MEDDOCS Open Access Publisher

ISSN: 2639-9210

Annals of Dentistry and Oral Health

Open Access | Research Article

Evaluation of the Fear and Anxiety of Dental Patients in the COVID-19 Normalization Process after Vaccination in Turkey

Ayşe Toraman[1]; Özlem Daltaban[2]; Zeliha Aytekin[2]*

[1]Department of Periodontology, Hamidiye Faculty of Dentistry, Health Sciences University, Istanbul, Turkey.

[2]Department of Periodontology, Faculty of Dentistry, Akdeniz University, 07058, Antalya, Turkey.

***Corresponding Author(s): Zeliha Aytekin**

Department of Periodontology, Faculty of Dentistry, Akdeniz University, 07058, Antalya, Turkey.

Tel: +90-05078442459;

Email: zelihaaytekin06@gmail.com

Received: Dec 17, 2023

Accepted: Mar 23, 2023

Published Online: Mar 30, 2023

Journal: Annals of Dentistry and Oral Health

Publisher: MedDocs Publishers LLC

Online edition: http://meddocsonline.org/

Keywords: COVID-19 vaccines; Normalization; Dental patients; COVID-19 Fear; Anxiety.

Abstract

Objectives: The high risk of cross-infection in dentistry has created fear and anxiety about dental patients applying for dental appointments during the pandemic period. With the initiation of vaccination, a normalization process has also started in dental clinics. This study aims to evaluate the effects of vaccination on the psychological status of dental patients in new normal dentistry during the COVID-19 outbreak normalization process in Turkey.

Methods: A cross-sectional questionnaire-based survey included of five parts: sociodemographic variables, knowledge level of the COVID-19 disease, the perception of COVID-19; the fear of COVID-19 scale (FCoV-19S), and the generalized anxiety disorder-7 scale (GAD-7).

Results: Demographic characteristics did not significantly change the COVID-19 knowledge level of the participants. The mean of COVID-19 fear (2.48±0.91) of the participants was at a low level. There was a significant positive relationship between the FCoV-19S score and the GAD-7 score (r=0.190, p=0.001). 90.4% of the participants reported that they had a vaccine. There was no significant difference in levels of anxiety and fear between those who had the COVID-19 vaccine and those who did not. The fear level of those who received 3 doses of the BioNTech vaccine (3.45±0.31) was significantly higher than those who received 2 doses of Sinovac vaccine (2.28± 0.93; p=0.008) and those who received 2 doses of the Sinovac and 2 doses of the BioNTech (2.61± 0.73; p=0.004).

Conclusions: The present study determined a lower level of fear than in pre-vaccine literature data. However, it has been shown that the vaccine does not create a positive and significant change in the fear level of dental patients. The results of the study may contribute to the development of protocols that can be created to control the fear and anxiety levels of dental patients during the pandemic period and to enable them to seek treatment without delay.

Cite this article: Aytekin Z, Toraman A. Evaluation of the Fear and Anxiety of Dental Patients in the COVID-19 Normalization Process after Vaccination in Turkey. Ann Dent Oral Health. 2022; 5(1): 1045.

Introduction

The coronavirus disease emerged as a new type of acute respiratory disease in the city of Wuhan, China in December 2019 and quickly spread all over the world [1]. On January 30, the novel coronavirus outbreak was declared an "International Public Health Emergency", WHO's highest level of alert and cause for concern (4). On March 11, it was declared a pandemic [2].

Officially, the first COVID-19 case in Turkey was diagnosed on March 10, 2020 [3]. Following this date, the number of cases raised day by day, according to WHO data. To date of the survey, November, 2021, the disease has been reported in over 210 countries and territories, affecting over 257 million people and causing more than 5 million deaths [4].

Radical changes have occurred in the practice of dentistry after the pandemic. COVID-19 is a viral infection caused by the new type of coronavirus; Interpersonal transmission occurs mainly through respiratory droplets and close contact. In addition to these features, asymptomatic and incubating patients are also carriers of the new coronavirus [5,6]. In a study [7], it was reported that the coronavirus can be transmitted by aerosol transmission. In addition, aerosols from infected persons can pose a threat of inhalation even at considerable distances and indoors, especially if there is ventilation [8].

The risk of cross-infection in dentistry has been described as considerably high due to close physical contact between dental professionals and patients, and aerosol production during routine dental treatments [9]. Dental professional associations all around the world have published guidelines and recommendations regarding the operation of dental clinics during the COVID-19 pandemic [10]. However, changes in health-seeking behaviors have been reported during the COVID-19 pandemic [11,12]. During the pandemic period, patients were not sure whether they would come to their dental appointments. Since patients are faced with a new situation that they have never experienced before, the continuity or interruption of dental treatments has been in question. Little is known about the level of anxiety they experience about the resulting impact.

In Turkey, such as in the rest of the world, it has taken place in the agenda to end the pandemic medically and socially by immunizing more than 70% of the population with safe, effective, affordable, and accessible vaccines. In September 2020, phase-3 studies on the 'CoronaVac' inactivated Sars-Cov-2 vaccine developed by China was initiated in Turkey. The Ministry of Health of the Republic of Turkey announced that as of December 1, 2020, vaccination with this vaccine will start gradually. On the other hand, the BioNTech vaccine, approved by the USA and the European Union, has been used in Turkey since March 2021.

This study aimed to evaluate the effects of vaccination on the psychological status of dental patients in new normal dentistry during the COVID-19 outbreak. A national survey was conducted from November 2021 to January 2022.

Material and Methods

Study design

The cross-sectional study was approved by the Akdeniz University Faculty of Medicine Clinical Research Ethics Committee" and "Data were collected from dental patients who applied to Akdeniz University Faculty of Dentistry

Inclusion criteria

- Age of 18 years or above patients
- Patients who read and write the Turkish language
- Patients who accepted to sign the informed consent form and participate in the questionnaire voluntarily.

Exclusion criteria

- Under-18 years old patient
- Foreign national patients who could not communicate in Turkish were excluded from the study
- Patients who do not agree to participate in the survey and do not agree to sign the informed consent form

A structured questionnaire (paper-based survey) included sociodemographic variables **(Appendix 1)**, knowledge level of the COVID-19 disease **(Appendix 2)**; the perception of COVID-19 **(Appendix 3)**; the fear of COVID-19 scale (FCoV-19S) **(Appendix 4)**; and the generalized anxiety disorder-7 scale (GAD-7) **(Appendix 5)**.

Appendix 1: Sociodemographic data.

Age (years)	
Gender	o Male o Female
Education level	o Primary school o High school o College o University o Master / Doctorate
Marital status	o Married o Single o Other
Do you have children?	o Yes o No
Place of residence	o Urban o Rural
Are you working now?	o Yes o No
Do you have any chronic disease? (You can check multiple boxes)	o Cardiovascular diseases (Hypertension, heart failure, atherosclerosis etc.) o Endocrine diseases (Diabetes etc.) o Chronic lung disease (COPD) o Immune system suppressive diseases or drug use (having an organ transplant) o Chemotherapy and/or radiotherapy o Chronic liver and kidney failure
Smoking	o Yes o No

Appendix 2: Knowledge level about COVID-19.

1. Clinical symptoms of COVID-19 infection include: fever, cough, sneezing, and/or shortness of breath.	o Yes o No
2. Coronavirus infection can be treated using an antibiotic	o Yes o No
3. How can COVID-19 be transmitted? (You can check multiple boxes)	o Close contact in crowded places o Coughing and sneezing o Touching contaminated surfaces o Blood transmission
4. What are the protective methods? (You can check multiple boxes)	o Washing hands regularly with soap and water or clean them with alcohol-based hand rub o Social distancing (Stay away from large groups of people\ crowded places) o Avoiding infected people o Avoiding touching face

Appendix 3: Patient perpective about COVID-19.

Is COVID-19 a serious disease?	o No it's not dangerous o Moderately endangered o It is very dangerous
Are you concerned to visit the dental clinic due to the possibility of contagion with COVID-19?	o Yes o No
Are you concerned to sit in the dental clinic waiting room due to the possibility of contagion with COVID-19?	o Yes o No
Do you find sterilization sufficient in dental clinics?	o Yes o No
Does seeing doctors in protective equipment (mask, goggles, gloves, disposable gowns) during dental treatments make you feel safe against COVID-19?	o Yes o No
Would you like to have a COVID-19 test that can result in a short time before your treatment?	o Yes o No

Appendix 3: Patient perpective about COVID-19.

Is COVID-19 a serious disease?	o No it's not dangerous o Moderately endangered o It is very dangerous
Are you concerned to visit the dental clinic due to the possibility of contagion with COVID-19?	o Yes o No
Are you concerned to sit in the dental clinic waiting room due to the possibility of contagion with COVID-19?	o Yes o No
Do you find sterilization sufficient in dental clinics?	o Yes o No
Does seeing doctors in protective equipment (mask, goggles, gloves, disposable gowns) during dental treatments make you feel safe against COVID-19?	o Yes o No
Would you like to have a COVID-19 test that can result in a short time before your treatment?	o Yes o No

Appendix 4: English version of Fear of COVID-19 Scale.

1:strongly disagree. 2:disagree. 3:neither agree nor disagree. 4:agree and 5:strongly agree					
	1	2	3	4	5
1. I am most afraid of coronavirus-19.					
2. It makes me uncomforAppendix to think about coronavirus-19.					
3. My hands become clammy when I think about coronavirus-19.					
4. I am afraid of losing my life because of coronavirus-19.					
5. When watching news and stories about coronavirus-19 on social media. I become nervous					
or anxious.					
6. I can not sleep because I'm worrying about getting coronavirus-19.					
7. My heart races or palpitates when I think about getting coronavirus-19.					

Appendix 5: English version of the Generalized Anxiety Disorder-7 Scale.

Over the last 2 weeks. how often have you been bothered by the following problems?	0=Not at all	1=Several days	2=More than half the days	3=Nearly every day
1. Feeling nervous. anxious or on edge				
2. Not being able to stop or control worrying				
3. Worrying too much about different things				
4. Trouble relaxing				
5. Being so restless that it is hard to sit still				
6. Becoming easily annoyed or irriAppendix				
7. Feeling afraid as if something awful might happen				

Measures

Knowledge level of the COVID-19 disease

A COVID-19 information questionnaire was developed by the authors based on previous literature [13]. The questionnaire had 4 questions **(Table 1)**: related to clinical presentations, transmission routes, and prevention of COVID-19.

These questions are answered as true/false or multiple choice. The correct answer was assigned 1 point, wrong/unknown answer was assigned 0 points. The total knowledge score ranged from 0 to 4, and those who scored higher than 3 were considered better knowledge about COVID-19.

Perception of COVID-19 disease

Perception of COVID-19 disease was evaluated through the following 6 questions: "Is COVID-19 a serious disease?", "Are you concerned to visit the dental clinic due to the possibility of contagion with COVID-19?", "Are you concerned to sit in the dental clinic waiting room due to the possibility of contagion with COVID-19?", " Do you find sterilization sufficient in dental clinics?", " Does seeing doctors in protective equipment (mask, goggles, gloves, disposable gowns) during dental treatments make you feel safe against COVID-19?", and "Would you like to have a COVID-19 test that can result in a short time before your treatment?".

The Fear of COVID-19 Scale

The COVID-19 fear levels of the participants were evaluated with the Turkish version of FCoV-19S [14]. The scale includes 7 items and scored on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") The mean score ranges from 1 to 5. High scores show a high level of fear of COVID-19. The Cronbach's alpha value of the present scale was determined to be $\alpha = 0.838$.

Generalized Anxiety Disorder-7 scale

The participants' anxiety levels were measured using the Turkish version of GAD-7 [15]. The scale includes 7 items and scored on a four-point Likert scale (0 – not at all; 1 – several days; 2 – more than half of the days; and 3 – almost every day). The total score was calculated and the anxiety levels were classified into 4 categories with the cut-off scores: minimal: 0–4; mild: 5–9; moderate: 10–14; and severe: 15 and above [16].

The mean score ranges from 0 to 3. High scores show a high level of anxiety. The Cronbach's alpha value of the present scale was determined to be $\alpha = 0.883$.

Statistical analyses

Data from the questionnaire were analyzed using SPSS 21.0 statistical software (SPSS Inc., Chicago, IL, USA). The significance level was set at $p < 0.05$. Demographic results were presented as percentage, frequency, and mean ± standard deviation (SD). The Normality of data was tested using skewness values, and Levene's test was used to evaluate the homogeneity of variances. Data outside the knowledge level showed a normal distribution and parametric tests were used to determine the difference between groups. Non-parametric tests were used for knowledge level. The potential influencing factors related to fear of COVID-19 were evaluated by linear regression analysis.

Results

Participants' sociodemographic data

A total of 291 voluntarily completed the questionnaire (167 females and 124 males).

COVID-19 knowledge

Table 1 presented COVID-19 knowledge. The mean of total COVID-19 disease knowledge was 3.8 ± 0.45, with a median of 4.0 (range 2–4). 97.6 of the study participants had enough COVID-19 knowledge. There was no significant difference in knowledge level between males and females ($p > 0.05$, mean= 0.86). Education level also did not make a significant difference in the level of knowledge ($p > 0.05$, mean= 0.96).

COVID-19 perception

Table 1 presented COVID-19 perception. More than half of the participants (n=185, 65%) reported that COVID-19 is a very dangerous disease, and 30% (n=88) of them reported that they found it moderately dangerous. 55% of respondents reported that they were concerned about contracting COVID-19 in the waiting room. The rate of those who were concerned about the transmission of COVID-19 during the treatments was 45.7%. 88% of the participants thought that sterilization was sufficient. 95.2% of the participants reported that seeing the doctor with protective equipment made them feel safer. Only 30.9% of the participants reported that they wanted a COVID-19 test, which could result in a short time before treatment.

Table 1: Participants' characteristics and comparison of scores; mean of fear of COVID-19 scale, GAD-7 and total Knowledge levels.

Variable	Total (n=291) n (%)	FCoV-19S Mean (SD)	p	GAD-7 Mean SD)	p	Knowledge level	p
Age							
18- 29	85 (29.2%)	2.37 ± 0.86	> 0.05	0.68 ± 0.68	> 0.05	3.81±0.44	> 0.05
30-39	63 (21.6%)	2.35 ± 0.74	0.179	0.59 ± 0.66	0.577	3.76±0.53	0.96
40-49	63 (21.6%)	2.56 ± 1.06		0.60 ± 0.59		3.8±0.43	
50-59	58 (19.9%)	2.59 ± 0.98		0.51 ± 0.54		3.79 ± 0.44	
60+	22 (7.6%)	2.79 ± 0.88		0.52 ± 0.55		3.86 ± 0.35	
	Mean = 39.5 Range = 18-74					(Kruskal-Wallis test)	
Gender							
Female	167 (57.4%)	2.67 ± 0.95		0.59 ± 0.57	> 0.05	3.8±0.44	> 0.05
Male	124 (42.6%)	2.24 ± 0.81	**.000**	0.60 ± 0.68	0.89	3.79±0.47	0.86
						(Mann-Whitney U test)	
Presence of chronic disease None	242 (83.2%)	2.65 ± 0.95	> 0.05	0.52 ± 0.52	> 0.05		
Yes	49 (16.8%)	2.45 ± 0.90	0.150	0.61 ± 0.64	0.355		
Employment status							
Unemployed	163 (56.0%)	2.63 ± 0.93	**< 0.05**	0.56 ± 0.59	> 0.05	3.77±0.47	>.005
Working/studying	128 (44.0%)	2.29 ± 0.85	**0.001**	0.65 ± 0.66	0.22	3.82±0.43	0.29
						(Kruskal-Wallis test)	
Education Status							
Primary school	59 (20.3%)	2.74 ± 1.08		0.67 ± 0.73	> 0.05	3.86±0.39	>0.05
High school	93 (32.0%)	2.52 ± 0.86		0.61 ± 0.57	0.74	3.70±0.54	0.53
College	22 (7.6%)	2.61 ± 0.99		0.50 ± 0.54		3.72±0.45	
University	104 (35.7%)	2.26 ± 0.84		0.56 ± 0.63		3.88±0.32	
Master / Doctorate	13 (4.5%)	2.57 ± 0.66		0.63 ± 0.57		3.61±0.76	
		ANOVA and Tukey test results: Primary school vs. University *p*=**0.025**				(Kruskal-Wallis test)	
COVID-19 is a dangerous disease							
No	18 (6.2%)	2.25 ± 1.02		0.59 ± 0.75	> 0.05		
Moderately	88 (30.2%)	2.17± 0.77		0.73 ± 0.68	0.62		
High	185 (63.6%)	2.65 ± 0.93		0.53 ± 0.57			
		ANOVA and Tukey test results: Moderately vs. High *p*=**0.000**					
Concern about contracting COVID-19 during treatment							
Yes	133 (45.7%)	2.65± 0.90	**< 0.05**	0.60 ± 0.61	>0.05		
No	158 (54.3%)	2.34 ± 0.90	**0.004**	0.59 ± 0.63	0.97		
Concern about contracting COVID-19 in the waiting room				0.61 ±0.61	>0.05		
Yes	160 (55.0%)	2.66 ± 0.96	**< 0.05**	0.58 ± 0.63	0.508		
No	131 (45.0%)	2.26± 0.80	**0.000**	(Mann-Whitney U test)			
Would you like you rapid COVID-19 test before treatment?							
Yes	90 (30.9%)	2.59 ± 0.86	>0.05	0.65 ± 0.57	>0.05		
No	201 (69.1%)	2.43± 0.94	0.18	0.57 ± 0.64	0.34		
Have you had COVID-19?							
Yes	61 (21.0%)	2.30 ± 0.90	>0.05				
No	218 (74.9%)	2.56± 0.91					
Not sure	12 (4.1%)	2.09 ± 0.82					
I was hospitalized due to COVID-19							
Yes	9 (3.1%)	2.25 ± 1.18	>0.05	0.63± 0.68	>0.05		
No	282 (96.9%)	2.49± 0.91	0.24	0.59± 0.62	0.98		
I had the COVID-19 vaccine							
Yes	263 (90.4%)	2.50± 0.93	>0.05	0.58± 0.62	>0.05	1.40± 0.25	>0.05
No	28 (9.6%)	2.32 ± 0.74	0.31	0.74 ± 0.67	0.20	1.39± 0.21	0.77

Which vaccine did you have?							
1 dose Sinovac	0	2.28± 0.93			>0.05		>0.05
2 doses Sinovac	27 (9.3%)	2.33 ± 0.94			0.35		0.32
1 dose BioNTech	6 (2.1%)	2.50± 0.91					
2 doses BioNTech	183 (62.9%)	2.61± 0.73					
2 doses Sinovac	22 (7.6%)						
and 1 dose BioNTech		2.03± 0.95					
2 doses Sinovac	15 (5.2%)						
and 2 doses BioNTech		3.03± 0.98					
3 doses Sinovac	14 (4.8%)	3.45± 0.31					
3 doses BioNTech	4 (1.4%)	2.3± 0.87					
None	20 (6.9%)						

Kruskal Wallis and Tamhana test results for FCoV-19S: 2 doses Sinovac vs. 3 doses BioNTech p=0.008
2 doses Sinovac and 2 doses BioNTech vs. 3 doses BioNTech p=0.004
FCoV-19S: fear of COVID-19 scale, GAD-7: generalized anxiety disorder-7 scale.

Table 2: Participants' demographics data given as frequency.

Variable	Total (n=291) n (%)	Variable	N	Percent	Percent of Cases
Dental complaints		**For which complaint did you go to the dentist during the Covid-19 pandemic?**			
Acute complaint	54 (18.6%)	**Acute complaint**			
Canal treatment	5318 (10.7%)	**Canal treatment**	44	10.9%	15.1%
Filling	63 (21.6%)	**Filling**	39	9.6%	13.4%
Scaling	113 (38.8%)	**Scaling**	77	19.0%	26.5%
Extraction	10 (3.4%)	**Extraction**	162	40.0%	55.7%
Surgical	18 (6.2%)	**Surgical**	45	11.1%	15.5%
Prosthesis	2 (0.7%)	**Prosthesis**	27	6.7%	9.3%
		Not go	4	1.0%	1.4%
			7	1.7%	2.4%
The time you want to be treated		**Where do you get your information about COVID-19?**			
First patient	154 (52.9%)				
Last patient	9 (3.1%)	**Ministry of Health official website**	129	26.8%	44.3%
Doesn't matter	128 (49.0%)	**Scientific journals**			
		TV/radio	42	8.7%	14.4%
		Social media	173	35.9%	59.5
		Other	123	25.5%	42.3%
			15	3.1%	5.2%
Doctors' protective equipment makes you feel safe from CO-VID-19		**Social media used for information**			
		Facebook	73	17.3%	25.1%
		Instagram	105	24.9%	36.1
Yes	277 (95.2%)	**Twitter**	51	12.1%	17.5
No	14 (4.8%)	**WhatsApp**	60	14.3%	20.6
		Other	20	4.8%	6.9
		Don't use	112	26.6%	38.5
Sterilization is sufficient for the risk of COVID-19 transmission					
Yes	256 (88.0%)				
No	35 (12.0%)				
I am adequately protected against the risk of contracting COVID-19					
Yes	225 (77.3%)				
No	66 (22.7%)				
COVID-19 can be detected with a saliva test					
Yes	207 (71.1%)				
No	84 (28.9%)				
Have you had a COVID-19 test?					
Yes	149 (51.2%)				
No	142 (48.8%)				
COVID-19 outbreak under control					
Yes	71 (24.4%)				
No	220 (75.6%)				

I'm worried about a recurrence of the COVID-19 pandemic					
Yes	238 (81.8%)				
No	53 (18.2%)				

COVID-19 information sources

Table 2 presented COVID-19 information sources. The source of information about COVID-19 disease was primarily the TV (n=173, 35.9%), the Ministry of Public Health's official website (n=129, 26.8%), and social media (n=123, 25.5%). 12.1% of participants used Twitter, 24.9% used Instagram, 17.3% used Facebook, and 14.3% used WhatsApp. 26.6% of participations reported that they do not use social media to get information.

Vaccine

90.4% of the participants reported that they had a vaccine. Vaccines were respectively; 2 doses Sinovac 9.3% (n =27), 1 dose BioNTech 2.1% (n =6), 2 doses BioNTech 62.9% (n= 183), 2 doses Sinovac and 1 dose BioNTech 7.6% (n =22), 2 doses Sinovac and 2 doses BioNTech 5.2% (n =15), 3 doses Sinovac 4.8% (n =14), 3 doses BioNTech 1.4% (n =4) **(Table 1)**.

Fear of COVID-19

Tables 1 and 3 present Fear of COVID-19. The mean FCoV-19S of the participants was 2.48 ± 0.91 (median=2.5). The fear scores of females (2.67 ± 0.95) were significantly higher than males (2.24 ± 0.81; p=0.000). Unemployed participants (2.63 ± 0.93; p=0.001) had a significantly higher fear score than those working/studying (2.29 ± 0.85). The fear scores of the Primary school (2.74 ± 1.08) were significantly higher than University (2.26 ± 0.84; p=0.025). Participants who considered the disease to be serious had significantly higher means of FCoV-19S (2.65 ± 0.93; p=0.000) than those who considered the disease to be moderately serious (2.17± 0.77). Participants who were concerned about the transmission of COVID-19 during the treatments had significantly higher FCoV-19S scores (2.65 ± 0.90; p= 0.004) than those who were not concerned (2.34 ± 0.90). Participants who were concerned about contracting COVID-19 in the waiting room had significantly higher FCoV-19S scores (2.66 ± 0.96; p=0.000) than those who were not concerned (2.26± 0.80).

There was no significant difference between the FCoV-19S scores of those who wanted (2.59 ± 0.86; p>0.05) rapid COVID-19 testing before treatment and those who did not (2.43± 0.94). FCoV-19S means were not significantly different between those with and without the COVID-19 vaccine. The fear level of those who received 3 doses of the BioNTech vaccine (3.45± 0.31) was significantly higher than those who received 2 doses of Sinovac vaccine (2.28± 0.93; *p* =0.008) and those who received 2 doses of the Sinovac and 2 doses of the BioNTech (2.61± 0.73; *p* =0.004).

Multiple linear regression analysis demonstrated that the female gender (β = -0.229, 95% CI: -0.622 to -0.228, p=0.000), concerns the transmission of COVID-19 during the treatments (β= -0.138, 95% CI: (-0.450 to -0.057, p= 0.012), perceiving COVID-19 as a serious disease (β= 0.236, 95% CI: 0.195 to 0.519, p= 0.000), and having a high total GAD-7 score (β= 0.214, 95% CI: 0.157 to 0.470, p= 0.000) were predictors of having increased fear of COVID-19 **(Table 4)**.

Table 3: Scores of participants responses to FCoV-19S Scale.

Item	Sum	Mean ± Std. Deviation
Question 1: I am most afraid of Corona	903	3.10 ± 1.378
Question 2: It makes me uncomfortable to think about Corona	857	2.95 ± 1.386
Question 3: My hands become clammy when I think about Corona	558	1.92 ± 1.050
Question 4: I am afraid of losing my life because of Corona	748	2.57 ± 1.376
Question 5: When I watch news and stories about Corona on social media. I become nervous or anxious	762	2.62 ± 1.314
Question 6: I cannot sleep because I'm worrying about getting Corona.	515	1.77 ± 1.053
Question 7: My heart races or palpitates when I think about getting Corona.	528	1.81 ± 1.086
FCoV-19S Scale mean		2.48 ± 0.918
Total FCoV-19S Scale mean		16.73 ± 6.2

Table 4: Results of multiple linear regression analysis of predictors for fear of COVID-19 scale.

		FCoV-19S		
	B	ß	95% CI for B	p
Gender[a]	-0.425	-0.229	(-0.622- -0.228)	**0.000**
Knowledge levels[b]	-0.076	-0.038	(-0.290-0.138)	0.486
Is covid-19 a dangerous disease?[c]	0.357	0.236	(0.195-0.519)	**0.000**
Concern about contracting COVID-19 during treatment[d]	-0.253	-0.138	(-0.450- -0.057)	**0.012**
GAD-7[e]	0.314	0.214	(0.157-0.470)	**0.000**

CI: confidence interval; [a] Males were the reference group; [b] Mean score for the knowledge level; [c] Response to item 'Is COVID-19 a dangerous disease?' No was the reference group; [d] Response to item 'Are you concerned about the transmission of COVID-19 during the treatments?' No was the reference group; [e] Mean score for the seven-item Generalized Anxiety Disorder screener (GAD-7)

COVID-19 and anxiety

The mean (± SD) total GAD-7 score of the participants was 4.21 (± 4.39). Of all the participants, 173 (59.4%) had minimal anxiety, 81 (27.8%) had mild anxiety, 31 (10.7%) had moderate, and 6 (2.1%) had severe anxiety. Subjects with moderate (n= 16, 51.6%) and severe (n=4, 66.7%) anxiety were mostly male. There were no significant differences across different age and education status categories (Table 1). On the other hand, a positive significant correlation was observed between the FCoV-19S score and the mean of the GAD-7 score (r=0.190, p =0.001) (Pearson correlation coefficient) And, there was a significant negative correlation between participants' knowledge level and anxiety level (r=-0,134, p=0.023) (Spearman correlation coefficient).

Discussion

This study was carried out sometime after the introduction of COVID-19 vaccines. The aim was to understand if dental patients' level of fear and anxiety about the possibility of contracting an infection in the dental office has changed through a questionnaire after vaccinations. It was determined that the mean of COVID-19 fear (2.48) of the participants was at a low level. Participants' mean anxiety levels (4.21 ± 4.3) were minimal. Demographic characteristics did not significantly change the COVID-19 knowledge level of the participants. The results of this study provide up-to-date data on dental patients' perceptions of COVID-19.

In our study, the mean of total FCoV-19S (16.73± 6.2) was lower than in the literature [17-19], respectively 18.00 (± 5.68), 17.2 (± 4.7), 19.8 (± 5.3). Studies show that FCoV-19S is higher in females than males [17-19]. In our study, females' FCoV-19S was also significantly higher than males.

The majority of participants reported that they perceived the COVID-19 disease as dangerous, and those who saw it as highly dangerous had a significantly higher fear level than those who found it moderately dangerous. A significant portion of the participants had a concern about the transmission of the disease both during the treatment (45.7%) and in the waiting room (55.0%), and these individuals had a high fear of COVID-19. These findings showed that despite vaccinations, individuals have contagion concerns, which was also demonstrated in pre-vaccine studies [20-23]. In addition, the majority of the participants answered no to the question of whether they would like a rapid COVID-19 test before treatment, and there was no significant difference in fear of COVID-19 between test takers and no want test. This finding, which is an interesting outcome of our study, may be due to the participants' concerns about the accuracy of the test. The vast majority (74.9%) of the participants had not had COVID-19 and nearly half (48.8%) had not been tested for COVID-19.

In our study, it was determined that nearly all participants had a sufficient level of knowledge about COVID-19 and demographic findings did not create a significant difference in the level of knowledge. This finding differs from the results of previous studies [23,24]. Our results may show that it has been achieved to provide accurate information about COVID-19 in a very large part of society. Our study revealed a significant negative correlation between participants' knowledge levels and anxiety levels. There was no significant negative correlation between participants' knowledge level and FCoV-19S score. The outcome of our study that sufficient knowledge reduces the level of psychological anxiety is consistent with other studies [23,25]. n our study, television was the source where most of the participants learned about COVID-19, followed by the official website of the Ministry of Health and social media. Among the social media platforms, Instagram was seen to be the most preferred. Our results support previous studies [23,26] showing that most individuals have obtained about COVID-19 from traditional sources.

Previous studies [23,27, 28]eported that the fear of COVID-19 increases the level of anxiety significantly. The psychological negative effects of the pandemic as a trigger for anxiety and depression have been demonstrated [29,30]. The findings of our study showed that there is a significant positive relationship between the FCoV-19S score and the GAD-7 score. There was no significant difference in levels of anxiety and fear between those who had the COVID-19 vaccine and those who did not. However, the fear level of those who received 3 doses of the BioNTech vaccine was significantly higher than those who received 2 doses of Sinovac vaccine and those who received 2 doses of the Sinovac and 2 doses of the BioNTech. Our results show that vaccination is not effective in changing the average level of fear and anxiety in society. However, the fear level was lower in our study compared to the level of fear detected in studies [17-19, 23] before vaccination. Also, our findings demonstrated those with high levels of fear tend to prefer BioNTech more.

The present study had some limitations. Our study is cross-sectional. Large-scale longitudinal studies are needed to reach a clearer conclusion about the data obtained. Furthermore, the fact that the scales used in the study were filled in by participants themselves may bring a bias. However, the paper-based nature of the study may show a more homogeneous result compared to online surveys. Because the possibility of individuals using only the internet to fill out the questionnaire was ruled out.

Conclusions

We determined a lower fear level compared to the pre-vaccination literature data. However, in this study, it was observed that the vaccine did not create a positive and significant change in the level of fear among dental patients. Also, the present study revealed that it has been achieved to adequately inform the public about COVID-19. The results of the study can contribute to the development of protocols that can be created in order to control the fear and anxiety levels of dental patients and to ensure that they apply for treatment without delay, in case of a pandemic.

Conflict of interest

There is no conflict of interest.

Funding

The authors did not receive support from any organization for the submitted work.

References

1. Tizaoui K, Zidi I, Lee KH, et al. Update of the current knowledge on genetics, evolution, immunopathogenesis, and transmission for coronavirus disease 19 (COVID-19). Int J Biol Sci. 2020; 16: 2906-2923.

2. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. Acta Biomed. 2020; 91: 157-160.

3. World Health Organisation. Coronavirus (COVID-19) Datatable.

4. World Health Organisation. Coronavirus (COVID-19) Dashboard.

5. Chan JF, Yuan S, Kok KH, Kai-Wang To K, Chu H, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet. 2020; 395: 514-523.

6. Rothe C, Schunk M, Sothmann P, Bretzel G, Foeschl G, et al. Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany. N Engl J Med. 2020; 382: 970-971.

7. Van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gmble A, et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. New England journal of medicine. 2020; 382: 1564-1567.

8. Meselson M. Droplets and Aerosols in the Transmission of SARS-CoV-2. N Engl J Med. 2020; 382: 2063.

9. Meng L, Hua F. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. 2020; 99: 481-487.

10. Banakar M, Bagheri Lankarani K, Jafarpour D, Moayedi S, Banakar MH, MohammadSadeghi A. COVID-19 transmission risk and protective protocols in dentistry: a systematic review. BMC oral health. 2020; 20: 275.

11. Moynihan R, Sanders S, Michaleff ZA. Impact of COVID-19 pandemic on utilisation of healthcare services: a systematic review. 2021; 11: e045343.

12. Podubinski T, Townsin L. Experience of Healthcare Access in Australia during the First Year of the COVID-19 Pandemic. 2021; 18.

13. Hassen LM, Almaghlouth IA, Hassen IM, et al. Impact of COVID-19 outbreak on rheumatic patients' perceptions and behaviors: A cross-sectional study. Int J Rheum Dis. 2020; 23: 1541-1549.

14. Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. Int J Ment Health Addict. 2021; 19: 1980-1988.

15. Bozukluğu YA, Uyarlaması TT, ve Güvenirliği G. Validity and reliability study for the Turkish adaptation of the Generalized Anxiety Disorder-7 (GAD-7) scale. Arch Neuropsychiat. 2013; 50: 53-58.

16. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. May 22 2006; 166: 1092-1097.

17. Doshi D, Karunakar P, Sukhabogi JR, Prasanna JS, Mahajan SV. Assessing Coronavirus Fear in Indian Population Using the Fear of COVID-19 Scale. Int J Ment Health Addict. 2021; 19: 2383-2391.

18. Reznik A, Gritsenko V, Konstantinov V, Khamenka N, Isralowitz R. COVID-19 Fear in Eastern Europe: Validation of the Fear of COVID-19 Scale. Int J Ment Health Addict. 2021; 19: 1903-1908.

19. Giordani RCF, Zanoni da Silva M, Muhl C, Giolo SR. Fear of COVID-19 scale: Assessing fear of the coronavirus pandemic in Brazil. J Health Psychol. 2022; 27: 901-912.

20. Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. Journal of dental sciences. Dec 2020; 15: 564-567.

21. Moffat RC, Yentes CT, Crookston BT, West JH. Patient Perceptions about Professional Dental Services during the COVID-19 Pandemic. JDR Clin Trans Res. 2021; 6: 15-23.

22. Kranz AM, Gahlon G, Dick AW, Stein BD. Characteristics of US Adults Delaying Dental Care Due to the COVID-19 Pandemic. JDR Clin Trans Res. 2021; 6: 8-14.

23. Daltaban O, Aytekin Z. Fear and anxiety of COVID-19 in dental patients during the COVID-19 pandemic: A cross-sectional survey in Turkey. Dent Med Probl. 2022; 59: 343-350.

24. Zhong BL, Luo W, Li HM, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. International journal of biological sciences. 2020; 16:1745-1752.

25. Basch CH, Hillyer GC. Preventive Behaviors Conveyed on YouTube to Mitigate Transmission of COVID-19: Cross-Sectional Study. 2020; 6: e18807.

26. Hernández-García I, Giménez-Júlvez T. Assessment of Health Information About COVID-19 Prevention on the Internet: Infodemiological Study. 2020; 6: e18717.

27. Consolo U, Bellini P, Bencivenni D, Iani C, Checchi V. Epidemiological Aspects and Psychological Reactions to COVID-19 of Dental Practitioners in the Northern Italy Districts of Modena and Reggio Emilia. International journal of environmental research and public health. 2020; 17.

28. Cotrin P, Peloso RM. Impact of coronavirus pandemic in appointments and anxiety/concerns of patients regarding orthodontic treatment. 2020; 23: 455-461.

29. Choi EPH, Hui BPH, Wan EYF. Depression and Anxiety in Hong Kong during COVID-19. Int J Environ Res Public Health. 2020; 17.

30. Soraci P, Ferrari A, Abbiati FA, Del Fante E, De Pace R, et al. Validation and Psychometric Evaluation of the Italian Version of the Fear of COVID-19 Scale. Int J Ment Health Addict. 2022; 20: 1913-1922.