



Impact of COVID-19 Pandemic among Undergraduate Dental Students: A Qualitative Study

Kumar VS¹, Karuveetil V¹, Yeturu SK¹, Krishnan NA², Arjunraj UK³, Menon SS³, Radhakrishnan V³

¹Department of Public Health Dentistry, Amrita School of Dentistry, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India; ²Department of Oral Medicine and Radiology, Amrita School of Dentistry, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India; ³Undergraduate, Amrita School of Dentistry, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.

ABSTRACT

Introduction: During COVID-19 pandemic, students were introduced to a novel learning platform moving away from in-person lecture classes and pedagogies. Medical courses in general and dentistry in specific has its chunk of curriculum devoted to development of clinical and laboratory skills, patient interaction and management of a wide spectrum of oral and general diseases which affect the human body. Many Universities have shifted to online mode of delivery of lectures from traditional college activities during COVID-19 lockdown

Objective: This study was conducted to assess the psychological and social, educational and physical health impact of COVID-19 on dental undergraduate students through a qualitative method.

Methods: Qualitative phenomenological approach was undertaken. Focus group discussions and in-depth interview were conducted according to different grades of their study during undergraduate course.

Results: Psychologically, the students were anxious of prolonging their undergraduate course and also of the conduct of exams. The students were initially thrilled to be with their close family members; but gradually boredom loomed large. Those who used to regularly take part in sports, games and other physical activities could not continue with those as restrictions were enforced.

Conclusion: The students were mostly anxious due to lack of training in clinical dentistry, conduct of exams and course duration. Students were mostly glad to be with their family members during lock down. The physical activity among students have come down drastically.

Key Words: COVID-19, Dental, Impact, Qualitative, Undergraduate Students, Education

INTRODUCTION

The COVID-19 pandemic has threatened the entire population of the planet with its alarming rate of spread raising serious health concerns. It has led to an unprecedented never seen public health crisis worldwide.¹ Restrictions on travel and social distancing norms have been adopted by majority of world nations to prevent the COVID-19 being spread to a large population. Government with the help of public health professionals have framed new regulations to work including self-isolation and work from home. The lock down trend started in India from March, 2020.^{2,3,4} Many Universities have shifted to online mode of delivery of lecture classes from traditional college activities during COVID-19 lockdown.⁵

The ongoing COVID-19 pandemic has left an indelible mark on all sections of population. Those who are employed have experienced an enormous change in their work pattern and style. With travel restrictions, social distancing norms, wearing mouth mask and the uncertainty caused due to COVID-19 pandemic has affected people world over.

Schools, colleges have shifted to online teaching and course curriculum as early as April 2020 in India. Students were introduced to a novel learning platform moving away from in-person lecture classes and pedagogies. Courses which have no hands-on practical or clinical classes were not so affected compared to skill-based curriculum and teaching methods. Medical courses in general and dentistry in specific has its chunk of curriculum devoted to development of clinical and

Corresponding Author:

Kumar VS, Department of Public Health Dentistry, Amrita School of Dentistry, Amrita Vishwa Vidyapeetham. Kochi, Kerala, India.
Email: vijaytvp24@gmail.com

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 28.04.2022

Revised: 09.06.2022

Accepted: 12.07.2022

Published: 23.08.2022

laboratory skills, patient interaction and management of a wide spectrum of oral and general diseases which affect the human body. The teaching fraternity of dental institutions had also to cope with new teaching methods and students have to imbibe as much as they can through novel learning methods, which the COVID-19 has brought about. Adding to all these, is the fear and resulting anxiety about being infected with COVID-19.

Sudden shift from bustling college life where friends and colleagues could be met in-person to a self-imposed confinement could have tremendous impact on psychological, social and physical aspects of the students. The First- and Second-Year students in the Bachelor's programme do not have to deal with patients as per curriculum. The Third and Final Year students have quota based clinical assignments or treatments which they have to complete, before which they get to do the internship programme. The change in the teaching method, would also mean technical aspects related to learning has to be robust to keep up with the portions covered.

The significant influence of the pandemic on dental education was observed very early at the start of the spread of pandemic.⁶ Even though difficulties in teaching and learning were predicted, disruption for prolonged duration can adversely impact dental students.⁷ India has resorted to implementation of lock-down to contain the spread of COVID-19 at an early stage in tandem with many other countries.^{8,9,10} The transition from in-person teaching to virtual mode of teaching was a necessity in dental education in order to prevent the spread of virus, which can transmit through aerosols generated during dental treatment procedures.¹¹ Emergencies procedures were the only treatment allowed to carry out during lock-down period.¹² In spite of technical issues faced by students, they were having a favourable attitude to on-line education.¹³ Novel methods were introduced to tide over the educational crisis posed by COVID-19 pandemic. To engage medical students online lectures were developed and delivered through platforms like zoom.¹⁴ Uncertainty about when the colleges will restart and about exam schedule makes most student anxious. The students will also be anxious as to how they will make up for the lost clinical hours.¹⁵ Hence, this study was conducted to assess the psychological and social, educational and physical health impact of COVID-19 on dental undergraduate students.

Methodology

It was a phenomenological approach which was adopted for this study. Focus group discussions in-depth interviews were conducted. The impact of COVID-19 pandemic for a period of approximately 9 months were assessed qualitatively (March 25 to December 1, 2020). Themes were generated manually after the codes and categories were generated. Study population involved were students in a dental college affiliated to a deemed university in Kerala, South India.

Semi-structured interview guides were used for discussions. Convenience sampling was used. Institutional ethics committee clearance was obtained before the start of the study.

Informed consent was obtained from the participants before the start of discussion or interview. Focus Group Discussions and interviews were conducted through online platforms available. The discussions were recorded, transcribed and codes, categories and themes were developed. Thematic content was developed and analysed once data saturation is attained. The coding and categories were done by VKS and VK and in case of any arising disagreement, the third author was involved YSK.

The students who were interviewed were 13. Of them three were residing in other states and three were from other states in India.

RESULTS

There were students whose parents were abroad and also students from other states in India. Those students were forced to stay in college hostel for at least 45 to 60 days till they were allowed to travel inter-state or when the travel restrictions were eased after some point of time. In this qualitative study, six such students were there and for them the perceptions were also accounted.

The following themes were developed from the focus group discussions and in-depth interviews conducted. Broadly the themes were in Psychological and social, educational and physical activities. The themes are listed as follows.

Psychological and social: “anxious about course lag” One of the most striking impact which the students perceived across the academic years, were how the COVID-19 pandemic would impact their duration of undergraduate course. The COVID-19 has brought the education to a stand still atleast for the initial two months. Another major factor was the anxiety caused due to uncertainty in repaying the educational loans that few of the students have taken to pursue their undergraduate course.

“We are concerned about when we will finish our course. We have not got any information from college or state authorities as to when the medical or dental colleges will re-open after the COVID-19”. Final Year student 3.

These concerns would have been common during initial days of lock-down. But these shifted to new comparisons with their school mates and undergraduates in other colleges in the state. “other colleges have resumed their classes. Even their final dates for exams have been announced. But we are yet to receive any such intimation.” Final Year Student 4.

This was also reflected from a second-year student. “I was thinking of getting my degree in another two to two-and-

a-half-year time. Now it seems like. I will lose 6 months to one year.”

The delay in getting bachelor's degree will affect their starting a job or dental practice and also can cause delay in getting admission to post-graduate course.

The first-year students were happier compared to students belonging to other years of study on able to meet their near and dear ones.

“I felt very happy to be with my parents and sister. I have been in boarding school for so long. So, it means a lot to me to be able to spend time with them. Also, we got to celebrate so many festivals during this lock-down which would otherwise have not been possible.” First Year Student 3.

“I am very happy that way. I could spend time with my parents and relatives. I get to eat homely food made by mother and also I could help her with cooking and other household chores; it gives me some sort of satisfaction that I am helping my parents.” Third year student 3.

Educational: “lost clinical touch” Another common theme which was found were the “loss of touch” as suggested by majority of those in focus group discussion and in-depth interviews.

“seems like I have forgotten whatever I have learned during clinical hours. I have forgotten to take case-history. Before, when I was in clinics, I would be prepared for taking case history and faculty too will guide us in taking case-history. That is not there since several months. I have to learn taking case history from beginning”. Third year student 2.

“I have got no books since I left with my friends in a hurry. I thought college will re-open after a month or so. Even my friends thought like that. Some of them took their laptops. But I didn't. I had no idea that lock down would last for how many months.” Fourth year student 2. “Seems like I have to start everything from scratch. Case-history, especially that of orthodontics, I have forgotten completely. Also, I don't have any notes to refer to and I am scared about forgetting some important points in taking case history; which would be important for us during University exam” Final year student 3.

Here the apprehension about losing what they have learnt through all these years are clearly visible. The third years were more concerned about forgetting their case-history taking.

“Clinical skills”: “As dentistry is more about acquiring clinical skills and our future is solely based on the skills that we learn during the course is very important for our future. Since this many months have been lost and it may affect my clinical abilities. Even after the restrictions are over, it will take time for patients to come to college. We will then have problems with quota completion and all” Final Year Student

4.

“I have lost all- forgotten all about treatment. Now holding a hand piece, itself and working itself seems like a laborious process. To work again on a patient, I am not all feeling easy or confident” Final Year Student 5.

As is evident from these conversations, the students are apprehensive about re-starting their clinical work and also expresses concern that it will affect their future job prospects.

Similar, but more academic related concerns were raised by those in second year.

“Quota completion for exam”: “I do not know how I am going to do cavity cutting on typhodont all by myself when college re-opens. I have to finish the quota before I appear for exam. I feel scared as to how I will finish it on-time.” Second Year Student 5.

“Even exam dates are not fixed. I am not sure whether we all will get enough patients to finish our quota, because of the on-going COVID situation” Final Year Student 5.

“Online classes have taken away the personal touch” Students of second, third and final year have raised concerns that they are missing the personal attention and personal supervision they received from faculty. “On-line teaching, teachers – they show power point presentations and videos. I understand better when the faculty shows us the nerve or artery in a cadaver and it gets retained more. In on-line classes its animated visuals.. its more digitalised. I like the in-person teaching method where the faculty teaches in a demonstration room.” Second year student 2.

“Now there are only on-line lectures. We never get to meet the faculty in-person. Initially, there was thrill at attending on-line classes from home, but gradually it became monotonous. Also, there are too many noises sometimes inside home” Third Year student 4.

“Technical difficulties”: Another major problem, the investigators elicited from the students were technical issues related to internet connectivity and log-in problems to attend lectures or on-line exams.

“It happened with one of my exams. I was writing and suddenly for 10 minutes my net connection got interrupted. Immediately, call came from college that the exam won't be valid if the candidate is not visible. I ran to my neighbour's house and got another dongle and used it to continue with my exam. I could not use anybody's net from my own house because we were all having net from same brand and the connection would be feeble in all.” Second Year Student 1.

“It causes serious problems. I have to re-log in every time, the net goes off. I miss many important points during the lecture. The class representatives ask the faculty for lecture slides. We get it through social media or e-mail. That somewhat makes

up for the missed part during lecture hours”. Third year student 1.

Physical health: The COVID-19 pandemic has brought major changes in the lifestyle of students. “less physical activity”

“My physical activity has come down a lot. Nowadays I walk only from my room to kitchen and back to my room. That is the only physical exercise I get.” Second Year student 4. “Initially, I never used to go out. But now after the lockdown is relaxed, I go for cycling and with family members or friends, I play badminton; but that’s not daily. Few days we played. But couldn’t continue it because others in family, started going for their jobs, studies slowly” First Year Student 3.

“Eye strain”: The students also reported about eye strains developed due to excessive use of computer, mobile phones and other electronic gadgets.

“At times, we will have to see computer and at the same time messages will keep coming on mobile phones also. My eye sight has strained because to those things, I think. My power of lens when last checked, they told it has increased and it is a concern for me.” Final year Student 2.

Male students were more likely to get physical activity as per the present study.

DISCUSSION

COVID-19 pandemic is unique in many aspects, the main feature being its long-lasting effect world over. Comparison with any other epidemic is impossible considering its magnitude. It requires enormous adaption skills from both students and teachers to cope with changing education in this scenario.¹⁶ The COVID-19 situation presents with challenges and possibilities to shift the educational methods and approach.^{17,18} The virus spread mostly through aerosol and dental treatments are considered as having risk of transmitting the virus.¹⁹ Moreover academics with extensive social networks have an increased risk of exposure to infection.²⁰

The outbreak of pandemic has brought with it several positive outcomes too, the mode of delivery of learning materials had transformed from a traditional method to a new digital mode.²¹ Clinical teaching and learning had to be restricted to a great extent. The uncertainty about the routes of transmission and difficulty in assessing the ease with which the virus could be spread, medical schools were reluctant to open their doors to students especially undergraduates.²²

In the present study, the psychological effects on students varied depending on various factors. Students with parents living abroad had to be stay back in the residential facility provided by the institution. Some of them had to stay with

their grandparents in their native place, till the travel restrictions were eased for international and local travel. Though the students were initially thrilled to be with their near and dear ones, it gradually waned as the boredom started settling in.

Lack of economic independency and education related pressures makes them vulnerable to mental health issues. Students in the first year of university studies exhibited more anxiety, which was comparable to the present study.²³ With increasing year of study, the students stress level and reasons for anxiety were different, as was observed in a Spanish study.²⁴ Contrary to the present study, the higher grade students in a university in US were more comfortable in joining back to clinics and continue their course.⁷

Use of electronic media, assessment and time were reported by a study by Rajab et al. Most students were comfortable with online education but education hampered by technical difficulties were not reported in the study.²⁵ In the present study, students were familiar with online tools, but faced technical difficulties very often.

As to when the clinical work will resume depends on many factors like the trends in COVID-19 spread, the pace of virus testing and Governments health advisories.²⁶ This was applicable to students all over the world. The students in the present study were also anxious as to when their clinical learning will resume due to the prevailing uncertainty and many students who were to resume their clinical postings were worried about forgetting about how to take a clinical case history with emphasis on orthodontics.

Physical activity is one of the factors that can psychologically benefit people of all age groups. This is particularly so in the age group of the present study population.²⁷ In the present study, students have perceived that their physical activity has tremendously come down during initial days of COVID-19 related lockdown. But few male participants have told that they go for regular cycling after travel restrictions were eased since September 2020. Male subjects were more likely to get more physical activity, because they can be at more ease than females in areas where less people are present and deserted areas due to restrictions imposed due to COVID-19 pandemic.

CONCLUSION

The lockdown and shutting down of universities has caused anxious reaction among undergraduate dental students. They were concerned about their clinical skills being not updated and conduct of exams without adequate patient in-flow to college. Physical activity of students has come down significantly as revealed by the present study.

ACKNOWLEDGEMENT

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

Source of Funding: Nil

Conflict of Interest: Nil.

Authors' Contribution:

Kumar VS conceptualised the research.

Kumar VS, Karuveetil V, Yeturu SK and Krishnan NA performed design and implementation and analysis.

Kumar VS, Krishnan NA, Arjunraj UK, Shankar SS and Radhakrishnan V performed the data collection and contributed to manuscript writing.

REFERENCES

- He Z, Ren L, Yang J, Guo L, Feng L, Ma C, et al. Seroprevalence and humoral immune durability of anti-SARS-CoV-2 antibodies in Wuhan, China: a longitudinal, population-level, cross-sectional study. *Lancet*. 2021;397:1075-84.
- Bedford J, Enria D, Giesecke J, Heymann DL, Ihekweazu C, Kobinger G, et al. COVID-19: towards controlling of a pandemic. *Lancet* 2020;395(10229):1015-8.
- Jha V, Nair P, Dipu TS, Dinesh TA. Key to Normalcy - Recognising the Extent of COVID-19 Pandemic. *Epidem Int* 2020; 5(1): 29-31.
- Iyer S, Subramaniam S, Ravikumar B, Pai R, Satyapalan D, Moni M, et al. Recommendations for Safely Performing Major Head and Neck Surgery During the COVID-19 Pandemic: Experience with Implementation of a Workflow. *J Maxillofac Oral Surg* 2020;19(4):630-7.
- Sahu P. Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. *Cureus* 2020;12(4):e7541.
- Alzahrani SB, Alrusayes AA, Aldossary MS. Impact of COVID-19 Pandemic on Dental Education, Research, and Students. *Int. J. Health Sci.* 2020;10(6):207-12.
- Akinkugbe AA, Garcia DT, Smith CS, Brickhouse TH, Mosavel M. A descriptive pilot study of the immediate impacts of COVID-19 on dental and dental hygiene students' readiness and wellness. *J Dent Educ.* 2021 Mar;85(3):401-410.
- Kanaparthi A, Dukkireddy D, Gopalaiah H, Kesary SPR, Katne T, Gantala R et al. Awareness of COVID 19 pandemic among dental practitioners of Telangana state, India: A cross sectional survey. *J Oral Biol Craniofac Res* 2020;10(4):484-9.
- Imai N, Gaythorpe KAM, Abbott S, Bhatia S, van Elsland S, Prem K, et al. Adoption and impact of non-pharmaceutical interventions for COVID-19. *Wellcome Open Res* 2020;5:59.
- Ambikapathy B, Krishnamurthy K. Mathematical Modelling to Assess the Impact of Lockdown on COVID-19 Transmission in India: Model Development and Validation. *JMIR Public Health Surveill* 2020;6(2):e19368.
- Desai BK. Clinical implications of the COVID-19 pandemic on dental education. *J Dent Educ* 2020;84(5):512.
- Azizollahi R, Mohajerani N, Kau CH, Fang M-L, Oberoi S. Impact of SARS-CoV-2 on orthodontic education and global practice guidance: A scoping review. *APOS* 2020;10(2):78-88.
- Machado RA, Bonan PRF, Perez DE da C, Martelli JÚnior H. COVID-19 pandemic and the impact on dental education: discussing current and future perspectives. *Braz Oral Res* 2020;34:e083.
- Sandhu P, de Wolf M. The impact of COVID-19 on the undergraduate medical curriculum. *Med Educ Online* 25(1):1764740.
- Chinelatto LA, Costa TR da, Medeiros VMB, Boog GHP, Hojaij FC, Tempski PZ, et al. What You Gain and What You Lose in COVID-19: Perception of Medical Students on their Education. *Clinics* 2020;75:e2133.
- Camargo CP, Tempski PZ, Busnardo FF, de Arruda Martins M, Gemperli R. Online learning and COVID-19: a meta-synthesis analysis. *Clinics* 2020;75:e2286.
- Deery C. The COVID-19 pandemic: implications for dental education. *Evid Based Dent* 2020;21(2):46-7.
- Iyer P, Aziz K, Ojcius DM. Impact of COVID-19 on dental education in the United States. *J Dent Educ* 2020;84(6):718-22.
- Vidya GS, Patil S, Raj AT. 2019 Novel Coronavirus Outbreak: SOS Alert for Dentists. *J Contemp Dent Pract* 2020;21(3):219.
- Ammar N, Aly NM, Folyan MO, Mohebbi SZ, Attia S, Howaldt H-P, et al. Knowledge of dental academics about the COVID-19 pandemic: a multi-country online survey. *BMC Med Educ* 2020;20(1):399.
- Jena P. Impact of Pandemic COVID-19 on Education in India. *International Journal of Current Research* 2020 July;12(7):12582-6.
- Lucey CR, Johnston SC. The Transformational Effects of COVID-19 on Medical Education. *JAMA* 2020;324(11):1033-4.
- Husky M, Kovess-Masfety V, Swendsen J. Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Compr Psychiatry* 2020;102:152191.
- Odrizola-González P, Planchuelo-Gómez Á, Irurtia MJ, de Luis-García R. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res* 2020;290:113108.
- Rajab MH, Gazal AM, Alkattan K. Challenges to Online Medical Education During the COVID-19 Pandemic. *Cureus* 12(7):e8966.
- Wu DT, Wu KY, Nguyen TT, Tran SD. The impact of COVID-19 on dental education in North America—Where do we go next? *Eur J Dent Educ* 2020;24(4):825-7.
- Jp M, Dj H, Ej R, Es D. Physical activity is positively associated with college students' positive affect regardless of stressful life events during the COVID-19 pandemic. *Psychol Sport Exerc* 2020;52:101826.