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The Effects of the Covid-19 Pandemic on the Demand for Dental Treatment[#]

Merve Aydemir[1,a,*], Şeyda Hergüner Siso[1,b], Esin Murrja[1,c], Lamia Najafova[2,d]

[1]Department Of Restorative Dentistry, Faculty of Dentistry, Istanbul Aydın University, Istanbul, Turkey.
[2]Asst.Prof, İstanbul, Turkey
*Corresponding author

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ABSTRACT

Objectives: To report on the level of knowledge of people about Covid-19 symptoms, transmission routes and personal protective equipment use during the Covid-19 pandemic normalization process, to determine the health institutions they will prefer for dental treatment.

Materials and Methods: A total of 226 individuals aged 18 and over who went to dental institutions like faculties of dentistry, dental clinics, public and private hospitals at least once in the last 2 years participated in this survey.

Results: The majority of the participants (36%) are between the ages of 20-30; 43% of them are university graduated; 70% of them belong to small family; 29% of them live in a household with 3 people. Participants have a high level of knowledge about Covid-19 symptoms and transmission routes. Surgical masks (94%), hand disinfectants (95%) are the most common measures taken for Covid-19, while N95. (24%) and visor (21%) are used the least. No significant relationship was found between socio-demographic characteristics, the level of knowledge about Covid-19 symptoms and transmission routes, and the use of personal protective equipment. Faculty of dentistry monitor body temperature and mask use, and dental clinics monitor the use of masks more carefully than other health institutions. Among the reasons for the preference of health instutiations the precautions taken regarding the epidemic were not preferred, but only the ease of transportation and financial reasons (p=0,00) were effective. 46% of the participants are aware of the measures taken by health institutions against Covid-19.

Conclusions: Participants have sufficient knowledge about the transmission routes and symptoms of Covid-19. The Covid-19 pandemic was not effective in determining the health institution they would prefer.

Keywords: Covid-19, Hospital Preference, Level of Knowledge, Dental Treatment, Pandemic.

[a] dt.merve.aydemir@gmail.com   https://orcid.org/0000-0002-4021-296X   [b] seydasiso@aydin.edu.tr   https://orcid.org/0000-0002-0728-948X
[c] esinmurrja@aydin.edu.tr   https://orcid.org/0000-0002-5398-4555   [d] lamia.najaf@gmail.com   https://orcid.org/0000-0001-6900-8308

Introduction

In the winter months of 2020, the pandemic process started in the world because of a virus that spread from Wuhan city to China and from there to the whole world and caused deadly pneumonia. This virus is an RNA virus and is in the same family as corona SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV). Starting in China, this virus caused thousands of people to become ill and die, then spread to Europe (most of all it affected Italy) and the United States of America (USA). Due to the very high rate of spread and high contagiousness of the disease, the World Health Organization (WHO) had to declare a pandemic, this new disease is called the coronavirus 2019 disease (COVİD - 2019). According to researches, the most likely route of transmission of the disease can be carried out by respiratory droplets. That is if there is a situation such as talking, coughing and sneezing. There are insufficient numbers of studies on the transmission of the virus by other means.[1] Like other coronaviruses, SARS-Cov-2 infection shows symptoms such as fever, cough, and asthenia in patients.[2]

Rotating instruments and ultrasonics used by physicians during dental treatment in clinics come into contact with body fluids and spray contaminated aerosols.[3] Dentists are in the high-risk group because the most likely route of transmission of the virus is through droplets. Measures should be taken to protect dentists, assistants, clinic staff, and patients from the disease during the pandemic process we live in.[4] Appliances used in dental treatments are contaminated with various microorganisms. Perforation of the mucosa with sharp tools can cause infections.[3] Some studies measure the fear and fuss of healthcare workers during the pandemic process.[5,6]

Dentists are one of the highest risk groups among healthcare professionals during the Covid-19 pandemic process. In Italy, during the isolation process of the pandemic process, dental clinics were not closed by the state. The reason for this was to reduce the burden of hospitals serving Covid-19 patients. However, the medical and dental committee strongly recommended that patients should not be treated by physicians, except for those requiring emergency treatment in clinics.[7] It

was reported that within the scope of the measures specified in the study guide published by the Ministry of Health in Turkey on June 1, aerosol-containing treatments, especially emergency and compulsory treatments, can be applied.

With the pandemic that took place in 2019, there have been some changes in the preferences of patients in the following years. These events will cause a change in the literature on hospital choice. In the declaration published by the Ankara Chamber of Physicians in 2020, it is stated that the treatment of patients other than Covid-19 is disrupted and access to the right to health is difficult. It was stated that patients with chronic diseases did not go to hospitals except for emergencies due to the concern of being infected with the virus, non-emergency elective surgeries and treatments were postponed until after the pandemic with the agreed decision of the physician and the patient. In this study, how the Covid-19 pandemic affects the rate of patients going to the hospital for dental treatment and hospital preferences for dental treatments during the pandemic were evaluated.

H_0: The Covid-19 pandemic did not affect individuals' perspectives on dental treatments.

Studies are investigating the level of fear and psychological disturbance of dentists and hygienists during the coronavirus outbreak.[7-9] Interestingly, there are a few studies that measure the level of fear and chaos in patients who come to dentistry faculties and clinics during this difficult pandemic process. Likewise, there is no study that measures the knowledge level of patients who apply to dentists during the pandemic process about COVID-19, according to which criteria the patients make their choice of the health institution and the factors that affect this choice. The aim of this study is to measure the knowledge of patients who apply to the dentist about Covid-19 disease, to determine their perspective on dental treatment in this process, to investigate the criteria by which the health institution chooses in case of need for this treatment and the factors affecting it.

Materials and Methods

This study is approved by the Ministry of Health of the Republic of Turkey (No: 2020-09-03T002437). This study is approved by the Institutional Ethics Committee of Istanbul Aydın University (No: B.30.02.AYD.0.00.00-050.06.04/320). This study is conducted in accordance with the Principles of the Declaration of Helsinki.

The study started in June 2020, which is accepted as the beginning of the normalization process in our country. Adult patients aged 18 years and older who applied to the state hospital, dental policlinics, Faculties of Dentistry, private hospitals, and private clinics due to the need for dental treatment were included in the study and the participation was purely voluntary. These patients were asked to fill out the questionnaire form before their treatment. The form was filled out under the supervision of clinical staff. No record was made

regarding the identity information of the participants (name, surname and identity number).

The questionnaire used in the study consists of two parts. The first part includes questions about demographic data and systemic diseases. The second part includes COVID-19 and patient-related questions (Table 1). After the participants answered all the questions, the relevant data of the study were saved electronically and evaluated with the G*power 3.1 program. As a result of the evaluation made according to the Chi-Square analysis, the required sample size was determined as at least 223 individuals. In this case, it is expected that the power of the test will be approximately 80.04%. The data obtained from the study were evaluated with the Chi-Square test and Fisher's exact test.

Results

65% of the participants were female and 35% were male. The range with the highest number of participants is the 20-30 age group with 36%; university graduated with 43%; small family with %70 and a household of 3 people with 29%. These values were statistically significant. Marital status and income level responses were homogeneously distributed.

49% of the study participants mostly work the same hours as before the pandemic. 86% of the participants have social insurance and 32% have private health insurance. 81% of the participants do not have any chronic disease. (Table 1)

In the questions asked to the participants to measure their level of knowledge about Covid-19 symptoms, it was seen that fever was the most known symptom with 81%, while diarrhea and headache were the least known symptoms with 61%. Participants have a significant level of knowledge about all symptoms. (Table 2).

The difference between all answers in the questions measuring the level of knowledge of the participants about the ways of transmission of Covid-19 is statistically significant. The most common transmission routes are coughing (93%) and sharing personal belongings (90%). 54% have no information about the transmission from pets. The least known transmission routes are emergency and non-emergency treatments and dental treatments. In addition, the participants asked, "Do you know that the aerosol (water droplets) scattered in the air and suspended in the air during dental treatment play a role in the spread of the Covid-19 virus?" the answer to the question was yes with 65% (Table 3).

Table 4 shows the precautions taken by the participants for Covid 19. Mainly surgical masks, hand sanitizers, and cologne are used. The use of N95, visor, and gloves are statistically significantly less.

No significant relationship was found between socio-demographic characteristics and questions measuring the level of knowledge about Covid-19 symptoms. No significant relationship was found between the socio-demographic characteristics and the questions measuring the level of knowledge about the transmission routes of Covid-19. No

significant relationship was found between socio-demographic characteristics and the use of personal protective equipment. (p>0.05)

There is no significant difference in the level of knowledge about symptoms and transmission routes, or the use of protective equipment in patients with chronic disease. (p>0.05). In addition, the level of education did not affect the level of knowledge about Covid-19 or the rate of use of protective equipment (p>0.05).

140 people out of 226 participating in the study had dental treatment during the normalization process. 86 people did not have dental treatment. During the normalization process, those who had dental treatment preferred dental policlinics with 32%, dentistry of faculties with 30%, private hospitals with 21%, private clinics with 13%, and state hospitals with 4%.

No significant relationship was found between income level and the preferred hospital. (p>0.05) In addition, there was no significant relationship between income level and the reason for choosing the preferred institution. It is statistically significant that the participants with social health insurance prefer the institution for 'financial reasons' (p=0.03).

Among the reasons for choosing the institution by the participants with private health insurance, 'health insurance' was significantly the most important reason (p=0.00). (Table 5)

The frequency of going to the dentist for the group who had dental treatment during the normalization process; decreased by 56%, remained unchanged by 38.9%, and increased by 5%. There was no significant change in the frequency of going to the dentist during the normalization process for individuals with chronic diseases.

The reasons for going to the dentist during the normalization process were pain (35%), tooth decay (19%), gingival problems (10%), filling replacement (9%), control (6%), aesthetics (4%), trauma (3%), and other reasons (14%).

Table 1. Socio-demographic characteristics

Socio-demographic characteristics	Categories	n	%	χ^2	p
Gender	Female	148	65%	21.68	0.001[1] **
	Male	78	35%		
Age	Age Under 20	21	9%	107.027	0.001[1] **
	20-30	81	36%		
	31-40	58	26%		
	41-50	44	19%		
	51-60	11	5%		
	over 60	11	5%		
Educational status	Illiterate	2	1%	213.637	0.001[1] **
	Literate	7	3%		
	Primary School	23	10%		
	Secondary Education	19	8%		
	High School	59	26%		
	University	97	43%		
	PhD-Master	19	8%		
Marital Status	Married	127	56%	3.240	0.072[1]
	Single	99	44%		
Family Type	Nuclear family	159	70%	260.832	0.001[1]**
	Extended Family	44	19%		
	Single parent family	15	7%		
	Single person household	8	4%		
Number of people in the household	1 Person	16	7%	96.310	0.001[1] **
	2 Persons	29	13%		
	3 Persons	65	29%		
	4 Persons	61	27%		
	5 Persons	33	15%		
	6 Persons	15	7%		
	7 Persons and above	7	3%		
Income level	Minimum salary and below	50	22%	8.204	0.084[1]
	2500-3500	59	26%		
	3501-4500	40	18%		
	4501-5500	34	15%		
	5501+	43	19%		
How is your working order during the Covid-19 pandemic?	As before the pandemic	111	49%	125.540	0.001[1] **
	Decreased working hours	84	37%		
	Unemployed during the pandemic	14	6%		
	Increased working hours	17	8%		
Do you have social insurance?	Yes	195	86%	119.009	0.001[1] **
	No	31	14%		
Do you have private health insurance?	Yes	72	32%	153.566	0.001[1] **
	No	154	69%		
Do you have a chronic disease?	Yes	42	19%	237.168	0.001[1] **
	No	184	81%		

Table 2. Covid 19 Diagnoses and Symptoms (n=226)

Covid 19 Diagnoses and Symptoms	Categories	n	%	χ^2	p
Have you been diagnosed with Covid-19?	Me	19	8.3%		
	My relatives	78	34.2%	156.389	0.001[1] **
	No one	131	57.5%		
Fever	Yes	184	81%		
	I don't know	21	9%	235.124	0.001[1] **
	No	21	9%		
Cough	Yes	173	77%		
	I don't know	28	12%	189.991	0.001[1] **
	No	25	11%		
Shortness of breath	Yes	179	79%		
	I don't know	24	11%	213.991	0.001[1] **
	No	23	10%		
Headache	Yes	138	61%		
	I don't know	62	27%	86.796	0.001[1] **
	No	26	12%		
Muscle pain	Yes	153	68%		
	I don't know	47	21%	123.035	0.001[1] **
	No	26	12%		
Sore throat	Yes	152	67%		
	I don't know	50	22%	121.522	0.001[1] **
	No	24	11%		
Loss of taste and smell	Yes	170	75%		
	I don't know	34	15%	177.680	0.001[1] **
	No	22	10%		
Diarrhea	Yes	137	61%		
	I don't know	64	28%	85.814	0.001[1] **
	No	25	11%		

Table 3. Thoughts on Covid 19 Contagion (n=226)

Thoughts on Covid 19 Contagion	Categories	n	%	χ^2	p
Coughing	Yes	211	93%		
	I don't know	14	6%	367.602	0.001[1] **
	No	1	0%		
Handshake	Yes	199	88%		
	I don't know	22	10%	306.434	0.001[1] **
	No	5	2%		
Hands touching mouth. nose or eyes after touching surfaces such as doorknob or table	Yes	197	87%		
	I don't know	23	10%	296.664	0.001[1] **
	No	6	3%		
Pets	Yes	31	14%		
	I don't know	121	54%	53.796	0.001[1] **
	No	74	33%		
Loud speech (closer than 1-1.5m)	Yes	136	60%		
	I don't know	72	32%	92.637	0.001[1] **
	No	18	8%		
Sneezing (without disposable napkin or into elbow)	Yes	195	86%		
	I don't know	21	9%	285.938	0.001[1] **
	No	10	4%		
Shared use of personal belongings	Yes	204	90%		
	I don't know	18	8%	330.938	0.001[1] **
	No	4	2%		
Traveling in public transport	Yes	196	87%		
	I don't know	23	10%	291.619	0.001[1] **
	No	7	3%		
Emergency or non-emergency medical treatments	Yes	129	57%		
	I don't know	84	37%	90.805	0.001[1] **
	No	13	6%		
Dental treatment	Yes	130	58%		
	I don't know	89	39%	104.133	0.001[1] **
	No	7	3%		
Do you have any information about the aerosol (water	Yes	148	65%	141.619	0.001[1] **

Table 4. Measures Taken Regarding Covid 19 (n=226)

Measures Taken Regarding Covid 19	Categories	n	%	χ^2	p
Surgical mask	Yes	212	94%	173.469	0.001[1] **
	No	14	6%		
N95	Yes	55	24%	193.336	0.001[1] **
	No	170	76%		
Visor	Yes	48	21%	215.823	0.001[1] **
	No	178	79%		
Glove	Yes	107	47%	107.743	0.001[1] **
	No	179	53%		
Hand sanitizer	Yes	214	95%	180.549	0.001[1] **
	No	12	5%		
Cologne	Yes	197	87%	124.885	0.001[1] **
	No	29	13%		

Table 5. Health insurance-hospital preference relationship

Health insurance status		Reason for choosing your preferred institution						Total
		Health insurance	Financial reasons	Ease of transportation	Reliability	Having sufficient measures on the pandemic	Other	
Do you have private health insurance?	Yes	19* 40.4%	6 12.8%	12 25.5%	25 53.2%	12 25.5%	4 8.5%	47
	No	8 8.7%	13 14.1%	21 22.8%	41 44.6%	22 23.9%	8 8.7%	92
Do you have social insurance?	Yes	24 21.1%	11* 9.6%	27 23.7%	57 50.0%	32 28.1%	10 8.8%	114
	No	3 12.0%	8 32.0%	6 24.0%	9 36.0%	2 8.0%	2 8.0%	25

*p<0.05

Considering the support received from health institutions during the Covid-19 normalization process, there was a significant increase only in the support received from policlinics (p=0.00). 60% of the participants reported that the service they received from dental policlinics improved, 38% did not change, and 2% reported worsening. In state hospitals, 28.6% of the participants reported that the support they received worsened, 28.6% did not change, and 42.8% increased, in university hospitals, it worsened with 10.4%, did not change with 66.6%, improved by 23%, in private hospitals worsened with 9.3%, did not change with 50%, improved with 40.7%, in private clinics worsened with 4.7%, did not change with 62%, and improved with 33.3%.

When the reasons for the preference of health institutions are examined regardless of hospital name, reliability with 34.6%, sufficient preventive measures related to the pandemic with 17.8%, ease of transportation with 17.3%, health insurance with 14.1% and other with 6.3% are the reasons of choice. (Table 7) When evaluated in terms of each hospital in itself, reliability has been the most preferred reason, but this situation is not at a statistically significant level. Among the reasons for the preference of health institutions, the measures taken regarding the epidemic were not the reason for preference. When an evaluation is made between the preferred hospitals and the reasons for preference, state hospitals are preferred due to financial reasons (p=0.00) and ease of transportation (p=0.02),

while private hospitals were preferred due to ease of transportation (p=0.04). No reason for the preference was identified in the other health institutions. (Table 6)

During the Covid-19 normalization process, the rate of being informed about the measures against Covid19 taken by the hospitals they prefer is 75%. While state hospitals, private hospitals and private clinics use all communication methods such as e-mail/SMS and social media, dental policlinics used more e-mail/SMS (p=0.00) and phone call (p=0.04), university hospitals used significantly more e-mail/SMS. (Table 6).

There was no significant relationship between age and the ways of informing about the measures taken by the preferred institution.

During the Covid-19 normalization process, the preferred hospitals, and the change in the frequency of patients going to the dentist were found to be independent of each other (p>0.05).

During the Covid-19 normalization process, no significant relationship was found between the reason why patients went to the dentist (pain, trauma, dental caries, etc.) and the hospitals they preferred.

When the measures taken by the preferred institutions against the Covid-19 virus are evaluated, it is seen that all institutions pay high attention to the measures taken against Covid-19. In university hospitals temperature measurement at the entrance (p=0.04) and mask use (p=0.05), in dental policlinics mask use (p=0.05) stood out significantly. (Table 6)

Table 6. Questions For The Preferred Hospital

Questions		Hospital of Preference					Total
		SH	DF	PH	PC	DP	
What is your reason for choosing your preferred institution during the Covid-19 pandemic?	Health insurance	1 3.7%	8 29.6%	5 18.5%	5 18.5%	8 29.6%	27
	Financial reasons	5(p=0.00) 26.3%	8 42.1%	5 26.3%	4 21.1%	4 21.1%	19
	Ease of transportation	5(p=0.02) 15.2%	10 30.3%	14(p=0.04) 42.4%	7 21.2%	14 42.4%	33
	Reliability	4 6.1%	23 34.8%	16 24.2%	10 15.2%	27 40.9%	66
	Having sufficient measures on the pandemic	1 2.9%	6 17.6%	6 17.6%	9 26.5%	18 52.9%	34
	Other	0 0.0%	7 58.3%	3 25.0%	0 0.0%	2 16.7%	12
How did you learn about the measures taken by your preferred institution against Covid-19 during the Covid-19 pandemic?	E-Mail And SMS	1 2.8%	3 8.3%	8 22.2%	8 22.2%	22 61.1%	36
	Social Media	1 3.1%	13 40.6%	9 28.1%	2 6.3%	14 43.8%	32
	Word of mouth	2 5.4%	10 27.0%	10 27.0%	5 13.5%	14 37.8%	37
	Incoming Call	4 14.3%	11 39.3%	5 17.9%	5 17.9%	18 64.3%	28
	Other	3 8.3%	17 47.2%	11 30.6%	7 19.4%	4 11.1%	36
What did you see from the measures taken by your preferred institution against the Covid-19 virus during the Covid-19 pandemic?	I was told to come 15 minutes before my appointment and come alone	4 4.7%	25 29.4%	20 23.5%	17 20.0%	35 41.2%	85
	I was not allowed in without a mask	7 5.5%	39 30.7%	31 24.4%	17 13.4%	50 39.4%	127
	My temperature was measured at the entrance	7 5.9%	35 29.4%	29 24.4%	19 16.0%	48 40.3%	119
	The waiting room was in accordance with the social distance rules	6 4.9%	43 35.0%	31 25.2%	18 14.6%	44 35.8%	123
	There was a hand sanitizer	6 4.7%	43 33.3%	31 24.0%	17 13.2%	49 38.0%	129
	Air conditioner not operating	4 5.5%	24 32.9%	15 20.5%	10 13.7%	29 39.7%	73
	The environment was being ventilated	5 4.5%	34 30.6%	26 23.4%	16 14.4%	46 41.4%	111
	The number of people in the elevator was determined according to the social distance rules	1 1.2%	28 33.7%	25 30.1%	9 10.8%	25 30.1%	83
	Employees and physicians were using the necessary protective equipment	6 4.8%	42 33.3%	29 23.0%	17 13.5%	49 38.9%	126
Could you rate your preferred institution in terms of Covid-19 measures?	Very inadequate	2 40.0%	3 60.0%	3 60.0%	2 40.0%	2 40.0%	5
	Insufficient	1 12.5%	4 50.0%	1 12.5%	2 25.0%	0 0.0%	8
	Intermediate	1 4.0%	9 36.0%	7 28.0%	3 12.0%	5 20.0%	25
	Sufficient	2 3.0%	23 34.3%	16 23.9%	9 13.4%	22 32.8%	67
	Quite Enough	1 2.9%	9 25.7%	6 17.1%	5 14.3%	21 60.0%	35
If you have a similar problem, would you apply to the same institution again?	Yes	3 2.7%	37 33.6%	24 21.8%	15 13.6%	43 39.1%	110
	No	2 13.3%	6 40.0%	4 26.7%	3 20.0%	2 13.3%	15
	I don't know	0 0.0%	3 25.0%	3 25.0%	3 25.0%	3 25.0%	12
Has the support you received from the institution you went for dental treatments changed due to the Covid-19 outbreak?	Got Worse	2 16.7%	5 41.7%	3 25.0%	1 8.3%	1 8.3%	12
	Hasn't Changed	2 2.6%	32 41.6%	16 20.8%	13 16.9%	19 24.7%	77
	Got Better	3 6.0%	11 22.0%	13 26.0%	7 14.0%	30 60.0%	50

SH: State hospitals; DF: Dentistry of faculties; PH: Private hospitals; PC: Private clinics; DP: Dental Policlinics

Tablo 7. Distribution of hospital preference reasons

		n	Percent	
What is your reason for choosing your preferred institution during the Covid-19 pandemic?	Health insurance	27	14.1%	19.4%
	Financial reasons	19	9.9%	13.7%
	Ease of transportation	33	17.3%	23.7%
	Realibility	66	34.6%	47.5%
	Having sufficient measures on the pandemic	34	17.8%	24.5%
	Other	12	6.3%	8.6%

When participants are asked to evaluate their preferred institution in terms of Covid-19 measures; the vast majority of them scored their preferred hospitals as 'sufficient and very sufficient' in terms of Covid-19 measures. (Table 6)

When faced with a similar dental problem, the rate of choosing the same institution again was highest in private clinics and lowest in public hospitals. (Table 6)

Discussion

The rapid spread of the COVID-19 virus worldwide has posed significant health system problems in all affected countries. The response rate and type of reaction given by individuals to this disease worldwide differed according to the state of the health systems in the country where the individuals live, the economies of the countries, and the health strategies they follow[10] For this reason, it is recommended to conduct studies on how this global event may affect the behavior of individuals[11,12] Similar decisions were taken in our country as of March 2020, and only emergency dental applications were made until June 2020.[13] With the normalization process starting from this date, there has been a tendency to start routine dental practices under the recommendations of the Ministry of Health.[14] Therefore, the current study was conducted on patients who preferred private or state institutions for dental treatments as of August 2020.

As of January 2020, routine dental practices other than emergency dental treatments have been suspended worldwide due to the high risk of contamination.[10] With the normalization process starting from this date, there has been a tendency to start routine dental practices under the recommendations of the Ministry of Health.[13] Therefore, the current study was conducted on patients who preferred private or state institutions for dental treatments as of August 2020.[14] Therefore, the current study was conducted on patients who preferred private institutions or public institutions for dental treatments as of August 2020.

In this study, questions measuring the level of knowledge about Covid-19 symptoms, transmission routes and personal protective equipment to be used against the Covid-19 virus were asked to the participants. Covid-19 symptoms, transmission routes and personal equipment usage levels of the participants were found to be significantly sufficient. While our study is similar to some previous studies carried out with different participants such as the community and healthcare professionals[15-17] it has quite highly positive results compared to the study of Srichan *et al.*[18] it is thought that a high level of education increases knowledge, attitude, and behavior.

No significant relationship was found between socio-demographic characteristics and Covid-19 findings, knowledge levels of transmission routes, personal protective equipment use. Education level did not affect the level of knowledge about Covid-19 or the rate of use of protective equipment. 77% of the participants in the study are at high school or higher education level, and 51% are university graduates. The fact that most of the participants were educated people may explain this situation.

Those who have had the Covid-19 disease were expected to be more cautious about using protective equipment. However, it is thought that there is no significant change in the use of personal protective equipment, as those who have had Covid-19 disease may have thought that they have become immune and this immunity will protect them. However, more information is needed to reach a definite conclusion on this subject.

It has been reported that dental treatments are a serious contamination risk for physicians, dental assistants, and patients since they include aerosol-generating treatment applications.[10,19] Sun *et al.* reported that the majority of parents thought that their children could become infected with the virus while undergoing dental treatment, while very few of them thought that the risk of transmission was similar to that in other public places or that there was no significant risk.[20] Similarly, it was seen that most of the individuals participating in this study thought that there was a risk of contamination during dental treatments (58%) and that they found routine dental treatment applications containing aerosols risky (65%).

There are studies in the literature about the variables associated with hospital preference. When the literature is examined, patient characteristics that affect the choice of hospital can be classified as the patient's age, income status, previous experience, perceptions about the hospital, the type and severity of the person's current systemic diseases.[21,22] In addition to the characteristics of the patients, the characteristics of the hospital they will choose are also important in choosing the hospital. When the literature is examined, it is seen that some of these features are related to the health services and financing opportunities in the regions where the research is conducted. Although there are such differences in terms of variables, it consists of hospital characteristics,

service delivery quality, location, size and types of services that affect the choice of hospital.[23,24]

When the institutions that the individuals participating in the study applied to for dental treatments during the normalization process were questioned, it was determined that the most preferred institutions were dental policlinics and faculties of dentistry, while state hospitals were in the last place in terms of preference. During the normalization period, state hospitals could not apply dental treatments other than emergency treatments, as they were assigned to the filiation service. Therefore, we think that this is the reason that state hospitals were not preferred.

When the reasons for preferring these institutions were evaluated, all health institutions showed a preference distribution such as financial reasons, ease of transportation, and protective measures. However, state hospitals were preferred due to financial reasons and ease of transportation. As a matter of fact, it has been determined that income level is an important variable among the variables affecting the hospital preference of patients.[25] Private hospitals, on the other hand, have been preferred due to the ease of transportation. Mosadeghrad *et al.*[26] stated that the location of the hospital is among the prominent variables in hospital preference. The fact that transportation vehicles other than private vehicles were found to be risky in terms of contamination may have been effective in this preference. No cause was identified in other health institutions. However, when the reasons for preference were examined independently of the hospital name, reliability was the most preferred reason (%34.6). When evaluated in terms of each hospital in itself, reliability has been the most preferred reason. As a result, it can be said that patients prefer to go to the hospitals they trust during the Covid-19 period.

In the Covid-19 normalization period, when the support received from health institutions is evaluated, there has been a significant increase in the support received only from dental policlinics. State hospitals and university hospitals have served in short working times due to pandemic conditions. However, as a result of the flexible working hours of the dental policlinics, their accessibility has been higher than the other institutions. The support received from dental policlinics may have increased because of this.

Huaqiu Guo *et al.*[27] in a study conducted on 2537 patients, researchers found that the number of patients who applied to clinics for dental procedures during the pandemic decreased by 38% compared to the pre-COVID-19 outbreak. It has been stated that the most common reasons for patients to go to dental clinics are due to pulpal or periapical lesions and abscess, which is stated as emergency dental treatment, and the number of patients who applied for non-emergency treatments decreased by 70% compared to before the COVID-19 outbreak. Similar to this study, it was observed in our study that the frequency of going to the dentist decreased by 56% during the normalization period. In

addition, it was observed that the participants applied to the hospitals mostly because of pain. The findings show that COVID-19 had a significant impact on the behavior of patients in need of dental treatment.

During the pandemic, patients obtained information about the disease from various sources. A previous survey conducted in Hong Kong during the 2003 SARS outbreak found that approximately 80% of the respondents paid attention to SARS via regularly watching or listening to the news.[28] In the study conducted in India by Vijai and Joyce (2020), it was found that 89.9% of the respondents had a high level of knowledge about COVID-19, and newspaper and television news were the highest sources of information.[16] Similar to the literature, in this study, the rate of patients being informed about the measures taken by the hospitals they prefer against Covid19 was found to be 75%.

Hospital experiences, which were spread by word of mouth before the internet and social media became widespread, now spread rapidly over the internet and social media to include the opinions of third parties.[29] Public hospitals, private hospitals and private clinics in our study used all communication methods such as e-mail, message, and social media during the pandemic. The usage of e-mail, message and phone call methods in policlinics and the usage of e-mail and message information in university hospitals were significantly more. In addition, no significant difference was found between age and the methods of being aware of the measures taken by the preferred institution. Since the majority of the participants are young individuals, we can say that all communication methods have been effective in informing.

It was stated that the hospitals included in the study paid high attention to the Covid-19 measures. It has been observed that the patients score the hospitals they prefer considering these measures as 'sufficient and very sufficient' in terms of Covid-19 measures.

When the current study limits were evaluated, the comparison and discussion of some results obtained from this study was limited due to the lack of similar studies in the literature. In addition, this cross-sectional study was carried out as of the first gradual normalization process after April 2020, which is defined as the peak period in our country. Therefore, the results of the study may vary according to the pandemic period in which the evaluation was made. It is thought that conducting such studies before, during and after the peak periods of the pandemic processes will have an impact on the results. For this reason, it is important to carry out similar studies on larger populations in a way that can compare different pandemic processes, to obtain comprehensive data and comparability of data.

Conclusions

- Participants have sufficient knowledge about the transmission routes and symptoms of Covid-19.

- It can be concluded that the measures taken against the Covid-19 virus alone are not effective in determining the health institution.

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