

Original Research Article

Ophthalmology Virtual Learning During COVID-19 Pandemic: Undergraduate Students' Perspective

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Abstract

Aim: Our study aims at analysing the undergraduate students' perspective of online ophthalmology classes during the Covid 19 pandemic.

Settings and Design: The study is a descriptive cross-sectional observational analysis conducted in the month of June 2021 at Medical College, Karnataka, India.

Materials and Methods: An online self-completion questionnaire containing 13 questions was sent through Google forms. 346 medical students of third and final year, who have completed or undergoing online ophthalmology classes were included in the study. Most of the questions were semi open question. Link to the questionnaire was sent through the WhatsApp group and was available to them for a period of two weeks.

Results: The online survey questionnaire was responded by 237 students. 166 students (70%) did not have any online learning experience before the pandemic. Majority of the students preferred problem-based learning 92 (27.62%) over other methods. Benefit of reading the study material at own pace was perceived as the prime advantage of online classes. Poor internet connectivity was opted as the major hurdle (170-35%) of the online classes. Multiple choice questions were the most preferred method of online assessment (150 -41.32%). 105 students (44.3%) felt that the ophthalmological clinical skills were learnt better by attending clinical postings. Majority of the students (166-70%) favoured classroom teaching over online classes for fruitful learning.

Conclusion: The COVID-19 pandemic has introduced newer teaching methods in ophthalmology. Most students, even in the era of the internet showed a preference to classroom teaching and clinical postings for a better learning experience.

Keywords: COVID-19, medical education, online classes

Introduction

Medical education has encountered a significant hurdle because of the dawning of the COVID 19 pandemic. In a bid to maintain the social distancing and avoid gatherings, the conventional teaching methods have taken a backseat. The situation calls for adaptation of safe alternatives. This has burdened both faculty members and students with major modifications in the teaching methods. The pandemic has led to a spur in the adaptation of virtual teaching and learning methods [1].

The present technology has been a boon in maintaining the continuance of medical education during the pandemic. It offers many platforms through which the students can be reached out in a secure way. Innovative pedagogical methods with the use of technology and simulation based learning helps to reform the online lectures. Video case vignettes, virtual simulators, webcasting and online chat rooms steps up the virtual student teacher interaction [2]. As we know any change is not entirely advantageous. Embracing technology comes with its own pros and cons. Online teaching enables remote learning, gives easy access to teaching material and simplifies administrative tasks like marking attendance and recording lectures [3]. Challenges to online education include time management issues, use of technology tools, student's assessment, communication and lack of in person interaction [4].

Ophthalmology being a clinical discipline comes with its own stumbling blocks when adapting to newer methods of teaching. Imparting clinical skills through online teaching is a herculean task. Even though numerous demonstration videos and case scenarios are easily accessible, nothing comes close to having face to face interaction with the patient, teacher and hands on clinical examination. There is a high probability of overload of information from the online resources and students may find it burdensome to curate the content without the guidance of faculty [5].

Our study aims at analysing the medical students' perspective of the online teaching and assessment methods in ophthalmology during the pandemic. It is imperative to be aware of the students' point of view on the recent modifications in the education. Their feedback will enable us to find the lacunae and betterment of the existing methods of online ophthalmology education.

Materials and Methods

Our study is a descriptive cross sectional survey. An online survey of self-completion questionnaire containing 13 questions was sent through Google forms. The medical students of third and final year of our institution, Karnataka who have completed or undergoing online ophthalmology classes were included in the study. The study was carried out in the month of June 2021. Total of 346 students were included in the study out of

which 237 students responded. The response rate was 68.49%.

Most of the questions were semi open question, allowing the students to include their own thoughts along with the suggested options. The questionnaire was designed to analyse the advantages, disadvantages, hurdles, preferences and assessment methods of ophthalmology online classes. Link to the questionnaire was sent through the WhatsApp group to all the students and was available to them for a period of two weeks. The identity of the student was not asked for as it may lead to bias in the response to questionnaire. Students who resided in taluk/district headquarters were considered to be from urban area and others from rural area.

Results

The online survey questionnaire was sent to 346 students out of which 237 students responded, 108 (45.6%) were male and 129(54.4%) were female.

In our study 166 students (70%) did not have any previous online learning experience before the pandemic and 71 (30%) students were exposed to online learning.

The question regarding preferred methods of online teaching received 333 responses. Majority of the students preferred problem solving based learning (92, 27.62%), 83 responses (24.92%) each was obtained for Didactic lectures and small group discussions. 71 responses (21.32%) were in favor of self-directed learning. Few students suggested uploading recorded video lectures and image based clinical cases.

Benefit of reading the study material at own pace was perceived as the prime advantage of online classes (43%) followed by easy accessibility at any time and place (31.1%). Access to replay the recorded lectures accounted to 22.87% of responses. 2.43% of responses were not in favour of any advantage of the online classes.

369 responses were obtained for the disadvantages of online classes over classroom teaching. The maximum (148-40.1%) were of the opinion that the classes were not very interactive. Lack of individual attention received 118 responses (32%). Issues in clearing doubts were felt as a disadvantage and it obtained 88 responses (23.84%). The other disadvantage perceived by the students included Lack of clinical exposure and network issues. Three (0.82%) responses suggested that there were no disadvantages of online classes.

Hurdles faced during the online classes received 485 responses. Poor internet connectivity was opted as the major hurdle (170-35%) of the online classes. Surrounding distractions during the classes were experienced by 125(25.8%) students. Device related issues were experienced by 95(19.6%) students. During the online classes students have the access to other social media sites too. Temptations of scrolling through the social media sites were encountered by 91(18.8%) of students. Three (0.6%) students had not experienced any hurdles during the online classes.

Our survey also enquired about the preferred online assessment methods by the students. 363 responses were obtained. Multiple choice questions were the most preferred method (150 responses-41.32%) by the students. OSCE-Objective structured clinical examination obtained 88 responses (24.24%) in its favor and was the second preferred method of online assessment. This was followed by essay questions with 84 responses (23.14%) and Viva

Voce with 41 responses (11.3%).

105 students (44.3%) felt that the ophthalmological clinical skills were learnt better by attending clinical postings rather than demonstrating videos in online classes. 115 students (48.5%) were in favor of both clinical postings and online classes.

Majority of the students (166-70%) favored classroom teaching over online classes to gain better knowledge. 62 students (26.2%) supported both online and classroom teaching. 149 students (62.9%) were against continuing the online classes after the end of pandemic whereas 32 students (13.5%) were in favor of online classes. 56 students (23.6%) were indecisive about the post pandemic continuation of online classes.

Out of 125 students who experienced surrounding distractions during online classes, 40 of them had no separate study area whereas 85 had separate study area at their residing place. 170 students opted having poor internet connectivity issues among them 106 were residing in the urban area and 64 in the rural area.

Discussion

Covid-19 pandemic has brought about drastic changes in the methods of undergraduate medical education and is no exception for ophthalmology too. There has been an unavoidable shift from traditional classroom teaching to virtual education. The effect on clinical disciplines like ophthalmology is more due to lack of patient interaction and clinical skill acquisition. This change has been challenging for both students and faculty. It is necessary to have an insight on the student's notion regarding the recent modifications to bring about the betterment of medical education during such taxing situations.

There are myriad methods which can be adapted for online teaching. Self-directed learning and virtual didactic lectures do not differ much from offline education. Case based learning comes closest to having face to face interaction with the patient. It can be preferred online option to inculcate clinical knowledge and skills. Case based learning makes learning more clinical oriented and interesting, it ignites critical thinking in students and improves their applicability of theoretical knowledge in treating patients ^[6]. Small group discussions can be utilised to bring about some social interaction in virtual classrooms. Combination of these methods chosen appropriately to the topics discussed can provide a better outcome rather than choosing only one method ^[7].

Most of the medical students have access to smart phones and social media and have the skills necessary for utilisation of these forums for medical education ^[8]. Hence reaching out the students with the help of these platforms seems reasonable during the era of pandemic. Non-academic advantages of online medical education include cost effectiveness, saves travelling cost and time, easy accessibility of information at any time and place and prevention of spread of infectious diseases. Academic benefits include access to interaction with experts across the globe, easy access to information, readily available updates and different teaching aids available makes learning interesting ^[9]. Recorded lectures can be revisited at any time and it inculcates self-directed learning in students. Online education also gives the flexibility for students to learn concepts at their own pace ^[10]. Different options for self-assessment are also available which is an additional advantage for students. Our students felt that lack of social interaction was the major drawback of online classes.

Similar results were also obtained in a study conducted by Lin. Y *et al.*,^[2, 11] Synchronous learning in the form of online quiz, polls and question answer sessions will improve the interaction in the class^[12]. These interactions will encourage students to put forward their queries to the educators. Small group discussions, seminars and flipped classroom sessions will enhance inter student interaction and alleviate the feeling of being missed out. Individual attention can be extended to students by giving personal feedbacks to assignments submitted by them.

There are many barriers which hinder the smooth conduct of the online classes. An uninterrupted online class requires a stable internet connection and suitable devices at both the ends-students and college. Poor internet connectivity, inadequate infrastructure and technical skills, device related issues are the major hurdles faced during the online classes^[13]. Family distractions can be experienced by the students with large families or if the student does not have an access to separate study area^[10].

In our study, more than 50% of students faced the problem of surrounding distractions during classes. But there was no significant association between the access to separate study area and the experience of surrounding distractions by the students. The association between poor internet connectivity and the area of residence of students were analysed but the results did not show any significant relation between these two entities.

Our study analysed the responses from only one medical college creating a selection bias. Including other college students' response would have made the study more generalizable. Students might have had an inhibition in responding to a few questions as they were aware that their teachers were conducting the study even though the responses were kept anonymous.

List of abbreviations: Nil.

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