Impact of Covid 19 Pandemic on Dentists: Psychological Evaluation using DASS 21

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Abstract

Background: The outbreak of coronavirus disease 2019 (COVID-19) in the area of Wuhan, China, has evolved rapidly into a public health crisis. Despite having high standards of knowledge and practices, dental practitioners around the globe are in a state of anxiety or fear. Being on the list of high-risk professions, dentists are very much expected to develop stress due to the current pandemic situation indicating a need to evaluate the effect of COVID 19 on the psychological status of Indian dentists.

Methodology: The data was collected through well-structured Google form from 500 dentists working in Delhi NCR. The entire form had two components. The first part of the form collected the information regarding the demographic profile of the dentists whereas the second part of questionnaire consisted of psychological evaluation using well established psychological scale DASS 21.

Result: The results showed that 8% of Indian dentist showed signs of severe depression and 17% had moderate signs. 9% showed moderate and 13% showed mild anxiety. 8% showed severe stress and 24% had moderate signs of stress. Significant correlation was found between depression and anxiety with stress.

Conclusion: Dentists are undergoing stress which in turn can have adverse effects on their physical and mental well-being in a long run. There is a need to evolve with the current COVID 19 pandemic and brainstorming the ways to encourage the safer practice and decrease the levels of depression, anxiety and stress among dentist.

***Keywords**: COVID19, Stress, Indian dentists, DASS 21.*

Introduction

The coronavirus disease 2019 (COVID-19) whose onset is reported from Wuhan province of China, has spread rampantly to almost every part of the world and has evolved very swiftly into a public health catastrophe.[1] The genome sequence for this virus has a close similitude with other Beta-coronaviruses such as SARS-CoV and MERS-CoV. The Coronavirus Study Group of the International Committee on Taxonomy of Viruses has scientifically named it SARS-CoV-2, though commonly it is referred to as the COVID-19 virus.[2]

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 2012[3,4] There is strong affirmation about the zoonotic nature of this novel coronavirus being similar to coronavirus species seen in bats and also pangolins. On January 30, 2020, the World Health Organization

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(WHO) declared the widespread spread of COVID-19 a global pandemic.[5] 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 number continues to increase at a rapid rate.

Till date there is no specific antiviral drug against this virus and though large scale efforts are on to develop a vaccine against it, still that seems to be at least eight to ten months away. Currently the approach against this rapidly spreading virus is to minimize cross infection and prevent community spread. The approach is to wear masks, maintain social distancing, and practice hand hygiene. It is equally important to do rapid testing to diagnose those infected and isolate them to minimize spread and flatten the epidemic curve. The treatment has mainly been supportive though use of hydrochloroquinone and remdesivir drugs has also been suggested but with limited success.

Dental clinic due to their work environment are particularly at a higher risk of infection as they involve face to face communication and direct contact to oral mucosa.[6] Also the procedures involve the use of three way syringes, ultrasonic scalers and air motor all well capable of generating aerosols, a spray of water and air particles that contains saliva, blood and microorganisms. This spatter can easily transit on to the patient , dentist , assistant and also the operatory surface and the floor causing spread of infection.[7] This is particularly more dangerous in patients that are either asymptomatic or in incubation period, as they can inadvertently be potential COVID 19 spreaders.

Considering the rapid spread of pandemic and it closeness to the oral route of transmission the dental clinics were mostly closed during the national lockdown. This long duration of not working and staying at home had an overall effect on the daily routine of every individual and dentists also were no different. The working was required only for emergency procedures and with extensive guidelines issued by the World Health Organization, Dental Council of India and the Indian Dental Association. These guidelines also suggested the need of procuring few new equipment and certain pre and post procedures for treating any patient.

Dentists being amongst the professions with higher risks of getting infected are obviously under tremendous stress due to this current pandemic.[8] Through dental clinics globally maintain a strict infection control and sterilization protocols still there is bound to be fear and anxiety amongst them while working on a patient during this COVID-19 pandemic.[9] There is a tremendous pressure from the patient's perspectives and dentist stands in an indecisive state of mind regarding their current means of practice.[10] This makes them prone to stress which in turn is known to be linked to the development of other disorders and can potentially affect a person's ability at work and even in life.

COVID-19 (Corona Virus Disease 2019) has resulted in a significant number of psychological effects.[11] In a study done in China during the initial phase of the epidemic more than fifty percent of the subjects reported a moderate-to-severe psychological impact and one-third had moderate-to-severe anxiety.[12] Hence there is a current need to evaluate the effect of COVID 19 on the psychological status of Indian dentists. The aim of this study is to identify components associated with a low level psychological impact of COVID-19 on their mental health and to assist policy makers in formulating specific policies.

Methodology

The data has been collected through well-structured Google form and was sent to 500 dentists working in Delhi NCR. The form was mailed to them as it was the safest method during this pandemic. The consent was obtained from the recipients of the form for conducting this survey. The entire form has two components. The first part of the form collected the information regarding the demographic profile of the dentists like age, gender and place where they practiced. The type of practice and number of emergency procedures handled by them were also noted. A view was also taken on their awareness of WHO guidelines and the newer equipment which they seem necessary for any form of dental practice in near future. Their concern with COVID 19, government support and expectation to return to a regular practice were also noted.

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 shorter variant having 21-items. Several studies have been done to check how reliable and valid it is; all have shown that the DASS-21 is a very reliable instrument to measure manifestation of depression, anxiety and stress in a group of adults both clinically and non-clinically. 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 to calculate the prevalence of depression, anxiety and stress. DASS-21 being 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.

Results

The Google form was sent to around 500 dentists out of whom a response was received from 480 dentists. Out of them 280 were males and 180 were females. 20 of the respondents did not want to disclose their gender. The average age of the responding dentist was 41 years. A majority of the dentists, around 66.7% were in nuclear family while rest had a joint family. The majority of the dentist contacted (62.5%) were having a general practice, performing relatively all dental procedures and 37.5% were doing only a specialized practice. A majority of the dentist i.e. 440 of them did believe that the COVID 19 has affected their daily routine.

Regarding the number of emergency calls from patient per day 75% received less than 5 calls per day. The total number of emergency patients handled by them during the lockdown period, 79.2% had attended less than 10 patients. Among the type of cases reported for emergency treatment the highest percentage was for endodontic problems (83.3%) followed by swelling or trauma at 50 %. (Fig.1)

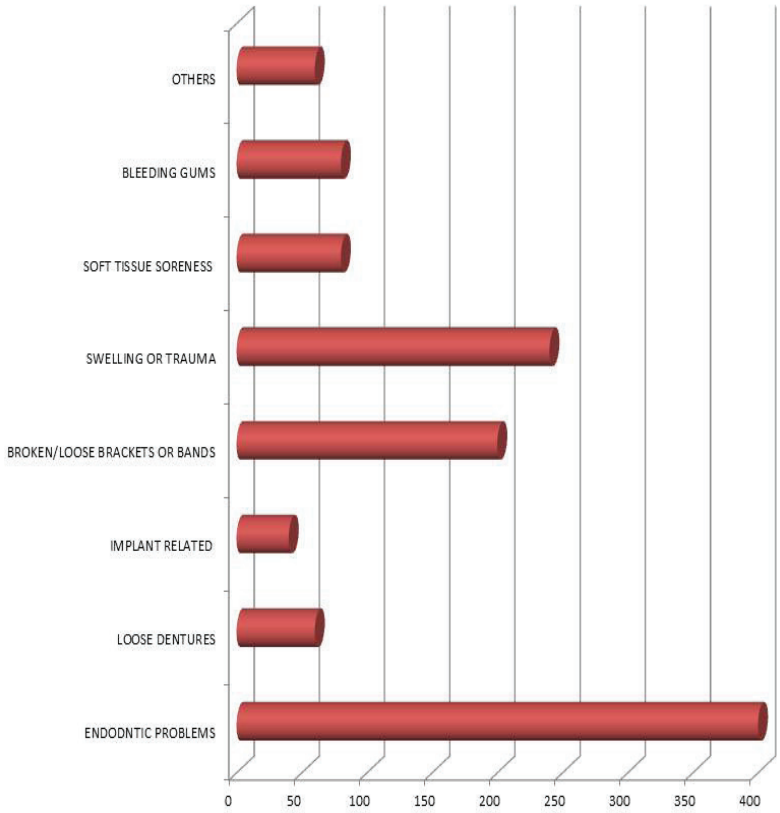

Figure 1: Dental problems leading to emergency calls to the dentist

Majority of the dentist around 87.5% was aware of the WHO guidelines for safety of healthcare workers and 58.3% have even attended an online course or a workshop during the pandemic period. The respondents did feel the need of PPE for themselves (91.7%) as well as for their assistant (87.5%). Regarding modification in the overall practice the respondents felt highest need for face shield and disinfectant machine, both at 75% (Fig. 2).

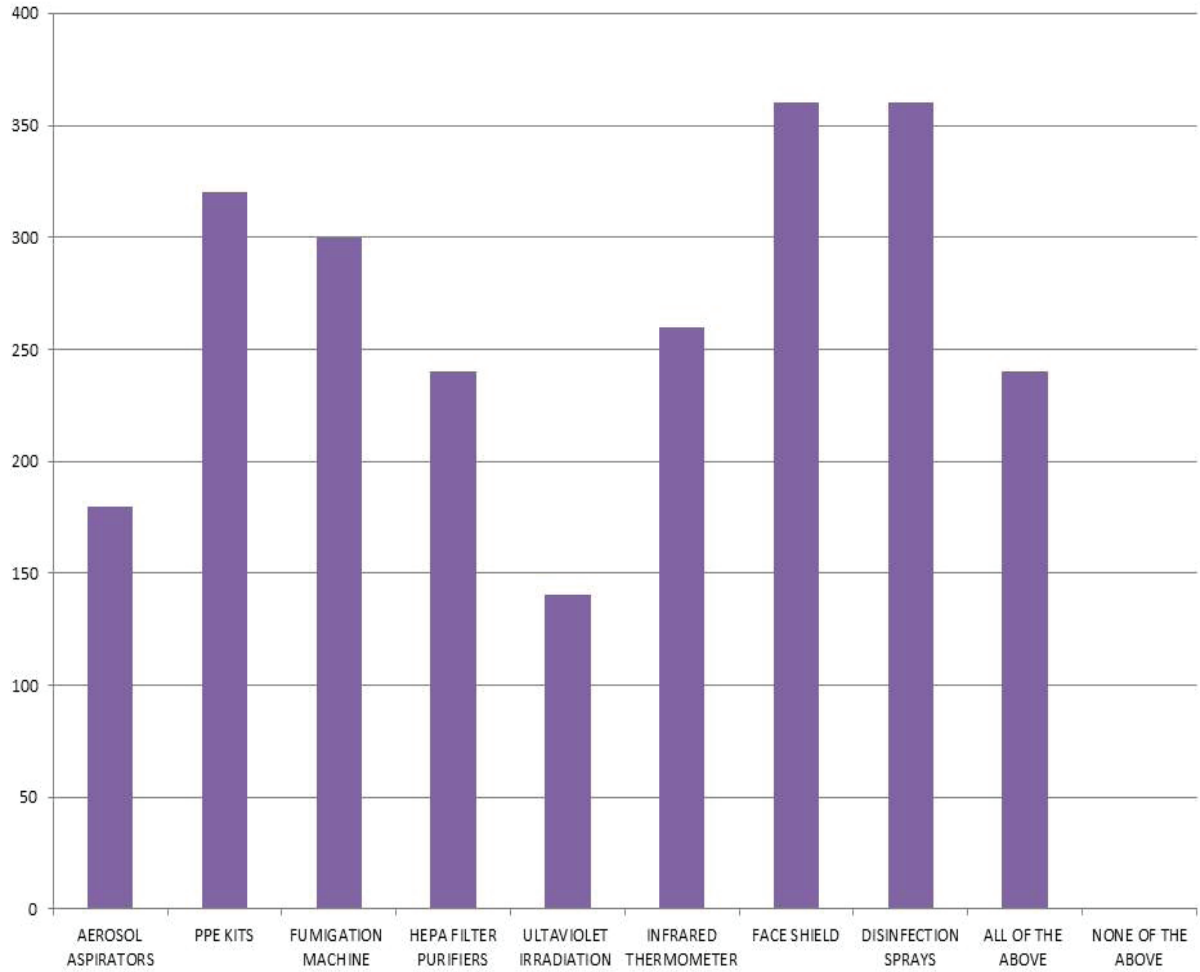

Figure 2: Equipment deemed necessary for dental practice with Covid 19

Only 54.2% of the respondents believed that they will be able to transfer the extra equipment's cost to the patient. Most dentists (87.5%) believed that with the decline in income of the people and fall of Global economy there is bound to see an overall fall in the generation of dental revenue.The DASS 21 scale ranks 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, 8% reported symptoms of severe levels of depression, 9% indicated moderate level of anxiety, and 8% had severe stress (Fig. 3).

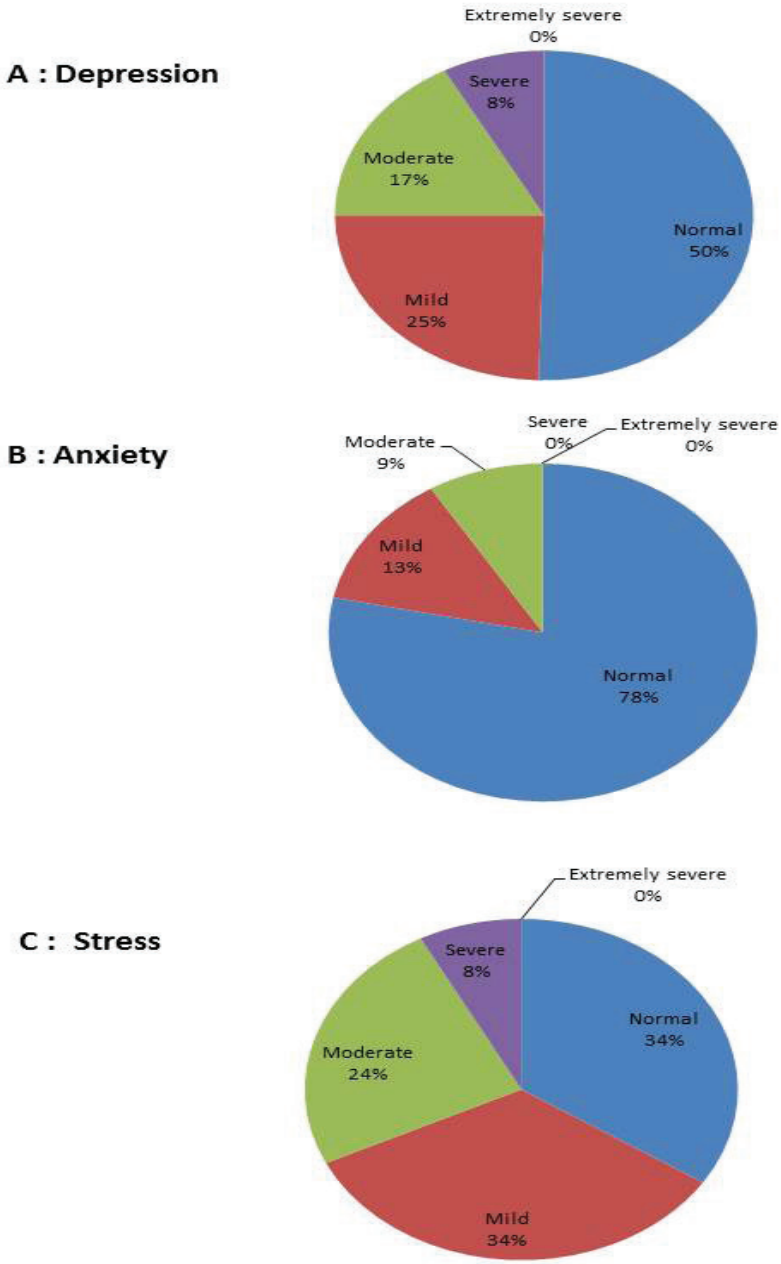

Figure 3 : The proportion of participants whose answers on the DASS 21 indicated a normal, mild, moderate, severe or extremely severe amount of Depression (A), Anxiety (B), and Stress (C)

On statistical analysis significant correlation was found between stress and depression (Table 1) as well as stress and anxiety (Table 2) in the dentist during the COVID 19 .

Table 1 : Correlation between Stress and Depression in Dentists during Covid 19

			Stress	Depression
Spearman's rho	Stress	Correlation Coefficient	1.000	.883**
		Sig. (2-tailed)	.	.000
		N	480	480
	Depression	Correlation Coefficient	.883**	1.000
		Sig. (2-tailed)	.000	.
		N	480	480
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 2: Correlation between Stress and Anxiety in Dentists during Covid 19

			Stress	Anxiety
Spearman's rho	Stress	Correlation Coefficient	1.000	.883**
		Sig. (2-tailed)	.	.000
		N	480	480
	Anxiety	Correlation Coefficient	.883**	1.000
		Sig. (2-tailed)	.000	.
		N	480	480
**. Correlation is significant at the 0.01 level (2-tailed).				

Discussion

The dentist is subjected to a numerous type of physical and mental ailments that are either induced or increased by their work environment. Dentists always knew the dentistry is not an easy job. There is a tremendous physical and mental stress amongst them. When talking about physical disorders we have to take into account musculoskeletal problems, backache and neck and shoulder stiffness all very commonly seen in dentists. The prevalence of musculoskeletal complaints among dentists is high and well documented.[13, 14] 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.[15]

The present survey reported depression, anxiety and stress among dental professionals while working during this global pandemic. To ascertain this, a questionnaire of closed-ended questions was used to evaluate dentists for any changes in their practice or any fear amongst them due to COVID-19 outbreak. Psychological ramification such as fear and anxiety are quiet common in pandemics, especially when both the number of infected persons and overall mortality rates is so high. Researches on previous epidemics 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.[16, 17]

The virus has an incubation period extending up to 14 days making it extremely difficult to locate the causative infection source and also due to absence of a vaccine or any confirmed treatment; there is every reason to be anxious from even the thought of getting infected. The droplets and aerosols are established leading routes of spread of this virus which by nature increases the chances of oral healthcare workers of getting infected and spread it to other persons they may come in contact.[18] The current guidelines on the COVID-19 outbreak recommends delaying all non-emergency dental treatment, and only patients with acute pain, swelling or trauma are advised to visit a dentist.[19] In the present study also there was clear evidence that most people understood the delay in their routine treatment, with more than 300 dentists observing that over 80 % of their patient were cooperative for delay in treatment. Around 75% of the dentists received less than 5 emergency calls per day while 20.8% received 5 to 10 calls per day suggesting that overall the volume of emergency dental need was less. In the current study the maximum emergency calls were related to endodontic problems 83.3%, followed by swelling or trauma at 50 % and loose band and brackets at 41.7%. Bleeding gums, swelling and issues related to implants were also reported for emergency but not in high numbers. This finding can help the governing body to concentrate on guidelines regarding these procedures only, making it more specific for the dentists.

Most of the dentists in the present study were aware of the mode of transmission of the COVID-19 which is very crucial for controlling spread of infection from the dental practice. It is essential during this pandemic phase to follow the guidelines and measures to reduce effectively the volume of aerosol generated from the clinics. Similarly, it was quite promising to see that 87.5% of dentists were aware of the WHO guidelines for cross-infection control like recording patients' travel history and body temperature. If dental healthcare workers comprehensively follow the recommendations suggested by these regulatory authorities then there is a minimum chance of them getting infected. These include the universal cross-infection control protocols along with some additional measures like face shield and disinfectant spray getting the highest number of response, followed by PPE kits, fumigation machines, infrared thermometer, UV irradiation etc. Over 240 respondents suggested the need for all of the above equipment for a safer dental practice.

This research provided an assessment of the level of psychological affliction experienced by Indian dentists during the COVID-19 pandemic outbreak. The findings validated our hypothesis implying that dental professionals would show an increased chance of developing psychological distress. Similar observation was also recorded among professional involved with healthcare in the 2003 outbreak of SARS in Canada[20]and current studies on Covid 19 pandemic in Israel[21] and China.[22] In the present study on Indian dentist 8% of them showed signs of severe depression, 17% moderate and 25% had mild signs. Though extremely severe and severe level of anxiety was not seen in dentists but 9% showed moderate and 13% showed mild anxiety. Stress level was expectedly high 8% showing severe stress, 24% moderate and 34% having mild signs of stress. Significant correlation was found between depression and anxiety with stress , p value greater than .001 for both suggesting that psychological effects of COVID 19 lead to depression or anxiety among the dentist eventually contributing to stress among them.

Conclusion

The current pandemic has resulted in a state of uncertainty and fear among all and the dentist also have been influenced by the situation. It has not only effected the growth and demand of the profession but has also arisen various issues related to the practice and safety of the dentist at work. Dentists are undergoing 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 encourage the safe modes of practice and eventually finding ways to decrease the levels of depression, anxiety and stress among dentist.

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