

Assessment of anxiety and stress during covid-19 second wave among the students of dental college -A cross sectional study.

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Abstract

Back ground: Dental education is a significant source of stress among dental students, and studies have observed higher levels of stress among dental students than in the general population.

Objectives: The aim of study was to evaluate the anxiety and stress associated with COVID-19 among the dental college students during second wave and to

explore the level of change in personal hygiene and social habits with response to COVID-19 as well as their subjective worries regarding the dental profession.

Material and methods: A cross sectional study was conducted among dental college students with a pre-designed questionnaire containing 22 questions, based on the information from WHO on Covid-19.

Results: 617 students participated in the study, including 493 (70.9%) females and 124 (20.1%) males. A proportion of 46.80% of Students got information about the covid 19 through the media, including television and news, followed by social media (25.90%). There was a significant difference between levels of change in personal hygiene habits and level of study ($p < 0.001$). Anxiety and stress levels of students increased during the second wave, compared to the first wave and before the pandemic. There were significant differences in the willingness of students of different study levels to e-learning and to choose another profession. ($p < 0.001$).

Conclusion: This study concluded that the colleges should implement effective preventive measures to deal with anxiety and psychological state of the students.

Keywords: anxiety, stress, dental students, covid-19

Introduction

The world has witnessed severe disease outbreaks throughout history, but the onset of the novel corona virus disease 2019 (COVID-19) Pandemic has been deadly and devastating, challenging researchers and healthcare systems. (1,2) Since then, it has spread rapidly across the world and received tremendous attention globally. COVID-19 accounted for 349,640,119 confirmed cases worldwide, including 5,592,266 deaths, as of 24 January 2022, while in India there were 39,543,328 confirmed cases, resulting in 489,848 deaths, recorded from 3 January 2020 to 24 January 2022(3). It is quite a known fact that healthcare workers, the first-line service providers in combating COVID-19, are exposed to hazards that put them at an elevated risk of exposure to the infectious organisms(2). COVID 19 has not only burdened health care system and it took huge toll on the psychological health of the health care workers and as well as general population (4–6)

Dental care professionals were placed in the high-exposure risk category for COVID-19 by the Occupational Safety and Health Administration (OSHA; OSHA, 2020(7). Due to the explicitness of dental consideration settings, which include direct contact with patients, regular examinations of oral cavities containing saliva and the handling of sharp instruments, they are constantly emphasizing the danger of COVID-19 disease (8,9). Studies have proposed that COVID-19 transmits through airborne droplets and aerosols (10,11). During the pandemic, there has been a significant impact on dental professionals, healthcare workers, and dental students (12).

Dentists' education requires a complex and broad knowledge of didactics, patient management, and technical clinical skills, which makes it one of the most stressful higher-education programs(13,14). Dental students have been found to suffer from a wide range of psychological disorders worldwide, including anxiety, depression, stress, and obsessive-compulsive disorders(15) Studies have shown that lockdown and online learning negatively impacts learners in general and dental students specifically since they face additional pressure to complete clinical requirements (16). It has been well documented that only a limited number of studies have been conducted to assess the psychological impact of the COVID-19 outbreak on dental students in the first wave, but none have been carried out in the second wave of the outbreak on dental students in India. The aim of present study was to evaluate the anxiety and stress associated with covid-19 during the second wave among the students of the dental college. The study objectives include:

1. Assessment of anxiety and stress levels among dental students

2. Exploring personal worries regarding the dental profession among dental students
3. Evaluating the changes in personal hygiene and social habits in reaction to COVID-19 among dental students.

Materials and methods

A descriptive cross-sectional study was conducted among the students of dental college, between April and May 2021. The study protocol was approved by the Institutional Review Board of Lenora Institute of Dental Sciences. A completed questionnaire was considered by the students as their consent to participate in this study.

The sample size was calculated using the formula $n=4P(1-P)/d^2$. From previous study, Power of the study was kept at 80% with 95% confidence interval and Marginal error of 4%. Overall sample size estimated was 600. The questionnaire was sent to 630 participants, of which 617 subjects responded.

All the undergraduate and post graduate dental students of the college were eligible to participate. Study participants were recruited from a dental college in East Godavari District. An electronic google questionnaire containing 22 questions based on the information given by WHO for COVID-19 was formulated.

The first section includes demographic details like gender, study level and second section include 9 questions on the information about covid-19, level of change in personal hygiene and social habits in response to COVID -19, assessment of anxiety and stress during the training, evaluation of important criteria to be applied by the dental college to provide maximum protection of infection during course training. The third section includes specific questions about the effectiveness and student's satisfaction regarding e-learning education in the theoretical and practical aspects in the dental college. The fourth section of the questionnaire includes regarding vaccination and

fear/apprehension of getting infected even after taking covid vaccine and experience of any symptoms post covid vaccine.

Data was entered and analysed using the Statistical Package for Social Sciences Software (Statistical data SPSS, Inc., an IBM company, Chicago, version 26). Pearson's Chi-square test was used to test the association between categorical variables. A significance level of $P < 0.05$ was considered a critical probability value for statistical significance.

Results

A total of 617 participated in the study, 493 (79.9%) were females and 124(20.1%) were males. The distribution of respondents according to the year of study is as following: 1st year 112 (18.2%), 2nd year 114(18.5%), 3rd year 131(21.2%), Final year 95(15.4%), Internship 89(14.4%), Post Graduates 76(12.3%). [table 1]

Majority of participants (40%) reported that they have high levels of fear to expose to the outside community after a long period of quarantine. [fig.1]. A total of 39.9% of the respondents strongly agrees that they feel anxious and stressful when thinking about returning back to training in the colleges. [fig.2] A large number of participants (42.3%) were anxious and stress felt during first wave and 62.8% during second wave.

A large number of respondents (58.8%) reported that they are having high level of fear of getting infected with diseases during clinical training. [fig.4]. According to 41.2% of respondents, there is a fear of returning to clinical training because of their inability to maintain COVID-19 prevention protocol. [Fig5]. Most participants (90.4%) are aware of infection control guidelines while treating a patient during this pandemic.

Table 2 shows that there is significant difference between the change in personal oral hygiene habits i.e.,

wearing surgical masks and gloves and following social distancing in response to Covid -19 and level of study Table 3 shows a significant difference between the year of study and the intention to choose another profession. However, no significant difference was found between genders and their intention to choose another profession.

Discussion

Stress is a person's general reaction or response to difficult physical or psychological situations. It is an uncontrollable and unpredictable sensation of potentially unpleasant life events and can predispose to anxiety that adversely affects mental and physical health. Dental education is usually considered a stressful environment, and one of the stressors reported to dental students is the fear of getting infected which can lead to clinical anxiety. The hypothesis tested here can indicate that dental students experience increased stress and anxiety during the development of COVID 19, which influences individual hygiene behaviour and social habits, as well as subjective concerns about the dental profession(17).

The questionnaire was completed by 617 dental students. Our findings indicate that 85% of respondents experience immense anxiety and stress (42.3%) during first wave and (62.6%) during second wave related to their return to clinical training, and the results are similar to the study conducted by kharma et.al(18) The fear of getting infected with diseases during the clinical training is about 58.8%. This augmentation could be attributed to the pressure exerted on students to finish their clinical requirements with unsafe conditions of prevention and protection regarding infection control. There is a consensus by the respondents that the dental college must implement certain procedures in the clinical training and theoretical session respecting the guidelines by WHO for dental practice. It is necessary to university clinics or structures of the National Health Service to

adopt measures and precautions that minimize the spread of the infection.

Authorities in dental and medical colleges should be more involved in the process of an agreement of protocols and procedures to be implemented before students can return to the training. Dental professionals were always vulnerable to infections, long before the novel coronavirus. So, they need to proceed with utmost caution and treat everyone as carrying potential risk without causing more anxiety(17) .This will require many necessary changes. We need to assure our staff, students, and our patients that we're committed to maintaining the highest standard of infection control, sanitization, and accessibility to personal protective equipment(19).A large percentage of participants in the present study agreed that their job performance will not be to the best of their ability and that they have the possible intention to choose another profession; these are both alarming responses. These results are consistent with the conclusions of a study in Italy that found anxiety from COVID-19 might prevent a new generation of dentists from entering the profession(20) The present study has some limitations, such as being confined only one dental college, and consequently, the results may not be applicable to other parts of the state. Present study being an online survey there can be bias of self-reporting. Other COVID-19-related stressors, such as economic stressors, effects on daily-life, and academic delays, were not addressed. Thus, further studies on a larger cohort of dental students are recommended, together with investigations of other factors that could lead to stress and anxiety during the COVID-19 pandemic.

Conclusion

A high percentage of participating students reported changes in their personal hygiene and social habits with

subjective worries regarding the dental profession, where one-third of them agreed that they would change their profession if they had the chance. It is therefore essential to minimize student anxiety by offering to counsel and fostering a supportive learning environment in colleges. Additionally, dental colleges should ensure they are prepared to tackle outbreaks like COVID-19 and other emerging infectious diseases by getting the latest information about their modes of transmission, contamination, and prevention. Students should be motivated to pursue dentistry by gaining knowledge through webinars, CDE programs, and by reading published data. By gaining knowledge, they will be less anxious about a potentially life-threatening situation like a pandemic.

References

1. Pollard CA, Morran MP, Nestor-Kalinoski AL. The covid-19 pandemic: A global health crisis. *Physiological Genomics*. 2020;52(11):549–57.
2. Mallah SI, Ghorab OK, Al-Salmi S, Abdellatif OS, Tharmaratnam T, Iskandar MA, et al. COVID-19: breaking down a global health crisis. Vol. 20, *Annals of Clinical Microbiology and Antimicrobials*. BioMed Central Ltd; 2021.
3. WHO COVID DATA [Internet]? [cited 2022 Jan 24]. Available from: https://www.google.com/search?q=who+covid+dashboard&rlz=1C1CHBF_enIN921IN921&oq=WHO+&aqs=chrome.69i59j69i57j69i59l2j69i60j69i65j69i60l2.3312j0j7&sourceid=chrome&ie=UTF-8
4. Zhou P, Yang X lou, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*. 2020 Mar 12;579(7798):270–3.
5. Wax RS, Christian MD. Practical recommendations for critical care and anaesthesiology teams caring for novel coronavirus (2019-nCoV) patients. Vol. 67, *Canadian Journal of Anesthesia*. Springer; 2020. p. 568–76.
6. Pollard CA, Morran MP, Nestor-Kalinoski AL. MINI-REVIEW The COVID-19 pandemic: a global health crisis. *Physiol Genomics* [Internet]. 2020; 52:549–57. Available from: www.physiolgenomics.org
7. Osha. Guidance on Preparing Workplaces for COVID-19.
8. el Homossany M, Alrowaily G, Allugmani W, Abo-Atwan W, Al-Sulaiman R, Al-Mofareh O, et al. COVID-19-related anxiety among dental students in two dental schools in Saudi Arabia. *Journal of Pharmacy and Bio allied Sciences*. 2021 Jun 1;13(5): S826–30.
9. Shetty A, Bhat R, Shetty P, Hegde M, Krishna Nayak US, D’Souza N. The psychological impact of the COVID-19 pandemic on dental healthcare professionals. *Journal of International Oral Health*. 2020 Nov 1;12(8): S98–105.
10. Carter AE. Pathways of fear and anxiety in dentistry: A review. *World Journal of Clinical Cases*. 2014;2(11):642.
11. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020 Feb 15;395(10223):497–506.
12. Hakami Z, Khan agar SB, Vishwanathaiah S, Hakami A, Bokhari AM, Jabali AH, et al. psychological impact of the coronavirus disease 2019 (COVID-19) pandemic on dental students: A nationwide study. *Journal of Dental Education*. 2021 Apr 1;85(4):494–503.
13. Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. *Int J Med Educ*. 2017 May 24; 8:179–86.
14. Dentistry, COVID-19 and stress: Seeking light at the end of the tunnel.

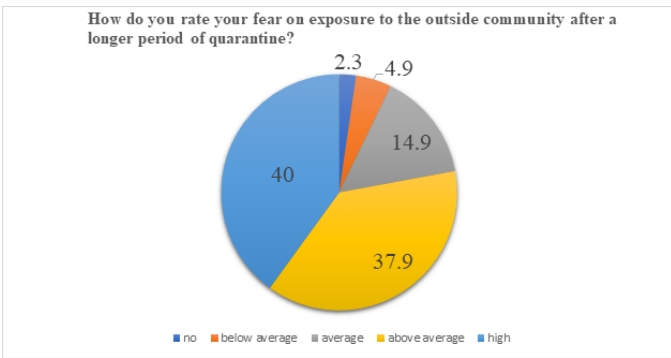
15. Lasheras I, Gracia-García P, Lipnicki DM, Bueno-Notivol J, López-Antón R, de la Cámara C, et al. Prevalence of anxiety in medical students during the covid-19 pandemic: A rapid systematic review with meta-analysis. Vol. 17, *International Journal of Environmental Research and Public Health*. MDPI AG; 2020. p. 1–12.
16. Schlenz MA, Schmidt A, Wöstmann B, May A, Howaldt HP, Albert D, et al. Perspectives from dentists, dental assistants, students, and patients on dental care adapted to the covid-19 pandemic: A cross-sectional survey. *International Journal of Environmental Research and Public Health*. 2021 Apr 2;18(8).
17. Lingawi HS, Afifi IK. COVID-19 Associated Stress Among Dental Students. *The Open Dentistry Journal*. 2020 Nov 13;14(1):554–62.
18. Kharma MY, Koussa B, Aldwaik A, Yaseen J, Alamari S, Alras H, et al. Assessment of Anxiety and Stress among Dental Students to Return to Training in Dental College in COVID-19 Era. *European Journal of Dentistry*. 2020 Dec 1;14: S86–90.
19. Akhtarul Islam M, Barna SD, Raihan H, Nafiul Alam Khan M, Tanvir Hossain M. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. Vol. 15, *PLoS ONE*. Public Library of Science; 2020.
20. Alka Wari H. Psychological Effects of Covid-19 Pandemic on Dental Students: A Cross-Sectional Study. *Bioscience Biotechnology Research Communications*. 2021 Sep 25;14(3):1060–4.

Legend Tables and Figures

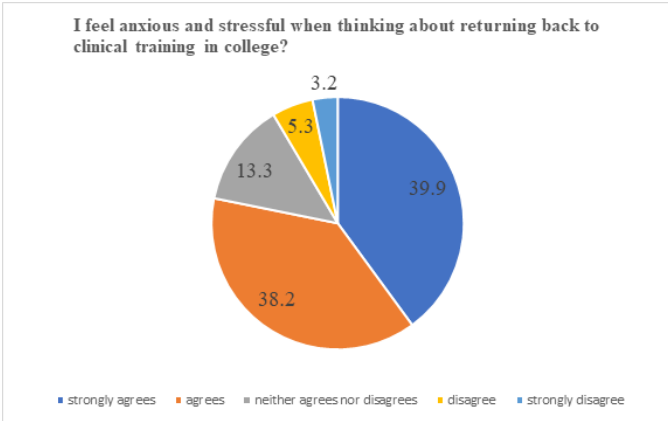
Table 1: No. of study participants according to the gender and level of study

Variables		Frequency (%)
Gender	Female	493(79.9)
	Male	124(20.1)
Level of study	I year	112(18.2)
	II year	114(18.5)
	III year	131(21.2)
	IV year	95(15.4)
	Internship	89(14.4)
	PG	76(12.3)
Total	617(100%)	

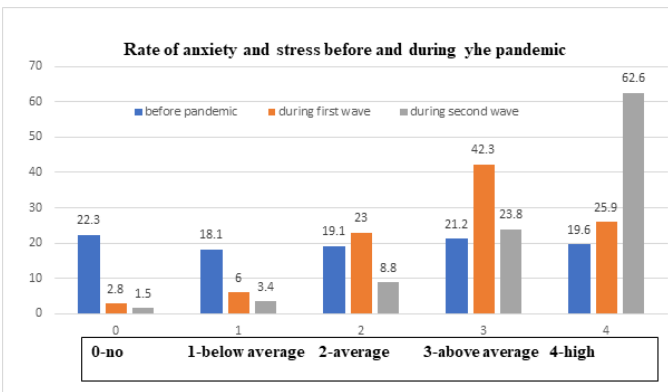
Graph 1: Fear rate of exposure to outside community among the subjects



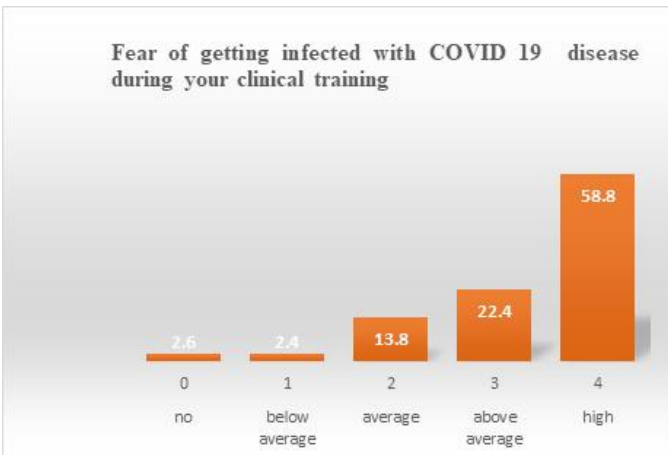
Graph 2: Rate of anxiety and stress during clinical training



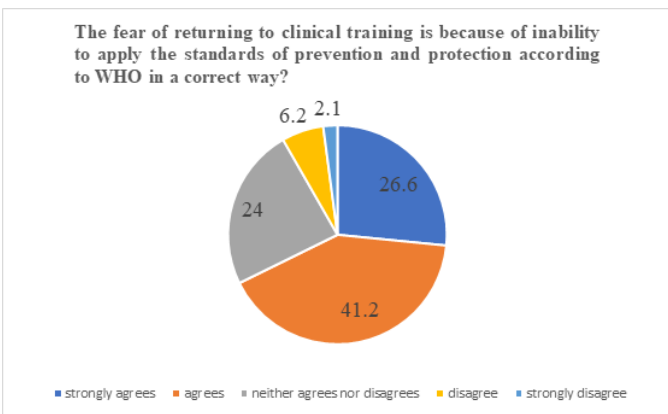
Graph 3: Distribution of anxiety and stress scale ratings among the subjects related to clinical training



Graph 4: Rate of fear among the subjects during clinical training



Graph 5: Rate of fear among the participants if requirements not applied



		Study Level							Chi Squarevalue	P Value
		I year	II Year	III Year	IV Year	Intern	PG	Total		
Personal hygiene and Social habits	Didn't change	4(12.5)	8(25.0)	3(9.4)	4(12.5)	5(15.6)	8(25.0)	32	25.934	0.39
	Changed a Little	32(30.5)	15(14.3)	18(17.1)	16(15.2)	10(9.5)	14(13.3)	105		
	Moderately Changed	47(17.3)	47(17.3)	63(23.2)	46(16.9)	40(14.7)	29(10.7)	272		
	Greatly Changed	29(13.9)	44(21.2)	47(22.6)	29(13.9)	34(16.3)	25(12.0)	208		
Hand washing Techniques	Didn't Change	4(14.8)	4(14.8)	3(11.1)	2(7.4)	7(25.9)	7(25.9)	27	17.686	0.280
	Changed a Little	23(24.2)	17(17.9)	19(20.0)	16(16.8)	12(12.6)	8(8.4)	95		
	Moderately Changed	36(15.5)	37(15.9)	56(24.0)	39(16.7)	34(14.6)	31(13.3)	233		
	Greatly Changed	49(18.7)	56(21.4)	53(20.2)	38(14.5)	36(13.7)	30(11.5)	262		
Buying more Sanitizers	Yes	101(17.5)	106(18.4)	128(22.2)	93(16.1)	81(14.0)	68(11.8)	577	11.886	0.36
	No	11(27.5)	8(20.0)	3(7.5)	2(5.0)	8(20.0)	8(20.0)	40		
Wearing surgical Masks and gloves	Yes	107(17.9)	114(19.1)	129(21.6)	95(15.9)	84(14.1)	68(11.4)	597	23.226	<0.00
	No	5(25.0)	0(0)	2(10)	0(0)	5(25.0)	8(40.0)	20		
Following social Distancing (2m apart)	Yes	94(19.0)	100(20.2)	90(18.1)	79(15.9)	73(14.7)	60(12.1)	496	16.837	0.05
	No	18(14.9)	14(11.6)	41(33.9)	16(13.2)	16(13.2)	16(13.2)	121		
Avoid social gathering	Yes	97(18.3)	108(20.4)	104(19.6)	82(15.5)	78(14.7)	61(11.5)	530	14.210	0.14
	No	15(17.2)	6(6.9)	27(31.0)	13(14.9)	11(12.6)	15(17.2)	87		
Avoid hand shaking	Yes	102(18.0)	110(19.4)	120(21.2)	87(15.3)	80(14.1)	68(12.0)	567	4.444	0.487
	No	10(20.0)	4(8.0)	11(22.0)	8(16.0)	9(18.0)	8(16.0)	50		

Table 2: level of change in personal hygiene and social habits in response to covid-19 among students and level of study.

Variables		Would you choose another profession if given a chance?		Chi- square value	P value
		Yes	No		
Gender	Male	44(25.6%)	80(18.0%)	4.467	.035
	Female	128(74.4%)	365(82.0%)		
Level of study	1 st year	17(9.9%)	95(21.3%)	35.010	< 0.001
	2 nd year	44(25.6%)	70(15.7%)		
	3 rd year	23(13.4%)	108(24.3%)		
	4 th year	24(14.0%)	71(16.0%)		
	Interns	30(17.4%)	59(13.3%)		
	PG	34(17.4%)	42(9.4%)		

Table 3: association between “the possible intentions to choose another profession” according to gender and level of study

Variables		Vaccination for Covid -19		Chi square value	P value
		Yes	No		
Gender	Male	68 (54.8%)	56(45.2%)	2.793	0.095
	Female	229(46.5%)	264(53.5%)		
Level of study	1 st Year	11(9.8%)	101(90.2%)	200.795	<0.001
	2 nd Year	17(14.9%)	97(85.1%)		
	3 rd Year	79(60.3%)	52(39.7%)		
	4 th Year	56(58.9%)	39(41.1%)		
	Interns	72(80.9%)	17(19.1%)		
	PG’S	62(81.6%)	14(18.4%)		

Table 4: Association between the vaccination for covid 19, gender and level of study