

Impact of COVID on Dental Education: Period of Uncertainty

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Abstract

COVID-19 pandemic affected the entire education system including dentistry. Dental students were affected psychologically because of the highest risk due to the nature of their clinical training which includes working in the oral cavity using aerosol-generating equipment. The aim of this review is to present the challenges faced by the dental students.

Keywords: Covid 19, Education, Dental students.

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INTRODUCTION

According to microbiology even the smallest microorganism can make disasters million times its size. This came into reality in Wuhan, China around the time of December, 2020 [1]. The whole world empathized for China but never did we think, what initially was considered as flu would convert into a pandemic and turn our lives upside down. The first case of COVID-19 in India was identified in Kerala on 27th January 2020, thereafter India has reported its highest single day peak as 4, 00,000 cases and as we know our nation is still fighting endless battles against COVID-19 [2]. To tackle this situation government left no stones unturned in the best interests of the people of the country, which ultimately led to social distancing and lockdown. While all these exorbitant measures were taken to combat the novel coronavirus, it made a huge difference in the lives of common man. People had to confine ourselves within the four walls of our homes. Though many found it as a way to spend quality time with their family and expand their creative thinking skills.

Effect on dental education

The lockdown in turn brought drastic effects on the working class and learning community. Students and teachers had to resort to new methods of learning and communicating. Instead of rushing to the colleges before the bell rings, standing in queues waiting for buses, all these classes are just a click away. As promising and comfortable this may seem, there are a

lot of positive and negative aspects of this pedagogy on students all over the globe. Due to the highly infectious nature of this disease we had to find solace on digital platforms. Current smart devices and applications have allowed students to listen to lectures and review them whenever and wherever possible, therefore encouraging education autonomy. No matter where you are, you can gain access to these classes, which made learning easier. When it comes to dentistry, there are two differing opinions like as of two sides of a coin. That is, it has its own *advantages* and *disadvantages*.

Advantages

All the study materials were made available online and regular assessments conducted which improved self-learning skills. Students found it easier to comprehend by the means of PowerPoint presentations and online demonstrations displayed by our faculty [3]. It gave them better visualization of theoretical and practical sides of dentistry. When compared to the traditional didactic methods, scientific materials can be updated and reassessed. Even though one cannot argue with the fact that dentistry is entirely based on clinical skills and hands on experience. This raised the concerns of universities to take the responsibility of dental schools to certify the competency of dental students while being flexible to deviate from the previous curriculum. Dental associations around the world have reframed the dental education to ensure the finest academic practice for undergraduate education and provide the best patient care. A major accomplishment

in this pandemic era is the digitalization of seminars commonly known as WEBINARS.[4,5] Earlier attending a seminar was a tedious task, prior registration, managing accommodations, transport and the financial constraint. Now you can listen to the best Orthodontist or Prosthodontist in the world through any digital platform.

Disadvantages

Impact of the pandemic on student's life is the question of the hour. As the world went into lockdowns and e-learning, the effect it had on students is still debated and being researched on. Dentistry is primarily a profession in clinical practice, the use of strategies in virtual learning remains as a challenge for universities around the world. Preclinical and clinical training is of utmost importance for students, as it is during this stage that the students learn various manual and cognitive dexterity that prepare the students to enter the dental

profession. Nothing beats the hands-on experience on patients that students get in their clinics. The exposure to variety of cases undoubtedly improves their problem-solving skills. Meanwhile, dental schools limited many activities in their clinics, with access mainly permitted for managing only emergency dental treatments or urgent and undeniable treatments. In dental hospitals, 60% of clinical work was performed by the senior staff with some participation of postgraduate students (30%), while undergraduate students were being asked to help only in non-clinical activities (10%) [1]. Fig 1 At this time, technologies enable many schools to teach dentistry ensuring the achievement of the learning outcomes associated with all skills required. Nonetheless, a sufficient amount of face-to face practical hours with simulation models or clinical training on real patients is no longer a valid option for the acquisition of manual skills.

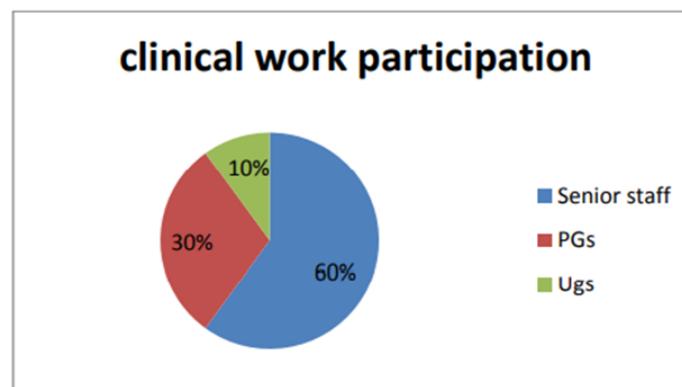


Fig-1[1]

Psychological impact of COVID-19 on students

The shock that the pandemic caused to the entire educational system was abrupt and unprecedented. With very short notice, students found themselves unable to comprehend and were left with unorthodox resources and limited possibilities. Especially for students in the third and final years, where clinical exposure is primary requisite for being a dentist. Majority of students sensed that they actually missed important learning experiences during the clinical sessions and felt less engaged in following up with distant learning. One comparative survey administered to professional dental students indicated that students experienced increased level of stress and stated that the clinical education suffered from the pandemic. While some found it as an opportunity to be innovative, many students faced issues like depression, anxiety and difficulty to socialize with others. Some even regret not being able to spend ample amount of time with their friends. Co-curricular activities were all put on pause due to COVID protocols, which almost put an end to their other creative capabilities.

Although the teaching and learning arms of education might not have been dramatically affected, it

is the assessment part that had the highest fluctuation in this new distant scenario. Exam patterns changed, making it even more difficult for students to support this complete transition. Teachers too faced difficulty in shifting to new pedagogies and E-Learning, which was unfamiliar earlier.

Faculty members thrived to obtain the necessary training to use online platforms, yet not everyone has the same level of technological expertise. Internet connectivity issues are a primary concern. Though we claim to have 4G networks in India, practically we do not have high speed quality internet services everywhere that makes it difficult to attend these classes and browse online for materials. In addition to which, the necessary infrastructure and resources were not available to all [6]. Laptops and smartphones have become a basic amenity and it is not affordable to all. Student's engagement in these virtual sessions delivered without in-person interaction was improved using a variety of interactive teaching styles that break the feeling of isolation and maximize the benefits gained from the sessions. The faculty incorporated time stamped questions and provided meaningful feedback frequently during sessions.

Students and faculty used discussion forums available within learning management systems to discuss clinical cases or provide updates and feedback.

Fear of Infection

With the pandemic negatively affecting the economy at large, patients' ability to afford dental

treatment is doubtful. It is also unclear whether dental colleges will maintain the ability to recruit sufficient patients to their clinics, as they will have to cover additional expenses precipitated by the additional precautions required for infection control and adjustments made to clinical layouts to maintain social distancing.

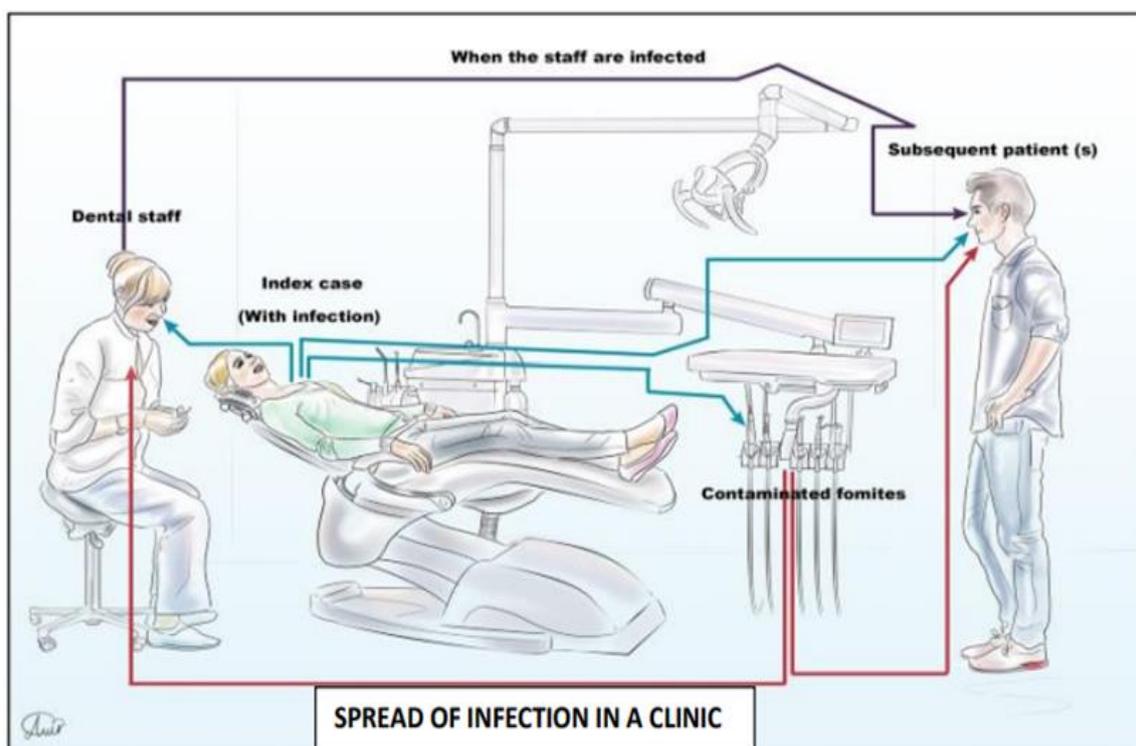


Fig-2 [7]

Dentists in clinical practice are struggling to maintain clinics due to dip in the patient flow and finding patients who are willing to pay for the PPE kits. Patients are apprehensive to receive dental treatments in the fear of getting infected with COVID-19. Thereby, a good number of trainees have been cut off from practices considering the diminishing patient: clinician ratio. Increasing vaccination drives are a ray of hope, which would allow more patients to receive treatments without fear [7].

Effect on Dental Research

Dental research is one of the most vital parts of dental sciences. Due to mandatory government and institutional policies limiting non-essential research activities and suspension of most laboratory-based dental research projects and postgraduate student research projects. Consequently, some dental researchers changed their focus to off-campus and electronic study means such as reviews and online surveys. However, it has launched many research projects with a focus on COVID-19 and related dental issues. With the suspension of academic activities in dental academic institutions, both basic laboratory-based and clinical research have been negatively

affected, leading to a significant hindrance to the research productivity of individual researchers and their institutions. Many ongoing studies are already delayed and possibly terminated, leading to significant time and financial losses. Grant applications and graduate student's thesis submissions may be delayed due to a lack of experimental results. In addition, as a consequence of the financial restraints imparted by the pandemic, many institutions have announced hiring freezes, significantly threatening job opportunities for postdoctoral fellows, who are key players in institutional research productivity. On the bright side, manuscript writing and publication activities have been positively impacted during the lockdown as faculty utilize the time that was usually spent in the clinic and for patient care. Research related to COVID-19 has also been on the rise, and it may be a chance for researchers to pursue research in this domain even during the pandemic [8].

Resuming Students Clinic

While it is fair to assume that student clinics should be resumed following issued directives from governing bodies, it is critical to realize the economic catastrophe that this pandemic has generated and the

likely lag in patient flow following the resumption of clinical activity. Putting the financial factor aside, the patient flow will also be affected by modifications to the clinical setup, increasing vaccination drives and time schedules that were made to comply with social-distancing measures in the transitional period following the end of the pandemic and this will affect overall capacity and the turnover rate. It is therefore imperative that dental colleges continue to create and update contingency plans to account for the medium- and long-term effects of the COVID-19 pandemic on dental education. [9] There is a great deal of anxiety among students who must adjust to modified curricula while being fearful for their safety and concerned about their academic performance, financial debt and a potential recession's impact on the job market. Guidance and emotional support through counselling sessions in addition to open communication and readily available up-to-date information can help alleviate student anxiety [9].

Tele dentistry

Tele Dentistry consultations have been utilized during the pandemic to provide patient care while minimizing direct patient contact and in-person appointments. Such consultations also serve to compensate for students cancelled external rotations and lack of clinical exposure. Tele dentistry can be used in four main ways: consultation, diagnosis, triaging and monitoring. Although it lacks the essential tactile assessment, tele dentistry has proven to be very beneficial for ensuring continuity of patient care, prioritizing patient's needs and potentially alleviating anxiety caused by significant delays in scheduling office visits due to the pandemic. Tele dentistry can also reduce the use of PPE and other highly valuable clinical resources during the pandemic. Tele dentistry, however, is still struggling with acceptance by both dentists and patients [10].

CONCLUSION

The COVID-19 pandemic forced dental educators to rethink models of curricular delivery, as it disrupted traditional delivery methods. The use of technology was adapted to ensure the continuity of education. With that, a number of challenges surfaced that were tackled creatively. Reflecting over the whole experience with COVID-19, the multiple opportunities that have been identified can improve the way we educate our students in the future. Students should be educated more comprehensively and systematically to be able to incorporate medical and social factors into care delivery models.

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