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ORIGINAL ARTICLE

Anxiety and Obsession among the Dentists after Covid-19 Vaccination - A Cross-Sectional Study

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ABSTRACT

Aim: To assess dentists' COVID-19 anxiety and obsession following vaccination and their impressions of the COVID-19 vaccine.
Methods: It was a cross-sectional study performed in July 2021. Two previously validated, standardized, self-reported scales were used: the COVID-19 anxiety scale (CAS) and the Obsession with COVID-19 scale (OCS).COVID-19 scales. The survey form was circulated through the convenience snowball technique. Data were analyzed with the help of SPSS-21. Independent sample T-Test and ANOVA were executed.
Results: Data of 124 dentists were analyzed. Mean anxiety and obsession score was recorded as 5.29±4.238 and 1.87±3.34, respectively. 83.06% (n=103) of the dentists agree that the vaccine's anxiety has been reduced. Female dentists showed significantly higher anxiety (t= -2.606, P=0.011) and obsession scores (t=-3.309, P=0.02). Dysfunctional anxiety was found in 21.77% of the dentists, and obsession was observed in 9.67%.
Conclusion: The majority of dentists stated that COVID-19 vaccination had lessened their anxiety related to COVID-19, and Coronavirus vaccination has greatly reduced dysfunctional anxiety and obsession
Keywords: Anxiety, Obsession, Dentists, COVID-19, Vaccination

INTRODUCTION

The World Health Organization (WHO) proclaimed Coronavirus disease 2019 (COVID-19) a pandemic in March 2020. A significant amount of pressure has been placed on governments, healthcare organizations, and health providers due to a large number of COVID-19 positive cases and the highly contagious nature of the disease. Studies have found that COVID-19 is associated with poorer mental health outcomes, maybe because the infection is seen to be severe and chronic, and prolonged stress may result in psychosomatic abnormalities (psychosomatic illness)[1].

One of the sectors that have been particularly hard hit is the healthcare industry. In order to keep up with the daily growth in new COVID-19 cases, additional health care workers (HCWs) are needed. Their role is critical in combating the disease and minimizing morbidity and death associated with the condition. HCWs, on the other hand, are at a higher risk of contracting SARS-CoV-2 than the general population, owing to their line of work, and COVID-19 has been recognized as an occupational disease in many countries[2].

Healthcare workers, such as medical physicians, dentists, nurses, and pharmacists, are the most vulnerable because of their close engagement and exposure with patients and their families. Multiple studies have revealed high levels of anxiety and panic among healthcare professionals in various settings[3,4]. A general public survey was conducted in the initial phase of covid 19 in China, in which one–third of the participants had moderate to severe anxiety. Among health care professionals in China, a high incidence of stress and anxiety was reported. These health care professionals were under intense psychological pressure and faced enormous psychiatric morbidity,[5] just like the situation encountered during SARS and H1N1 epidemics SARC and MERS outbreaks revealed psychological disorders among healthcare workers, which reduced their functional capacities[6].

Due to the aerosol-generating procedure essential in dentistry, the spread of the coronavirus is significantly higher[7]. Among the dental fraternity, anxiety, depression, stress, and fear because of the ongoing pandemic is prevalant[4,8]. Aerosol-generating procedures required for dental treatment, surgery's closed environments, and nature of the dental procedures that require close contact with the patient's oral cavity, saliva, blood is considered as the prime factors of the anxiety and fear[9-12].

Similarly, Occupational Safety and Health Administration (OSHA) placed Dentists in the high-risk category[13]. Moreover, financial damages and insecurities due to the closure of dental clinics or reduced number of patients are the factors[14,15]. since various authorities such as the Center for Disease Control and Prevention (CDC) and many dental associations banned aerosol-generating and elective dental procedures to prevent contagion and spread of the virus.[13] Furthermore, dental schools and universities, even dental teaching hospitals, were also closed in many countrie[16]. Fear and anxiety have crossed another level in dentists and other staff associated with the dental clinic[17].

In order to prevent themselves during dental treatments, they have quickly adapted to the conditions of the COVID-19 pandemic, like using personal protective equipment(PPE), high suction, and mouth wash containing hydrogen peroxide, etc. Moreover, the government has provided the COVID-19 vaccination to all healthcare professionals at the start of 2021, making it mandatory for them[18].

Few studies have been conducted to analyze the effect of COVID-19 vaccination on anxiety reduction. However, limited data is available to check the healthcare professionals' anxiety after the COVID-19 vaccination.

Hence, this study evaluated the COVID-19 anxiety and obsession among the dentists after vaccination and their perception of the vaccine.

METHODOLOGY

Study Design and Population: This cross-sectional study was conducted in Pakistan in July 2021. In the current study, dentists with at least a minimum bachelor qualification in dental surgery (BDS) with at least 1-year of experience and who were fully vaccinated were recruited. Participants were approached by the investigators through their personnel contacts as per the convenience snowball technique and also recruited through different social media platforms.

Questionnaire: In the current study, we had questions regarding gender, experience, age group, professional level, marital status, professional status. A close-ended question "Do you think that

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COVID-19 vaccination has reduced your coronavirus anxiety" with options of Yes, No and Don't Know". Two previously validated, standardized, self-reported scales were used: the COVID-19 anxiety scale (CAS) 16 and the Obsession with COVID-19 scale (OCS).[19] The CAS consists of five questions that show the most frequent anxiety symptoms, with a score ranging from 0 to 20 points. The measure differentiates between people suffering from dysfunctional anxiety as well as those suffering from non-anxiety by using an optimum cut-off score of ≥ 9 points. In the context of anxiety disorders, dysfunctional anxiety is described as continuous or uncontrolled fear that disrupts with daily activities and creates disturbances in behaviour as well as mental well-being. The five-item scale had an outstanding predictive validity, as evidenced by a positive association with disability and psychological distress (and excellent reliability, with an internal consistency of 0.93 in a previous study

The Obsession with COVID-19 scale (OCS) scales have four items, and the score ranges from 0 -16. The scale distinguishes among those with obsession and no obsession, utilizing an optimized cut-off score of ≥ 7.For the current study, Cronbach's alpha for both the scale is 0.887.Dentists participating in the current study specified the occurrence of symptoms experienced in a 5-point Likert-type scale (0 [not at all] to 4 [nearly every day).

Sample Size: The present survey's required sample size was computed at 120 participants based on 50% respondents, a 90% confidence interval, and a 7.5% error margin with a 15000-person dental population as the basis for the calculations (www.raosoft.com). An additional 12(10%) was added to account for any errors that may have occurred during the filling out the survey. Finally, it was determined that a representative sample of 132 was adequate.

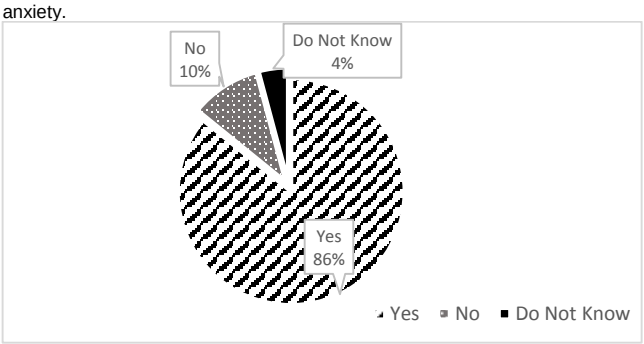
Ethical Consideration: Participants gave their informed consent for the current study by completing an online consent form. The ethics and review committee at the Altamash Institute of Dental Medicine, Karachi, Pakistan, approved the Ethical Permission.

Statistical Analysis: The data was gathered through a Google survey form. The collected data was initially downloaded into Microsoft Excel and then transferred to SPPP 21 for analysis. The independent sample T-test and the ANOVA were used for statistical analysis. A p-value of less than 0.05 was considered statistically significant..

RESULTS

In this study, a total of 147 dentists filled the online questionnaire. Data of 124 dentists have been evaluated. Data of 23 dentists were removed due to discrepancies and errors. We categorized the dentist according to gender, marital status, Professional level and years of experience. We calculated the mean score of anxiety and obsession. Mean anxiety among the dentist was calculated 5.29 ± 4.238, and a mean obsession score of 1.87 ± 3.34 was evaluated (Table 1). Moreover, 103(83.06%) of the dentists said that because of the COVID-19 vaccine, their anxiety related to the Corona virus had been reduced (Fig 1).

Figure 1: Do you think that COVID-19 vaccination have reduced your anxiety.



A significantly higher anxiety score among the females has been observed 6.2188 ± 4.79573 compared to males 4.30 ± 3.31049 (p=0.011). Similarly, females exhibited a higher score for obsession 2.7813 ± 4.0491 (p=0.02) (Table 1).

We further evaluated the anxiety scores and found that married participants, general dentists, and those with less than five years of experience showed higher mean anxiety levels than singles, specialists, and dentists with more than five years of experience. But the difference was not significant (P>0.05) (Table 1). On the other hand, higher scores for obsessions were recorded for general dentists and dentists with less than five years of experience. However, unmarried dentists showed higher obsession scores. The difference was not significant (P>0.05) (Table 1).

The current study evaluated anxiety and obsession based on CAS and OCS scores. A CAS total score ≥ 9 indicates probable dysfunctional coronavirus-related anxiety. We found that 21.77 % (n=27) of the dentists suffer from anxiety. A significantly higher number of females suffer from anxiety than males (p=0.077). Moreover, An OCS total score ≥ 7 indicates probable dysfunctional thinking about COVID-19. We observed that 9.67% (n=12) of the dentist are obsessed with COVID-19. Similarly, a significantly higher number of females had OCS score 7 or more than males among genders (p=0.021) (Table 2).

Table 1: Comparison of mean scores of anxiety and obsession from COVID-19 across demographic variables among the dentists.

Demographic Variables			Anxiety				Obsession			
	N	p- value	Mean	Std. Dev	t[¤] or F[¶]	p-value	Mean	Std. Dev	t[¤] or F[¶]	p-value
Total	124	-	5.29	4.238	-	-	1.87	± 3.34	-	-
Gender										
Male	60	0.719	4.300	3.310	-2.606 ¤	0.011	0.900	2.005	-3.309 ¤	**0.02**
Female	64		6.218	4.795			2.781	4.049		
Marital Status										
Single	40	<0.001	4.550	4.396	-1.437 ¤	0.181	1.900	3.402	0.066 ¤	0.947
Married	84		5.642	4.141			1.857	3.344		
Professional Level										
General Dentist	70	0.151	5.614	4.556	0.969 ¤	0.335	2.157	3.809	1.084 ¤	0.281
Specialist	54		4.870	3.787			1.500	2.626		
Professional Status										
Practicing Dentist	66	<0.001	5.075	4.166	0.178 ¶	0.911	2.333	3.730	0.928 ¶	0.430
Academician	12		5.500	5.823			1.416	3.704		
BOTH	38		5.421	3.789			1.394	2.531		
Non Practicing	08		6.125	4.882			1.000	2.828		
Experience										
Up to 5 years	36	<0.001	6.000	5.371	0.522 ¶	0.720	2.722	4.240	1.472 ¶	0.215
6-10 years	53		5.169	3.730			1.981	3.393		
11-15 years	21		4.571	4.007			0.809	1.600		
16 -20 years	07		5.714	2.497			1.000	1.527		
20 years +	07		4.285	3.638			0.714	1.889		

Table 1: Demographics and Mean Anxiety and Obsession among dentists
N=Number, ¤ T-test, ¶ analysis of variance (ANOVA), P value< 0.05.

Table 2: Number of Dentists suffering from dysfunctional anxiety and obsession

Variable	Anxiety				Obsession			
	Yes	No	X^2	P-value	Yes	No	X^2	P-value
Male	09 (15%)	51 (85%)	3.132	0.077	2 (3.33%)	58 (96.66%)	5.353	0.021
Female	18 (28.12%)	46 (71.87%)			10 (15.62%)	54 (84.37%)		
Total	27 (21.77)	97 (78.22%)	124		12 (9.67%)	112 (90.32%)		124

DISCUSSION

According to Lee's Obsession and Anxiety scale after vaccination, we observed low dysfunctional anxiety and obsession among the dentists. Most dentists considered that the COVID-19 vaccine has significantly reduced their anxiety related to the current pandemic.

In our study, only those dentists who have undergone both doses of vaccines were incorporated. Studies performed before vaccination reported higher anxiety, fear, and stress among the healthcare professionals, mainly the dentists. In contrast to the finding of previous studies, our study reported a low level of dysfunctional anxiety and negligible obsession toward COVID-19.

It has been shown in studies that vaccination drives can help to alleviate fear and mental stress. According to a recent study, one or a combination of pathways may be responsible for reducing anxiety. Those who have just been vaccinated may become less concerned about becoming ill, become more socially active, or pursue new employment prospects[20].

In the current study, the dentists' mean anxiety and obsession levels are below the cut-off score as prescribed by the CAS and OCS, respectively. Previous studies have shown higher mean scores for anxiety, stress, fear, etc. This study was performed in July 2021, and by that time, all the healthcare workers were vaccinated; the incidence of COVID cases dropped significantly in Pakistan. Moreover, personal protective equipment was readily available, and due to the government's policies, Pakistan managed to control this pandemic greatly. Another study has reported that anxiety among the dentists and the general public decreased during the time frame[21].

A study performed during the first wave of COVID-19 in Pakistan in MAY 2020 reported fear and dysfunctional anxiety among many physicians and dentists. This study revealed that the total mean CAS score was 14.80 ± 2.88, significantly higher than the cut-off score of ≥9. Moreover, based on this cut-off score, 97.3 % of the study participants were judged to have dysfunctional anxiety levels[17]. In the current study, this figure is reduced to 21.77%, and the mean CAS score was reported 5.29 ± 4.238.

In agreement with our study results, recent studies performed in different parts of the world after the vaccination drive have also reported low levels of fear, anxiety, stress, depression, and other psychological issues. A study performed in the United States on the general population investigated that vaccinated individuals had a 13% lower risk of anxiety and a 17% lower risk of depression than those who had not been vaccinated.[22] Similarly, according to a Turkish survey, more than 75% of dentists reported feeling anxious and afraid due to the COVID-19 outbreak. After the vaccination, a significantly higher percentage of those surveyed reported a reduction in anxiety and fear. These rates were 29.3% and 36.3 % for dentists working in private clinics and universities, respectively.[23] These findings further validate our results as more than 80% of our study participants stated that vaccination has played a great role in reducing anxiety.

A study found that COVID-19 vaccination has reduced anxiety and depression in people. This study further stated that COVID-19 vaccination decreases anxiety and depression symptoms by about 30%[24]. In accordance with this study's findings, the current study has also noticed a significant decrease in anxiety compared to the previous studies conducted during the first wave of COVID-19 in Pakistan and other parts of the world[4,9].

Our study evaluated that anxiety is more prevalent among female dentists. This finding is in accordance with the previous studies' finding that female healthcare workers are more anxious than their counterparts[4,25]. We also observed that the young dentists with experience of fewer than five years reported the highest anxiety score. On the other hand, a dentist with experience of more than 20 years secured the lowest score. The current study revealed that the mean score of anxiety among the general dentist is higher than the specialists though the difference is insignificant. Following the finding of the current study, previous studies have a similar outcome.[4] Low level of anxiety among the specialist is because of their developed practices or permanent jobs; moreover, their ability to invest in personal protective instruments and survivals after the practice's closure could be the factors

We evaluated that anxiety levels among the dentists have been reduced significantly. But still found that dysfunctional anxiety is prevalent among a few dentists. This is because of the fact that dentists are more exposed due to aerosol-generating procedures and their surgeries' closed environments[9,10]. Furthermore, financial impact due to lockdown and closure of practices and decreased number of patients have also produced psychological pressure, stress, anxiety and depression[26].

In the current study, less than 10% of dentists are obsessed with COVID-19. A similar scale is used in Nepal's study on different professionals reported that 10.8% of healthcare professionals are obsessed with coronavirus[27].

According to the findings of our study, healthcare employees have psychologically accepted the current condition, and their anxiety levels have decreased as a result. Health care personnel and patients alike have benefited from implementing safety measures. The government has also made PPEs readily available, and the World Health Organization has enforced the use of this personal protective equipment in their countries

There has been a great deal of variation observed when it comes to vaccine acceptance among health care workers in different parts of the world. According to research conducted in France, 75 percent of healthcare experts favor the covid-19 immunization.[28] In the United States, the first BNT162b2 mRNA vaccine developed by Pfizer and BioNTech was made available to healthcare practitioners for the first time.[29]The World Health Organization (WHO) also recommended that vaccines be given to healthcare providers first because the virus will not be stopped unless high immunity is created in the population against it[30].

As previously stated, the widespread acceptance and administration of vaccines in the health community is also a contributing factor to lower levels of anxiety and dread shown in our study compared to earlier studies. Other factors that could decrease anxiety among healthcare professionals are the availability of PPE, proper sanitization, more awareness and practice of standard operating protocols, compulsory vaccination of healthcare professionals, workers, students, etc.

One or a variety of mechanisms may be responsible for the results we observed in the current study. Those who have just been vaccinated may become less concerned about becoming ill, become more socially active, or pursue new employment prospects. Future research should look at how the vaccine shot could produce such results.

Limitation: Small sample size is the major limitation of this study. Data were self-reported so that it may have biases. Data of only vaccinated dentists were collected.

CONCLUSION

The majority of the dentists agreed that their anxiety had been reduced due to the COVID-19 vaccination. Vaccination has significantly reduced dysfunctional anxiety and obsession due to Coronavirus.

Conflict of interest: Nil

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Authors Contribution: MMM: Study's conception, supervision, data collection, statistical work, and manuscript writing, **GAN**: Initial draft writing and literature search, **RZ:** Data collection, Result write up and drafting, **KZ:** Literature search, Data collection, and Tables and figures, **KSA:** Data collection and statistical analysis, **SZ:** Data collection, Discussion write up and

All authors critically revised and approved the final draft of the manuscript.

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