



ORIGINAL ARTICLE



PSYCHOLOGICAL IMPACT OF COVID 19 PANDEMIC ON DENTAL STUDENTS

Vineet Golchha^{1*} | Rahul Paul² | Pooja Sharma³ | Deepti Yadav⁴ | Ish Sharma⁵
| Mudita Gupta⁶ | Vandana Gulia⁷

¹Professor, Department Of Orthodontics and Dentofacial Orthopedics, Inderprastha Dental College and Hospital, Ghaziabad, India

²Principal, HOD and Professor, Department Of Orthodontics and Dentofacial Orthopedics Inderprastha Dental College and Hospital, Ghaziabad , India

³Assistant Professor, Amity Institute of Physiotherapy, Amity University Noida. Uttar Pradesh. India

⁴Reader, Department Of Orthodontics and Dentofacial Orthopedics, Inderprastha Dental College and Hospital, Ghaziabad, India

⁵Lecturer, Department Of Orthodontics and Dentofacial Orthopedics, Inderprastha Dental College and Hospital, Ghaziabad, India

⁶Lecturer, Department Of Orthodontics and Dentofacial Orthopedics, Inderprastha Dental College and Hospital, Ghaziabad , India

⁷Lecturer, Department Of Orthodontics and Dentofacial Orthopedics, Inderprastha Dental College and Hospital, Ghaziabad , India

Abstract

Background : The coronavirus disease 2019 (COVID-19) which has spread rampantly to every country of the world. Dentists and dental students being amongst the professions with higher risks are under tremendous stress. Stress has been linked to serious side effects such as emotional exhaustion, anxiety, or depression. Therefore, our aim was to measure the levels of depression, anxiety and stress in dental students using the DASS-21 and to compare it with the sense of insecurity towards profession future due to Covid 19.

Methodology: The data was collected through well-structured Google form from 1384 dental students studying in Delhi NCR. The entire form had two components. The first part of the form collected the demographic information of the students whereas the second part of questionnaire consisted of psychological evaluation using well established scale DASS 21.

Result : The study showed 4% of the students with severe levels of depression, 6% indicated severe level of anxiety, and 4% had severe stress. 87.2% of the students were insecure for their professional future due to spread of Covid19 and a significant correlation was found between future professional insecurity and depression, anxiety and stress

Conclusion : High levels of depression, anxiety and stress was seen in undergraduate dental students which was worsened by the current pandemic .There is a need to evolve with the current COVID 19 pandemic , impart confidence among them and find ways to decrease the levels of stress among these future dentists.

Keywords: COVID19, Stress, dental students, DASS 21.

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) which initiated from Wuhan province of China, has spread rampantly to every country of the world and has very swiftly advanced into a public health catastrophe.¹ This virus belongs to a clan of single-stranded RNA viruses group called Coronaviridae, known to be transferred from animals to humans beings and include Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), in 2002, and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), reported in 2012² On January 30, 2020, the World Health Organization (WHO) declared the widespread spread of COVID-19 a global pandemic.³ According to the WHO situation report (June 5, 2020) update on COVID-19, there have been more than 6,700,000 reported cases and 387000 deaths worldwide and 225,000 cases with 6800 deaths in India and this continues to increase at a steep rate.

As of now there is no specific antiviral drug against it and so currently the approach is to wear masks, maintain social distancing, and practice hand hygiene. The treatment has mainly been supportive though use of ivermectin and dexamethasone drugs has also been suggested but with limited success. Dental clinic and colleges due to their work environment are particularly at a higher risk of infection as there is direct contact to oral mucosa.⁴ Also procedures that involve the use of three way syringes, ultrasonic scalers and air motor may generate aerosols, a spray of water and air particles that contains saliva, blood and microorganisms causing spread of infection.⁵ Considering the rapid spread of pandemic the dental colleges were mostly closed during the national lockdown. Dentists being amongst the professions with higher risks are obviously under tremendous stress due to this current pandemic.⁶

The term stress describes physical or mental external demands on a person's psychological wellbeing. Accomplishing a professional college degree is seen as a way to be successful, and many students who have to move away from their home for this purpose, the transition itself can lead to depression, anxiety and stress. Current program of studies require dental

students to attain diverse competency, including theoretical knowledge and clinical skills.^{7,8} Academic pressures, volume of syllabus to be covered, qualifying exams and time management has been shown to be a significant source of stress for student.^{9,10} Dental students are subjected to increased stress symptoms during training and have higher levels of anxiousness and depression than their age group norms.^{11,12} Stress has been linked to serious side effects such as emotional exhaustion, anxiety, or depression.

COVID-19 (Corona Virus Disease 2019) has resulted in a significant number of psychological effects.¹³ In a study done during initial phase in China more than fifty percent of the subjects reported a moderate-to-severe psychological impact and one-third had moderate-to-severe anxiety.¹⁴ Although several studies have assessed levels of stress and identified stressors but in spite of their interrelationship, anxiety and depression in dental students have not been explored as extensively as stress. Previous studies have implemented individual tools like Dental Environmental Stress (DES) Scale or State-Trait Anxiety Inventory or the Self-Rating Depression Scale. It is always desirable that a single tool be used to examine depression, anxiety, and stress in an individual. Also there is a need to understand the impact of this global pandemic on the psychological well-being of undergraduate dental students specifically. Therefore, our aim was to measure the levels of depression, anxiety and stress in dental students using the DASS-21 and to compare it with the sense of insecurity towards profession future due to Covid 19.

Supplementary information The online version of this article (<https://doi.org/10.15520/ijmhs.v10i07.3025>) contains supplementary material, which is available to authorized users.

Corresponding Author: *Vineet Golchha*
Professor Department Of Orthodontics and Dento-facial Orthopedics Inderprastha Dental College and Hospital, Ghaziabad, India
Email: orthovineet@gmail.com

2 | METHODOLOGY

The data has been collected through well-structured Google form mailed to 2000 dental students studying in Delhi NCR. The consent was obtained from the recipients of the form for conducting this survey. The initial part of the form collected the information regarding the demographic profile of the students like age, gender and place where they stayed. A view was also taken on their awareness of the global pandemic and the effectiveness and short comings of the current online learning. Students were also asked about their insecurity regarding their professional future which might have seeped in due to spread of this virus.

The second part of questionnaire consisted of psychological evaluation using DASS 21 scale. DASS (Depression, Anxiety, and Stress Scale) is a survey which include the 21 question adaptation of the DASS (Lovibond and Lovibond, 2004). The original 42-item DASS of Lovibond was reduced into a concise and comprehensive variant having 21-items. Several studies have authenticated DASS-21 as a scale with satisfactory psychometric properties and is comparable to other reliable scales to measure manifestation of depression, anxiety and stress. Each question measured the prevalence of indication of depression, anxiety, or stress over the prior week. Answers are registered on a well-established Likert scale. The relevant questions scores are summed up and as DASS-21 is a shorter version of the DASS (42 items), each sub-scale is multiplied by a factor of two to reach to a final score according to the given severity rating index.

3 | RESULTS

The Google form was filled and sent by 1384 students. Out of them 380 were males and 1004 were females. The average age of the responding dental student was 21 years minimum being 17 and maximum was 27 years. Most of the dental students, around 97.4% were staying with their family during this

lockdown. Majority of the students around 86.1% were first time using online platform for learning and only 13.9% have attended an online course before. Only 28.6% were of the opinion that online learning platforms were fulfilling the purpose of professional education. The most affected part of their dental learning in this lockdown was practical and clinical work at 30.4% and 22% respectively.

The DASS 21 scale grades each participant on the basis of his or her scores of depression, anxiety, and stress levels, as either “normal,” “mild,” “moderate,” “severe,” or “extremely severe.” Of those surveyed, 4% reported symptoms of severe levels of depression, 6% indicated severe level of anxiety, and 4% had severe stress. 1% of the students showed extremely severe depression and 2% showed extremely severe anxiety. (Table 1)(Fig. 1)

TABLE 1: Descriptive Statistics of Depression, Anxiety and Stress

	Minimum	Maximum	Mean	Std. Deviation
Depres	1384 00	30.00	7.43	6.91
Anxiety	1384 00	26.00	5.85	5.82
Stress	1384 00	32.00	8.32	7.82

One of the important parameter that was assessed through the questionnaire is future professional insecurity due to current pandemic situations. The students were asked to evaluate on a scale of 0 to 2 ie 0 (no future insecurity) , 1(not sure) and 2 was (insecure)(Fig. 2).

87.2% of the students were insecure for their professional future due to spread of Covid19. This was further correlated with the three dimensions of DASS 21 and a significant correlation was found between future professional insecurity and depression, anxiety and stress , p value greater than .001 (Table 2 , 3 ,4).

4 | DISCUSSION

While stress is an inevitable part of life, it is becoming more prevalent among university students.¹⁵

Table 2: Correlations Between Insecurity and Depression

		Insecurity	Depression
Insecurity	Correlation Coefficient	1.000	.239**
	Sig. (2-Tailed)	.	.000
	N	1384	1384
Depression	Correlation Coefficient	.239**	1.000
	Sig. (2-Tailed)	.000	.
	N	1384	1384

** Correlation is significant at the 0.01 level (2-tailed).

Table 3: Correlations Between Insecurity and Anxiety

		Insecurity	Anxiety
Insecurity	Correlation Coefficient	1.000	.190**
	Sig. (2-Tailed)	.	.000
	N	1384	1384
Anxiety	Correlation Coefficient	.190**	1.000
	Sig. (2-Tailed)	.000	.
	N	1384	1384

** Correlation is significant at the 0.01 level (2-tailed).

Table 4: Correlations Between Insecurity and Stress

		Insecurity	Stress
Insecurity	Correlation Coefficient	1.000	.225**
	Sig. (2-Tailed)	.	.000
	N	1384	1384
Stress	Correlation Coefficient	.225**	1.000
	Sig. (2-Tailed)	.000	.
	N	1384	1384

** Correlation is significant at the 0.01 level (2-tailed).

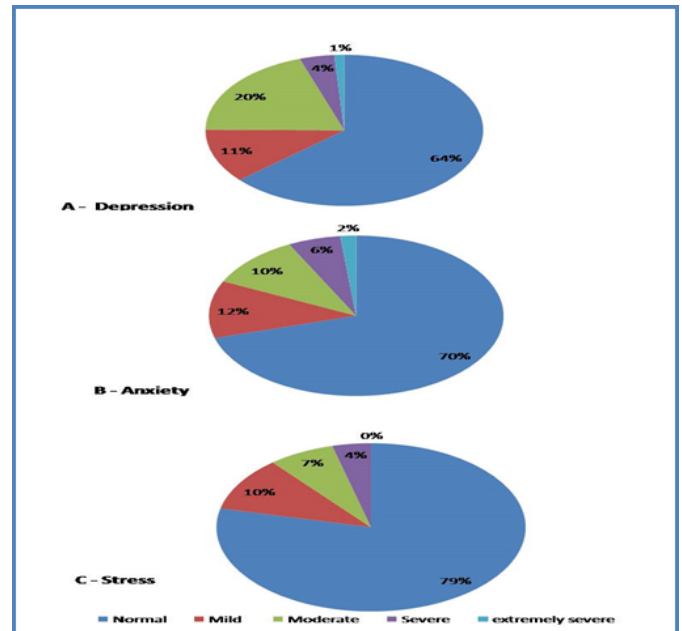


FIGURE 1: The proportion of participants whose answers on the DASS 21 indicated a normal, mild, moderate, severe or extremely severe amount of Depression (A), Anxiety (B), and Stress (C)

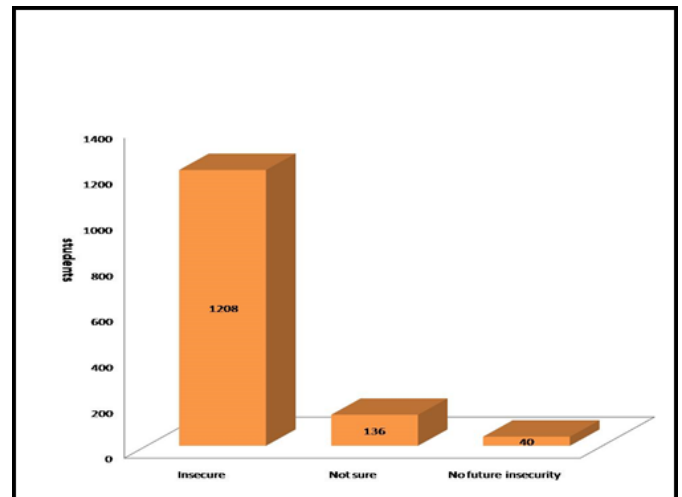


FIGURE 2: Insecurity Regarding Professional Future in Students

In addition to anxiety and stress, depression can also impact college life to such an extent that a thorough research is needed to help future students. The World Health Organization defines depression as "a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite and feelings of tiredness and poor concentration. It can

be long-lasting or recurrent, substantially impairing a person's ability to function at work, school or cope with daily life".¹⁶It has been reported that in the USA, almost 10% of university students are undergoing treatment for depression. Anxiety as defined by the American Psychological Association as an "emotion characterized by feelings of tension, worried thoughts and physical changes such as increased blood pressure".¹⁷Long-term stress has been linked to the development of other disorders. High levels of stress were linked with depression, whereas low and moderate stress levels were related with anxiety.¹⁸

Studies of dental school, professional pressures and consumption of alcohol suggest that both dental education and practice can be stress provoking and have negative effects on individual well-being. The high levels of depression, anxiety and stress could be attributed to the pressure exerted on students during dental education by their workload, clinical requirements, examinations and also it is a common norm in dental schools to push students toward perfectionism.^{19,20}Research have shown that students when enter medical or dental school show depression levels similar to general population, but their levels show drastic increase during school and dental students may report more three times the levels of depression than even medical students.^{21,22}

In the present study students were asked about the online system of learning. Dental education as we know require intensive lecture and hands on practical and on patient clinical learning. The current pandemic has shifted the entire education to an on-line platform. The respondents were mostly using online as mode of learning for first time (86.1%) , suggesting that this was not a preferred system of education for them .The students had a mixed bag of response to the effectiveness of the online teaching methods . Only 28.6% were of the opinion that it was fulfilling while 32.7% were sure that it wasn't useful though the largest group of 38.7% were not sure about its effectiveness. The current pandemic have shifted the focus from classroom learning to digital and definitely will evolve in future making it more effective and both teacher and student friendly. The dental students were of the opinion that most affected part of their learning was the practical's at

30.4%and clinical at 22%. Only a few were of the opinion that theory was affected (4.9%) and a large-group believed that all part of dental learning was affected due to the current closure of the colleges. Most of the respondents were using this period of lockdown to explore old hobbies (52.3%), updating their knowledge by attending webinars (46.5%), doing yoga or home fitness (46%) and learning new hobbies (41.6%). This information helps to understand their time utilization and stress reducing activities performed by them regularly. Dentists are subjected to a numerous types of physical and mental stress induced or increased by their work environment and dental students are not so different. Musculoskeletal problems, neck and backache all very common nemesis and well documented.^{23,24} 83 percent of dentist's perceived dentistry as being "very stressful", nearly 60 percent perceived dentistry as a profession which is comparatively more stressful than others.²⁵

The present survey reported depression, anxiety and stress among dental students during this global pandemic. Psychological ramification such as fear and anxiety are quiet common in pandemics, such as severe acute respiratory syndrome (SARS) demonstrated psychological agony in healthcare workers including the worry of either getting themselves infected or infecting their families.^{26,27}In the present study on Indian dental students 1% of them showed signs of extreme severe depression, 4% had severe ,20% moderate and 11% had mild signs. 2% showed extremely severe, 6% severe ,10% showed moderate and 12% showed mild anxiety. Stress level was severe in 4%, 7% moderate and 10% having mild signs of stress. This is in accordance to previous studies which have also shown increase levels of depression , anxiety and stress among the dental students when compared to similar age group students in other profession .^{28,29,30}

The spread of this virus and its close association with oral routes of transfer has created fear in minds of dentist as well dental students .To ascertain this, a questionnaire of closed-ended questions was used to evaluate future professional insecurity amongst them due to COVID-19 outbreak. 87.2% of the students were insecure regarding the future of dental profession and only 40 of the 1384 respondents were not

insecure This uncertainty may be because of the fear of disease , difficult working condition and higher risks to infect self and family. This is unfortunate as career doubts have been identified as a potent source of stress.³¹ Significant correlation was found between their insecurity and depression ,anxiety and stress , p value greater than .001 for all three suggesting that psychological effects of COVID 19 lead to apprehensive about their professional future causing increased level of depression , anxiety and stress among the dental students .

5 | CONCLUSION

This study aimed to assess the levels of depression, anxiety and stress in undergraduate dental students found them to be abnormally high. It is important that both students and faculty should correlate the psychological signs and symptoms of anxiety and depression so that more attention could be devoted to them. Overall efforts should be made to make dental curriculum less stressful for the students and ways should be imparted to train them to reduce and cope with these conditions. The current pandemic has worsen the condition , generating more fear and stress among the students .There is a undercurrent of stress which in turn can be having adverse effects on their physical and psychological well-being in a long run. There is a need to evolve with the current COVID 19 pandemic and brainstorming the ways to impart confidence among them and find ways to decrease the levels of depression, anxiety and stress among these future dentists. Mental strength could be the key to post Covid drastically changed dental practice. [1–31]

REFERENCES

1. COVID C, Koh CD, Cunningham A. Counting Coronavirus Disease-2019 (COVID-19) Cases: Case Definitions, Screened Populations and Testing Techniques Matter. *Ann Acad Med Singapore*. 2020;49:161-5.
2. Gorbalenya AE, Baker SC, Baric R, Groot RJ, Drosten C, Gulyaeva AA, Haagmans BL, Lauber C, Leontovich AM, Neuman BW, Penzar D. Severe acute respiratory syndrome-related coronavirus: The species and its viruses—a statement of the Coronavirus Study Group.
3. Sohrabi C, Alsafi Z, O’Neill N, Khan M, Kerwan A, Al-Jabir A, Iosifidis C, Agha R. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*. 2020 Feb 26.
4. Ather A, Patel B, Ruparel NB, Diogenes A, Hargreaves KM. Coronavirus disease 19 (COVID-19): implications for clinical dental care. *Journal of endodontics*. 2020 Apr 6.
5. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *Journal of Dental Research*. 2020 May;99(5):481-7.
6. Ng K, Poon BH, Kiat Puar TH, Shan Quah JL, Loh WJ, Wong YJ, Tan TY, Raghuram J. COVID-19 and the risk to health care workers: a case report. *Annals of internal medicine*. 2020 Mar 16.
7. Humphris G, Blinkhorn A, Freeman R, Gorter R, Hoad-Reddick G, Murtomaa H, O’Sullivan R, Splieth C. Psychological stress in undergraduate dental students: baseline results from seven European dental schools. *European journal of dental education*. 2002 Feb;6(1):22-9.
8. Polychronopoulou A, Divaris K. A longitudinal study of Greek dental students’ perceived sources of stress. *Journal of dental education*. 2010 May;74(5):524-30.
9. Kumaraswamy N. Academic stress, anxiety and depression among college students: A brief review. *International review of social sciences and humanities*. 2013;5(1):135-43.
10. Misra R, McKean M. College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American journal of Health studies*. 2000;16(1):41.
11. Newbury-Birch D, Lowry RJ, Kamali F. The changing patterns of drinking, illicit drug use, stress, anxiety and depression in dental students in a UK dental school: a longitudinal study. *British dental journal*. 2002 Jun;192(11):646-9.

12. Sanders AE, Lushington K. Sources of stress for Australian dental students. *Journal of dental education*. 1999 Sep;63(9):688-97.
13. Li S, Wang Y, Xue J, Zhao N, Zhu T. The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users. *International journal of environmental research and public health*. 2020 Jan;17(6):2032.
14. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*. 2020 Jan;17(5):1729.
15. Mackenzie S, Wiegel JR, Mundt M, Brown D, Saewyc E, Heiligenstein E, Harahan B, Fleming M. Depression and suicide ideation among students accessing campus health care. *American journal of orthopsychiatry*. 2011 Jan;81(1):101.
16. World Health Organization (WHO). Health topic: depression. World Health Organization; 2015 [cited 15 Aug 2014]; Available from: <http://www.who.int/topics/depression/en/>.
17. Kazdin AE. *Encyclopedia of psychology*. Washington, DC: American Psychological Association; 2000.
18. Bergdahl J, Bergdahl M. Perceived stress in adults: prevalence and association of depression, anxiety and medication in a Swedish population. *Stress and Health: Journal of the International Society for the Investigation of Stress*. 2002 Dec;18(5):235-41.
19. Rajab LD. Perceived sources of stress among dental students at the University of Jordan. *Journal of dental education*. 2001 Mar;65(3):232-41.
20. Kumar S, Dagli RJ, Mathur A, Jain M, Prabu D, Kulkarni S. Perceived sources of stress amongst Indian dental students. *European journal of dental education*. 2009 Feb;13(1):39-45.
21. Othman Z, Kelvin L, Othman A, Yasin MA. Neurotic personality traits and depression among first year medical and dental students in Universiti Sains Malaysia. *Malaysian Journal of Psychiatry*. 2013;22(1).
22. Prinz P, Hertrich K, Hirschfelder U, de Zwaan M. Burnout, depression and depersonalisation—Psychological factors and coping strategies in dental and medical students. *GMS Zeitschrift für medizinische Ausbildung*. 2012;29(1).
23. Golchha V, Sharma P, Wadhwa J, Yadav D, Paul R. Ergonomic risk factors and their association with musculoskeletal disorders among Indian dentist: A preliminary study using Rapid Upper Limb Assessment. *Indian journal of dental research*. 2014 Nov 1;25(6).
24. Sharma P, Golchha V. Awareness among Indian dentist regarding the role of physical activity in prevention of work related musculoskeletal disorders. *Indian journal of dental research*. 2011 May 1;22(3):381.
25. Moore R, Brødsgaard I. Dentists' perceived stress and its relation to perceptions about anxious patients. *Community dentistry and oral epidemiology*. 2001 Feb;29(1):73-80.
26. Tam CW, Pang EP, Lam LC, Chiu HF. Severe acute respiratory syndrome (SARS) in Hong Kong in 2003: stress and psychological impact among frontline healthcare workers. *Psychological medicine*. 2004 Oct 1;34(7):1197.
27. McAlonan GM, Lee AM, Cheung V, Cheung C, Tsang KW, Sham PC, Chua SE, Wong JG. Immediate and sustained psychological impact of an emerging infectious disease outbreak on health care workers. *The Canadian Journal of Psychiatry*. 2007 Apr;52(4):241-7.
28. Al-Sowayh ZH. Academic distress, perceived stress and coping strategies among dental students in Saudi Arabia. *The Saudi dental journal*. 2013 Jul 1;25(3):97-105.
29. Abu-Ghazaleh SB, Rajab LD, Sonbol HN. Psychological stress among dental students at the University of Jordan. *Journal of dental education*. 2011 Aug;75(8):1107-14.
30. Kanyakumari DH, Siddanagoudra SP, Kataraki K. Sources and levels of stress in dental students. *World J Pharm Pharm Sci*. 2014;3(9):1342-8.

31. Sofola OO, Jeboda SO. Perceived sources of stress in Nigerian dental students. *European journal of dental education*. 2006 Feb;10(1):20-3.

How to cite this article: Golchha V., Paul R., Sharma P., Yadav D., Sharma I., Gupta M., Gulia V. PSYCHOLOGICAL IMPACT OF COVID 19 PANDEMIC ON DENTAL STUDENTS. *Innovative Journal of Medical and Health Science*. 2020;1121–1127. <https://doi.org/10.15520/ijmhs.v10i07.3025>
