



# Reality Faced by Dental Students during COVID-19 Pandemic Situation

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J Health Allied Sci<sup>NU</sup> 2024;14:267–272.

## Abstract

The COVID-19 pandemic was causing an unfavorable effect on the education and mental health of students. Much information about this virus is available, but its effect on mental health has been overlooked during this pandemic. Also, disruption in the academic year had led to more of virtual learning. The pros and cons of virtual learning need to be assessed, there is a need to evaluate whether there has been a shift in approach toward dental practice.

So in our survey, we evaluated the mental health, efficiency of virtual learning, and attitude toward future dental practices among dental students during the COVID-19 pandemic.

**Objectives** The aim of this study was to evaluate the mental health, efficiency of virtual learning, and attitude toward future dental practices among dental students during the COVID-19 pandemic.

**Materials and Methods** In this study, we included 87 final-year dental undergraduate students from A B Shetty Memorial Institute of Dental Sciences (ABSMIDS). The study was conducted through online questionnaire using google link.

**Results** In our survey, we found that many of the student's mental health was affected as they experienced certain level of depression, isolation, and mood swings, which affected their sleeping pattern. So we can consider counseling sessions for the students. We also found that virtual learning is a convenient alternative, but it also has some drawbacks as it caused physical discomforts like eye strain, back pain, etc. The students' responses were overwhelmingly positive with regard to future dental practices, but they felt there is a need to treat patients with protective equipment and guidance.

**Conclusions** Our study showed that this pandemic had hampered the mental health status of students in some ways. Also, it showed that virtual learning is helpful and is a convenient alternative, but it has some drawbacks as it causes physical discomforts. The students' responses were overwhelmingly positive with regard to future dental practices, but they need to treat patients with protective equipment.

The Covid pandemic waves had made it difficult to control the situation, which resulted in extended periods of lockdown. Hence, these factors should be considered for the benefit of students in order to manage any future outbreaks in a better way.

## Keywords

- ▶ COVID-19
- ▶ pandemic
- ▶ virtual learning
- ▶ mental health
- ▶ students
- ▶ dental practices

article published online  
July 28, 2023

DOI <https://doi.org/10.1055/s-0043-1770961>.  
ISSN 2582-4287.

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Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

## Introduction

COVID-19 or coronavirus disease 2019 in India is part of the worldwide pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This disease originated from Wuhan, China, and the first case in India was reported on January 30, 2020 in Kerala and then rose to three cases by February 3, 2020. All of them were students returning from Wuhan.<sup>1</sup> India was reported to have the largest number of confirmed cases in Asia. Also, after the United States, India had the second highest number of confirmed cases in the world with more than 10.3 million reported cases of COVID-19 infection and more than 150,000 deaths by January 6, 2021. The per day cases peaked mid-September in India with over 90,000 cases reported per day and had come down to below 15,000 per day by January 2021.<sup>2</sup> In July 2020, India's Ministry of Information and Broadcasting claimed that the country's case fatality rate was among the lowest in the world at 2.41% and "steadily declining."<sup>3</sup> By mid-May 2020, six cities accounted for around half of all reported cases in the country—Mumbai, Delhi, Ahmedabad, Chennai, Pune, and Kolkata. Almost a year after the first reported case in India, Lakshadweep was the last region to report its first case on January 18, 2021. On June 10, 2020, India's recoveries had exceeded active cases for the first time. In September, the infection rates started to drop significantly and the number of daily new cases and active cases started to rapidly decline. A government panel on COVID-19 announced in October 2020 that the pandemic had peaked in India, and may come under control by February 2021. India had over 30 anti-COVID vaccines in various stages of development and on January 16, 2021, a national vaccination drive was started.

More than 190 countries around the world including India had temporarily closed the educational institutions in an effort to contain the spread of the lethal coronavirus disease.<sup>4</sup> It had been estimated that 1.5 billion students worldwide were confined to their homes due to closure of schools and universities, which made education uncertain at all levels.<sup>5</sup>

It had been observed that the COVID-19 pandemic had significantly affected mental health and occupation of the population worldwide. A systematic review done by Salari et al had reported the prevalence of depression, anxiety, and stress among the hospital staff caring for the COVID-19 patients.<sup>6</sup> Various waves reported in different parts of the country worsened the pandemic situation and led to extended periods of lockdown. Therefore, in our survey, we decided to evaluate the mental health status, and also the effectiveness of virtual learning and approach toward future practices among dental students during the COVID-19 pandemic.

## Aim

The aim of this study was to evaluate the mental health status, efficiency of virtual learning, and attitude toward future dental practices among dental students during the COVID-19 pandemic.

## Materials and Methods

This cross-sectional observational study comprised 87 undergraduate dental students of A B Shetty Memorial Institute of Dental Sciences, Mangalore. Preliminary data were collected through Google form. The study was conducted on October 16, 2020 and remained open for submission for 2 days. A well-structured online questionnaire consisting of closed-ended questions was used to analyze the students' psychological status, efficiency of virtual learning, and their attitude toward future dental practices during the COVID-19 pandemic. The questionnaire was shared with participants through WhatsApp via google link.<sup>7</sup> This form was kept very simple and questions were categorized into three sections based on the objectives of the survey, each containing four to nine questions. All the participants provided informed consent. The survey took around 10 minutes to complete.

## Results

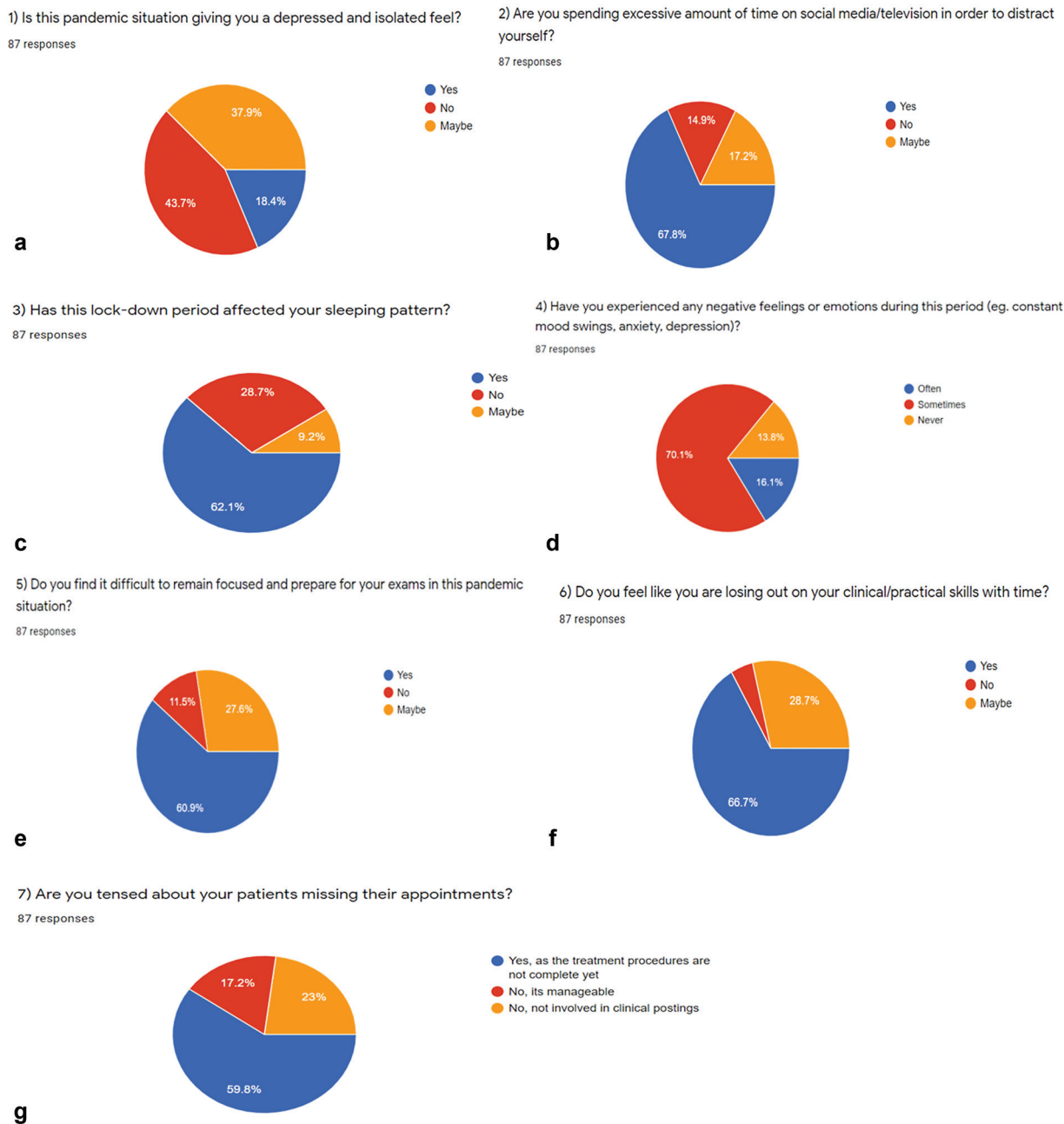
The main goal of this study was to evaluate the mental health status, efficiency of virtual learning, and attitude toward future dental practices among dental students during the COVID-19 pandemic. Our study population comprised undergraduate dental students from A B Shetty Memorial Institute of Dental Sciences, Mangalore. We approached and evaluated these students. We divided our survey into three sections, and the results were obtained in the form of pie charts.

### Mental Health Status

Our study shows that 18.4% students felt that the pandemic gave them a depressed and isolated feel (►Fig. 1a). Negative feelings or emotions like constant mood swings, anxiety, etc., were experienced by 70.1% students (►Fig. 1d) and 62.1% said that this lockdown period affected their sleeping pattern (►Fig. 1c). Most of them spend excessive amount of time on social media or television in order to distract themselves (67.8%; ►Fig. 1b). It was difficult for 60.9% students to remain focused and prepare for their examinations (►Fig. 1e). In total, 66.7% of students felt like they were losing out on their clinical/practical skills with time as dental practice was closed during this period (►Fig. 1f). Also, 59.8% students were concerned about their patients missing appointments as treatment procedures were not completed yet (►Fig. 1g).

### Attitude of Students toward Virtual Learning

Most of the students (67.8%) found some virtual classes are as efficient and interactive as that of a lecture in a classroom (►Fig. 2a). In all, 40.2% students said that they did not face any difficulty in understanding the concepts and lessons taught during virtual classes, while 20.7% faced difficulty for the same (►Fig. 2b). The majority of students (57.5%) said that the pattern of virtual learning affects physical health (eye strain, frequent headaches, neck and back pain, etc.; ►Fig. 2c). The academic performance of the students was hampered in spite of virtual learning classes that they



**Fig. 1** (a–g) Responses of students regarding mental health status.

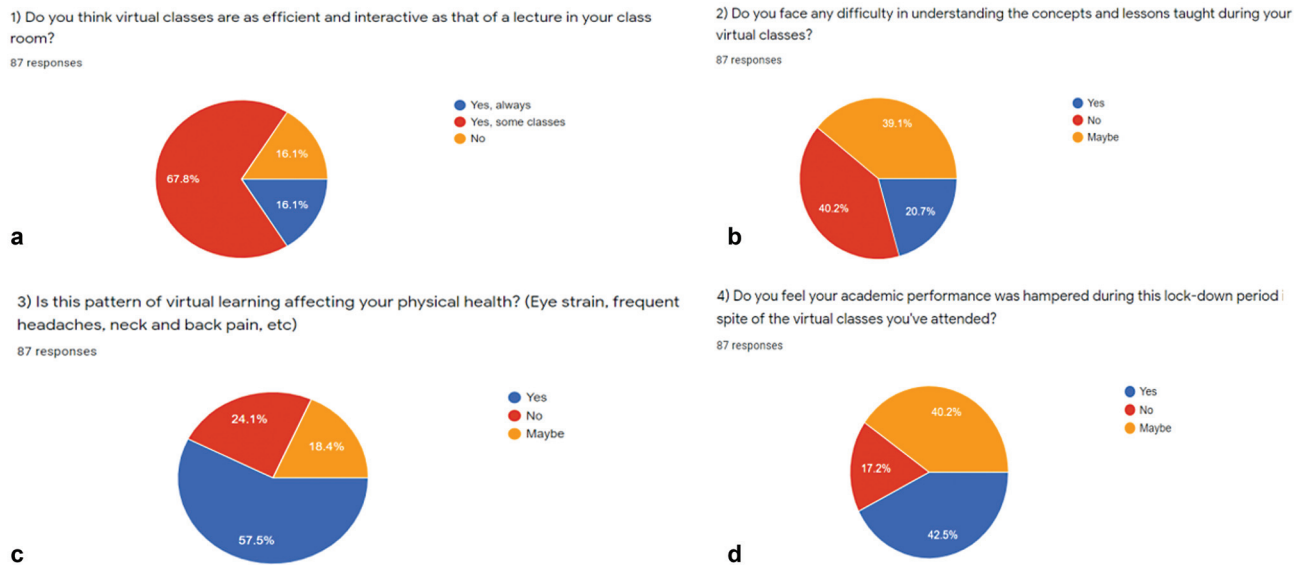
attended as 42.5% of students gave positive response to this question (► Fig. 2d).

**Approach toward Clinical Postings during Covid Pandemic**

A vast majority of students (94.3%) believed that dentists are at high risk of getting infected due to COVID-19 (► Fig. 3a). Seventy-seven percent of students were willing to treat patients using personal protective equipment (PPE) kits, while 21.8% were ready to do so only in case of emergency (► Fig. 3b). About 59.8% students thought that it would be useful to change the seating arrangements in classrooms and laboratories with a minimum of 6 feet physical distancing

between students (► Fig. 3c). When we asked about their stance on aerosol-generating procedures to be performed in isolation rooms, 47.7% of students felt it was mandatory, whereas 11.6% students were unsure and 11.6% felt it was not necessary (► Fig. 3d). Less than half of the students (35.6%) were aware of the procedures followed during donning and doffing of PPE (► Fig. 3e). N95 masks were the preferred mouth masks for use in clinical setting during COVID-19 pandemic by 94.3% students (► Fig. 3f).

Most students (73.6%) thought that fumigation of clinical areas/classrooms was necessary, whereas 21.8% students thought that it should be done once a week (► Fig. 3g). Prevention methods taught about COVID-19 were sufficient



**Fig. 2** (a–d) Attitude of students toward virtual learning.

for 35.6% of students, but 46% students said that they required more training in this regard (►Fig. 3h). A little more than half of the students (52.3%) were positive about the future of dentistry after the COVID-10 pandemic was over (►Fig. 3i).

## Discussion

The pandemic had caused many changes in daily routine practice. To control this situation, lockdown was implemented in various parts of the world. As a result, a global shift from classroom teaching to virtual learning for students was seen.<sup>8</sup> Nitte also took the initiative to conduct online classes for dental students and their attitude on the new education system was then collected and studied. Even though we conducted online classes for students, practical work and treating patients are an important part of the dental curriculum. So it was difficult for dental students/practitioners to avoid physical contact with patients. Hence, it was required for dental settings to find a balance between the need to provide necessary services and the need to minimize risk to patients and dental health care personnel (DHCP).<sup>9</sup> The first section of the questionnaire had seven questions related to mental health of the students. The results showed that many of the students experienced certain level of depression, isolation, and mood swings during the period of lockdown, which affected their sleeping pattern. A systematic review by Salari et al had also stated the prevalence of depression was 24.3%, the prevalence of anxiety was 25.8%, and the prevalence of stress was 45% among the hospital staff caring for the COVID-19 patients.<sup>6</sup>

Many of the students in our study (67.8%) spent excessive amount of time on digital media in order to distract themselves. It was difficult for them to stay focused in their preparation for their upcoming examination and they were

worried about losing out on their clinical skills and their patients' appointments.

Since many people are not well informed about mental health in many parts of India, awareness programs about mental health should be carried out and funding for mental health services should be regulated. Other efforts to address mental health can include increase in the use of telehealth for mental health services.<sup>9</sup> The second section had four questions that gave a brief idea about the attitude of students toward virtual learning. Most of them found virtual classes efficient (67.8%) and many of them did not face much difficulty in understanding the concepts, but they found it physically exhausting to concentrate for long periods of time as they experienced eye strain, frequent headaches, neck and back pain, etc. They also felt their academic performance was hampered in spite of virtual classes. Virtual classes could be carried out in short sessions and made more interactive to gain interests of students.

The third section talked about the approach toward clinical postings during the COVID-19 pandemic. It consisted of nine questions. The majority of the students (94.3%) believed that dentists are at high risk of getting infected by the SARS-CoV-2. Our survey showed that students were willing to treat patients with PPE kits, but many of them were not sure about the donning and doffing of PPE kits. N95 masks were preferred over other types of face masks during this COVID-19 period, although lack of research on facemasks and respirators was reflected in varied and sometimes conflicting policies and guidelines. According to the Centers of Disease Control and Prevention (CDC) guidelines, DHCP in the room should wear an N95 or a higher-level respirator, such as the disposable filtering facepiece respirators, or elastomeric respirators, as well as a protective eyewear (such as goggles or a face shield that covers the front and sides of the face), gloves, and a gown.<sup>10</sup>

Students felt it was important to maintain social distancing in classrooms and believed that aerosol-generating



**Fig. 3** (a–i) Approach of students toward clinical postings.

procedures should be performed in isolation rooms. As per the CDC guidelines, cross-ventilation can also further help in reducing the risk of COVID-19 infection in classrooms. In dental operatory, high-efficiency particle arresting (HEPA) filters can help in achieving good air circulation. Seating

arrangement with 6 feet physical distancing should be maintained or minimum 3 feet/alternate seating arrangement should be carried out between students and between patients when space is a constraint. The dental chair, working stool, and the cubicle can be disinfected with 0.01%

sodium hypochlorite (NaOCl) wipes/spray. The suction can be flushed with 1% NaOCl and 0.01% of sodium hypochlorite can be used for Dental Unit Waterlines.

We should also disinfect the 3 feet area around the chair and mop the clinical area with 0.5 to 1% NaOCl solution.<sup>11</sup> Many of them also believed that fumigation should be done in the classrooms once every day. Fumigation with 30% hydrogen peroxide can be performed for 15 minutes. But 46% of the students felt they needed more training regarding preventive methods during the COVID-19 pandemic. In spite of all the COVID-19-related scenarios, they were positive toward the future of dentistry.

Work shifts/rotations should be carried out among dentists in an effort to minimize exposure to SARS-CoV-2. To minimize exposure to patients, telephonic triage can be arranged where appointments can be fixed through the phone and walk-in patients should be discouraged.<sup>12</sup> Well-organized training should be given to the students regarding preventive methods during the COVID-19 pandemic such as donning and doffing of PPE kits, maintenance of social distancing, proper hand washing technique, and limiting the use of aerosol-generating procedures as much as possible.<sup>10</sup>

Various organizations have given different protocols for donning and doffing of PPE kits, which can be taught to the students. The CDC guidelines are highly recommended for ensuring protocols regarding this. Students should be provided with PPE kits, N95 masks, protective face shields, etc., by the college in order to lift the burden of spending so much money during any such scenarios.

## Conclusion

Our study showed that this pandemic hampered the mental health status of students in some ways. Also, it showed that virtual learning is helpful and is a convenient alternative, but it also has some drawbacks as it causes physical discomforts. The students' responses were overwhelmingly positive with regard to future dental practices, but they needed to treat patients with protective equipment. The institution needs to provide proper knowledge and guidance about PPE kits and other preventive measures so that students will feel more confident, which can help regain the patient's trust in this COVID-19 pandemic. The COVID-19 pandemic waves had made it difficult to control the situation, which resulted in extended periods of lockdown. Hence, these factors should be considered for the benefit of students in order to manage any future outbreaks in a better way.

## Conflict of Interest

None declared.

## References

- 1 Reji Kumar K. A comparative study of the SIR prediction models and disease control strategies: a case study of the state of Kerala, India. *Studies in Computational Intelligence* 2020;923: 165–174
- 2 Safi M. India's shocking surge in Covid cases follows baffling decline. *The Guardian*. Published April 21, 2021. Accessed June 20, 2023 at: <https://www.theguardian.com/world/2021/apr/21/india-shocking-surge-in-covid-cases-follows-baffling-decline>
- 3 Ministry of Information & Broadcasting With highest ever single day recoveries of nearly 30,000, the total number of recoveries crosses 7.82 lakhs. Ministry of Information & Broadcasting. Published July 23, 2020. Accessed January 20, 2023 at: <https://inbministry.blogspot.com/2020/07/with-highest-ever-single-day-recoveries.html>
- 4 Economic Commission for Latin America and the Caribbean Education in the Time of COVID-19. CEPAL; 2020. Accessed June 20, 2023 at: <https://www.cepal.org/en/publications/45905-education-time-covid-19>
- 5 UNESCO COVID-19 Educational Disruption and Response. UNESCO. Published March 4, 2020. Accessed June 20, 2023 at: <https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures>
- 6 Salari N, Khazaie H, Hosseinian-Far A, et al. The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: a systematic review and meta-regression. *Hum Resour Health* 2020;18(01):100
- 7 Website URL for the questionnaire used in the study. Accessed June 20, 2023 at: [https://docs.google.com/forms/d/1pQoq-JOpPdWjbMUr3bA3H5J8q\\_n5xNIY2shL7xtYIPBQ/edit](https://docs.google.com/forms/d/1pQoq-JOpPdWjbMUr3bA3H5J8q_n5xNIY2shL7xtYIPBQ/edit)
- 8 Iwai Y Online Learning during the COVID-19 Pandemic. *Scientific American Blog Network*. Published March 13, 2020. Accessed June 20, 2023 at: <https://blogs.scientificamerican.com/observations/online-learning-during-the-covid-19-pandemic/>
- 9 Zhou X, Snoswell CL, Harding LE, et al. The role of telehealth in reducing the mental health burden from COVID-19. *Telemed J E Health* 2020;26(04):377–379
- 10 Interim infection prevention and control guidance for dental settings during the COVID-19 response | FDI. [www.fdiworlddental.org](http://www.fdiworlddental.org) Accessed January 20, 2023. <https://www.fdiworlddental.org/interim-infection-prevention-and-control-guidance-dental-settings-during-covid-19-response>
- 11 Bhanushali P, Katge F, Deshpande S, Chimata VK, Shetty S, Pradhan D. COVID-19: changing trends and its impact on future of dentistry. *Int J Dent* 2020;2020:8817424
- 12 National Guidelines for Safe Dental Practice during COVID-19 Pandemic. Ministry of Health and Family Welfare Government of India. 2021. Accessed June 20, 2023 at: <https://www.mohfw.gov.in/pdf/NationalGuidelinesforSafeDentalPracticeDuringCovid19-pandemic.pdf>