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Evaluation of the Relationship between Dentist Knowledge of the COVID-19 and the Using of the Rubber Dam in Endodontic Treatment

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ABSTRACT

Purpose: The aim of this study is to assess the change of the using of rubber dam related to COVID-19 pandemic and knowledge of dentists about this virus.

Material and Methods: A questionnaire developed by the researchers in our study was sent to dentists through various channels (university websites, social media) to fill out. A total of 389 participants participated in the study. The questionnaire consists of 3 parts and consists of 31 questions in total. In the first part, there are 8 questions about the demographic characteristics of the participants, 7 in the second part that evaluate the use of rubber dam by the dentists, and in the third part there are 16 questions that measure their knowledge level about COVID-19.

Results: In our study, 27.5% of all participants and 56.4% of endodontists reported that the frequency of using rubber dam during endodontic procedures increased during the COVID-19 pandemic. However; it was found that the knowledge levels of all participants and endodontists (when evaluated separately) did not differ according to their education on COVID-19 and the use of rubber dam. (p>0.05).

Conclusion: Although the using of the rubber dam has increased with the COVID-19 pandemic, the using of the rubber dam during root canal treatment is still very low, in our study. Although no relationship was found between the knowledge level of COVID-19 and the using of the rubber dam, the factors affecting the using of the rubber dam should be investigated by other studies.

Key words: COVID-19, Microbiology, Rubber dam, Dentist, Endodontist

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INTRODUCTION

Coronaviruses (CoV) which is a member of the Coronaviridae family is an enveloped virus containing single-strand RNA genome [1]. Coronavirus disease-2019 (COVID-19) that was reported firstly in Wuhan, China, in December 2019 [2]. In a short time, the World Health Organization (WHO) announced that a Public Health Emergency of International Concern (PHEIC) for COVID-19 on January, 30, 2020 [3,4]. According to WHO data, the first case of the COVID-19 in Turkey was confirmed on March 11, 2020 and there have been 2,821,943 confirmed cases until March 11, 2021 [5].

The COVID-19 could transmit from human to human easily [6,7]. The COVID-19 virus spreads primarily via droplets, fluids (like saliva), and aerosols originating from organs of the respiratory system, for example mouth and nose [7,8]. Airborne transmission is also important for COVID-19 [9-11]. COVID-19 transmits via direct (cough, sneeze, and droplet inhalation transmission) and indirect (contact of the oral, nasal and eye mucous membranes) transmission routes [7,9,10].

Considering the transmission routes of the virus, dental clinics have an important place in preventing cross infection. All dentists should apply infection protection protocols against COVID-19. It should be known by the dentists that the COVID-19 is unstable to disinfectants and detergents [1]. Protective measures should be taken against droplets as like as in respiratory illness. These measures including avoiding airborne transmission, isolation airborne and personal protective equipment [11]. There are extra precautions for COVID-19. Dentists follow up-to-date health data and triage protocols should be determined. Fever of the patient should be measured before the procedure [12]. The appointments of suspicious patients should be postponed by contacting the phone

before treatment [13]. Materials such as newspapers, magazines, and toys should be removed from clinic [12]. Appointments should be arranged to reduce the number of the patients waiting in clinic. Aerosolized procedures (like ultrasonic scaling, root-surface debridement, and high- or low-speed drilling with water spray) [14] should be reduced if possible. Antiseptic mouthwashes (1% hydrogen peroxide, chlorhexidine gluconate, povidone-iodine) should be used before the procedure (although there is no published evidence for COVID-19 yet) [15,16]. Dentists have to use rubber dam and large-volume cannulas during processes that will create aerosol [15]. Attention should be paid to hand hygiene, applying rules of the sterilization and disinfection. Patients should be treated in individual rooms and visitors should not be admitted to the examination room. Patients without masks should not be admitted to the clinic. Ventilation should be given extra importance [16] and Window should open during treatment [17]. Special clothing and barrier precautions (masks, gloves and eye protection) should be used [17,18]. Clinic staff should use N95 (FFP2) instead of the surgical mask [15,16].

Generally, preprocedural rinse with antiseptic mouth wash, rubber dam isolation, and high-efficiency particulate air room filters should be used for reducing spreading of the aerosol and increasing infection control, during dental practise [18]. In a study which is about "Severe acute respiratory syndrome and dentistry" it has stated that Samaranayake and colleagues reported using rubber dam reduces airborne particles around a 3-foot diameter of the treatment area up-to-70% [14]. However, in an article published just before the pandemic in Turkey, it stated that the dentists have a very low level of using of the rubber dam ($p < 0.05$) [19]. Furthermore, in a study conducted in 2011 by asking only lecturers in the fields of restorative dental treatment and endodontics, it was stated that 18% of the lecturers never used rubber dam [20]. Although the using of the rubber dam was recommended before the epidemic, with the COVID-19 epidemic, the use of the rubber dam has become mandatory [15]. So, the purpose of our study; to evaluate the differences in the frequency of using rubber dam with COVID-19 pandemic, especially when performing canal treatment. Furthermore, to determine whether there is a relationship between the using of the rubber dam and COVID-19 knowledge level.

MATERIAL AND METHODS

The questionnaire used in the study was designed as an online questionnaire on Google Forms. through various channels to fill out the questionnaire (university websites, social media) reached 438 faculty members in the department of endodontics universities in Turkey and found 110 gave positive feedback. Apart from this, dentists who are specialized or not specialized were reached through different channels (Turkish Endodontic Society website, social media). A total of 389 participants were reached within the scope of the study, 131 among the participants were specialized in the field of endodontics. A message was sent to all who could be reached who met the inclusion criteria, asking them to support the study first. Afterwards, a questionnaire was sent to those who accepted to participate. The online survey was distributed between February 8 and March 3, 2021.

A pilot study was conducted before the questionnaire was distributed to the participants. The pilot study was applied to participants including 8 specialist dentists (2 from endodontics, dental diseases and treatment, prosthesis and pedodontics branches) and 2 dentists. Participants they made comprehensive suggestions so that the content of the questionnaire reflects the purpose of the research. In addition, supervision was received from a professor in the field of endodontics for the questionnaire. The content of the questionnaire was reviewed in line with these feedbacks. The questionnaire was finalized by removing and revising the questions that were misunderstood, detailed, and containing typos.

The questionnaire consists of 3 parts and 31 questions in total. In the first part, there are 8 questions about the demographic characteristics of the participants, 7 questions in the second part that evaluate the use of rubber dam by the dentists, and in the third part there are 16 questions that measure their knowledge level about COVID-19. In the second part of the questionnaire, participants who did not use rubber dam were asked to pass questions about using rubber dam. The question number that participants should skip due to a technical error was incorrectly specified. Therefore, they should answer "If you do not always use the rubber dam during endodontic treatment, what are your reasons/reasons for not using it?" Some of the participants did not answer the question. A scoring determined by the researchers was given to the questions regarding COVID-19 knowledge levels in the third part of the questionnaire. The researchers who gave correct answers to the questions included in the scoring in the last section received 5 points for each question. The differences between the total score levels and various variables were analyzed statistically.

Statistical analysis

The responses of the participants were downloaded from Google Forms in a spread sheet format. Data analysis was done in IBM SPSS Statistics, Version 25.0. Armonk, NY.

RESULTS

A total of 389 dentists participated in our study, 59.4% of them were women and 40.6% were men. The clinical experience of 34.7% of these participants is 0-5 years, 34.7% is between 6-10 years, and 30.6% is 11 years and above. It has been determined that 38.6% of the dentists participating in our study do not have expertise, 35.2% of them are experts, and 33.7% of the participants who are experts are endodontists. 51.4% of the participants stated that they received training about COVID-19 (Table 1).

Table 1: Demographic findings of the participants.

Part 1		n	%
1. What is your gender?	a. Female	231	59.4
	b. Male	158	40.6
2. What is the name of the Faculty of Dentistry you graduated from?	a. Çukurova University	127	32.6
	b. İstanbul University	70	18
	c. Gazi University	30	7.7
	d. Marmara University	23	5.9
	e. Ege University	22	5.7
	f. Other	117	30.1
3. What is your undergraduate graduation year?	a. 1981-1990	8	2.1
	b. 1991-2000	27	6.9
	c. 2001-2010	89	22.9
	d. 2011-2018	265	68.1
4. How many years is your clinical experience?	a. 0-5 years	135	34.7
	b. 6-10 years	135	34.7
	c. 11 years and above	119	30.6
5. What is your title?	a. Dentist	150	38.6
	b. Specialization / doctoral student	76	19.5
	c. Specialist / Dr.	137	35.2
	d. Associate professor	11	2.8
	e. Professor	15	3.9
6. Which institution do you work for? (Those who work in more than one institution can mark the institution with the most patients)	a. Private	144	37
	b. Public	105	27
	c. University	140	36
7. Have you received training on COVID-19?	a. Yes	200	51.4
	b. No	189	48.6
8. If you have an area of expertise, which one?	a. Endodontics	131	33.7
	b. Pedodontics	14	3.6
	c. Prosthetic Dental Treatment	33	8.5
	d. Orthodontics	13	3.3
	e. Restorative Dental Treatment	3	0.8
	f. Periodontology	26	6.7
	g. Oral and Maxillofacial Surgery	19	4.9
	h. Oral and Maxillofacial Radiology	4	1

It was found that only 38.6% of the participants included in our study and 82.44% of the endodontists used rubber dam. 39.8% of those using rubber dam reported that they used endodontic and 11.3% for restorative procedures. Of the participants who used rubber dam, 19.3% stated that they used rubber dam equally in all teeth and 14.9% most often on their back teeth during endodontic treatment. Of those who do not always use rubber dam during endodontic treatment (180 people who do not always use rubber dam as well as 150 people who use rubber dam answered this question), 12.9% application takes time, 12.1% required use 11.6% stated that they did not see it, and that they did not use it because the patients were unwell. 27.5% of all participants reported that the frequency of rubber dam use increased during the COVID-19 pandemic process (Table 2).

Table 2: Answers to questions about the use of rubber dam.

Part 2		n	%
Do you use rubber dam during dental treatments?	a. Yes	150	38.6
	b. No	239	61.4
In which process (s) do you use rubber dam?	a. Endodontic procedures	155	39.8
	b. Restorative procedures	44	11.3
	c. Pedodontic procedures	16	4.1
	d. Prosthetic procedures	5	1.28
	e. Other	11	2.8
What is your frequency of using rubber dam during endodontic treatment?	a. Never	19	4.9
	b. Sometimes	78	20.1
	c. Frequently	56	14.4
	d. Always	26	6.7
On which teeth do you use rubber dam more often during endodontic treatment?	a. Anterior teeth	2	0.5
	b. Posterior teeth	58	14.9
	c. Equally frequent in anterior and posterior teeth	21	5.4
	d. Upper teeth	4	1
	e. Lower teeth	22	5.7
	f. Equally frequent in upper and lower teeth	15	3.9
	g. Equally frequent in all teeth	71	18.3
What is the frequency of using rubber dam during other treatments (other than endodontic treatment)?	a. Never	96	24.7
	b. Sometimes	64	16.5
	c. Frequently	17	4.4
	d. Always	7	1.8
If you do not always use rubber dam during endodontic treatment. what are your reasons for not using it?	a. Rubber dam's cost increase	20	5.1
	b. The application increases the duration of the treatment	50	12.9
	c. It is difficult to apply	11	2.9
	d. I do not consider it necessary to use a rubber dam	47	12.1
	e. I have not received training on the use of the rubber dam	4	1
	f. I received training on the use of the rubber dam. I want to use it but I can not	12	3.1
	g. I want to use rubber dam but it is not available where I work	36	9.3
	h. The patient is uncomfortable with the rubber dam	45	11.6
	i. I do not do edodontic treatment.	4	1
	j. Other	27	7
Has the COVID-19 pandemic changed your frequency of rubber dam use during endodontic treatment?	a. My frequency of use per treatment has decreased.	6	1.5
	b. My frequency of use per treatment has increased.	107	27.5
	c. No	276	71

The responses of the participants to the questions about COVID-19 are given in Table 3. In the scoring made to measure the knowledge level of the participants about COVID-19 (min. 0, max. 40), the average score was

determined as 27.6 ± 6.75, and the average score of endodontists as 26.85 ± 7.43. It was concluded that dentists' knowledge of COVID-19 differs according to gender as a result of the independent sample t test ($p < 0.05$), and the knowledge level of women was higher than that of men (Table 4). However, it has been found that COVID-19 knowledge levels do not differ according to education about COVID-19 and use of rubber dam. ($p > 0.05$)

As a result of the One Way Anova test, it was determined that the COVID-19 knowledge levels of all participants did not differ according to the variables of the university they graduated from, clinical experience, title and specialty branch. (P values; 0.289, 0.207, 0.559, 0.626, respectively) When we also evaluated the endodontists, it was found that the COVID-19 knowledge levels did not differ according to the variables of the university they graduated from, clinical experience and title. (p values are 0.209, 0.659, 0.932, respectively) ($p > 0.05$).

Table 3: Answers to questions about COVID-19 disease.

Part 3		n	%
What is the COVID-19 agent?	a. Virus	389	100
	b. Bacteria	0	0
	c. Parasite	0	0
	d. No idea	0	0
Can we growth the COVID-19 agent with the medium?	a. Yes	92	23.7
	b. No	184	47.3
	c. No idea	113	29
How is COVID-19 transmitted? (Multiple options are allowed to tick)	a. Coughing and sneezing	388	99.74
	b. Human touch and contact	275	70.69
	c. Saliva. urine and feces	265	68.12
	d. Food	118	30.33
	e. Sexual contact	90	23.14
	f. Blood	89	22.88
	g. Animals	47	12.08
	h. Soil	10	2.57
	i. No idea	0	0
What are the high risk groups for COVID-19 disease? (Multiple options are allowed to tick)	a. Those over the age of 60	368	94.6
	b. Health workers	370	95.12
	c. Children	18	4.63
	d. Those with chronic illnesses	380	97.69
	e. Pregnant women	151	38.82
	f. Under the age of 20	23	5.91
	g. No idea	0	0
What are the symptoms of COVID-19 disease? (Multiple options are allowed to tick)	a. Fever	385	98.97
	b. Cough	380	97.69
	c. Shortness of breath	375	96.4
	d. Throat ache	299	76.86
	e. Loss of taste and smell	387	99.49
	f. Skin rash	79	20.31
	g. Diarrhea	298	76.6
	h. Vomiting	145	37.3
	i. Runny nose	125	32.1
	j. May show no symptoms	270	69.4

	k. No idea	0	0
How is COVID-19 diagnosed? (Multiple options are allowed to tick)	a. Blood test	172	44.22
	b. Lung film	305	78.41
	c. Throat swab	384	98.71
	d. Urine test	0	0
	e. No idea	1	0.26
	f. There are no diagnostic tests in our country	2	0.51
Can COVID-19 be treated with antibiotics?	a. No	378	97.2
	b. Yes	8	2.1
	c. No idea	3	0.8
How is COVID-19 agent disinfected? (Multiple options are allowed to tick)	a. 70% alcohol	373	95.89
	b. Soap and water	338	86.89
	c. Water	13	3.34
What kind of virus is the COVID-19 factor?	a. Enveloped	264	67.9
	b. Without envelope	28	7.2
	c. No idea	97	24.9
The feature of enveloped viruses is their resistance to disinfectants.	a. True	79	20.3
	b. False	210	54
	c. No idea	100	25.7
How long is the COVID-19 incubation period?	a. 1-14 days	226	58.1
	b. 2-7 days	88	22.6
	c. 7-14 days	56	14.4
	d. 7-21 days	10	2.6
	e. No idea	9	2.3
Filtered face masks should be used for procedures involving aerosol.	a. True	358	92
	b. False	24	6.2
	c. No idea	7	1.8
Intraoral radiographs should be limited and extraoral radiographs should be preferred during the pandemic process.	a. True	323	83
	b. False	56	14.4
	c. No idea	10	2.6
What are the infection control measures to be taken for COVID-19? (Multiple options are allowed to tick)	a. Frequently cleaning your hands with alcohol-based hand rub or soap and water	388	99.74
	b. Routinely cleaning and disinfecting surfaces in contact with patients	386	99.23
	c. Using personal protective equipment such as protective glasses. masks and gloves	389	100
	d. Using a face mask	380	97.69
	e. All healthcare personnel should wear protective clothing	389	100
	f. Treating patients in sufficiently ventilated single rooms	383	98.46
	g. Rubber dam isolation	356	91.52
	h. Mouth rinsing before dental treatment	342	87.92
	i. No idea	0	0

Table 4: Independent sample t test results of COVID-19 knowledge scores of the participants.

		Endodontists' COVID-19 knowledge score	p (0.05)	COVID-19 knowledge score of all participants	p (0.05)
Gender	Female	28.4 ± 6.96	0.018*	28.2 ± 6.36	0.041*
	Male	25.3 ± 7.9		26.74 ± 7.22	
Education about COVID-19	Yes	27.5 ± 7.41	0.348	27.95 ± 6.72	0.3
	No	26.2 ± 7.71		27.24 ± 6.79	
Using of rubber dam	Yes	26.8 ± 7.38	0.664	27.3 ± 7.03	0.48
	No	27.6 ± 8.37		27.8 ± 6.58	

DISCUSSION

The aim of our study was to evaluate the differences between dentists' knowledge of COVID-19 and the frequency of using rubber dam when performing root canal treatment, especially of endodontists. In addition, to determine whether there is a relationship between the use of rubber dam and multiple variables and the level of knowledge of COVID-19.

According to the study of Hatipoğlu et al. participants working in private clinics used more rubber dams than the public ($p<0.05$) and no significant difference was found in terms of gender and experience [19]. In our study, the rate of using rubber dam in universities, private clinics and public sector was 62.85%, 31.25% and 16.19%, respectively. Although the use of rubber dam in our study was higher in university employees; since no statistically significant difference was found between the knowledge levels of university employees on COVID-19 compared to those working in other institutions, this situation could not be associated with the level of knowledge about COVID-19. Most of the dentists working in the public hospital that they do not use the rubber dam because they are not in the institution where they are working and it increases the duration of the procedure performed on the patient. Considering that the patient density is high in public institutions, it can be interpreted that physicians do not want to use rubber dam because the time allocated to the patient is shortened in parallel. However these results may have been obtained because we wanted participants working in more than one institution to mark the institution where they mostly care for patients in our study. In the following studies, we think that the questionnaire question can be asked specifically as "the institution where they do root canal treatment".

Martinho et al. reported that 42.3% of the endodontists used an air cleaning unit during the COVID-19 pandemic process and that 16.9% of them used rubber dam and oral aerosol vacuum in addition to personal hygiene measures [21]. In our study, 27.5% of all participants and 56.4% of endodontists reported that the frequency of using rubber dam during endodontic procedures increased during the COVID-19 pandemic. The importance of rubber dam isolation to minimize the spread of aerosol or droplets contaminated with saliva and blood has been emphasized in previous studies [14-22].

COVID-19 is a new virus, since the risk of cross infection during dental treatments is high, infection control training is given to dentists during their undergraduate education. Also at the beginning of the pandemic, patients and health professionals as protection for a variety of online training organized by dental organizations in Turkey and the information it is given. In our study, the rate of participants who received training on COVID-19 was found to be 51.4%. In the scoring made to measure the level of knowledge of all participants about COVID-19, the average score they got out of 40 was determined as 27.6 ± 6.75, and the average score of endodontists was 26.85 ± 7.43. Providing training to all employees of institutions about COVID-19 will ensure that dentists, who are most closely related to cross-contamination, protect themselves and their patients from the risk of transmission as much as possible during and after the pandemic.

In our study, although we have seen that the frequency of use of rubber dam by endodontists increased by 56.4% with the COVID-19 pandemic; since the number of participants in Pedodontics and restorative dental treatment branches, which are likely to use rubber dam in dental treatments, such an evaluation could not be made. This issue is low considered while generalizing for other branches. In addition, we think that the distribution of the universities from which the participants graduated in our study is not homogeneous. Not every university has the same sensitivity to rubber dam use before COVID-19. This situation should be kept in mind while evaluating the findings. However, since we think that the knowledge levels of dentistry students on protection from infection may vary greatly depending on their undergraduate education and that the use of rubber dams before COVID-19 is not within their authority, the participants of our study were asked to graduate. For this

reason, dentistry students were not included in our study.

CONCLUSION

Although the increase in the frequency of the rubber dam usage achieved as a result of this study is a nice improvement, this level is still not enough. However, it is important to know the factors affecting the increase of the rubber dam usage. In this study, it was observed that there was no relationship between the knowledge level of the COVID-19 and the using of the rubber dam. Therefore, more studies should be done on the factors that may increase the frequency of the rubber dam usage. Furthermore, in order to standardize the using of the rubber dam as it should be, the studys findings should be put into practice.

CONFLICT OF INTEREST

We have no conflict of interest to declare.

REFERENCES

1. Tyrrell DA, Almeida JD, Cunningham CH, et al. Coronaviridae. Intervirology 1975; 5:76-82.
2. Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China. N Engl J Med 2019; 382:727-733.
3. Phelan AL, Katz R, Gostin LO. The novel coronavirus originating in Wuhan, China: challenges for global health governance. JAMA 2020; 323:709-710.
4. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline
5. https://covid19.who.int/region/euro/country/tr
6. Chan JFW, Yuan S, Kok KH. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet 2020; 395:514-523.
7. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html
8. https://www.who.int/health-topics/coronavirus#tab=tab_1
9. Zhang Z, Zhang L, Wang Y. COVID-19 indirect contact transmission through the oral mucosa must not be ignored. J Oral Pathol Med 2020; 49:450-451.
10. Lu CW, Liu XF, Jia ZF. 2019-nCoV transmission through the ocular surface must not be ignored. Lancet 2020; 395:39.
11. Muller MP, McGeer A. Febrile respiratory illness in the intensive care unit setting: an infection control perspective. Curr Opin Crit Care 2006; 1:37-42.
12. https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html
13. https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html
14. Samaranayake LP, Peiris M. Severe acute respiratory syndrome and dentistry: a retrospective view. J Am Dent Assoc 2004; 9:1292-302.
15. Villani FA, Aiuto R, Paglia L, et al. COVID-19 and dentistry: prevention in dental practice, a literature review. Int J Environ Res Public Health 2020; 17:1-12.
16. https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html#section-1
17. https://cdn.ymaws.com/www.osap.org/resource/resmgr/dentaquest/OSAP-DQP_Patient_Guidance.pdf
18. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. J Am Dent Assoc 2004; 135:429-37.
19. Hatipoğlu FP, Hatipoğlu Ö, Arıcıoğlu B. Examination of approaches of Turkish dentists. Sdü Sağlık Bilimleri Dergisi 2020; 11:54-64.
20. Ulusoy ÖİA, Arslan S, Tınaz C. Prevalence of rubber-dam use among specialists in restorative dentistry and endodontics: A questionnaire survey. GÜ Diş Hek Fak Derg 2011; 28:93-8.
21. Martinho FC, Griffin IL. A cross-sectional survey on the impact of coronavirus disease 19 (COVID-19) on the clinical practice of endodontists across the united states. J Endod 2020; 45:28-38.
22. Prati C, Pelliccioni GA, Sambri V, et al. COVID-19: Its impact on dental schools in Italy, clinical problems in endodontic therapy and general considerations. Int Endod J 2020; 53:723–5.
23.

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