Original Article

Impact of the Coronavirus Disease 2019 Pandemic on Patient **Applications at the Endodontic Clinic**

Merve Kösetürk¹, Emre Bayram²

¹Department of Endodontics, Erzincan Binali Yıldırım University, Faculty of Dentistry, Erzincan, Türkiye ²Department of Endodontics, Tokat Gaziosmanpasa University, Faculty of Dentistry, Tokat, Türkiye

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ORCID iDs of the authors: M.K. 0000-0001-8401-5098, E.B.0000-0001-7672-250X.

ABSTRACT

Objective: The pandemic that occurred in 2019 as a result of a virus's appearance has altered every aspect of life. This virus, known as severe acute respiratory syndrome novel coronavirus 2 and affecting the respiratory system, is spread through inhalation, saliva, aerosol, and contaminated places like other viruses of a similar nature. Dentistry has also been affected by the elevated danger of contamination during dental procedures. This study aims to evaluate how the coronavirus disease 2019 epidemic has affected patient applications at the endodontic clinic. Our work is believed to assist researchers and doctors in figuring out and assessing the number of patients and required treatments at times when the need for urgent care surges.

Methods: The coronavirus disease 2019 pandemic's impact on patients who applied to the endodontic clinic was examined in this retrospective observational study. This study compared patient applications from the year before the epidemic (March 2019-March 2020) with those from the first year of the pandemic (2020-2021). Age, gender, and chronic illnesses variations in the applications were assessed. Furthermore, the impact of the number of coronavirus disease 2019 cases discovered in Türkiye on the number of patients seeking treatment at the clinic during the pandemic was assessed.

Results: In the year after the pandemic, there were 7337 patient admissions, a decrease of 69.7% from the year before the outbreak. Despite the absence of a statistically significant gender-based variation, the 45-64 age category had fewer respondents than the other age groups. According to the findings, there was no statistically significant correlation between the number of cases recorded in Türkiye and the number of patient admissions.

Conclusion: According to our data, those who applied during the pandemic had lower average ages, genders, and comorbid diseases than those who applied before the pandemic. The number of patients accessing the clinic during times of restrictions decreased.

Keywords: COVID-19, endodontics, epidemiology

INTRODUCTION

At the end of December 2019, a disease with symptoms similar to pneumonia first emerged in China.¹ A virus belonging to the coronavirus family, which includes the severe acute respiratory syndrome (SARS) virus, was isolated from the samples used to identify the illness agent. The coronavirus disease 2019 (COVID-19) virus was later given the name SARS-novel coronavirus 2.2,3 The COVID-19 virus is spread directly through saliva, inhaled aerosols, and indirectly contaminated areas.⁴

Although this disease has respiratory symptoms, it also affects the gastrointestinal and muscular systems. Aging and the presence of comorbid illnesses make it worse.^{5,6} This highly contagious viral illness has been an issue for people all around the world, mostly in the medical industry.7

The receptor used by the COVID-19 virus when entering the cells is mostly in the oral cavity.⁸ The use of air motors during dental procedures makes it simple for pathogens in the oropharynx to spread.⁹ In comparison to other

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Corresponding Author: Merve Kösetürk, E-mail: dt.mervekoseturk@gmail.com

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treatments, endodontic procedures that take a long time to complete produce more aerosols.⁹ Due to the aerosol produced, contaminated surfaces, and failure to maintain social distance, dental procedures, in particular endodontic procedures, are among the spots with the greatest risk for COVID-19.¹⁰

In this research, we sought to identify the differences in age, gender, and systemic diseases between patients who required endodontic treatment at an endodontic clinic before the pandemic (March 2019-March 2020 period) and during the first year of the pandemic (March 2020-March 2021 period). Additionally, this research also sought to assess the relationship between the number of COVID-19 cases reported in Türkiye, the relationship between the quantity of COVID-19 cases recorded in Türkiye, and the applicants for the endodontic clinic during the pandemic's first year. We believe these results will be useful in estimating the frequency of the need for emergency endodontic care in the future, should pandemic or other emergency treatments be required. The hypotheses of our study are as follows: The number of patients who applied to our clinic during the pandemic period will differ from the pre-pandemic period in terms of age, gender, and systemic diseases, and the number of COVID-19 cases observed in Türkiye will be a relationship between the number of patients who applied during the pandemic period in terms of number, age, gender, and systemic diseases.

METHODS

The study was to be conducted using a retrospective observational methodology. The Ministry of Health gave its approval for the study. The Clinical Research Ethics Committee approved the Tokat Gaziosmanpaşa University Ethics Committee with the reference number 20-KEAK-253 after receiving written consent from the participants. The principles of the Helsinki Declaration were followed when conducting the study.

Based on age, gender, and comorbid diseases, the patients who applied during the first year of the pandemic (March

MAIN POINTS

- During the pandemic, people were hesitant to visit endodontic clinics. As a result, a decrease in patient admittance was seen.
- Instead of the number of coronavirus disease 2019 cases seen in Türkiye, the rate of people applying to endodontic clinics has dropped as a result of restrictions.
- Despite the fact that toothache sufferers had to apply to clinics, they were unwilling to do so because of the restrictions.

2020-March 2021) and those who applied to the endodontic clinic prior to the pandemic (March 2019-March 2020 period) were compared. Additionally, the study evaluated the number of patients admitted to the clinic during the first year of the pandemic and the COVID-19 cases recorded in Türkiye. Age, gender, and systemic disease were all taken into consideration when analyzing these assessments. Case information was obtained from the Ministry of Health's COVID-19 information system.

Statistical Analysis

All observationally obtained data from the study were analyzed using the IBM Statistical Package for Social Sciences 19 package program (IBM Corp., Armonk, NY, USA). To assess the correlation between the variables in our retrospective analysis, The Pearson correlation test was performed. In statistical tests, cases with a P < .05were regarded as significant.

RESULTS

Comparison of the First Year of the Pandemic and the Year Before the Pandemic with Demographic Data

In the first year since the pandemic began, 7337 patients were admitted to our clinic. A 69.7% decline in patient admissions was seen when compared to the number of patients hospitalized the year before. From April through June, the fewest patients were admitted. When the evaluation of the patients was compared to the pre-pandemic group, there was a significant drop in all groups (P < .05) (Figure 1).

In 2020, there were 50.7% percent female patients admitted to clinic, but in 2021, the proportion of female patients fell to 49%. (P > .05) (Figure 2).

The 45-64 age group saw the greatest decrease, and people under the age of 19 saw the least decrease when we compare the pre-pandemic and pandemic periods







Figure 2. The percentage distribution of patient admissions in pre-pandemic and in the first year of the pandemic on the basis of gender and months in the year.

according to age groups. Statistically significant decreases were observed in all age groups in patient admissions (P < .50) (Table 1).

When comparing the number of patients before and after the pandemic, patients with comorbid diseases composed 11.9% of all patients in the period prior to the epidemic, while those after the pandemic constituted about 7.1% of all patients. When comparing the number of patients with systemic diseases before and after the pandemic, a statistically significant drop in this number was seen (P < .50).

Comparison of the First Year of the Pandemic Patients of Endodontic Clinic and the Number of Coronavirus Disease 2019 Cases

There was no significant link between the number of COVID-19 cases in Türkiye and the patients admitted to the clinic in the first 4 months when we looked at patient admissions to the clinic during the first year of the pandemic period (P > .05). A significant rise in patients of both genders was admitted to the clinic as a result of the decrease in COVID-19 cases in July (P < .05). In August and September, no correlation was seen (P > .05). Despite the increase in COVID-19 cases in October, no correlation was observed (P < .05). There was also a statistically significant rise in the number of patients visiting

 Table 1. Evaluation of Patients Admitted to the Clinic Before

 and After the Pandemic According to Age Groups

		Total				
	<19	19-34	34-44	45-64	>65	
2020	971	3083	2191	3370	989	10 604
2021	379	1088	599	871	280	3217
% Decrease	61.0	64.7	72.7	74.2	71.7	69.7

Table 2.Monthly Patient Admissions of the First Year Duringthe Pandemic Period and Their Correlation with the CasesObserved in Türkiye

			Number of Clinic		
			Patients	Female	Male
March	Number	r	-0.441	-0.424	-0.451
	of cases	Р	.100	.115	.092
April	Number	r	0.242	0.147	0.187
	of cases	Р	.278	.515	.404
May	Number	r	0.221	0.87	0.166
	of cases	Р	.336	.838	.694
June	Number	r	-0.140	-0.239	0.08
	of cases	Р	.533	.284	.971
July	Number	r	-0.755	-0.580	-0.781
	of cases	Р	< .05*	.006*	<.05*
August	Number	r	0.130	0.327	-0.215
	of cases	Р	.585	.159	.362
September	Number	r	0.159	0.146	0.135
	of cases	Р	.481	.518	.549
October	Number	r	0.588	0.462	0.677
	of cases	Р	.005	.035	.001
November	Number	r	-0.507	-0.586	-0.146
	of cases	Р	.019	.005	.529
December	Number	r	0.337	0.416	0.051
	of cases	Р	.116	.048	.818
January	Number	r	-0.415	-0.202	-0.564
	ofcases	Р	.069	.393	.010
February	Number	r	0.004	-0.068	0.077
	of cases	Р	.987	.775	.747

the clinic. A decrease was seen, particularly in female patients (P=.05), as the pandemic cases in Türkiye increased in November. There was no increase in patients applying to our clinic in December despite the decrease in COVID-19 cases, notably among female patients (P < .05). While pandemic cases continued to decrease in January, a moderate but significant association was seen, especially in the cases of male patients who applied to the clinic (P < .05). Patients admitted to the clinic did not significantly correlate with the COVID-19 cases (P < .05) (Table 2).

DISCUSSION

The COVID-19 outbreak has had a significant impact on daily life because of its high contagiousness, serious issues brought on by its contamination, and repercussions that can be fatal. People perceived stepping outside as a potential risk and kept away from crowded spaces, even hospitals.⁸ The rates of patients applying for treatments have decreased compared to prior years due to the difficulties of maintaining social distance during dental procedures, the challenge of preventing oral fluid contamination, and the effect of aerosols on transmission.⁸ In our analysis, we aimed to evaluate how the pandemic period had changed from the previous year and found that the average decline rate was 69%, with April showing the biggest decrease.

In our research, we found that the number of applications to the clinic decreased as age differences increased in the senior age categories. We believe that it happens because older age groups are more fearful of being exposed to the virus. Those over 65 are more likely to acquire a more severe COVID-19 viral condition, and older people experience less discomfort from their teeth as they age, according to prior studies.¹¹⁻¹⁴

Patients with comorbid diseases may have delayed their dental treatment due to the virus risk.¹⁵ In contrast to the pre-pandemic period, we noticed a decrease in the number of patients with systemic diseases who applied to the clinic.

For 1 year, beginning on March 11, 2020—the date of the first COVID-19 case to appear in Türkiye—we evaluated the relationship between the number of COVID-19 cases announced in Türkiye and patients who were admitted to endodontic clinics. A set of restrictions came into place on March 16, 2020, in an attempt to prevent the virus from spreading throughout Türkiye and the rest of the world.¹⁶ These limitations were later eased in July 2020.¹⁷ A decrease in patient applications to medical facilities was seen at this time as a result of the state's measures and the fear over a pandemic brought on by a novel virus.¹⁸

In July, there were fewer cases and fewer restrictions, and admission rates to the clinic increased as a result. Patients who hold off seeking treatment may be responsible for the clinic's increased patient load. We believe that the patients who delay their treatment are to blame for this rise. Although there were increases in COVID-19 cases from July to November, there has also been a rise in the number of patients coming to the clinic for care since the restrictions were loosened. This may be due to the recent relaxation of restrictions, the advancement of knowledge regarding the risk of infection during dental procedures, as well as the decline in persistent concerns and anxieties pertaining to the possibility of viral transmission in patients.^{16,19}

The number of patients being admitted to the clinic has decreased as a result of the huge increase in pandemic cases that was seen in November and the reinstatement of the curfew. Admissions, particularly for female patients, decreased. Even if there were fewer COVID-19 cases in December, we believe that the continued restrictions have an effect on the number of women who are admitted to the clinic for treatment.

When we evaluate on the basis of gender, the decrease in the number of clinic applications from female patients who experience fear and anxiety more than males—started earlier than it did for men with the increase in COVID-19 cases. The increase in the rate of women applying to the clinic follows the decline in pandemic cases later than it does for men.²⁰

According to the findings of our study, compared to the pre-pandemic period, patients who applied to the clinic during the pandemic period showed a drop in terms of age, gender, and systemic diseases. We found no decrease in the number of patients applying to our clinic during the pandemic period, despite the fact that the number of COVID-19 cases ascended during the periods when there were no restrictions, when we looked at the relationship between the number of COVID-19 cases observed in Türkiye and the patients who applied to our clinic. Restrictions had a greater impact on lowering the number of patients admitted to the clinic. We believe these results will be useful in estimating the frequency of the need for emergency endodontic care in the future, should pandemic or other emergency treatments be required. Studies that also evaluate the pandemic's latter stages are required.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Tokat Gaziosmanpaşa University (Date: October 1, 2020, Number: 20-KEAK-253).

Informed Consent: The study is retrospective and an informed consent form is not required. Permission was obtained from the hospital management where patient data were obtained.

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