% of the students wanted online classes to continue even after the post covid era and 26% disagreed whereas the remaining 24% remained unsure about the same.

The various suggestions made by the students for the improvement of e learning are shown in table 100% of the students attended online lectures during the pandemic.

The advantages and disadvantages of online teaching are listed in table 2 as cited by the students.



V. DISCUSSION:

With the current Covid 19 pandemic the students and multiple Institutions across the world have accepted and appreciated the online platform of learning.It is vital now more than ever that students and teachers both adapt to e-learning as a formal mode of education.Making e-learning the new normal its the need of the hour that we explore the students perceptions and their expectations.

in our study The total number of participants was 50 out of which 28(56%) were females and 22 (44%)were males.The mean age of the students was 21.5 years.The mean age demographics reported in studies by Daroedono et al and Surana et al was 21.2 and 21.7 years respectively which was almost similar to our study.

We observed that in our study the Maximum number of students spent about 3 hours a day on e learning i.e.34% and 18% of students spent 2 hours a day on the same , our findings show an increase in time spent on elearning when compared with the study conducted by Hui et al's where students spent upto an hour on e learning.

we observed that in our study that majority of students used Mobile phones 54% followed by Laptops (40%) and 6% preferred an ipad for online learning.

our studies are in tandem with the studies conducted by Abbasi et al's who reported mobile used by 75.7%, computer by 0.8% laptop 21.2% and tablets by 2.4%. Roberts and Rees too reported that mobile was the most common device used by majority of the participants followed by laptop.

Majority of the students in our study preferred mobile devices over laptops as it was always easier to have a backup data connection ready in case the wifi support fails and also as it was far more convenient to navigate between apps over their mobile devices.

We observed that most of our students cited , having uninterrupted internet access , no financial burden, ease of access from home, flexible learning hours and availability good e learning platforms at no or minimal cost ,as the supportive factors for e learning.A study by Daroedono reveal that location flexibility was the topmost supportive factor for e learning.

The most common inhibitory factors to e learning as per our study were less interactive sessions,network connectivity issues and lack of face to face interaction with teachers and colleagues which was quite similar to the study conducted by Daroedono.

The results of our study based on the student feedback highlighted the fact that despite being introduced to ophthalmology as a subject for the 1st time via an e learning platform 50% of the students preferred online teaching and were comfortable with use of e teaching tools in the subject.54% of students found online learning to be satisfactory.50% of the students performed at an above average level in terms of grades (50% and above) on their assessment of Ophthalmology after their sessions of online teaching. And 50% of the students wanted online teaching in the subject to continue in the post covid era as well.

Surana observed that among participants in their studies online lectures, reading textbook, online teaching videos, and written notes were the new learning and revision priorities

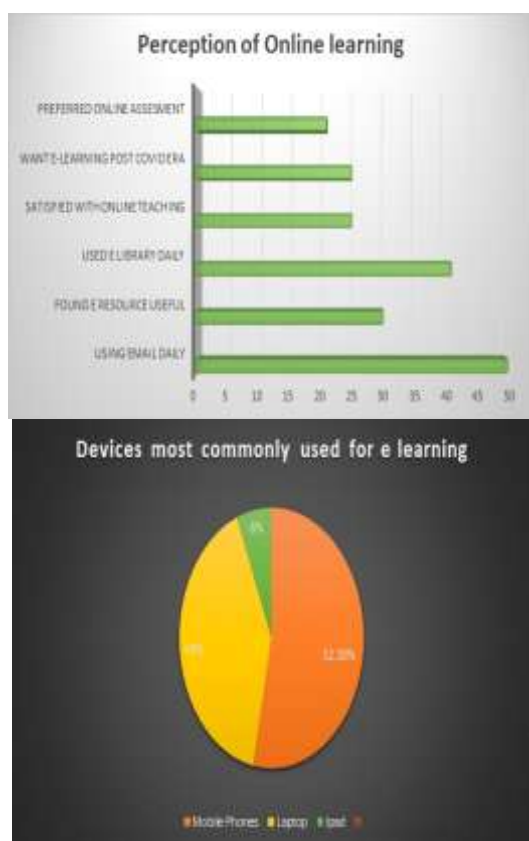
Huang et al., 2020 reported that Reliability and sufficient availability of Information



Communication Technology infrastructure, learning tools, digital learning resources e-books, e-notes, and so on are of utmost importance.

Making sure of creating a student friendly time table for online sessions and adhering to it with dedicated time for questions at the end of every session helped in creating a student satisfaction level of 50% with e learning despite being introduced to the subject for the 1st time.

Open access to various online study tools and recorded lectures helped made it easier for sharing and discussion among peer groups which helped the students adapt to the e learning environment with relative ease.



Suggestions made	No. of students
None /Satisfied with current set up	10
Better internet connection	12
Increase duration of lecture	11
Stop online teaching after pandemic	4
Better audio/video quality	9

Make session more interactive	7
Include more live demonstrations	7
Provide study material prior to lecture	5

Suggestions made by students to enhance e learning

VI. CONCLUSION:

Innovative pedagogical methods and technical competency of online educators is important to help students adapt to e learning with ease and constant modification of teaching methods based on feedback is pivotal for successful online learning. Poor or less interactive communication between the educators and students or the lack of clarity of goals can impede the online learning process.

Institutional support in creating and maintaining an e library with useful resources which are regularly updated is important. The pandemic has shown a sharp rise of e learning all over the world. It can be a very useful resource to provide inclusive education to all at the time of crisis.

Limitation

The sample population has been drawn from a single, private medical college. Therefore, results of the study cannot be generalized.

Recommendation

We further recommend that an in depth multi factorial study with a larger sample size be conducted to improve the understanding of students perception of e learning and also explore the perceptions of Educators towards the same as well.

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