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RESEARCH ARTICLE

HOW CORONA VIRUS PANDEMIC (COVID -19) AFFECT THE TEACHING & TRAINING OF DENTAL INSTITUTIONS OF INDIA- A DESCRIPTIVE STUDY

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ABSTRACT

Introduction: The outburst and transmission of Severe Acute Respiratory Syndrome-Related Corona virus 2(SARS-CoV-2), accountable for the Coronavirus Disease 2019 (COVID-19), has caused an urgent situation in the health care system globally. The coronavirus disease 2019 (COVID-19) pandemic arguably represents the worst public health crisis of the 21st century. The coronavirus (COVID-19) has challenged healthcare professionals and those in dental education, evoking various response methods worldwide. However, no empirical study currently exists in the literature that examines the impact of the COVID-19 pandemic on dental education. **Aim:** The purpose of this manuscript is to evaluate the information and experience of dental students of India on dental education during COVID-19 pandemic. **Methods:** An anonymous online survey was administered to professional dental students that focused on their experiences related to COVID-19. The survey included questions about student demographics, online teaching, attendance, importance of technologies, protocols for school reopening and student perceptions of institutional responses, student concerns, and anxiety & psychological impacts on dental students on India. **Conclusion:** Dental teaching and training is very much disturbed during covid-19 pandemic because dental education & dentistry is directly linked with the oral cavity.

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INTRODUCTION

Covid – 19 is one of the deadliest pandemic reported after Spanish flu in 1918 (1). The recent outbreak of SARS-COV-2 has reached worldwide proportion since it began in late 2019. Till today it is estimated that more than 93,65,7598 people infected due to covid-19 all over the world, causing more than 2,009,137 deaths. In India constitutes around 10,541,760 infected and approximately 152,086 deaths and it is estimated that by December 2020, the death toll reached around 1,50,000. The novel COVID-19 virus has posed momentous challenges intended for Dental and Medical organizations, altogether affected countries worldwide. The onset of SARS-Cov-2 was astonishing to have originated in Wuhan, China, in late 2019 (2). It has been shown that COVID-19, like SARS-CoV, binds to human angiotensin-converting enzyme 2 (ACE2) via its spike glycoprotein expressed on its envelope for entering the target cell(3-5). ACE2, which was discovered in 2000, virtually presents in all tissues with relatively higher expression in respiratory epithelial cells, alveolar cells type I and II, oral cavity, kidney, testis, and intestines (6-8).

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Meanwhile, using a cross-species receptor confirms a wide host transmissibility of COVID-19, with the exclusion of chickens (9). SARS-CoV reduces the expression of ACE2 and contributes to lung injury.(10)The length of action and kind of reaction to the current disease worldwide including India were unusually inconsistent (11). The preventive standards include lockdowns and enforced quarantines under an astonishing extent. The degree of tracking of each and every individual is not possible; however, the ministry of electronics and IT of India has developed a mobile application, Aarogya Setu, to help the citizens identify their risk of contracting SARS-Cov-2 virus (12).Dental emergencies are provided by way of recommendation on stringent personal protective equipment (PPE) with all the possible procedures to decrease plus circumvent production of droplets and aerosols by employing high vacuum suction, along with others(13).The health care professionals immediately caught up in this national urgent situation, working day and night, many of them have become infected, and unfortunately died. Dental professional soften add close contact with patients and hence major actions aligned with this dangerous infection should be taken (14). The Indian Dental Association recently released an article on the recommendation of preventative measures for dental professionals to minimize transmission through contact and

dental procedures, as methodical information leads en route for improvements in contagion control, risk appraisal, and virus management equipment and patient communications. (2)

MATERIALS AND METHODS

This was descriptive study carried out between the months of July 2020 to November 2020. A total of 928 Dental students from BDS 1st Year to BDS final Year who had participated in this survey. A questionnaire based survey was carried out which contained 25 questions to evaluate the effect of online teaching & trainings during covid-19 pandemic. We have provided 4 appropriate options for each question as it could help them by choosing answers in an unbiased manner. Excluded from the study were students below 18 years and those dental undergraduate students who were not willing to participate. The data obtained from the study was analyzed.

RESULTS

Our study population had representation from 928 undergraduate students of Dental Colleges of every corner of the country (UP, Bihar, Delhi, Haryana, MP, Rajasthan, Chhattisgarh, Himachal Pradesh, Andhra Pradesh, Telangana, Tamilnadu, J&K, Jharkhand, Tripura, Manipur, Odisha etc.) (Table-1)and included 690 (74.4%) female participants and 238 (25.6%) male participants & fell in BDS 1st year to BDS final years. (Fig.1)

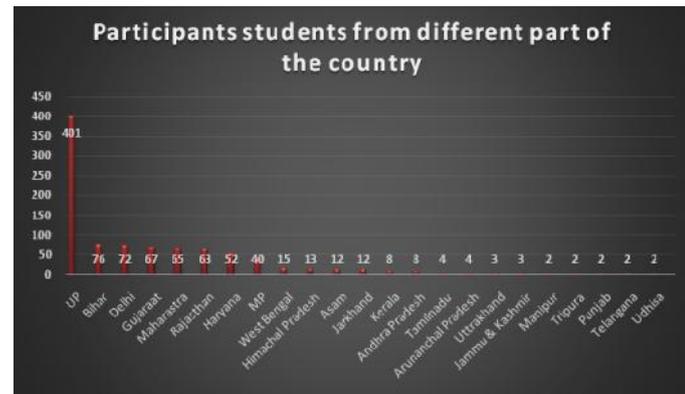


Table-1. Participants from various states

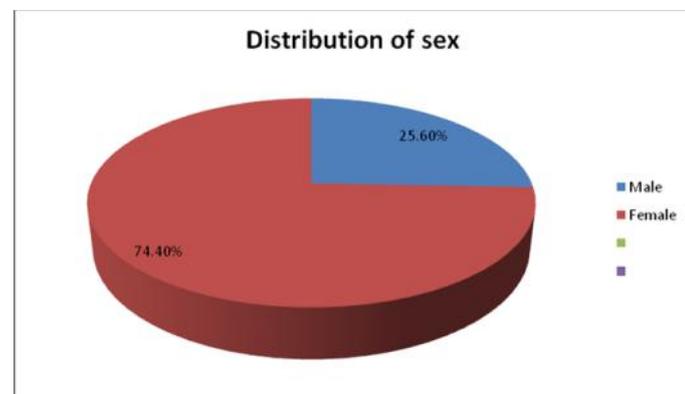


Fig.1. Distribution of participants

Only 68.3% participants responded that RT-PCR is the most reliable test to diagnose Covid-19 whereas 16.4% participants were in favour of Rapid Antigen test. 40.1% participants

accepted that their relatives & friends were infected once. (Fig. 2)

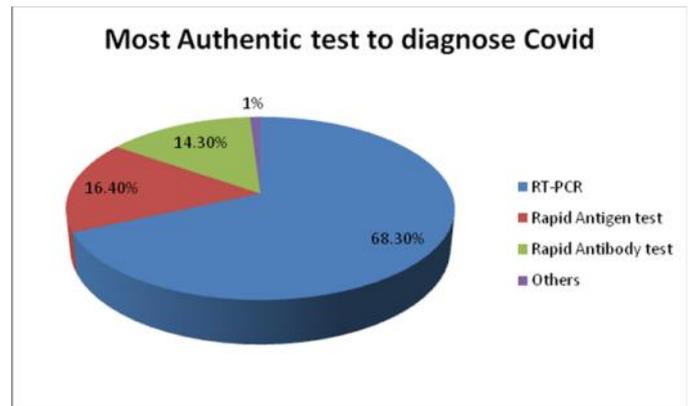


Fig. 2. Participant's response to reliable test for Covid-19

Majority of the dental students (87.3%) were accepted that the whole clinical & practical training was disturbed due to Covid-19. Clinical posting was more concern of the participants in covid scenario. (Fig. 3)

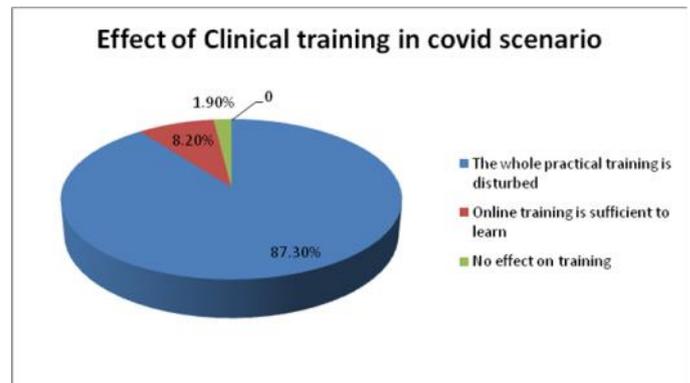


Fig.3. Effect of clinical training in present covid scenario

Only 18.6% participants were accepted that the online teaching was the excellent idea and way of teaching.59.2% participants admitted that the online teachings at least remove the problems of distance & times. Although attendance of the online teaching is questionable (57.3%) due to many reasons-sometimes due to connectivity, lack of recharge facility etc.72% participants admitted that their teaching & learning were largely affected due to Covid.89.3% participants admitted that online teaching largely depends on technology. (Fig. 4)

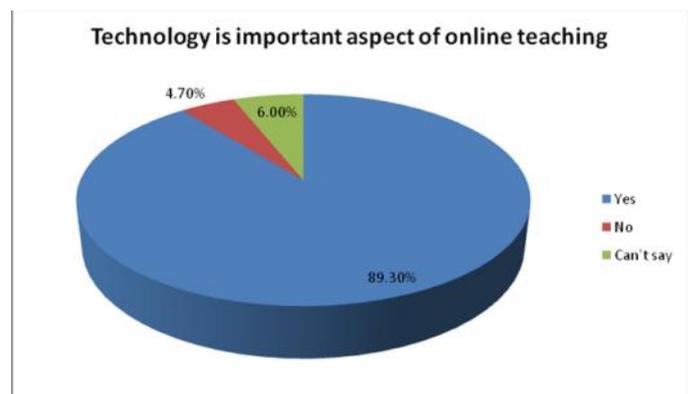


Fig. 4. Response of participants on technology

83.6% of the participants admitted that the network problem is one of the main issues of online teaching. 53.4% participants were worried about their missing posting due to online mode of teaching. 57.4% participants were not completed their Prosthodontics lab quota due to online mode of teaching. 40.4% participants admitted that the online teaching was out of reach whereas 31.3% says difficult to understand. 86.1% participants admitted that they were never perform extraction after online mode of teaching. 41.8% participants were worried about their syllabus whether it would be completed on time or not. 87.6% participants were uncertain about the date & mode of examinations. 84.8% participants were not satisfied about the online clinical trainings. 56.8% participants were admitted that online practical examination would be more difficult. 79.4% participants were not happy with the tele-consultation of the dental problems & observed that it is only temporary measures which will not solve the patient's dental problems.

DISCUSSION

The impact of the pandemic of COVID-19 has a certain influence on various walks of life around the world. Because of the pandemic of this novel COVID-19, the social life global wide has been changed a lot. To keep the social distance between human being to prevent from being infected is the most important strategy for all the countries. Many dental schools have been locked down to minimize the spread out of this coronavirus infection. Close contact between human being are required for all those learning process in traditional dental education. Learning methods should be innovated to keep on the learning process but away from being infected for dental education during pandemic. Since dentistry is primarily a profession in clinical practice, the use of strategies in virtual learning remains as a challenge for universities around the world. (15) Dental education is indeed a critical profession that requires a lot of preparation on the part of educators, not only in the various specialties of the discipline, but also with specific teaching and learning methodologies. Preclinical and clinical training is of utmost importance for students, as it is during this stage that the students learn various manual and cognitive skills that prepare the students to enter the dental profession. Both dental schools and postgraduate teaching providers subsequently halted their daily face-to-face teaching, hands-on laboratory training, and clinical training under supervision. Therefore, they necessitated alternative modes of presentation and assessment teaching through written online reports, multimedia workshops, problem-solving sessions, webinars, and computer-based exams. (16) Conversely, examinations have been modified, and requirements adapted for successful graduations. Residents and academics at affiliated hospitals work with other health care professionals on the frontlines of patient care, and thus put their own health at high risk. (17,18) In addition, various ongoing virtual education, academic and non-academic activities were maintained to guarantee the safety and wellbeing of those in the professional field of dentistry alongside students and the allied oral health care workforce. (19, 20) At Queen Mary University of London, Bart's and The London School of Medicine and Dentistry, all patient treatment for undergraduate and postgraduate students was terminated on 16 March, 2020. Non-clinical teaching soon shifted to online sites, as was the case at other universities. (17) All Italian schools and universities suspended teaching activity on 24th February, 2020 to minimize infection spread. Thus,

universities and those in similar high-risk areas should consider using online web-based teaching. (21) Due to mandatory government and institutional policies limiting non-essential research activities, suspension of most laboratory-based dental research projects and postgraduate student research projects was unavoidable. Consequently, some dental researchers changed their focus to off-campus and electronic study means such as conducting literature reviews and online surveys. (16) As I mentioned in result part, the majority (87.3%) of participants agreed about the disturbances of whole clinical training. Despite of importance & interest about the clinical postings 64.3% students were afraid that they might get infected during the clinical posting in Covid-19 scenario. Majority of students were missed the chance to learn the history taking, examination of the patients and diagnosis making causing uncertainty about the future plan. Online teaching removes the chance of contamination & spread of infection because this will stop the direct contact & help in chain breaking although connectivity is the biggest challenge as majority 57.3% of participants accepted that attendance of online teaching is questionable due to connectivity as all above are purely based on technology. Participants are also accepted that in online mode there was no face to face contact due to which they were distracted rather than attracted because of which it was difficult to understand the new concept of teaching.

In our study students were described their own experience of online teaching in covid -19 scenario, Half of the participants (50.4%) felt that online mode of teachings is more distraction rather than attraction. 61.2% participants were admitted that there was no face to face interaction in online teaching. 68.3% admitted that online mode of teaching is difficult to understand the new concept of dentistry. All above finding was similar to the finding of study done by Quinn B. et al in and Iyer P. et. al. in 2020, they discussed that Although there are many parallels between global dental schools in handling the pandemic from an academic viewpoint, nations differentiate between their policies and guidelines of national agencies, the degree of infection spread, and the access to faculties and other tools. (15,18) Since dentistry is purely a clinical training based branch which is not possible in online mode of teaching, majority of students were accepted that their Prosthodontics quota is still not completed and all were unable to perform dental extraction after online classes. Here the participants are also worried about the completion of syllabus as well as still not sure about their date of examinations in this Covid-19 scenario and practical examination is one of the biggest challenges as it is not possible in online mode. Even the participants are not happy with the tele-consultation as majority of the dental patients they need some sort of intervention, so tele-consultation will only give short time relief.

64.3% students were afraid that he/she may get infected during the clinical posting in this scenario. Due to lack of posting, majority of the participants accepted that they were little learned about the history taking, examination and diagnosis making of oral & dental lesions. 57.5% students were anxious about their future plan in this scenario. Above finding was similar to the study conducted by Peng X et.al. in 2020, they concluded that dental students were anxious due to the high viral exposure to frontline medical personnel involved in disease incidences and deaths, especially of doctors and medical students. (22) Dental clinics perpetually bear the threat

of contagion because of the specificity belonging to its treatment, which requires facing contact or through the direct spread. Furthermore, reviews have proved that Coronavirus probably be spread directly or indirectly by means of saliva and dental aerosols. However, staves in favor of humankind are massive. Majority of participants agreed that classes should be conducted online. It's quite risky to start clinical posting in covid scenario. It is advisable to conduct exams online (theory and practical). Other group of participants was commented that clinical trainings were very much disturbed even ward posting of medicine and surgery of BDS third years was untouched. Some say they don't have textbook to read, they have many PDF which are difficult to go through. Headache and eye pain are also complaint by participants. Some participants were stressed on boosting immunity development by taking nutritious food. For the first, second, third year the exams can conclude as earliest as possible. We mustn't wait to this pandemic to get over its making a huge impact over rise in cases whereas majority of final years students in favours of resume of interns posting or extend the period of internship only in this year because it is the only option available for them to learn. Majority of final year students wants at least 2 months clinical posting before announcing the final examination.

Conclusion

COVID-19 is a major emergency worldwide, which should not be underestimated. Due to the rapidly evolving situation, further assessment of the implications of the COVID-19 outbreak in Dental practice is needed. Dental teaching & training is one of the important parameters to get the degree of bachelor in Dental Sciences. As of past practice any teaching & training curriculum pertaining to the dental sciences is not completed until and unless the complete clinical trainings of undergraduate students. When we talk about the Dentistry in India, The Dental Council of India is the prime regulatory body who regulates the dental teaching & training in the country. The teaching & training of the dental sciences in our country is very well & incorporated all aspect of dental sciences. Dental teaching & training in the present Covid-19 scenario is very much disturbed. Covid-19 is off course not a normal situation; it is estimated that this kind of pandemic comes after a gap of 100 years after Spanish flu. For any condition like covid-19, it is not easy to accept because it will take some time to understand the characteristics of microorganism as well as the management. Since there is no universal acceptable management protocol available for covid-19, the whole world is looking forward to corona vaccine which is almost final stage of recommendation. I hope till this paper is accepted for publication, the much awaited corona vaccine will start immunization to all human kind.

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Conflict of Interest: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The authors declare that they have no conflict of interest. Informed consent was obtained from all individual participants included in the study.

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