RESEARCH

How Much Does the COVID-19 Pandemic Affect the Clinical Attitudes and Anxiety Levels of Turkish Dentists in Their Dental Practice?

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ABSTRACT

How Much Does the COVID-19 Pandemic Affect the Clinical Attitudes and Anxiety Levels of Turkish Dentists in Their Dental Practice?

Background: To investigate whether there is a change in the attitudes and behaviors of Turkish dentists during their dental procedures against the COVID 19 pandemic.

Methods: A web-based cross-sectional survey study was directed using a “Google Form” to obtain responses from dentists during April and May 2021. The survey was composed of 4 parts including: 1. demographic data (age, sex, marital status, systemic health), scope of practice (general dental practitioner versus specialist), place of practice (private versus public), and experience; 2. questions about COVID-19 management in practice and clinic biosafety routine, 3. questions about measures taken in dentistry clinics against COVID-19 and 4. questions about knowledge, attitudes and concerns of dentists towards the COVID-19 pandemic.

Results: A total of 556 dentists completed questionnaire. The rate of questioning the HES code, temperature measurement and wanting each patient to rinse their mouth with anti-bacterial mouthwash before treatment were higher for specialist dentists ($p<0.05$). Dentists working in government institutions performed only emergency treatments at a higher rate during the pandemic ($p<0.001$). Those with 0-10 years of professional experience were more afraid of transmitting the COVID-19 infection to their family/relatives, which they may get while examining/treating patients ($p=0.005$), and more afraid of being quarantined if they become infected with COVID-19 ($p=0.043$).

Conclusion: Although the answers given by the dentists to the questions about their emotional and anxiety states mostly differ according to the institution they work for, there was no significant difference between the answers given by being a specialist or practicing dentist.

KEYWORDS

COVID-19; Dentists; Fear; Survey.

ÖZ

COVID-19 salgını Türk diş hekimlerinin diş hekimliği uygulamalarında klinik tutumlarını ve kaygı düzeylerini ne kadar etkiliyor?

Amaç: Türk diş hekimlerinin COVID-19 pandemisine karşı diş hekimliği uygulamaları sırasında tutum ve davranışlarında bir değişiklik olup olmadığını araştırmaktır.

Gereç ve Yöntemler: Nisan ve Mayıs 2021'de "Google Formu" kullanılarak web tabanlı bir kesitsel anket çalışması diş hekimlerine yönlendirilmiştir. Anket, aşağıdakileri içeren 4 bölümden oluşmaktadır: 1. demografik veriler (yaş, cinsiyet, medeni durum, sistemik sağlık), uygulama kapsamı (uzman dişhekimi), uygulama yeri (özel veya kamu) ve deneyim; 2. Uygulamada COVID-19 yönetimi ve klinik biyogüvenlik rutini hakkında sorular, 3. COVID-19'a karşı diş hekimliği kliniklerinde alınan önlemler hakkında sorular ve 4. Diş hekimlerinin COVID-19 pandemisine yönelik bilgi, tutum ve endişeleri hakkında sorulardır.

Bulgular: Toplam 556 diş hekimi anketi tamamlamıştır. Tedavi öncesi HES kodunu sorgulama, ateş ölçümü ve her hastanın anti bakteriyel gargara ile ağzını çalkalamasını isteme oranı uzman diş hekimlerinde daha yüksektir ($p<0.05$). Devlet kurumlarında çalışan diş hekimleri pandemi döneminde daha yüksek oranda sadece acil tedavi uygulamıştır ($p<0.001$). 0-10 yıl mesleki deneyime sahip olanlar, hastaları muayene/tedavi ederken karşılaşabilecekleri COVID-19 enfeksiyonunu ailelerine/akrabalarına bulaştırmaktan daha çok korkmuşlardır ($p=0.005$) ve COVID-19 ile enfekte olurlarsa karantinaya alınmaktan da daha fazla endişe etmişlerdir ($p=0.043$).

Sonuç: Diş hekimlerinin duygu ve kaygı durumları ile ilgili sorulara verdikleri cevaplar çoğunlukla çalıştıkları kuruma göre farklılık göstermekle birlikte, uzman veya pratisyen diş hekimi olarak verdikleri cevaplar arasında anlamlı bir fark bulunmamıştır.

ANAHTAR KELİMELER

Anket; COVID-19; Diş Hekimleri; Korkmak.

INTRODUCTION

The current spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has affected the entire international community, causing widespread public health concerns.[1] Sars-CoV-2 is a highly contagious disease and transmitted via aerosol and droplets, and has a relatively long resistance in aerosol of up to 3 hours.[2] The simple transmission route of SARS-CoV-2, relatively close contact with the patient, and aerosol formation during most dental procedures expose dentists to a higher risk of transmission. Given the high risk of transmission of the virus in dental environments and the specificities in clinical practice, COVID-19 has created immediate challenges for dental care.[3] A COVID-19 positive case can go symptom-free for days, so various guidelines are recommended by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) that adequate precautions can be taken for dental professionals. The COVID-19 pandemic has significantly affected how dentistry is

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practiced in Turkey, both in private practice and in academic settings. In the light of the guidelines published so far, it is of great importance for dentists to be informed about the COVID-19 pandemic and its transmission routes in terms of reducing the risk of cross-infection between the patient, dentist and dental assistant.

Today, while the world is struggling with the COVID-19 epidemic, dentists have to change their routine clinical attitudes and behaviors. On the other hand, during this pandemic, the combination of the pandemic burden and changes in daily work routine may have caused psychological discomfort and stress for dentists in Turkey. There are few publications in the literature on the changing habits of physicians and the precautions they take. In the literature review, especially the studies conducted in Turkey were found to be quite inadequate.[4,5] Therefore, in this study, it was aimed to investigate whether there are changes in the attitudes and behaviors of dentists actively working in Turkey towards COVID-19 in the clinics they work before or during routine dental procedures.

METHODS AND MATERIALS

This study was approved by the Clinical Researches Ethics Committee of Bolu Abant Izzet Baysal University (number: 2021/46). Participation in this survey study was completely voluntary and anonymous. A web-based cross sectional survey study was conducted using a "Google Form" to obtain responses from dentists during April and May 2021. First, a pilot study was performed on randomly selected 20 dentists to validate the questionnaire and its Cronbach's alpha was obtained to be 0.78. The pilot study responses were excluded from the final study. Volunteers who are dentists in Turkey and practice dentistry were included. Those who practiced dentistry abroad and those who were students in dentistry faculties were excluded from the study.

The survey was composed of 4 parts. The first part gathered demographic data, such as sex, age, marital status, systemic state, scope of practice (general dental practitioner versus specialist), place of practice (private versus public), and experience. The second section of the survey covered questions about COVID-19 management in practice and clinic biosafety routine. The third section of the survey covered questions about measures taken in dentistry clinics against COVID-19. The fourth section of the survey covered questions about knowledge, attitudes and concerns of dentists towards the COVID-19 pandemic.

STATISTICAL ANALYSIS

In order to determine the sample size, a literature review was conducted and studies with similar characteristics were examined. In line with the hypothesis of the study, it was determined that using the $n = (t^2\ p\ (1\text{-}p)) / d^2$ formulation, at least 323 people should be studied with a 5% margin of error ($t=1.96$), a percentage value of $p=0.7$ and a maximum error level of $d=0.05$.

Descriptive statistics were made on the survey data and the chi-square test was used to evaluate statistical significance. Descriptive statistics of the obtained data were calculated as frequencies (n, %). The statistical significance level was accepted as 0.05 and the SPSS (ver. 23, IBM Statistical Package for the Social Sciences Statistics; New York, USA) program was used in the calculations.

RESULTS

556 final volunteers consisted of 276 general dental practitioners and 280 specialists were included in the study. Two hundred and seventy-eight volunteers worked in government institutions and the same number of volunteers worked in private institutions (Figure 1).

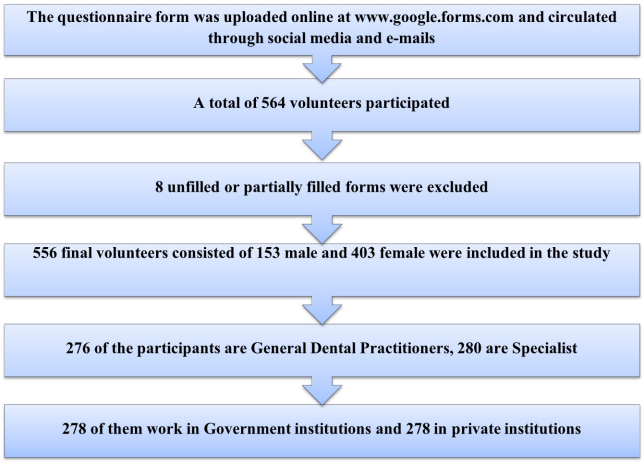

Figure 1

The flowchart of participant

The distribution of specialist dentists' areas of expertise was shown in the graph in Figure 2.

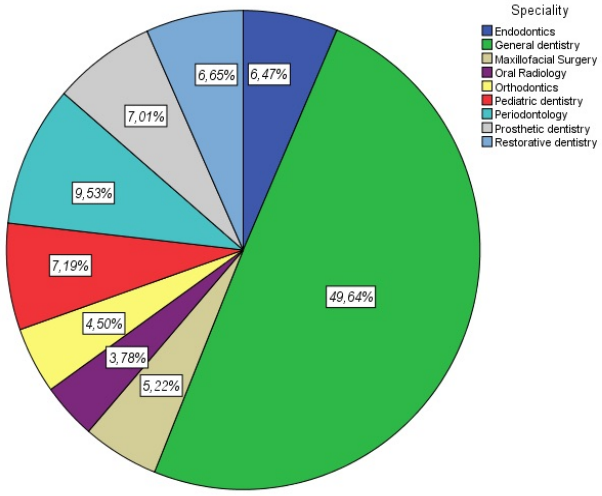

Figure 2

The distribution of specialist dentists' areas of expertise

Table 1 shows the demographic information of the volunteers. A total of 556 dentists completed questionnaire, 72.5 % females and 27.5% males, 40.6% with age of 31-40 years. 83.3% of the patients had at least one systemic disease.

Table 1.

Demographic properties of volunteers n = 556.

Demographics		Number	(%)
Sex	Male	153	(27.5%)
	Female	403	(72.5%)
Age	21-30 years	189	(34.0%)
	31-40 years	226	(40.6%)
	41-50 years	67	(12.1%)
	51-60 years	58	(10.4%)
	61-70 years	16	(2.7%)
Systemic Disease	Unknown	15	(2.7%)
	Absent	78	(14.0%)
	Present	463	(83.3%)
Marriage Status	Single	199	(35.8%)
	Marriage	357	(64.2%)

In Table 2, there are explanations on the comparison of the answers given to the questions (Questions 1-12) asked about the clinical practices of dentists according to status of graduation, institution and experience. The rate of questioning the HES code, temperature measurement and wanting each patient to rinse their mouth with anti-bacterial mouthwash before treatment were higher for specialist dentists ($p<0.05$). Dentists working in government institutions performed only emergency treatments at a higher rate during the pandemic ($p<0.001$). The increase in applying for emergency dental treatments was greater in private clinics ($p=0.020$). In all cases, the dentists' response to washing their hands with soap and water or using disinfectant before and after each patient's treatment was similar, with the majority being 'yes' ($p>0.05$).

Table 2.

Questionnaires and answers about the clinical practices of dentists according to status of graduation, institution and experience. (n = 556)

Questions	Answers	Degree of dental graduation			Institution			Years of professional experience		
	Answer	General Dentist (n=276)	Specialist dentist (n=280)	P value	Government (n=278)	Private (n=278)	P value	0-10 Years (n=330)	≥10 Years (n=226)	P value
1. Is the HES (Hayat Eve Sığar-Life Fits Into Home) code requested from the patients who come to the practice/clinic where you work?	Yes	112	201	<0.001*	136	177	<0.001*	206	107	0.001*
	No	164	79		142	101		124	119	
2. Is fever measurument made to patients who come to the practice/clinic where you work?	Yes	202	233	0.013*	216	219	0.714	262	173	0.144
	No	74	47		62	59		68	53	
3. Do yu want each patient to rinse their mouth with anti-bacterial mouthwash before treatment?	Yes	135	154	0.088	115	174	<0.001*	159	130	0.030*
	No	141	126		163	104		171	96	
4. Do you wash your hands with soap and water or use disinfectants before and after each patient's treatment?	Yes	264	266	0.436	263	267	0.422	310	220	0.062
	No	12	14		15	11		20	6	
5. Do you use high volume suction for each patient in your practice/clinic?	Yes	172	160	0.123	135	197	<0.001	177	155	<0.001*
	No	104	120		143	81		153	71	
6. Do you think the biosecurity measures taken in your business are sufficient to prevent the tranmission of COVID-19?	Yes	238	241	0.527	230	249	0.020*	286	193	0.671
	No	38	39		48	29		44	33	
7. Dou you provide air disinfection with any device in your clinic to reduce the risk of COVID-19 transmission?	Yes	114	105	0.203	73	146	<0.001*	141	78	0.052
	No	162	175		205	132		189	148	
8. Has there been an increase in the number of patients applying for emergency dental treatments in your practice/clinic during the pandemic periods?	Yes	176	151	0.012*	150	177	0.020*	210	117	0.005*
	No	100	129		128	101		120	109	
9. Did you only perform emergency dental procedures at your clinic during the pandemic?	Yes	91	59	0.001*	120	30	<0.001*	76	74	0.011*
	No	185	221		158	248		254	152	
10. How many patients do you treat per day since pandemia began?	1-5 patients	95[a]	140[b]	<0.001	105	130	0.060	136	99	0.332
	6-10 patients	115[a]	100[a]		118	97		133	82	
	11-20 patients	60[a]	27[b]		42	45		47	40	
	20 above patients	6[a]	13[a]		13	6		14	5	
11. Have you treated a patient who has had COVID-19 in the last 1 month?	Yes	173	148	0.012*	146	175	0.13	200	121	0.098
	No	103	132		132	103		130	105	
12. Has your patient who has had COVID-19 complained of problems in the oral tissues during the disease?	Yes	36	35	0.474	38	33	0.525	49	22	0.076
	No	240	245		240	245		281	204	

**Statistical significant level is at p<0.05.*

a,b The different superscript letters show which answers differ between the columns in the multi-answer question 10.

The answers given by the dentists to the questions (Questions 13-26) about their emotional states mostly differed according to the institution they worked for (Table 3).

Table 3.

Questionnaires and answers according to status of graduation, institution and experience. (n = 556)

Questions	Answers	Degree of dental graduation			Institution			Years of professional experience		
	Answer	General Dentist (n=276)	Specialist dentist (n=280)	P value	Government (n=278)	Private (n=278)	P value	0-10 Years (n=330)	≥10 Years (n=226)	P value
13. Have you had the COVID-19 disease?	Yes	35	30	0.511	34	31	0.692	32	33	0.077
	No	241	250		244	247			193	
14. Has there been a change in your approach to patients after contracting COVID-19? (n=75)	Yes	35	30	0.511	244	247	0.692	32	33	0.077
	No	0	0		34	31		0	0	
15. Have you felt the need to develop/improve the measures taken after contracting the COVID-19 disease? (n=75)	Yes	35	30	0.278	244	247	0.692	32	33	0.077
	No	0	0		34	31			0	
16. I fear a patient and a colleague may infect me with COVID-19.	I am undecided	23	34	0.317	23	34	<0.001*	30	27	0.521
	I agree	225	221		243	203		267	179	
	I do not agree	28	25		12	41		33	20	
17. I worry when treating a patient who is coughing or who I suspect may be infected with COVID-19.	I am undecided	8	13	0.550	12	9	0.001*	15	6	0.305
	I agree	249	247		258	238		289	207	
	I do not agree	19	20		8	31		26	13	
18. I don't want to treat patients until the number of COVID-19 cases starts to decrease.	I am undecided	61	58	0.923	46	73	<0.001*	65	54	0.490
	I agree	133	137		195	75		163	107	
	I do not agree	82	85		37	130		102	65	
19. I get nervous and stressed because I can't maintain social distance during dental treatments.	I am undecided	30	38	0.429	30	38	<0.001*	44	24	0.611
	I agree	167	173		214	126		198	142	
	I do not agree	79	69		34	114		88	60	
20. I am afraid of transmitting the COVID-19 infection to my family/relatives, which I may get while examining/treating patients.	I am undecided	2	7	0.178	2	7	0.002*	5	4	0.005*
	I agree	266	268		275	259		323	211	
	I do not agree	8	5		1	12		2	11	
21. I am afraid of being quarantined if I become infected with COVID-19.	I am undecided	29	30	0.523	35	24	0.161	35	24	0.043*
	I agree	140	129		138	131		146	123	
	I do not agree	107	121		105	123		149	79	
22. I am scared when I hear that people are dying from COVID-19.	I am undecided	19	19	0.943	18	20	0.001*	26	12	0.412
	I agree	266	232		244	214		271	187	
	I do not agree	31	29		16	44		33	27	
23. I am having financial problems due to the epidemic.	I am undecided	38	46	0.262	41	43	0.001*	48	36	0.372
	I agree	159	142		173	128		173	128	
	I do not agree	79	92		64	107		109	62	
24. During the pandemic, I experienced symptoms of anxiety and depression.	I am undecided	39	52	0.181	49	42	<0.001*	52	39	0.302
	I agree	139	146		175	110		178	107	
	I do not agree	98	82		54	126		100	80	
25. I feel that I should consult a psychiatrist.	I am undecided	59	56	0.586	69	46	<0.001*	71	44	0.563
	I agree	63	56		78	41		74	65	
	I do not agree	154	168		131	191		185	137	
26. Following the news of the epidemic causes my anxiety and anxiety to increase.	I am undecided	31	48	0.032*	34	45	<0.001*	53	26	0.083
	I agree	185	190		212	163		225	150	
	I do not agree	60	42		32	70		52	50	

**Statistical significant level is at p<0.05.*

Except for the 26th question, no difference was observed between the dentists being specialists or general dentists and their answers ($p>0.05$). But those who work in the government institution gave the answer 'I agree' to questions 16-20 and 22-26 at a significantly higher rate ($p<0.005$). Those with 0-10 years of professional experience were more afraid of transmitting the COVID-19 infection to their family/relatives, which they may get while examining/treating patients ($p=0.005$), and more afraid of being quarantined if they become infected with COVID-19 ($p=0.043$).

DISCUSSION

This cross-sectional study was conducted to evaluate the changes in the knowledge levels, attitudes, behaviors and emotional status of dentists who were actively working in our country during the COVID-19 pandemic. 72.5% of the participants were women. This was a reflection of the superiority of female dentists in our country.

Based on the past pandemics, we can say that it is natural to see psychological effects such as fear and anxiety due to increasing infected individuals and death rates in these periods. It has also been seen in research on previous outbreaks of infectious diseases similar to COVID-19, such as SARS, that healthcare workers face psychological traumas such as fear of being infected or infecting a family member while treating an infected patient.[6-8]

Amin et al.[9] investigated anxiety among oral and maxillofacial surgery residents during the early COVID-19 pandemic and according to results, senior and female residents experienced higher anxiety levels than others. Based on the data of a survey study conducted with 669 participants from 30 different countries, Ahmed et al.[8] found that dentists, despite having a high standard of knowledge and practice, are anxious and fearful when working in their field due to the impact of the COVID-19 pandemic on humanity. In this study, we did not make a score to determine the level of anxiety, but when we interpreted the answers given, regardless of the institution or years of experience of graduation levels of dentists, the majority of them were afraid of treating suspicious patients, being infected, or infecting their family. Most of the participants reported that they showed signs of anxiety and depression during the pandemic, and that they were afraid and worried as they watched the news about the COVID-19 and learned about the mortality rates.

According to previous study findings[8], some dental practices have changed their services based on recommended guidelines for emergency treatment only, or have closed practices indefinitely. In the study of Faccini et al.[10], 64.6% of dentists attended only emergency/emergency treatments during quarantine, while 26.1% continued their routine appointments, 9.3% closed their dental practices. A high percentage of dentists in states with low epidemic continued their normal work routine. 44.1% of dentists reported an increase in urgent/urgent procedures, mostly due to the lack of routine dental care habits and increased patient anxiety and stress. The main reasons for urgent/urgent appointments are toothache, dental trauma and broken restorations, fracture of orthodontic appliances and temporomandibular disorders. In addition, according to the previous study results[10], dentists reported that they were highly concerned about the economic impact caused by the quarantine. In the present study, 150 participants (26.9%) reported that they only performed emergency dental treatments and 58.8% reported an increase in the number of patients applying for emergency dental treatments, and the reasons for emergency treatment were similar to the results of Faccini et al.[10] The reason for the high rate of those who continue routine dental procedures may be due to the high number of patients and treatment demands in our country and may be due the low income resulting from treating fewer patients negatively affecting the economic situation of clinicians.

In the study of Sarıalioğlu Güngör et al.[4], it was determined that while the stress levels related to family and patient safety of dentists with 0-10 years and 11-20 years of professional experience were statistically similar, the stress level was statistically reduced in dentists with more than 20 years of professional experience. In the present study, dentists with 0-10 years of professional experience were afraid of transmitting the COVID-19 infection to their family and afraid of being quarantined if they become infected with COVID-19 with a statistically higher rate than dentists with 11-20 years of professional experience. Contrary to Sarıalioğlu Güngör et al.[4] , the answers given to the questions to evaluate the other fear and anxiety levels did not differ statistically according to the years of professional experience. In the previous study[4], 73.1% (800) of dentists reported that they would take the temperature of each incoming patient, 49.2% (539) would sterilize the clinical environment with UV systems, and 55.9% (612) would use aerosol absorbers. With the similar rates, in the present study, 78.2% (435) reported that they measured the temperature of each patient, 59% (332) reported that they used high-volume aspiration for each patient in their clinic, and 39.3% (219) provided air disinfection with any device.

When we compare it with other survey studies conducted on dentists in our country in March and May 2020[4,5], the results of this study, which we conducted in April-May 2021, show that the fear and anxiety of dentists due to the pandemic has not decreased in the past 1 year, and changes in the treatment protocols, attitudes and behaviors of dentists continue. We are of the opinion that the results of a new survey analysis to be conducted after the increase in the vaccination rate of dentists and

patients in our country may differ from the findings of this study which we completed in May 2021.

LIMITATIONS

The data of this study were collected in a short time, and during this time period, COVID-19 vaccine application was not common in our country and there was no effective treatment of the disease. The widespread application of vaccines, and the development of treatments may affect the answers to the survey questions. In addition, the questionnaire was applied only in our country and not all dentists could be reached, so the generalizability of the study is limited.

CONCLUSION

In line with the results of the study, specialist dentists take measures such as HES code query and temperature measurement at a higher rate than general practitioners. While the dentists working in government institutions answered the questions about their emotional states that they were more concerned than dentists working in private institutions, it was seen that the status of being a specialist or general dentists or the years of professional experience did not affect the answers to the these questions mostly. For general interpretation of our results, our survey would need to reach larger populations.

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