Impact of SARS-CoV-2 on the attitudes of patients with prosthodontic needs

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Abstract

Aim: SARS-CoV-2 has caused a global pandemic that has negative consequences for many parts of life. To our knowledge, no study has assessed the effect of the SARS-CoV-2 pandemic on a possible delay in prosthodontic treatments because of a potential concern of contamination in individuals. Therefore, the purpose of this study was to assess this potential impact of fear, as well as oral health-related quality of life, in partially edentulous patients using questionnaires during the SARS-CoV-2 pandemic.

Material and Methods: A total of 135 partially edentulous patients (74 females and 61 males aged 18-70 years) participated in this study. A complete questionnaire consisting of general knowledge questions on SARS-CoV-2 and the OIDP scale, which evaluates the effect of oral status on daily activities were used in participants.

Results: Statistical analyzes showed that participants with a history of SARS-CoV-2 and/or who are aware of a member of their social circle with a history of the virus, and/or who is deceased, were unwilling to receive dental care during the pandemic. Most of the participants between the ages of 31 and 60 were more worried about the transmission of SARS-CoV-2 during dental treatment.

Discussion: Concerns about SARS-CoV-2 contamination of patients over 30 years of age may have a negative impact on oral health due to delayed prosthodontic treatments.

Keywords

SARS-CoV-2, Dental Treatment, Oral Health, Fear of Contamination
Introduction
A new type of coronavirus SARS-CoV-2 has been detected in Wuhan in 2019 with potential findings of pneumonitis. It began as an epidemic through droplets transmission during coughing and sneezing, as well as breathing of infected individuals, and turned into a global pandemic [1]. Contamination with surfaces and fecal-oral transmission have also been reported [2]. Dentists have been recommended to be at a higher contamination risk due to the intense aerosol and airborne particles that occur during their treatments [3]. Therefore, at the beginning of the pandemic, only emergency care was recommended to dentists, however, currently these cautions are being gradually removed for the prevention of oral diseases [4].

Threats of contamination during an epidemic have been reported to increase fear and stress in individuals [5]. Similarly, it is clear that SARS-CoV-2 has caused negative psychological outcomes, including worldwide fear due to the lack of effective vaccination to defeat SARS-CoV-2 worldwide [6,7]. Previously, anxiety levels due to SARS-CoV-2 in patients related to dental treatments have been stated in the literature. Dental patients have been recommended not to have a willingness to attend dental appointments regardless of an emergency. However, patients undergoing orthodontic treatment have been stated to be more concerned about an extension of treatment duration [8]. In addition, previously, the anxiety status and willingness of the patients have been evaluated in dental patients who need to receive pedodontics [9] and orthodontic treatment [10]. However, to our knowledge, no studies have focused on anxiety levels or willingness and fear of contamination in patients requiring prosthodontic treatments. Therefore, the aim of this study was to compare people's awareness of SARS-CoV-2 and the dental treatment approach, as well as the effect of this disease on oral and dental health by using demographic data.

Material and Methods
A total of 135 patients, including 74 female and 61 male patients between the ages of 18 to 70 years, who applied to the Department of Prosthodontics, Faculty of Dentistry, Inonu University and were partially edentulous, were involved in the study. Ethical approval for the study was obtained from (Blinded) University Clinical Research Ethics committee (r2020/966). All participants signed an informed consent form before participating in the study. Information about gender, age, marital and educational status, employment status, and the presence of any chronic diseases in patients was recorded.

Questionnaires: Two different questionnaires have also been applied to patients including the general knowledge about SARS-CoV-2 and also the fear of contamination during dental treatments (Table 1-3). Questionnaire questions measuring information source, knowledge level, attitude towards coronavirus patients, risk knowledge, awareness, and demographic data were used in the study. In addition, Oral Impact on Daily Performance (OIDP) survey was used to monitor oral impact on daily activities for the last 6 months.

Statistical analysis: The obtained data were evaluated using commercially available software (SPSS 25.0, IBM, Chicago, IL, USA). The Kolmogorov-Smirnov test was used to determine the normal distribution of the data. Pearson's Chi-square analysis, Yates corrected Chi-Square analysis, and Cramer's V-coefficient analysis were used for statistical analysis. The data were expressed as mean ± standard deviation. A P-value < 0.05 was considered statistically significant.

Results
The current study involved 74 females and 61 males. There were no significant differences between the ages of the male and female participants (p>0.05). Educational status was also similar in both genders (p=0.05).

Twenty-three of 135 participants (24.4%) found dental treatments to be risky in terms of SARS-CoV-2 transmission (p<0.01) (Table 1). Gender-based analysis results showed that male participants found dental treatments riskier in terms of SARS-CoV-2 transmission compared to females, however there was no significance (p>0.05) (Table 2). The presence or absence of someone infected with SARS-CoV-2 in their social circle did not influence the participants’ decisions with respect to the risk of SARS-CoV-2 transmission (p>0.05) (Table 1).

The majority of participants (23 males (51.1%), 45 (50%) females) thought that SARS-CoV-2 is the most dangerous disease in Turkey at the moment (p<0.01) and, the gender of participants did not affect the result (p>0.05) (Table 2).

Participants between the ages of 18 to 30, which constitute 40% of the study participants, did not report dental treatments as risky in terms of SARS-CoV-2 transmission. In addition, only a limited number of (13.3%) participants in the 18-30 age

Table 1. Thoughts of people with/without SARS-CoV-2 about the transmission of SARS-CoV-2 during dental treatment.

<table>
<thead>
<tr>
<th>Patients were aware of a member of their social circle with a history of the virus</th>
<th>Yes</th>
<th>No</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think having dental treatment is risky in terms of SARS-CoV2</td>
<td>13(17,6%)</td>
<td>2(1,3%)</td>
<td>0.001*</td>
</tr>
<tr>
<td>I think dental treatment is risky during pandemic</td>
<td>13(17,6%)</td>
<td>2(1,3%)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>11(24,4%)</td>
<td>4(4,4%)</td>
<td>0.038*</td>
</tr>
<tr>
<td>Do not agree</td>
<td>1(2,2%)</td>
<td>5(5,6%)</td>
<td>0.038*</td>
</tr>
<tr>
<td>Indecisive</td>
<td>0</td>
<td>16(17,8%)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Agree</td>
<td>10(22,2%)</td>
<td>20(22,2%)</td>
<td>0.038*</td>
</tr>
<tr>
<td>Absolutely agree</td>
<td>23(51,1%)</td>
<td>45 (50%)</td>
<td>0.038*</td>
</tr>
</tbody>
</table>

Table 2. Reflections of different genders on the risk of SARS-CoV-2 transmission of dental treatment and thoughts on the most dangerous diseases in Turkey.

<table>
<thead>
<tr>
<th>Females</th>
<th>Males</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think having dental treatment is risky in terms of SARS-CoV2</td>
<td>13(17,6%)</td>
<td>2(1,3%)</td>
</tr>
<tr>
<td>I think dental treatment is risky during pandemic</td>
<td>13(17,6%)</td>
<td>2(1,3%)</td>
</tr>
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<td>4(4,4%)</td>
</tr>
<tr>
<td>Do not agree</td>
<td>1(2,2%)</td>
<td>5(5,6%)</td>
</tr>
<tr>
<td>Indecisive</td>
<td>0</td>
<td>16(17,8%)</td>
</tr>
<tr>
<td>Agree</td>
<td>10(22,2%)</td>
<td>20(22,2%)</td>
</tr>
<tr>
<td>Absolutely agree</td>
<td>23(51,1%)</td>
<td>45 (50%)</td>
</tr>
</tbody>
</table>

Coronavirus is the most dangerous disease in Turkey

<table>
<thead>
<tr>
<th>Females</th>
<th>Males</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>9(12,2%)</td>
<td>3(4,9%)</td>
</tr>
<tr>
<td>Do not agree</td>
<td>7(9,5%)</td>
<td>12(14,8%)</td>
</tr>
<tr>
<td>Indecisive</td>
<td>8(10,8%)</td>
<td>8(13,1%)</td>
</tr>
<tr>
<td>Agree</td>
<td>17(23%)</td>
<td>13 (21,3%)</td>
</tr>
<tr>
<td>Absolutely agree</td>
<td>35(47,3%)</td>
<td>33 (54,1%)</td>
</tr>
</tbody>
</table>
It has been reported that patients postpone medical treatments because of contamination with SARS-CoV-2, which could later promote the risk of health problems in the near future [12]. A similar observation was also reported by Campagnaro R, et al. [9] that 86% of parents whose children had dental trauma during pandemic did not apply dental units, and 24.4% of parents canceled undergoing treatments of their children. In the current study, 73.3 % of the participants found prosthetic treatments risky during the pandemic. Therefore, it might be suggested that the fear of SARS-CoV-2 contamination during dental treatments may cause negative oral health outcomes. **Conclusion:** In conclusion, SARS-CoV-2 has affected our lives in many different ways. Concerns about SARS-CoV-2 contamination of patients over 30 years of age may have a negative impact on oral health by delaying prosthodontic treatments.

**Discussion**

The global outbreak of SARS-CoV-2 has affected many parts of life, including dental and medical treatments. Previously, the state of anxiety and willingness of patients towards pediatric [9] and orthodontic treatments [10] during the SARS-CoV-2 pandemic have been evaluated. However, to the best of our knowledge, this is the first assessment of patients in prosthodontic dentistry. Current results showed that the presence or absence of a person infected with SARS-CoV-2 in his or her social circle did not influence patients' decisions about the risk of COVID-19 transmission. Furthermore, patients between the ages of 31 and 60 were more concerned about the transmission of SARS-CoV-2 during dental treatments. The current study was carried out between July and October 2019, when SARS-CoV-2 was partially controlled and quarantine rules were partially lifted in Turkey. However, in this study, participants over the age of 30 still expressed anxieties about SARS-CoV-2 transmission. Similarly, Cotrin P, et al. [10] also reported that at the onset of the pandemic in Brazil, although the number of cases was low, patients were concerned about SARS-CoV-2 transmission. This might be due to the fact that it becomes easier to obtain global information about the pandemic because of social media use, which is positively correlated with anxiety [11].

It has been reported that the SARS-CoV-2 pandemic affects orthodontic appointments [10]. Cotrin P, et al. [10] reported that females undergoing orthodontic treatment were more anxious compared to males in terms of SARS-CoV-2 transmission and less worried regarding treatment delay. In the current study, participants of both genders defined dental treatments as risky in terms of SARS-CoV-2 transmission. This could be due to the age differences between participants in the two studies. In addition, this difference may be due to the timing and type of treatment in the two studies.

It has been reported that patients postpone medical treatments because of contamination with SARS-CoV-2, which could later promote the risk of health problems in the near future [12]. A similar observation was also reported by Campagnaro R, et al. [9] that 86% of parents whose children had dental trauma during pandemic did not apply dental units, and 24.4% of parents canceled undergoing treatments of their children. In the current study, 73.3 % of the participants found prosthetic treatments risky during the pandemic. Therefore, it might be suggested that the fear of SARS-CoV-2 contamination during dental treatments may cause negative oral health outcomes. **Conclusion:** In conclusion, SARS-CoV-2 has affected our lives in many different ways. Concerns about SARS-CoV-2 contamination of patients over 30 years of age may have a negative impact on oral health by delaying prosthodontic treatments.

**Table 3. Reflections of different ages on the risk of SARS-CoV-2 transmission during dental treatments**

<table>
<thead>
<tr>
<th>AGE</th>
<th>18-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>61-70</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>6(40%)</td>
<td>4(50%)</td>
<td>12(70%)</td>
<td>1(20%)</td>
<td>3(50%)</td>
<td>-</td>
</tr>
<tr>
<td>Disagree</td>
<td>3(20%)</td>
<td>11(90%)</td>
<td>2(5%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indecisive</td>
<td>16(70%)</td>
<td>12(22,60%)</td>
<td>3(10%)</td>
<td>-</td>
<td>-</td>
<td>0.038*</td>
</tr>
<tr>
<td>Agree</td>
<td>3(20%)</td>
<td>9(17%)</td>
<td>10(27%)</td>
<td>8(33%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Absolutely agree</td>
<td>2(13,30%)</td>
<td>27(50,90%)</td>
<td>21(66,80%)</td>
<td>15(62,5)</td>
<td>3(50%)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Coronavirus is the most dangerous disease in Turkey**

<table>
<thead>
<tr>
<th>AGE</th>
<th>18-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>61-70</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>4(26,70%)</td>
<td>6(11,30%)</td>
<td>2(4,0%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Do not agree</td>
<td>16(70%)</td>
<td>4(50%)</td>
<td>6(20%)</td>
<td>5(20,80%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indecisive</td>
<td>2(13,30%)</td>
<td>11(20,80%)</td>
<td>2(5,40%)</td>
<td>-</td>
<td>-</td>
<td>0.55*</td>
</tr>
<tr>
<td>Agree</td>
<td>16(70%)</td>
<td>22(41,50%)</td>
<td>12(32,40%)</td>
<td>6(25%)</td>
<td>1(16,70%)</td>
<td>-</td>
</tr>
<tr>
<td>Absolutely agree</td>
<td>7(46,70%)</td>
<td>10(18,90%)</td>
<td>15(40,50%)</td>
<td>13(54,20%)</td>
<td>5(83,30%)</td>
<td>-</td>
</tr>
</tbody>
</table>

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