

Original Research

The Psychosocial Impact of COVID-19 in Dental College

Dr. Bhavdip Gill

Baba Jaswant Singh Dental College Hospital and Research Institute, Ludhiana, Punjab, India

ABSTRACT:

Background: COVID-19 has been declared a Global Emergency and drastic containment measures have been instituted rapidly. The changed lifestyle and demanding Medical and Dental professions at the frontline have had to improvise learning and cope with the psychosocial and economic issues affecting personal and patient care adversely.

Objective: The aim of this study is to study the psychological problems, depression, anxiety and stress among dental college students and dentists during the COVID-19 pandemic and assess the new modalities of training.

Methods: A cross sectional analytical study using a survey questionnaire was conducted among Dental College students and Dentists.

Statistical analysis: The association of COVID-19 related mental health problems measured by DASS 21 were analysed using SPSS 21 software. The descriptive statistics, percentages, t-test, Pearsons correlation and ANOVA were used and P value < 0.05 was considered significant.

Results: There was found to be a high prevalence of psychological issues during COVID-19. The mean stress, anxiety and depression was 12.90 ± 8.28 , 9.03 ± 8.53 , 8.02 ± 7.80 . The $P < 0.05$ was considered statistically significant. The blended training was professionally promising.

Conclusion: Covid-19 induced psychological disturbance impacts professional training and clinical care adversely requiring timely intervention to provide a healthy environment.

Key words: COVID-19, DASS 21, Dental College, E-Learning, Mental Health Issues, Social Stigma.

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Corresponding author: Dr. Bhavdip Gill, Baba Jaswant Singh Dental College Hospital and Research Institute, Ludhiana, Punjab, India

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INTRODUCTION

Emerging infectious diseases have impacted our civilisations since times immemorial. The resilience shown by the human race in the face of widespread death morbidity and mortality have technically advanced our society. The “black death” of medieval times wiped out about 1/3rd human population and other epidemics like cholera and influenza have taken a massive toll of human life. Newer infections like Ebola, Nipah, Zika, SARS-CoV, MERS-CoV have been scary but the nCoV pandemic since its identification in end of 2019 has challenged the very existence of mankind, changing the very lifestyle.¹

The pandemic has been declared as a “Global Public Health Crisis” by the World Health Organisation (W.H.O.). The social and economic consequences of the containment measures like lockdown, curfew, quarantine and social distancing has changed the world. Frontline medical and dental professionals

have had to bear the brunt of providing essential care and training despite facing the associated social stigma and psychological problems with Covid-19.² The assessment of psychological well-being is important for the continued good health and provision of care to all.³ Different innovative modalities of teaching - e-learning and traditional, to train a complex and competitive professional needs to be assessed in the pandemic for the continuation in medical and dental training.⁴ Various social and economic support measures need to be planned, implemented and evaluated for continued survival and advancement of communities.

Coronavirus erupted suddenly causing global confusion in the face of death and a frantic concerted effort to control and eliminate it. The nCoV, causing COVID-19 has mutated to be lethal.⁵

Globally, since its discovery W.H.O. states that more than 80 million cases have been infected and 2 million

deaths have occurred with a case fatality rate of almost 1.79 % - 2.3 % by January 2021 states. India, USA and Brazil have the maximum number of cases at half of world's total which seem to be increasing with each successive waves since 2019 to date.⁶ India had 10 million cases in December 2020 and plans to start vaccinating from January 2021.

Covid-19 is an approximately 350 kbp enveloped ssRNA virus which was first reported from the wet animal market of Wuhan, Hubei province China causing atypical pneumonia and death. This highly contagious virus with lakhs of mutations has been genomically sequenced. Its adaptability, transmissibility and infectivity has increased owing to its ability to mutate every 7 days, favouring a zoonotic to human transmission.⁷ It can survive for 4 days in nasal cavity and 9 days on surfaces.⁸ Personal contact, fomites, aerosols,⁹ ¹⁰ water, blood¹¹ and organ transplantation and transplacental spread have kept the chain alive.¹²

Symptomatic persons often exhibit fever, dry cough, dyspnoea, nausea, vomiting, diarrhoea, haemoptysis, pain chest, headache, myalgia, with complications of multiple inflammatory syndrome, acute liver failure, kidney failure, heart failure, myocardial infarction, arrhythmias, blood clotting, stroke, disseminated intravascular coagulation, multi organ failure and death.¹³ Asymptomatic transmission has caused fear giving way to widespread testing by rapid antigen kits, RT-PCR, and serological tests.¹⁴(Figure 1)

Precarious Mental health issues have emerged which needs to be addressed immediately. Anxiety, stress, depression, suicide, domestic violence, substance abuse are being face by almost everyone especially by the high risk frontline health workers.^{15,16 17 18}

Safety measures like quarantine, social distancing,¹⁹ personal protective equipment, face masks along with antiseptic sprays, sanitation and hygiene have been enforced during the pandemic globally. Travel bans, curfews and lockdowns and online delivery of essential goods have helped to contain the spread of the contagion.

Symptomatic treatment modalities of antivirals,^{20 21} antibacterials, electrolytes, anti – inflammatories; oxygen therapy, plasma therapy,²² Monoclonal antibodies have been instituted with variable results.²³ ²⁴ Vaccine race and emergency ethical approval of clinical trials are being prioritised, with the starting of vaccination programmes world wide.^{25 26}

AIM

The aim of this study is to study the psychological problems, depression, anxiety and stress among dental college students and dentists during the COVID-19 pandemic and assess the new modalities of training.

METHODS

A cross sectional analytical study using google form survey questionnaire was conducted among Dental College students and Dentists.

The surveys part A dealt with the demographic profile, Part B with the DASS 21 psychological measurement and Part C with the traditional versus e-learning teaching modality.

STATISTICAL ANALYSIS

The association of COVID-19 related mental health problems measured by DASS 21 were analysed using SPSS 21 software. The sample size $[n = Z^2(p-q)/d^2]$, (where Z is standard variate, p is proportion with characteristic, q is 1-p and d is precision) was determined with 95% confidence level and 3% margin of error.

The descriptive statistics, percentages, t-test, Pearsons correlation and ANOVA were used and a *P* value < 0.05 was considered significant.

RESULTS

The survey was distributed to the dental college students and dentist by electronic media with a response rate of 66.67 %. In a total of 385 study participants, 76.40 % were females and 23.60 % were males. 38.40 % showed symptoms of stress, 44.10 % of anxiety and 34.60 % depression. The mean stress, anxiety and depression for females was 12.80 +/- 8.19, 9.14 +/- 8.77, 8.18 +/- 8.09, for males 12.99 +/- 8.79, 8.00 +/- 8.23, 6.64 +/- 7.98 with a Pearson correlation of 0.5 and a *P* value < 0.05 was considered statistically significant.

Single (92.2 %) showed a higher DAS mean score than married (7.8%).

76.4 % thought that there was a social stigma attached to the disease COVID-19, with a significant *P* value of 0.001, 0.004 with stress and depression respectively.

Economic difficulty in COVID-19 testing was not seen by 62.9 % but economic difficulty with depression showed a significant *P* value of 0.019.

Higher members in the household group showed a higher DAS score.

Dental students in the pre-clinical years (1st and 2nd) were less stressed compared to those in the clinical years (3rd and 4th).

Dental education was preferred by in-campus method with practical hands on learning by the 59.0 % majority while a mixed method was welcomed by most in these adverse times.

71.7 % said that in-campus teaching was a more feasible method of teaching practical and laboratory lessons and 72.2 %, a better method for assessment of technical and practical knowledge.

Table 1

This study is anonymous and voluntary	No. of participants	Percentage						
Incomplete	2	1.7%						
Dont Volunteer	15	12.5%						
Volunteer	103	85.8%						
1. Gender								
Female	68	66.0%						
Male	35	34.0%						
2. Marital status								
Married	38	36.9%						
Unmarried	65	63.1%						
3. Age								
20-30 years	64	62.1%						
31-40 years	24	23.3%						
41-50 years	13	12.6%						
51- 60 years	2	1.9%						
4. Designation								
General Dental practitioner	60	58.3%						
Specialist Dental practitioner	43	41.7%						
5. Qualification								
Graduate	60	58.3%						
Post Graduate	43	41.7%						
6. Place of Work								
Clinic	20	19.4%						
Hospital - government	17	16.5%			Minimum	Maximum	Mean	Std. Deviation
Hospital - private	66	64.1%	Fear and anxiety	03	2.00	11.00	8.23	2.26
7. Years in dental practice								
< 5 years	65	63.1%						
6-10 years	16	15.5%						
11-15 years	14	13.6%						
>15 years	8	7.8%						
8. Affordability of Dental practice								
Dont know	15	14.6%						
No	10	9.7%						
Yes	78	75.7%						

	No		Yes		Don't Know	
	No. of participants	Percentage	No. of participants	Percentage	No. of participants	Percentage
1. Have you heard of Covid - 19 pandemic disease	0	0.0%	103	100.0%	0	0.0%
2. Do you know how Covid -19 is transmitted	0	0.0%	103	100.0%	0	0.0%
3. Have you been updated with the current DCP/DCI/ WHO guidelines to control cross infection of Covid -19	3	2.9%	98	95.1%	2	1.9%
4. Currently, do you ask every patients travel history before dental treatment	18	17.5%	83	80.6%	2	1.9%
5. Currently, do you take every persons temperature &cough , flu history before dental treatment	6	5.8%	96	93.2%	1	1.0%
6. Currently, do you defer patients dental treatment if they have come in contact with Covid -19 positive cases	19	18.4%	81	78.6%	3	2.9%
7. Currently, do you maintain social distancing	5	4.9%	91	88.3%	7	6.8%
8. Currently, do you wear a N-90 mask or PPE routinely while treating patients in your dental practice	11	10.7%	92	89.3%		
9. In your opinion is a surgical or N-90 mask enough to prevent cross infection of Covid -19	59	57.3%	34	33.0%	10	9.7%
10. As a routine do you follow the Universal Precautions of infection control for every patient	7	6.8%	93	90.3%	3	2.9%
11. Do you use rubber dam isolation for every patient	74	71.8%	29	28.2%	0	0.0%
12. Do you ask every patient to rinse their mouth with antiseptic mouthwash before and after treatment	16	15.5%	87	84.5%	0	0.0%
13. Do you use high volume suction in your dental practice for every patient	48	46.6%	55	53.4%	0	0.0%
	56	54.4%	44	42.7%	3	2.9%
15. Do you always wash your hands with soap and	1	1.0%	102	99.0%		0.0%

water or use sanitizer before and after treatment of every patient						
16. Is your dental hospital / clinic adequately sanitized	13	12.6%	83	80.6%	7	6.8%
17. Are you aware of the policy & procedure, if you come across a suspected covid -19 infection in your dental practice	12	11.7%	84	81.6%	7	6.8%
18. Can you afford the extra cost of the changes in your dental practice	35	34.0%	44	42.7%	24	23.3%

	No		Yes	
	No. of participants	Percentage	No. of participants	Percentage
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	11	10.7%	92	89.3%
2. Do you have an anxiety to provide treatment to a patient with fever & cough and other symptoms of Covid-19	18	17.5%	85	82.5%
3. Are you nervous while talking to patients in close vicinity	19	18.4%	84	81.6%
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	19	18.4%	84	81.6%
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	67	65.0%	36	35.0%
6. Do you want to close your dental practice until Covid -19 vaccination is given	67	65.0%	36	35.0%
7. Are you afraid of being quarantined on testing positive to Covid-19	17	16.5%	86	83.5%
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	19	18.4%	84	81.6%
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	16	15.5%	87	84.5%
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	6	5.8%	97	94.2%
11. Would you be worried financially about your family if you succumb to Covid -19	11	10.7%	92	89.3%

	Age								Chi-square value	p-value
	20-30 years (n=64)		31-40 years (n=24)		41-50 years (n=13)		51- 60 years (n=2)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	7	9.1%	0	3.3%	3	00.0%		00.0%	2.700	0.440
2. Do you have an anxiety to provide treatment to a patient with fever & cough and other symptoms of Covid-19	0	8.1%	0	3.3%	3	00.0%		00.0%	4.046	0.257
3. Are you nervous while talking to patients in close vicinity	6	1.9%	3	4.2%		9.2%		0.0%	2.766	0.429
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	4	4.4%	8	5.0%	0	6.9%		00.0%	1.662	0.646
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	3	5.9%		9.2%		0.8%		00.0%	4.203	0.240
6. Do you want to close your dental practice until Covid -19 vaccination is given	4	7.5%		9.2%		0.8%		0.0%	0.835	0.841
7. Are you afraid of being quarantined on testing positive to Covid-19	3	2.8%	9	9.2%	2	2.3%		00.0%	1.476	0.688
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	1	9.7%	9	9.2%	2	2.3%		00.0%	1.691	0.639
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19	2	1.3%	1	7.5%	2	2.3%		00.0%	1.65	0.648

infection										
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	0	3.8%	3	5.8%	2	2.3%		00.0%	0.348	0.951
11. Would you be worried financially about your family if you succumb to Covid -19	6	7.5%	2	1.7%	2	2.3%		00.0%	0.722	0.868

	1. Gender				Chi-square value	p-value
	Female (n=68)		Male (n=35)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	60	88.2%	32	91.4%	0.247	0.619
2. Do you have an anxiety to provide treatment to a patient with fever &cough and other symptoms of Covid-19	56	82.4%	29	82.9%	0.004	0.949
3. Are you nervous while talking to patients in close vicinity	49	72.1%	20	57.1%	2.325	0.127
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	56	82.4%	28	80.0%	0.085	0.771
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	23	33.8%	13	37.1%	0.112	0.738
6. Do you want to close your dental practice until Covid -19 vaccination is given	25	36.8%	11	31.4%	0.289	0.591
7. Are you afraid of being quarantined on testing positive to Covid-19	56	82.4%	30	85.7%	0.189	0.663
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	53	77.9%	31	88.6%	1.736	0.28
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	54	79.4%	33	94.3%	3.896	0.048
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	62	91.2%	35	100.0%	3.279	0.070
11. Would you be worried financially about your family if you succumb to Covid -19	60	88.2%	32	91.4%	0.247	0.619

	2. Marital status				Chi-square value	p-value
	Married (n=38)		Unmarried (n=65)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	33	86.8%	59	90.8%	0.388	0.534
2. Do you have an anxiety to provide treatment to a patient with fever &cough and other symptoms of Covid-19	34	89.5%	51	78.5%	2.016	0.156
3. Are you nervous while talking to patients in close vicinity	23	60.5%	46	70.8%	1.138	0.286
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	32	84.2%	52	80.0%	0.283	0.595
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	13	34.2%	23	35.4%	0.015	0.904
6. Do you want to close your dental practice until Covid -19 vaccination is given	11	28.9%	25	38.5%	0.955	0.329
7. Are you afraid of being quarantined on testing positive to Covid-19	34	89.5%	52	80.0%	1.562	0.211
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	34	89.5%	50	76.9%	2.511	0.113
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	36	94.7%	51	78.5%	4.841	0.028
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	38	100.0%	59	90.8%	3.725	0.054
11. Would you be worried financially about your family if you succumb to Covid -19	35	92.1%	57	87.7%	0.49	0.484

	2. Marital status				Chi-square value	p-value
	Married (n=38)		Unmarried (n=65)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	33	86.8%	59	90.8%	0.388	0.534
2. Do you have an anxiety to provide treatment to a	34	89.5%	51	78.5%	2.016	0.156

patient with fever & cough and other symptoms of Covid-19						
3. Are you nervous while talking to patients in close vicinity	23	60.5%	46	70.8%	1.138	0.286
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	32	84.2%	52	80.0%	0.283	0.595
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	13	34.2%	23	35.4%	0.015	0.904
6. Do you want to close your dental practice until Covid -19 vaccination is given	11	28.9%	25	38.5%	0.955	0.329
7. Are you afraid of being quarantined on testing positive to Covid-19	34	89.5%	52	80.0%	1.562	0.211
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	34	89.5%	50	76.9%	2.511	0.113
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	36	94.7%	51	78.5%	4.841	0.028
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	38	100.0 %	59	90.8%	3.725	0.054
11. Would you be worried financially about your family if you succumb to Covid -19	35	92.1%	57	87.7%	0.49	0.484

	4. Designation				Chi-square value	p-value
	General Dental practitioner (n=60)		Specialist Dental practitioner (n=43)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	52	86.7%	40	93.0%	1.061	0.303
2. Do you have an anxiety to provide treatment to a patient with fever & cough and other symptoms of Covid-19	44	73.3%	41	95.3%	8.418	0.004
3. Are you nervous while talking to patients in close vicinity	40	66.7%	29	67.4%	0.007	0.934
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	50	83.3%	34	79.1%	0.303	0.582
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	21	35.0%	15	34.9%	0.000	0.990
6. Do you want to close your dental practice until Covid -19 vaccination is given	22	36.7%	14	32.6%	0.186	0.666
7. Are you afraid of being quarantined on testing positive to Covid-19	51	85.0%	35	81.4%	0.236	0.627
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	49	81.7%	35	81.4%	0.001	0.972
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	50	83.3%	37	86.0%	0.141	0.708
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	57	95.0%	40	93.0%	0.178	0.673
11. Would you be worried financially about your family if you succumb to Covid -19	55	91.7%	37	86.0%	0.829	0.362

	6. Place of Work						Chi-square value	p-value
	Clinic (n=20)		Hospital - government (n=17)		Hospital - private (n=66)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	15	75.0%	13	76.5%	64	97.0%	11.291	0.004
2. Do you have an anxiety to provide treatment to a patient with fever & cough and other symptoms of Covid-19	17	85.0%	13	76.5%	55	83.3%	0.547	0.761
3. Are you nervous while talking to patients in close vicinity	11	55.0%	10	58.8%	48	72.7%	2.795	0.247
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	14	70.0%	14	82.4%	56	84.8%	2.258	0.323
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	4	20.0%	1	5.9%	31	47.0%	12.478	0.002
6. Do you want to close your dental practice until Covid -19 vaccination is given	4	20.0%	3	17.6%	29	43.9%	6.551	0.038
7. Are you afraid of being quarantined on testing positive to Covid-19	20	100.0%	13	76.5%	53	80.3%	5.05	0.080

8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	19	95.0%	13	76.5%	52	78.8%	3.031	0.220
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	19	95.0%	12	70.6%	56	84.8%	4.194	0.123
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	20	100.0%	15	88.2%	62	93.9%	2.337	0.311
11. Would you be worried financially about your family if you succumb to Covid -19	20	100.0%	15	88.2%	57	86.4%	3.017	0.221

	7. Years in dental practice								Chi-square value	p-value
	< 5 years (n=65)		6-10 years (n=16)		11-15 years (n=14)		>15 years (n=8)			
1. Is there a fear of contacting Covid -19 infection from a patient or coworker in your dental practice	7	7.7%	5	3.8%	2	5.7%		00.0%	1.657	0.647
2. Do you have an anxiety to provide treatment to a patient with fever &cough and other symptoms of Covid-19	0	6.9%	5	3.8%	2	5.7%		00.0%	4.605	0.203
3. Are you nervous while talking to patients in close vicinity	3	6.2%	1	8.8%	0	1.4%		2.5%	0.241	0.971
4. Are you fearful of passing on the infection to others from acquired infection in Dental practice	6	6.2%	2	5.0%	0	1.4%		5.0%	2.554	0.466
5. Do you want to close your Dental practice until the number of Covid-19 cases start declining	1	2.3%		7.5%		5.7%		0.0%	1.046	0.790
6. Do you want to close your dental practice until Covid -19 vaccination is given	4	6.9%		1.3%		5.7%		5.0%	0.560	0.906
7. Are you afraid of being quarantined on testing positive to Covid-19	5	4.6%	2	5.0%	2	5.7%		7.5%	1.040	0.792
8. Are you anxious that you cannot afford the cost of repeated Covid -19 tests	3	1.5%	2	5.0%	2	5.7%		7.5%	0.806	0.848
9. Are you worried about the cost of treatment if you are hospitalized with Covid -19 infection	4	3.1%	4	7.5%	2	5.7%		7.5%	3.819	0.282
10. Are you afraid after hearing about Covid -19 deaths especially of health workers	1	3.8%	4	7.5%	5	07.1%		7.5%	1.534	0.675
11. Would you be worried financially about your family if you succumb to Covid -19	0	2.3%	2	5.0%	3	2.9%		7.5%	1.919	0.589

		Fear and anxiety group				total	Chi-square value	p-value
		< 7 (n=31)		≥ 7 (n=72)				
3. Age	20-30 years	21	67.7%	43	59.7%	64	2.542	0.468
	31-40 years	8	25.8%	16	22.2%	24		
	41-50 years	2	6.5%	11	15.3%	13		
	51- 60 years	0	0.0%	2	2.8%	2		
1. Gender	Female	21	67.7%	47	65.3%	68	0.059	0.809
	Male	10	32.3%	25	34.7%	35		
2. Marital status	Married	8	25.8%	30	41.7%	38	2.341	0.126
	Unmarried	23	74.2%	42	58.3%	65		
4. Designation	General Dental practitioner	19	61.3%	41	56.9%	60	0.168	0.682
	Specialist Dental practitioner	12	38.7%	31	43.1%	43		
6. Place of Work	Clinic	7	22.6%	13	18.1%	20	2.860	0.867
	Hospital government	5	16.1%	12	16.7%	17		
	Hospital -	19	61.3%	47	65.3%	66		

7. Years in dental practice	private						1.030	0.794
	< 5 years	20	64.5%	45	62.5%	65		
	6-10 years	6	19.4%	10	13.9%	16		
	11-15 years	3	9.7%	11	15.3%	14		
Total	>15 years	2	6.5%	6	8.3%	8		

	p-value	Odd ratio	95% C.I.for odd ratio		Low	High	n	percentage
			Lower	Upper				
Gender-Female	0.855	0.898	0.281	2.869	Low	High	31	30.1%
Marital status-married	0.064	4.799	0.910	25.300				
Age-Reference(51-60y)	0.975							
20-30 y	0.999	0.000	0.000	.				
31-40 y	0.999	0.000	0.000	.				
41-50 y	0.999	0.000	0.000	.				
Designation-General	0.892	1.093	0.301	3.977				
Place of Work-Clinic	0.343	0.519	0.134	2.013				
Years in dental practice-Reference (> 15years)	0.615							
< 5 years	0.999	0.000	0.000	.				
6-10 years	0.999	0.000	0.000	.				
11-15 years	0.999	0.000	0.000	.				
Affordability of Dental practice-Reference (don't Know)	0.241							
No	0.092	8.324	0.709	97.727				
Yes	0.433	1.696	0.452	6.357				

DISCUSSION

The pandemic has resulted in acute shortages of essential supplies, breakdown of Health Care systems, deep economic recession and lawlessness.

The outbreak of COVID-19 has been associated with a multitude of health issues, out of which psychological problems of stress anxiety and depression have been dominant. Similar studies internationally have reported that dentist are working under an increased pressure with heightened fear, distress, despair and an uncertain future. The perception of personal danger with the close proximity of their work and awareness of human to human infectivity with aerosols have made them fearful. The exposure in long clinical work and high fatality of the mutants of COVID-19 attributes to the apprehension. In the present study the psychological impact of COVID-19 pandemic was assessed using the validated and reliable DASS 21 scoring system. DASS 21 is a less time consuming, consistent and standard scale measuring the three emotional states of stress, anxiety and depression with maximum discrimination between the three components. DASS-21 is a 21-question scale, comprising of 7 questions that are summed for each subscale of depression, anxiety and stress. Each item is scored from 0 (not at all) to 3 (high level). The DASS 21 ranges from a minimum score of zero to a maximum score of 42.²⁷

In the present study , the prevalence of stress , anxiety and depression were found to be high at 38.40 % , 44.10 % and 34.60 % respectively. Pearsons correlation between stress, anxiety and depression was more than 0.5 with a significant P value of 0.00. The association between variables of gender, marital status, economic difficulty in COVID-19 testing, social stigma, dental groups and household was done

and were found statistically significant, if a P value < 0.05.

This study had more females, keeping with the recent trend of their dentistry preference as a career choice. Unmarried showed more stress levels than married and a significant anxiety and depression. COVID-19 was perceived as a social stigma by majority as discrimination at work and in community was felt overwhelmingly. The group with higher number of family members (4-6) was more worried and females more expressive about their emotions. Single were more stressed as marriage acted as a buffer to negative emotions. The younger age group were worried about the highly competitive and rigorous course training while the older age group showed a marked worry of the financial and disease effects of COVID-19.

Economic losses, unemployment and financial worries of an uncertain future with inadequate welfare support further fuelled the heightened emotional state.

Similar result trends of high stress, anxiety and depression were reported from studies in dental colleges conducted in Saudi Arabia,^{28 29} Malaysia,³⁰ Denmark,³¹ India,³² Pakistan,³³ and Jordan.³⁴

Alzahem et al.³⁵ and Madhan et al.³⁶ reported a higher DAS score in females while Sravani et al.³² no difference . Madhan et al. found unmarried with a higher DAS score , while Sravani et al. found married to be more affected.

The elevated levels of mental health issues among students cited in these studies were mainly attributed to the pressure of highly competitive dental education and workload.^{29 36} Medical and Dental institutions have been under tremendous pressure to provide emergency care^{37 38} as well as educational training to its students.^{39 40 41 42 43} Although learning aspect has shifted to an online distance mode,⁴⁴ essential

practical applications of knowledge have had to suffer or improvised.^{45 46 47 48 49} This has adversely impacted the students and teachers performances and emotional well being.^{50 51 52} Distance learning by online lectures, video conferences, webinars, online exams has been gaining popularity lately.^{48 53 54 55 56} Medical and Dental education in its non clinical especially anatomy, pathology teaching⁵⁷ have started using new technology to improvise their teaching for better conceptualisation of complex scientific knowledge.⁵⁸
^{59 60 61} E-Learning is a learners platform accessible at all times.^{62 63 64 65} Health universities should implement strategic programmes aimed at minimising the psychological disorders among students and teachers.^{53 66 67 68 69 70 71 72 73} This would reflect positively in their well being,⁷⁴ patient care^{75 76 77} and academic performance.^{64 78 79 80 81 82 83 84 85}

A teaching module with a more multimedia utilisation and self assessment scenario assignments was endorsed. A single exam for each subject and equitable distribution of subjects over the years especially between third and fourth year , multiple short questions and proper gaps between exams were some of the changes advocated to reduce the stress of study burden.

The clinical content of the training dealing with live patient interaction, assessment, treatment and management were highly stressful and could not be replaced. The academic year comprising of theory and clinical work have suffered during the pandemic and the uncertainty has made the situation worse as students are also worried about the clinical component of their training and examinations.

Although students found online teaching useful , it limited their social interaction , discussions , motivation levels and practical training.

The improvised effective blended learning methods of traditional and distance e-learning, provided were promising in fulfilling the demands of the profession. Lack of affordability of the COVID-19 disease was felt acutely by the older age groups as they contributed to running of the household and were worried for their elderly and children's future. The high levels of stress might be because of the collection of data during successive, more lethal waves of COVID-19 in lockdown and curfew conditions. Vaccination is believed to bring relief and somewhat normalise life.

CONCLUSION

Dentistry is a highly competitive study involving pre - clinical courses with practical work , clinical studies with hands on patient care and examination. Dentist are facing psychological problems of anxiety , despair and depression leading to demotivation affecting their course work and patient care. Awareness of the extremely contagious nature of COVID-19 with rapid human to human transmission has made the situation worse as dental work is in close proximity and involves aerosols. COVID-19's mutated lethal

variants and deaths of colleagues despite vaccination and available treatments have demoralised them. The associated financial burden of studies and household have heightened their stress. Psychological counselling , coping and de-stressing techniques should be instituted at work and better designed dental courses and examination and timely government support policies will aid in providing a healthy outlook.

Psychosocial environment majorly effects all aspects of life and a good balance gives us the stability to overcome any obstacles.

There is a high level of psychological issues of stress , anxiety and depression along with social stigma attached to COVID-19 pandemic. Effective intervention measures at the inception with various support measures and policies should be instituted to combat it. The modalities of traditional and e-learning must be combined effectively to continue professional learning and providing clinical care for all. Scholastic achievements are impacted by negative mental health often leading to substance abuse.

Timely intervention would reduce the negative impact of the disease and benefit both the individual and the community in building a strong nation.

Vaccination program is eagerly looked forward to as a game changer while the high risk of exposure due to their profession is a cause for concern in providing safe essential care. Although the recent vaccination drive and medical treatment has bought a sense of respite but it has not totally allayed the fear of prevailing fatality and helplessness. Corona anxiety and phobia of the infodemic has given way to corona fatigue.

LIMITATIONS AND FUTURE SCOPE

The study cannot be generalised as it deals with a small cohort.

It may show a self - reporting bias.

The timing of the study in relation to COVID-19 and its treatment might be limiting.

Future scope

The study can be conducted in other places and cohorts to evaluate if the results show a similar trend. The study can be used to study the psychological well being of high risk population in the face of a pandemic. Beneficial social and government policies can be formulated to help plan for both short and long term support. e.g. educational scholarships, jobs, treatment and tests support, economic packages and welfare schemes. Innovative changes in the complexities of imparting knowledge and training could be improvised in the future and a better mix of traditional and E-learning could be used for better comprehension of the subject. The fear of the unknown and a sense of impending doom seem to engulf everyone compounded by the economic recession faced by all.^{86 87} The unprecedented industrial breakdown has compounded the effects of

poverty, hunger, malnourishment, lawlessness leading to war especially in poor economies.^{88 89 90 91 92 93 94 95}

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