# DETERMINING THE KNOWLEDGE, ATTITUDE AND THE BEHAVIOR OF PEOPLE LIVING IN DIFFERENT REGIONS OF TURKEY IN TERMS OF DENTAL PROCEDURES DURING COVID-19 PANDEMIC

**Neşe Oral[1], Aslıhan Aslan Balcı[1], Hilal Peker Öztürk[1] İsmail Hakan Avsever[1]**

*1- University of Health Sciences, Faculty of Gulhane Dentistry, Department of Dentomaxillofacial Radiology, Ankara, Turkey.*

**Abstract**

In the end of December 2019, a virus disease that occurred in Wuhan City, China. The disease which is transmitted by droplet and contact is accepted as pandemic by the World Health Organization (WHO) was named as Covid-19. Clinical symptoms of Covid-19 are dry cough, shortness of breath and fever, but if the disease progress, some fatal complications can occur as septic shock, organ and system failure, pneumonia or Acute Respiratory Distress Syndrome (ARDS). This study was examined the knowledge, attitude and the behavior of People Living in Different Regions of Turkey in terms of dentistry procedures during new coronavirus outbreak. There were 438 respondents in the study. When the participants were asked what to do if they had toothache during the COVID-19 pandemic, only 56 people (12.8%) stated that they would go to the dentist, in addition to, only 17.4% of the participants know that "severe toothache, dental abscess, jaw and facial fractures and tooth dislocation as a result of trauma" are within the scope of emergency dental treatments. Our data revealed that health committees should do public health studies and use the media more in this regard in order to raise awareness of the people and eliminate information pollution.

**Key words:** COVID, pandemic, coronavirus, outbreak, dentistry, dental treatment.

## TÜRKİYE'DE FARKLI BÖLGELERDE YAŞAYAN KİŞİLERİN COVID-19 PANDEMİSİ SÜRECİNDE DİŞ HEKİMLİĞİ PROSEDÜRLERİ KONUSUNDA BİLGİ, TUTUM VE DAVRANIŞLARININ BELİRLENMESİ

2019 yılının Aralık ayının sonunda, Çin'in Wuhan kentinde bir virüs hastalığı ortaya çıktı. Damlacık ve temas yoluyla bulaşan bu virüs Dünya Sağlık Örgütü (DSÖ) tarafından pandemi kabul edilerek COVID-19 olarak isimlendirildi. Covid-19'un klinik semptomları kuru öksürük, nefes darlığı ve ateştir, fakat hastalık ilerleyerek septik şok, organ yetmezliği, pnömoni veya akut respiratuar distres sendromu (ARDS) gibi bazı ölümcül komplikasyonlara neden olabilir. Bu çalışma Türkiye'nin farklı bölgelerinde yaşayan kişilerin yeni koronavirüs salgını süresince diş hekimliği prosedürleri açısından bilgi, tutum ve davranışlarını değerlendirmektedir. Bu anket çalışması, 438 katılımcı üzerinde yapıldı. Katılımcılara COVID-19 salgını sırasında diş ağrısı olursa ne yapacakları sorulduğunda sadece 56 kişi (%12,8) diş hekimine gideceğini belirtti, ayrıca katılımcıların sadece % 17,4'ü "şiddetli diş ağrısı, diş apsesi, çene ve yüz kırıkları ve travma sonucu diş yerinden oynaması" seçeneklerinin acil diş tedavileri kapsamında olduğunu bilmekteydi. Verilerimiz, halkı bilinçlendirmek ve bilgi kirliliğini ortadan kaldırmak için sağlık kurullarının bu konuda halk sağlığı çalışmaları yapmaları ve medyayı daha fazla kullanmaları gerektiğini ortaya koymuştur.

**Anahtar kelimeler:** COVID, pandemi, koronavirüs, salgın, diş hekimliği, diş tedavileri.

***Sorumlu Yazar / Corresponding Author:*** *Neşe ORAL*
*University of Health Sciences, Faculty of Gulhane Dentistry, Department of Dentomaxillofacial Radiology, Ankara, Turkey.*
***e-mail:*** *nese.oral@hotmail.com* ***ORCID:*** *0000-0003-2038-2897*
***Diğer Yazarlar: Aslıhan Aslan Balcı:*** *0000-0001-6374-0303* ***Hilal Peker Öztürk:*** *0000-0003-4774-6232*
***İsmail Hakan Avsever:*** *0000-0002-2972-2547*
***Geliş tarihi / Received:*** *19.08.2020,* ***Kabul Tarihi / Accepted:*** *01.10.2020*

***Nasıl Atıf Yaparım / How to Cite:*** *Oral N, Balcı Aslan A Öztürk HP, Avsever H. Determining the Knowledge, Attitude and the Behavior of People Living in Different Regions of Turkey in Terms of Dental Procedures during COVID-19 Pandemic. ESTÜDAM Public Health Journal. 2020;5(3):472-81.*

## Introduction

The coronavirus outbreak that occurred in the end of December 2019 in Wuhan City, China, the first case in our country was diagnosed on 11th March 2020 (1). Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses named it as severe acute respiratory syndrome coronavirus 2 (SARS-COV-2), the name of the pandemic disease was renewed by the World Health Organization (WHO) as coronavirus disease 2019 (COVID-19) on February, 2020 (2).

In the clinical studies up to now, the symptoms of COVID-19 disease are reported that occur within 14 days and the disease has a mean incubation period of 5.2 days. In positive cases, the male population is higher and the average age of those infected is 56 (3). When comparing similar epidemics with each other, mortality rates approximately 3 months after outbreaks occur, the fatality rate of COVID-19 was 3.4%, lower than the two previous major outbreaks, 9.5% (4) for Severe Acute Respiratory Syndrome (SARS) and 37% (5) for Middle East Respiratory Syndrome (MERS). Clinical symptoms of COVID-19 are dry cough, shortness of breath and fever, but if the disease progress, some fatal complications can occur as septic shock, organ failure, pneumonia or Acute Respiratory Distress Syndrome (ARDS) (3, 6).

Until now, treatment of the COVID-19 pandemic outbreak hasn't been found, vaccination research continues (7). The disease transmitted by droplet and contact (6). The origin of droplets are combined with saliva, the droplets are found in the nasopharyngeal or oropharyngeal regions, therefore healthcare workers, such as dentist should pay attention during treatment and take measures all protective preventions. Inhalation of aerosols consisted during dental procedures (especially using of high speed rotary instruments) is risk of spreading the viruses, between patients and dentists. Consequently, cross-infection control policies and using personal protective equipment are very important (8–10).

This survey study aims to determining the knowledge, attitude and the behavior of people living in different regions of Turkey in terms of dental procedures during covid-19 pandemic. Thus, the level of knowledge of people on this subject and the practices of attitudes and behaviors recommended by scientific committee of people will be evaluated, and as a result, it will be revealed whether people need more information in terms of COVID-19 and dentistry procedures (Table 1).

## Material and Method

This was a descriptive study and this survey study was performed by forms prepared on the internet by the Department of Dentomaxillofacial Radiology, Faculty of Gulhane Dentistry, University of Health Sciences during COVID-19 disease, which was declared as a pandemic by the World Health Organization. While selecting the participants, the snowball sampling method, one of the non-probability sampling methods, was used and it was aimed to reach as many people as possible. Participants were asked to spread the questionnaire to as many people as possible. All participants of the survey are volunteers, have access to the internet, users of Whatsapp, Facebook, Telegram social media and

**Table 1:** Emergency Treatments in COVID-19 Dentistry Procedures, Quoted by "Republic of Turkey The Ministry Of Health. Covid-19 Emergency and compulsory services in dental practice. 2020" (11).

| Emergency Treatment in COVID-19 Dentistry Procedures |
|---|
| a. Severe toothache caused by pulpal inflammation |
| b. Severe pain from perichoronitis or third molar |
| c. Postoperatively developed osteitis or alveolitis |
| d. Abscess causing localized pain and swelling or bacterial infection |
| e. Tooth fracture causing pain or soft tissue trauma |
| f. Traumatic dental avulsion/luxation |
| g. Dentomaxillofacial fractures |
| h. Acute and painful lesions/ulcerations of the oral mucosal |
| i. Life-threatening or uncontrolled bleeding |
| j. Intraoral/extraoral infections that threaten the patient's airway patency |
| k. Treatment of patients who are undergoing radiotherapy and/or chemotheraphy and/or organ transplants |
| l. Patients requiring dental consultation for medical problems |
| m. Taking the stitch |
| n. Treatment so as not to form an aerosol for temporary restoratşon loss/fractures and injuries preventing the use of removable dentures |
| o. Pan and/or infection due to injury in soft tissue as a result of breakage of brackets and wires of patients undergoing orthodontic treatment |
| p. Feeding plate applications of patients with newborn cleft plate |
| q. TMJ (Temporamandibular Joint) luxation |
| r. Biopsy (In cases of suspected malignancy) |

are interested in the subject. While selecting the people to participate in this research, no age or city boundaries were determined. This work was carried out on people living in Turkey. Due to these restrictions, the number of people who can be reached is limited. The questionnaire forms were delivered to the participants after the approval of the Scientific Research Ethics Committee of the University of Health Sciences, on June 30, 2020 (No. 2020-307). All participants completed the questionnaires with informed consent.

The questions of our survey were formulated with reference to a study on Iranian students about COVID-19 (2) and a community-based study about a virus from the same family as COVID-19, which appeared in Hong Kong in 2003 (10), additionally the questions were arranged in accordance with the Turkish society and the present time.

Statistical analyses were performed using the and MS Excel 2010.

The questionnaire has been prepared on the internet using the "Google Forms" application. Firstly, pretest of the Google survey was practiced on a group of 10 people with similar characteristics to the target audience before starting large-scale research. Thus, the necessary corrections were made by taking into account the criticism and opinions of the participants on the pretest questionnaire form, and the final version of the questionnaire was formed after the time of the questionnaire (about 5 minute) was determined. The link of form was sent through WhatsApp, Telegram, Facebook applications as social media platforms to the contacts of the respondents. Due to confidentiality and impartiality, personal information such as name and surname were not requested from individuals.

Because it is a study in Turkish society, the questions have been prepared in Turkish language.

The survey consists of four parts:

1. In the first part, demographic information of the participants was questioned, such as gender, age, city, educational background, smoking.
2. In the second part, there are true/false questions that evaluate the general information about COVID-19.
3. In the third chapter, the preventive behaviors of the participants during the COVID-19 outbreak were questioned along with the yes / no options.
4. In the fourth section, there are multiple choice questions about the relationship of COVID-19 disease with dentistry and which have more than one option to answer.

## Results

There were 438 respondents in the study. The respondents comprised 179 (40.9%) males and 259 (59.1%) females. Among the respondents, 72.1% had completed university education, 13.5% had completed tertiary education, 10.7% had completed high school education, 3.2% had completed primary school education and the remaining 0.5% had no education. While 84.2% of women of the participants have a university or higher education level, this rate is higher for men (87.7%).

The participants comprised 333 (%76) are adult individuals aged 21-50. Since elderly people have a low internet usage rate, the number of people who participated in our survey over 65 was only 3. When the cities of the participants are analyzed, it is seen that there is a high level of participation from the Marmara Region (44.3%) and from the Central Anatolia Region (32%). Only 7 (1.6%) people participated from the Eastern Anatolia Region. Possible reasons for this; due to the snowball sample selection, it may be that the participants did not have familier persons living in this region or the number of people who find the questionnaire interesting in this region was low. Demographic information is given in Table 2 in detail.

While the proportion of participants with had chronic or autoimmune disease or treatment of cancer is 13%, 87% of the participants do not have any health problems. While 23.3% (102) of the participants reported that they smoke, 76.7% (336) report that they do not smoke. Women less likely to had a chronic or autoimmune disease or treatment of cancer than men (17.2%>10.0%) and similarly, women had a lower smoking rate than men (29.4%>18.9%).

**Table 2:** Socio-demographic information.

| Demographic information | n | % |
|---|---|---|
| **Gender** | | |
| Female | 259 | 59.1% |
| Male | 179 | 40.9% |
| **Age** | | |
| ≤ 20 | 7 | 1.6% |
| 21-35 | 237 | 54.1% |
| 36-50 | 96 | 21.9% |
| 51-64 | 95 | 21.7% |
| ≥ 65 | 3 | 0.7% |
| **Education** | | |
| No education | 2 | 0.5% |
| Primary school | 14 | 3.2% |
| High school | 47 | 10.7% |
| University | 316 | 72.1% |
| Tertiary education | 59 | 13.5% |
| **Region** | | |
| The Marmara Region | 194 | 44.3% |
| The Central Anatolia Region | 140 | 32% |
| The Aegean Region | 29 | 6.6% |
| The Mediterranean Region | 20 | 4.6% |
| The Black Sea Region | 23 | 5.3% |
| The Eastern Anatolia Region | 7 | 1.6% |
| The Southeastern Anatolia Region | 25 | 5.7% |

**Part I: Knowledge about COVID-19 pandemic**

The questions in the form of true / false containing general information about the new Coronavirus disease are listed in Figure 1. The average of the respondents who answered those questions correctly is 96.5%. While more than 94% of the participants responded correctly to 4 of these questions.

**Part II: Attitude and the behaviors towards COVID-19 pandemic**

Since the new coronavirus pandemic started to occur in our country, it is recommended by the scientific committee to implement some preventive behaviors to the people living in the community in order to prevent the transmission of the virus. The average of the participants practice the preventive behaviors was 97.02%. The lowest score (93.4%) was related to increasing the cleaning frequency of the places that touched the hands. Responses to preventive behaviors are shown in Figure 2.

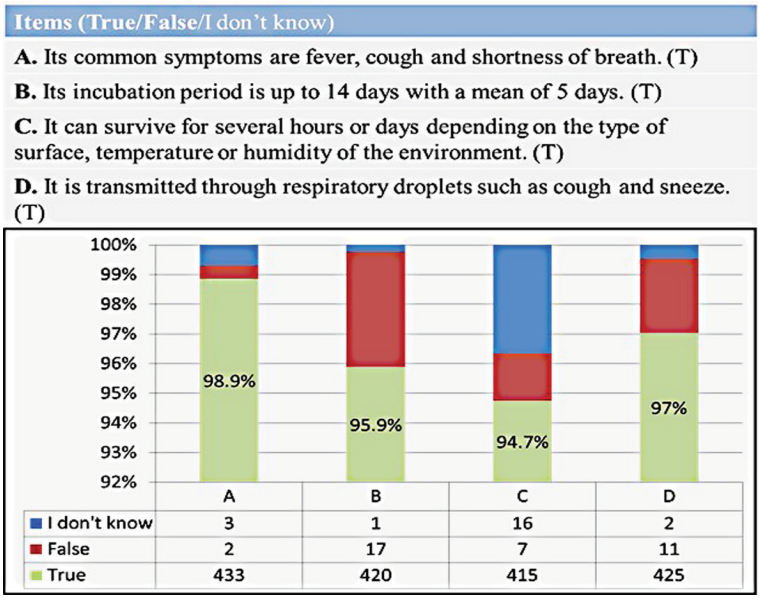


**Figure 1:** Practicing preventive behaviors.

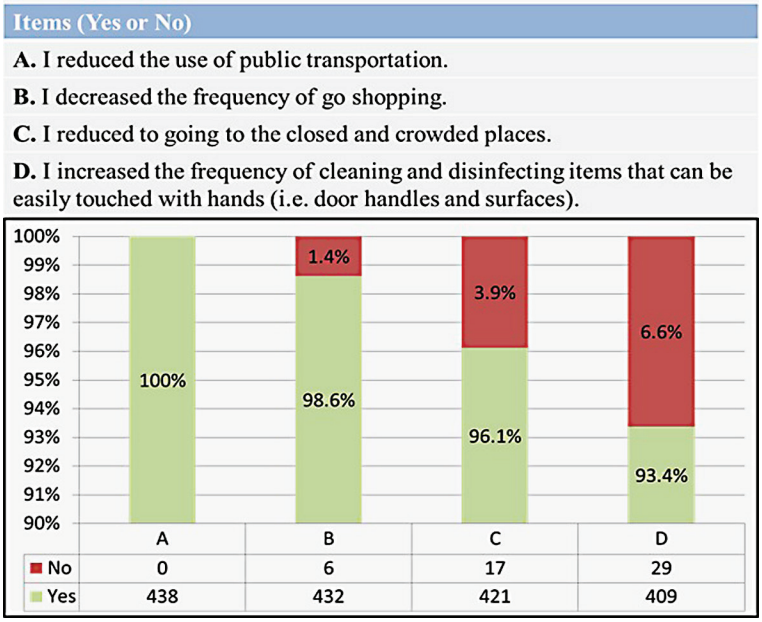


**Figure 2:** Practicing preventive behaviors.

**Part III: approach to dental procedures during COVID-19 pandemic**

When the participants were asked what to do if they had toothache during the COVID-19 pandemic, only 56 people (12.8%) stated that they would go to the dentist. Other participants stated that they would delay going to the dentist clinic by taking medication (44.3%) or waiting for the outbreak to end (42.9%). If there are individuals over 65 years old in the participants' homes, the participants were asked whether to go to the dentist or not when they had toothache, 256 people (56.2%) stated that they would not go, while 113 people (25.8%) were undecided. (Figure3)

Considering the answers given by the participants to the questions about dental clinics, 90% of the participants stated that dental clinics are environments with high risk of cross infection, 89.7% stated that during the new coronavirus pandemic, dental clinics should not be applied other than emergency treatments, 45% are skeptical that standard protective measures in dental clinics are effective enough to prevent the spread of new coronavirus disease, 55.7% stated that the tools used during dental treatment will be effective in spreading new coronavirus disease. All results are detailed in Figure3.

The participants comprised 76 (17.4%) stated that the options of “severe toothache, tooth abscess, jaw and facial fractures and tooth dislocation as a result of trauma” are within the scope of emergency dental treatments. These results shown in Figure4.

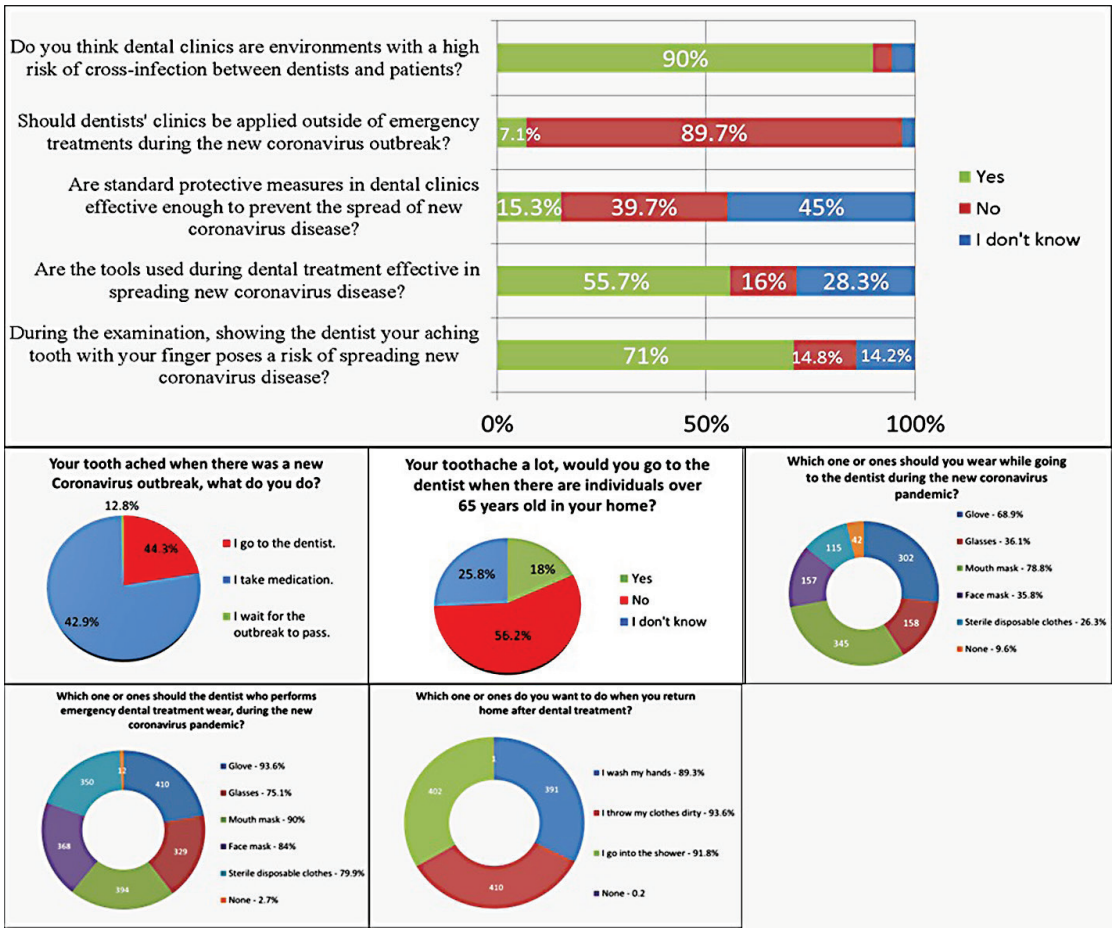


**Figure 3:** Approach to dental procedures.

While 92 (21%) of the participants thought that it would be sufficient to use gloves and mouth masks while going to the dentist during the new coronavirus pandemic, 39 people (8.9%) stated that they would not take any measures. In addition to 253 (57.8%) of the participants state that the dentist who performs dental treatment should wear gloves, glasses, mouth mask, face mask and sterile disposable clothes, while 10 people (2.3%) marked the option that the dentist should not take any measures.

In the question that the participants were asked what they would do when they returned home after dental treatment, 353 people (80.6%) chose the options “I wash my hands, I throw my clothes dirty, I go into the shower”, 27 people (6.2%) marked “I wash my hands, I throw my clothes dirty” options, 5 people (1.1%) stated that they would only wash their hands. Nobody chose the "do nothing" option. This ratio suggests that the society is informed that something must be done about preventing the COVID-19 pandemic.

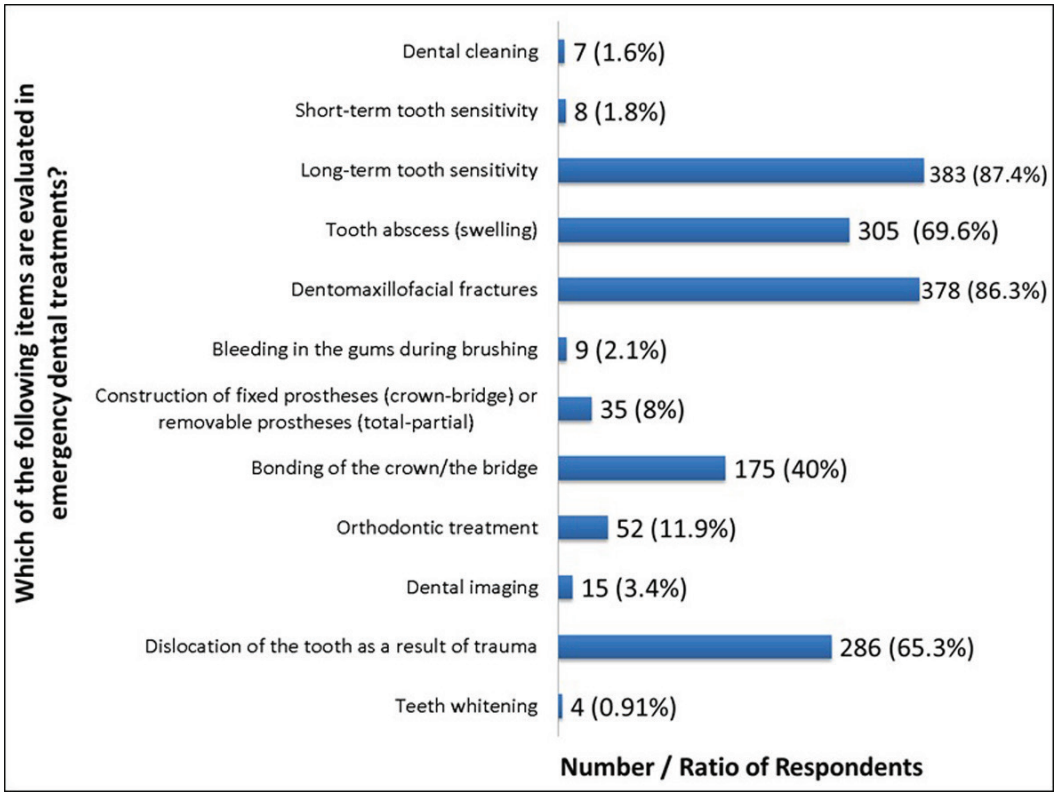


**Figure 4:** Emergency dental treatments.

## Discussion

Since the new coronavirus disease began to appear in the world, a lot of scientific information about this disease has been announced to the public, and the preventions that people have to take have gained worldwide importance. While health workers are considered the most risky group in this pandemic period, treatments in the field of dentistry involves high risks for patients and dental professionals. About a month after first diagnosis of this disease in Turkey made in this study, the level of knowledge about the new coronavirus outbreak of individuals living in the community, to what extent personal preventive

behaviors are applied and how much the risks in dental practice are known in the spread of the pandemic that we aimed to investigate.

In a similar study conducted on Iranian students, when the behavior of the participants was questioned during the COVID-19 outbreak, the least marked item compared to other items was the item related to “increasing the frequency of cleaning the frequently contacted surfaces (door handle etc.)”(2). Similarly in our study, this was the least marked option too with a rate of 93.4%.

According to the decisions taken by the scientific council in Turkey on april 21, 2020 during the COVID-19 outbreak, emergency and mandatory procedures to be implemented in dentistry have been determined, as shown Table 1.

When compared according to gender; When the answers to the 4 questions are evaluated, it is seen that the average (98%) of women to comply with preventive behaviors is higher than that of men. (95.7%). When looking at the questions prepared to measure the level of knowledge of people about dental clinics during the COVID pandemic, it is seen that the rate of correct answers to the questions is higher in women (68.2%) than men (65.6%).

Dentist clinics are also the places that pose a serious risk for the spread of this virus due to the saliva and aerosols formed as a result of the treatments applied (11). In the question in which the emergency procedures in the dental applications in our study were questioned, 4 emergency procedures were placed among 12 options, which are “long-term toothache, tooth abscess, jaw and facial fractures, trauma of the tooth as a result of trauma”. Only 17.4% of the respondents knew about emergency treatments in dentistry. When the education levels are compared, 93.4% of the respondents who answered true the questions about these 4 emergency dental procedures had a university or higher education level.

Individuals over the age of 65 and with chronic disease have been identified by the world health organization as people at high risk of developing COVID disease (12). When the participants were questioned about going to the dentist if they have over the age of 65 person in their house where they live, 56.2% of the participants preferred to postpone to the dentist clinics by considering this situation. Also, when looking at individuals with chronic disease, 15.8% of these people stated that they would go to the dentist if they had toothache, while 12.3% of individuals without chronic disease stated that they would go to the dentist if they felt toothache. The expected result is that a lower rate of individuals with chronic diseases chose a lower rate of “I go to the dentist.” option, although not so high it was the opposite in our research. It turned out that the participant needs more information on this subject.

## Conclusions and Suggestions

As a result, by looking at the results of our research, the participants living in different regions of Turkey closely have followed the news about the new coronavirus disease, and highly adapted to the highly informed and preventive behaviors about COVID-19. During the COVID-19 outbreak, the results revealed that there were some deficiencies and confusions at the level of knowledge of the respondents about the risk of cross-infection in dentistry procedures.

Our data revealed that health committees should do public health studies and use the media more in this regard in order to raise awareness of the people and eliminate information pollution.

Since this study was conducted with an online survey on social media users, the number of people that can be reached was limited. This study was not achieved equal number of people in all regions of Turkey, so the data in the study may not be generalizable to study Turkish society.

## References


1. *Türkiye Cumhuriyeti Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü. COVID-19 Rehberi. 2020;2 Nisan 20:25.*
2. *Taghrir MH, Borazjani R, Shiraly R. COVID-19 and Iranian Medical Students; A Survey on Their Related-Knowledge, Preventive Behaviors and Risk Perception. Arch Iran Med [Internet]. 2020;23(4):249–54. Available from: https://doi.org/10.34172/aim.2020.06*
3. *Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, et al. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). Int J Surg [Internet]. 2020;76(February):71–6. Available from: https://doi.org/10.1016/j.ijsu.2020.02.034*
4. *Centers for Disease Control and Prevention (CDC). Update: severe acute respiratory syndrome- United States, June 18, 2003. 2003 Jun 20;52(24):570. PMID: 12816108*
5. *M. Naresh. A Study of Coronavirus Outbreak of Global Health Concern. IJTRD. March, 2020:20-2. ISSN: 2394-9333*
6. *Adams JG, Walls RM. Supporting the Health Care Workforce during the COVID-19 Global Pandemic. JAMA - J Am Med Assoc. 2020;60611:2–3.*
7. *Razai MS, Doerholt K, Ladhani S, Oakeshott P. Coronavirus disease 2019 (covid-19): A guide for UK GPS. BMJ [Internet]. 2020;368(March):1–5. Available from: http://dx.doi.org/doi:10.1136/bmj.m800*
8. *Huh S. How to train the health personnel for protecting themselves from novel coronavirus (COVID-19) infection during their patient or suspected case care. J Educ Eval Heal Prof [Internet]. 2020;17(1):10. Available from: http://www.ncbi.nlm.nih.gov/pubmed/32150796*
9. *Sabino-Silva R, Jardim ACG, Siqueira WL. Coronavirus COVID-19 impacts to dentistry and potential salivary diagnosis. Clin Oral Investig. 2020;24(4):1619–21.*
10. *Yip HKK, Tsang PCS, Samaranayake LP, Li AHP. Knowledge of and attitudes toward severe acute respiratory syndrome among a cohort of dental patients in Hong Kong following a major local outbreak. Community Dent Health. 2007;24(1):43–8.*
11. *T.C. Sağlık Bakanlığı. COVID-19 Diş Hekimliği Uygulamalarındaki Acil ve Zorunlu Hizmetler. 2020.*
12. *Report MW. Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) — United States, February March 16, 2020. 2020;69:343-346. DOI: http://dx.doi.org/10.15585/mmwr.mm6912e2. MMWR Morb Mortal Wkly Rep. 2020;69(12):343–6.*