

EVALUATION OF THE LEGAL MEASURES TAKEN BY DENTISTS IN THE ENDODONTIC TREATMENTS IN TURKEY; A QUESTIONNAIRE SURVEY

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ABSTRACT

Purpose: The purpose of this study was to evaluate the legal measures taken by Turkish dentists in endodontic treatments.

Methods: The web-based questionnaire form consisted of eleven questions was send to the members of the Turkish Dental Association by email from February to March 2021 and 382 dentists filled the form. The participants were asked about their properties such as gender, years of experience, specialty, and their methods of clinic applications in endodontic procedures such as rubber-dam application, methods of informing the patients, storing/sharing the diagnostic documents, and allowing patients to have a companion.

Results: All the participants informed their patients about the endodontic treatment but only the half of participants received written informed consent. When compared with other dental services, endodontics ranked 3rd according to the probability of having legal problems with the patient. Four-fifths of the participants reported using rubber dam in endodontic treatments. Almost one out of ten people did not archive the treatment documents.

Conclusions: The results of this study should alert Turkish dentists to take special care to avoid facing claims and lawsuits about their legal liability.

Keywords: Dentist, endodontic treatment, legal measures, patient rights.

INTRODUCTION

In recent years, patient rights and dental malpractice have been among the agenda items of both the press and scientific publications. The main reason for this could be the related studies that showed an incredible increase in malpractice cases all over the world (1,2). Current research showed that looking at all healthcare professionals in the US, one out of ten malpractice payments was made against dentists (3).

The patient responsibilities and rights in applications related to dentistry were clearly stated by the American Dental Association (ADA) Statement in 2009 (4). According to this universal statement, patients have the right to ask questions and get answers about treatment, alternative treatment plans, accept, delay or refuse any part of the proposed treatment, and be informed about ongoing health.

This situation obliges the clinician to present the treatment to the patient in all details with written consent. Although filling the written consent form presented to the patient is one of the responsibilities of the patient presented in the ADA 2009 statement, both dentists and patients do not look favorably upon this legal situation. Ignoring this requirement opens the door to many legal problems today.

Endodontics is one of the interventional branches of dentistry which concern with the diagnosis, study, and treatment of dental pulp. Because endodontics mostly deals with painful patients and this multi-material procedure has the risk of causing complications, it is possible that legal problems may occur between the dentist and the patient. To prevent this, detailed information should be given to the patient and the written consent should be obtained from the patient before the root canal treatments, all documents of this multi-step process should be archived and the necessary precautions should be taken to prevent possible complications.

Although there are some studies about legal aspects of malpractice and complications in endodontics (5-9), there is no study about the legal measures taken by the clinicians in endodontic procedures. This study aimed to evaluate the legal measures taken by Turkish dentists before and during the endodontic procedures.

METHODS

This study protocol was approved by Local Ethic Committee (Approval no: 9/12/2020-129). The sampling method was used similarly to the study of Suresh and Chandrashekar (10). Considering the 95% confidence level and 5% margin of error, 370 samples were needed. An online questionnaire form was conducted using Google Forms (Alphabet Inc. Google LLC, California, U.S). The web-based questionnaire form consisted of eleven questions was send to the members of the Turkish Dental Association by email from February to March 2021 (Figure 1). The participants were asked about their

- Q1. Gender:
Male () Female ()
- Q2. Years of experience:
0-5 () 5-10 () 10-15 () 15-20 () more than 20 ()
- Q3. Specialty:
General dental practitioner () Ph.D student () Specialist ()
- Q4. Do you inform your patient before the root canal treatment?
Yes () No()
- Q4a. If yes, how many minutes do you take to inform your patient?
1-5 minute () 5-10 minutes () More than 10 minutes ()
- Q5. Do you take an informed consent form from the patient before the endodontic treatment?
Yes () No()
- Q5a. If yes, how do you take?
Written () Verbal ()
- Q6. Do you allow the patient to have a companion during endodontic treatment?
Yes () No()
- Q7. Do you routinely use rubber dam in endodontic treatments?
Yes () No()
- Q8. Do you store the patient's radiographs and documentations?
Yes () No()
- Q9. Do you share all kinds of information and documents of examination findings regarding your endodontic treatment with your patient?
Yes () No()
- Q10. List the following treatments in order of 1 to 5 according to the probability of experiencing legal problems with the patient. (1 with the most frequent problems, 5 with the least problems)
a- Surgical procedures
b- Examination and diagnosis
c- Endodontic treatments
d- Prosthetic / Esthetic processes
e- Orthodontic treatments
- Q11. During your professional life, have you experienced any legal problems arising from endodontic procedures?
Yes () No()

Figure 1. The questionnaire form sent to the members of the Turkish Dental Association

properties such as gender, year of experience (exp. year), specialty, and their methods of clinic applications in endodontic procedures such as rubber-dam (RD) application, methods of informing the patients, storing/sharing the diagnostic documents, and allowing patients to have a companion. They were also asked about the treatments that were most likely to face legal problems.

Statistical analysis

Responses were collected and data inserted into the excel program. Data were analyzed with IBM SPSS V23 (IBM Corp, Somers, NY). Chi-square test was used to compare categorical variables according to groups. Analysis results are presented as frequency (percentage) for categorical data. The significance level was taken as $p < 0.05$.

RESULTS

A total of 382 dentists filled the form. A similar number of men ($n=193$) and women ($n=189$) participated in the study.

The demographics of the participants are shown in Table 1. The majority of the respondents were general dental practitioners (GDPs) (64.7%) followed by specialists (SP) (27.7%) and Ph.D students (PhDs) (7.6%). The participants' years of experience were 36.9% (0-5 exp.year), 23.3% (5-10 exp.year), 11% (10-15 exp. year), 7.1% (exp.year) and 21.7% (more than 20 exp.year).

All respondents reported that they informed their patients before the root canal treatment. The time spent by dentists participating in the study to inform their patients was 1-5 minutes for 64.3%, 1-5 minutes for 29.4% and more than 10 minutes for 6.3% (Table 1).

In this study, only 63.1% of participants reported that they received informed consent from their patients; 74.5% received written consent and 25.5% verbal consent (Table 1). A statistically significant difference was found between the distribution of how consent was obtained according to the specialty of the dentists ($p < 0.001$) (Table 2). While GDPs preferred to have verbal consent, SP and PhDs obtained written consent ($p < 0.001$). Beside this, no statistically significant difference was observed between SP and PhDs groups regarding the way of getting consent ($p > 0.05$). When the relationship between consent styles of the participants and their professional

experiences were examined, it was seen that the respondents with more than 20 years of experience received more verbal consent than the others ($p < 0.001$). (Table 2).

A similarity was observed in the attitude of the participants about allowing their patients to have a companion during endodontic treatment (Table 1). The number of participants who allowed this situation ($n=199$) was slightly higher than those who did not ($n=183$). On the other hand, participants' opinions on the use of RD in endodontic treatments and archiving of the documents were clear. Most of the participants stated that they used RD (78.8%) (Table 1). Looking at the distribution of the groups, 10.9% of GDPs, 41.5% of SP and 34.5% of PhDs used RD during the endodontic procedure. GDPs were less likely to use RD in their endodontic treatments ($p < 0.001$). (Table 3). Beside there was a statistically significant difference in using RD in endodontic treatments among the responders' years of experience ($p < 0.001$). While the participants with 5-10 and 10-15 years of experience were more likely to use RD, the ones with more than 20 years of experience mostly did not prefer to use it ($p < 0.001$). When it came to archiving patient files, most of the participants stated that they kept the patient's documents/radiographs (88.2%). However, only two-thirds (60.7%) shared their documents with their patients.

Participants' opinions about which dental treatment can cause legal problems are listed in Table 4. Surgical procedures ranked first. Nearly one third of the participants (37.7%) ranked endodontic treatments in 3rd place.

There was no significant difference between the specialty of the dentists about experiencing legal problems arising from endodontic procedures ($p > 0.05$).

DISCUSSION

This questionnaire-based survey was answered by 382 dentists in Turkey. Although there are many clinical malpractice subjects in endodontic procedures such as misdiagnosis, separation of instruments, perforation of root canals, sodium hypochlorite accidents, and/or missing root canals (5-7), this study generally focused on legal measures taken by dentists before and during the endodontic treatments. To the author's knowledge, this is the first study that evaluates the legal aspects of endodontics

Table 1. Description of the respondents

	Frequency (n)	Percentage (%)
Gender		
Male	193	50,5
Female	189	49,5
Experienced year		
0-5 years	141	36,9
5-10 years	89	23,3
10-15 years	42	11
15-20 years	27	7,1
More than 20 years	83	21,7
Specialty		
GDPs	247	64,7
SP	106	27,7
PhDs	29	7,6
Do you inform your patients?		
Yes	382	100
How many minutes do you take to inform your patient?		
1-5 minutes	245	64,3
5-10 minutes	112	29,4
more than 10 minutes	24	6,3
Do you take an informed consent form from the patient before the endodontic treatment?		
Yes	241	63,1
No	141	36,9
If yes, how do you take?		
Verbal	65	25,5
Written	190	74,5
Do you allow the patient to have a companion during endodontic treatment?		
Yes	183	47,9
No	199	52,1
Do you routinely use rubber dam in endodontic treatments?		
Yes	81	21,2
No	301	78,8
Do you store the patient's radiographs and documentations?		
Yes	337	88,2
No	45	11,8
Do you share all kinds of information and documents of examination findings regarding your endodontic treatment with your patient?		
Yes	232	60,7
No	150	39,3
During your professional life, have you experienced any legal problems arising from endodontic procedures?		
Yes	17	4,5
No	365	95,5

Table 2. The distribution of how consent was obtained according to the specialty of the dentists.

	Verbal n (%)	Written n (%)	Total n (%)	Test statistic	p value
Specialty					
GDPs	56 (38,9) ^a	88 (61,1) ^a	144 (100,0)	$\chi^2=31,393$	<0,001
SP	8 (8,8) ^b	83 (91,2) ^b	91 (100,0)		
PhDs	1 (5,0) ^b	19 (95,0) ^b	20 (100,0)		
Experienced years					
0-5 years	24 (28,2) ^a	61 (71,8) ^a	85 (100,0)	$\chi^2=40,072$	<0,001
5-10 years	7 (10,1) ^a	62 (89,9) ^a	69 (100,0)		
10-15 years	4 (11,8) ^a	30 (88,2) ^a	34 (100,0)		
15-20 years	2 (11,1) ^a	16 (88,9) ^a	18 (100,0)		
More than 20 years	28 (57,1) ^b	21 (42,9) ^b	49 (100,0)		

n=number, %=percentage, χ^2 : Chi-square test. Values for the groups marked with different superscript letters were significantly different ($p<0.05$).

in Turkey. Although there are a large number of dentists registered within the Turkish Dental Association, the number of dentists participating in the study was below the expected. This study was conducted during the Covid-19 pandemic. During this period, researchers avoided *in-vivo* and *in-vitro* studies and fronted questionnaire studies. Dentists, on the other hand, were tired of filling out the questionnaires that come to their mailboxes one after another every day. This may have reduced the rate of participation in the study.

The patient rights are under protection with a regulation published in Official Gazette dated

01/08/1998 and numbered 23420 in Turkey (11). According to this "Patient rights regulation", the patient can examine the file and records containing information about his/her health status directly or through his/her representative or legal representative and obtain a copy. Accordingly, the clinicians should share all kinds of information and documents of examination findings regarding the endodontic treatment with the patient. According to the results, almost one out of ten people did not archive the treatment documents, while 39.3% of those who kept them stated that they did not share it with their patients.

Table 3. Comparison of title and professional experience according to the use of rubber-dam during the endodontic procedure.

	Yes n (%)	No n (%)	Total n (%)	Test statistic	p value
Specialty					
GDPs	27 (10,9) ^a	220 (89,1) ^a	247 (100,0)	$\chi^2=44,82$	<0,001
SP	44 (41,5) ^b	62 (58,5) ^b	106 (100,0)		
PhDs	10 (34,5) ^b	19 (65,5) ^b	29 (100,0)		
Experienced years					
0-5 years	25 (17,7) ^{ab}	116 (82,3) ^{ab}	141 (100,0)	$\chi^2=21,427$	<0,001
5-10 years	29 (32,6) ^b	60 (67,4) ^b	89 (100,0)		
10-15 years	15 (35,7) ^b	27 (64,3) ^b	42 (100,0)		
15-20 years	5 (18,5) ^{ab}	22 (81,5) ^{ab}	27 (100,0)		
More than 20 years	7 (8,4) ^a	76 (91,6) ^a	83 (100,0)		

n=number, %=percentage, χ^2 : Chi-square test. Values for the groups marked with different superscript letters were significantly different ($p<0.05$).

Table 4. Data are the numbers and percentages of the participants who ranked the following treatments 1 to 5 according to the probability of experiencing legal problems with the patient (1 with the most frequent problems, 5 with the least problems)

The treatments	1 st rank		2 nd rank		3 rd rank		4 th rank		5 th rank	
	n	%	n	%	n	%	n	%	n	%
Surgical procedures	107	28	89	23,3	51	13,4	76	19,9	48	12,6
Examination and diagnosis	62	16,2	28	7,3	70	18,3	73	19,1	58	15,2
Endodontic treatments	78	20,4	44	11,5	144	37,7	109	28,5	102	26,7
Prosthetic / Esthetic processes	59	15,4	79	20,7	76	19,9	73	19,1	82	21,5
Orthodontic treatments	76	19,9	142	37,2	41	10,7	51	13,4	92	24,1

n=number, %=percentage

The American Association of Endodontics (AAE) emphasized the importance of written consent and good documentation to avoid lawsuits (12). Although communication with the patient is the primary factor in preventing such cases, it should not be forgotten that "word flies, writing remains." It is obvious that the lack of necessary medical forms and written consent create problems for the dentists in malpractice lawsuits (13). In the present study, all the participants informed their patients about the endodontic treatment but only the half of participants received written informed consent. Besides, most of the participants (64.3%) took less than 5 minutes to inform their patients. Considering that one of the main reasons for today's malpractice cases is caused by lack of patient-physician communication (12), 5 minutes allocated to the patient is quite low. During the first examination, the clinician should evaluate subjective findings such as the main complaint, dental and medical history, and objective findings such as vital signs, intra- and extra-oral examination, and support these findings with radiographic examination findings. It is an undeniable fact that this comprehensive examination and its explanation to the patient will take longer than 5 minutes. The high number of patients seen in a day by physicians working in government institutions may reduce the time they allocate for the first examination. The clinician should spare time to answer all the questions of the patient, explain the proposed treatment, its potential consequences, and alternative treatment options (1,14).

To date, different clinical dental services have been the subject of malpractice cases. Fixed prosthodontics and oral surgery procedures constitute the vast majority of cases (1, 15-17). Kiani et al. conducted a study with dentists in Tehran

between 2002-2006 and showed that endodontic procedures ranked third in malpractice cases following prosthodontics and oral surgery (1). The results of this study were in agreement with the study of Milgrom et al. (17), which reported that endodontics ranked third among all branches in terms of malpractice risk. When the subject was the alleged adverse outcomes in compensated claims, failed root canal treatment ranked second in Kiani et al.'s study.¹ To interpret the results of this study, participants' perspective on the possibility of experiencing legal problems with endodontic treatments was also important. The participants were asked to rank surgical procedures, endodontic procedures, examination-diagnostic procedures, orthodontic procedures, and prosthetic/esthetic procedures from 1 to 5 according to the probability of experiencing legal problems with the patient. The participants were notified that the most probability of experiencing legal problems during surgical procedures, and endodontic procedures ranked 3rd in this arrangement. The results of this study were in accordance with the aforementioned ones (1,17).

According to the AAE Clinical Practice Committee, using a rubber dam (RD) is the standard of care in the endodontic treatments for the isolation of the tooth (18). It has several advantages such as minimizing the risk of contamination, preventing aspiration or ingestion of any kind of dental/endodontic equipment, and providing a visible operation field (9). It helps to protect the patient and improve the treatment efficiency. Although RD application is mandatory for all kinds of endodontic procedures (19), there are several reports of inhalation or aspiration of the endodontic instruments due to not using RB (20-22). Despite all the advantages and legal requirements of using RD, many dentists still do not use RD because

of excuses such as difficult to use, waste of time, patient rejection, patient discomfort, and equipment cost (23-25). In these days of the Covid-19 pandemic, the use of RD is a mandatory process rather than optional for the prevention of cross-infection. In this study, four-fifths of the participants reported using RD in endodontic treatments. Considering that the participant population is mostly GDPs, this ratio is quite high. The fact that the use of RD in endodontic treatments is mandatory during undergraduate education at Turkish Universities and 60.2% of the participants were young dentists with 0-10 years of experience may explain this result.

To the author's knowledge, there is only one study in the literature that evaluated the dental malpractice cases in Turkey (2). In that study, it was announced that the dental malpractice cases were almost the 1% of all the medical cases within a period of ten years. In the present study, the participants were asked whether they had ever experienced any legal problems arising from endodontic procedures throughout their professional life and 4.5% of them said yes. This percentage is not surprising given that half of the respondents did not receive written consent. However, since the legal problems related to malpractice were not questioned in this study, it would not be correct to attribute this situation only to the legal measures taken.

Within the limitation of this study, many Turkish dentists reported that they informed their patients about the treatment, stored radiographs, and used RD in endodontic treatments. However, there is a great lack of receiving written consent. The dental curriculum in Turkey should have more information about the patient rights, dentist responsibilities, and the written documents that will legally protect dentists against lawsuits.

Keypoints

- Dentists in Turkey inform their patients before the root canal treatment.
- The time that dentists allocate to inform their patients is insufficient.
- There are still dentists who think verbal consent will be legally valid.
- Turkish dentist should have more information about the patient rights, dentist responsibilities, and the written documents that will legally protect them against lawsuits.

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REFERENCES

1. Kiani M, Sheikhzadi A. A five-year survey for dental malpractice claims in Tehran, Iran. *J Forensic Leg Med* 2009;16(2):76-82.
2. Ozdemir MH, Saracoglu A, Ozdemir, et al. Dental malpractice cases in Turkey during 1991–2000. *J Clin Forensic Med* 2005;12:137–42.
3. Nalliah RP. Trends in US malpractice payments in dentistry compared to other health professions—dentistry payments increase, others fall. *Br Dent J*, 2017;222(1):36-40.
4. ADA Statement on dental patients right and responsibilities. Available from; [https://www.ada.org/~media/ADA/About%20the%20ADA/Files/statements_ethics_patient_rights.pdf](https://www.ada.org/~/media/ADA/About%20the%20ADA/Files/statements_ethics_patient_rights.pdf)
5. Cohen S, Schwartz S Endodontic complications and the law. *J Endod* 1987;13(4):191-97.
6. Dhawan R, Dhawan S. Legal aspects in dentistry. *J Indian soc Periodontol* 2010; 14(1), 81.
7. Ramugade MM, Sagale AA. A review of medicolegal considerations of endodontic practice for general dental practitioners. *J Int Soc Prevent Communit Dent* 2018;8(4):283.
8. Emek BG, Keçeci AD. Endodontide Etik Sorunlar ve Malpraktis. *SDU Journal of Health Science* 2019;10(3):327-32.
9. Alrahabi M, Zafar MS, Adanir N. Aspects of clinical malpractice in endodontics. *Eur J Dent* 2019;13(3):450.
10. Suresh KP, Chandrashekara S. Sample size estimation and power analysis for clinical research studies. *J Hum Reprod Sci* 2012;5(1):7.
11. "Patient rights regulation" published in Official Gazette dated 01/08/1998 and numbered 23420. Accessed at 25 April 2021. Available from; <https://www.mevzuat.gov.tr/File/GeneratePdf?mevzuatNo=4847&mevzuatTur=KurumVeKurulusYonetmeligi&mevzuatTertip=5>

12. Saxton JW, King DK. American Association of Endodontics, Practice management, January 2016. Available from: <https://www.aae.org/specialty/communique/how-to-avoid-a-lawsuit/>
13. Keeling SD, Martin CS. The malpractice morass and practice activities of orthodontists. *Am J Orthodont Dentofacial Orthopedic* 1990;97:229–39.
14. Zinman E. Dental and legal considerations in periodontal therapy. *Periodontology* 2000 2001; 25:114–130.
15. Sjostron O. No-fault-compensation, patient guarantee, peer review committees: the Swedish experience. *Int Dent J* 1990;40:103–8.
16. Rene N, Owall B. Malpractice reports in prosthodontics in Sweden. *Swed Dent J* 1991; 15: 205–217.
17. Milgrom P, Fiset L, Whitney C, et al. Malpractice claims during 1988–1992. A national survey of dentists. *J Am Dent Assoc* 1994; 125: 462–9.
18. AAE Position statement- Dental dam. Accessed at 24 February. Available from: <https://www.aae.org/specialty/wp-content/uploads/sites/2/2017/06/dentaldamstatement.pdf>
19. Barnes JJ, PatelmS. Contemporary endodontics–part 1. *Br Dent J* 2011;211(10):463-8.
20. Susini G, Pommel L, Camps J. Accidental ingestion and aspiration of root canal instruments and other dental foreign bodies in a French population. *Int Endod J* 2007;40:585–9.
21. Kuo S, Chen Y. Accidental swallowing of an endodontic file. *Int Endod J* 2008;41:617–22.
22. Yadav RK, Yadav HK, Chandra A, Yadav S, Verma P, Shakya VK. Accidental aspiration/ingestion of foreign bodies in dentistry: A clinical and legal perspective. *Natl J Maxillofac Surg* 2015;6(2):144.
23. Whitworth J, Seccombe G, Shoker K, Steele J. Use of rubber dam and irrigant selection in UK general dental practice. *Int Endod J* 2000;33:435–41.
24. Madarati AA. Why dentists don't use rubber dam during endodontics and how to promote its usage? *BMC Oral Health* 2016;16:24.
25. Madarati A, Abid S, Tamimi F et al. Dental-dam for infection control and patient safety during clinical endodontic treatment: preferences of dental patients. *Int J Env Res Pub He* 2018;15(9):2012.