ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

DOI: 10.5336/forensic.2020-79300

Evaluation of the Knowledge, Attitudes and Behaviors of Oral and Maxillofacial Surgeons About Defensive Dentistry in Turkey

Türkiye'de Ağız ve Çene Cerrahlarının Defansif Diş Hekimliği Konusundaki Bilgi, Tutum ve Davranışlarının Değerlendirilmesi

Ömer EKİCİ[a]

[a]Department of Oral and Maxillofacial Surgery, Afyonkarahisar Health Sciences University Faculty of Dentistry, Afyonkarahisar, TURKEY

ABSTRACT Objective: The aim of the study is to explain the concept of defensive dentistry and to investigate the knowledge, attitudes and behaviors of oral and maxillofacial surgeons in Turkey regarding defensive dentistry. **Material and Methods:** In this cross-sectional descriptive study, a defensive dentistry behavior scale was used. One hundred and two oral and maxillofacial surgeons were included in the study. **Results:** In this study, it was found that 43.2% of oral and maxillofacial surgeons practiced "high", 37.3% of "moderate" and 19.6% of "low" level defensive dentistry. Positive defensive dentistry scores of oral and maxillofacial surgeons were found to be higher than negative dentistry scores. There was no significant difference in positive and negative dentistry practices according to the demographic characteristics of the participants (age, gender, marital status, working experiences, working place). Of oral and maxillofacial surgeons, 80.4% stated that they never heard about the concept of defensive dentistry and 91.2% stated that they did not know the content of this concept. **Conclusion:** This study revealed that in Turkey, oral and maxillofacial surgeons performed a moderate level of defensive dentistry. In order to reduce defensive dentistry practices, oral and maxillofacial surgeons should be provided with a suitable and safe working environment in which they can practice effectively on the basis of law and ethical principles.

Keywords: Defensive medicine; malpractice; ethics; dentistry; oral and maxillofacial surgery

ÖZET Amaç: Çalışmanın amacı, defansif diş hekimliği kavramını açıklamak ve Türkiye'deki ağız ve çene cerrahlarının defansif diş hekimliği konusundaki bilgi, tutum ve davranışlarını incelemektir. **Gereç ve Yöntemler:** Bu kesitsel tanımlayıcı çalışmada, defansif diş hekimliği davranış ölçeği kullanıldı. Çalışmaya, 102 ağız ve çene cerrahı dâhil edildi. **Bulgular:** Bu çalışmada, ağız ve çene cerrahlarının %43,2'sinin "yüksek", %37,3'ünün "orta" ve %19,6'sının "düşük" düzey defansif diş hekimliği uyguladığı görüldü. Ağız ve çene cerrahlarının pozitif defansif diş hekimliği puanları, negatif defansif diş hekimliği puanlarından daha yüksek bulundu. Katılımcıların demografik özelliklerine (yaş, cinsiyet, medeni durum, iş deneyimleri, çalışma yeri) göre pozitif ve negatif diş hekimliği uygulamalarında anlamlı bir fark yoktu. Ağız ve çene cerrahlarının %80,4'ü, defansif diş hekimliği kavramını hiç duymadıklarını ve %91,2'si bu kavramın içeriğini bilmediklerini belirttiler. **Sonuç:** Bu çalışma, Türkiye'de ağız ve çene cerrahlarının orta düzeyde defansif diş hekimliği yaptığını ortaya koydu. Defansif diş hekimliği uygulamalarını azaltmak için ağız ve çene cerrahlarına, hukuk ve etik ilkeler temelinde etkin hekimlik yapacakları uygun ve güvenli bir çalışma ortamı sağlanmalıdır.

Anahtar Kelimeler: Defansif tıp; malpraktis; etik; diş hekimliği; ağız ve çene cerrahisi

The concept of defensive medicine was first introduced in 1978 and is widely described as a medical behavior that avoids medical responsibility without offering the patient greater benefits.[1] Defensive medicine illustrates the actions of health practitioners aimed at reducing administrative, criminal, legal, and ethical consequences for malpractice.[2] The defensive dentistry concept can be considered as a form of defensive medicine and represents defensive practices in the field of dentistry. Defensive dentistry

Correspondence: Ömer EKİCİ
Department of Oral and Maxillofacial Surgery, Afyonkarahisar Health Sciences University Faculty of Dentistry, Afyonkarahisar, TURKEY/TÜRKİYE
E-mail: dromerekici@hotmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Forensic Medicine and Forensic Sciences.

Received: 30 Sep 2020 ***Received in revised form:*** 15 Nov 2020 ***Accepted:*** 16 Nov 2020 ***Available online:*** 31 Dec 2020

has been comprehended like a set of preventive measures that have as objective the dental surgeon protection against inherent risks in the profession itself that could lead to professional mistakes, entailing civil, criminal, and/or ethical actions.[3] Defensive dentistry is defined as a deviation of the dentist from his or her usual behavior or practice, in order to prevent complaints from patients or their families and to avoid dental malpractice cases. Defensive dentistry means that the dentists prefer as little risky behaviors as possible to avoid exposure to malpractice lawsuits or a patient's complaint.

There are two main types of defensive dentistry: positive defensive dentistry and negative defensive dentistry. When dentists perform additional tests or procedures to reduce their malpractice, it is called positive defensive dentistry.[4] Positive defensive dentistry includes behaviors such as requesting more examinations than necessary, prescribing more medications, asking for more consultations, evaluating more patients, making more hospital visits, keeping detailed records, making detailed and excessive information to patients and their relatives. The dentist's avoidance behavior is called negative defensive dentistry, in order to avoid legal risks. Negative defensive dentistry is an attempt by dentists to move away from legal risk sources such that not intervening in risky patients, avoiding risky treatment methods, and risky surgical procedures, referring to risky patients to another location.

In recent years, the claims of dental malpractice have increased in Europe and the United States of America (USA) and as a result, dentists have turned to defensive dentistry to secure themselves against possible malpractice cases. Lately, many articles were written about the difficulties faced by dentists in the National Health System (NHS) in the United Kingdom (UK) and highlighting "defensive dentistry."[5-8] Kelleher wrote an article entitled "State-sponsored dental terrorism" describing the state's threats and oppressive control on dentists.[5] Al Hassan stated that unfortunately, young dentists were forced to practice defensive dentistry in the UK.[6] Patel expressed the situations and challenges that are threatening young dentists in the UK. According to Patel, many of the treatments that can often be applied by young dentists are routinely referred to more experienced clinicians or second-line clinicians for fear of litigation. According to him, dentists in the UK carry out their profession in a worried and unsafe environment.[7] The Young Dental Committee of the British Dental Association issued a statement claiming that 53% of young dentists working in the NHS intend to leave the NHS in the next five years.[9] Defensive dentistry is a situation in many countries that threatens dentistry services offered to the public.[10]

A dramatic rise in malpractice litigation has occurred in recent years. Increased incidents of malpractice have a range of detrimental implications for general health, social, and economic aspects.[11] More than 15,000 lawsuits are filed against physicians each year in Italy, and approximately €10 billion ($15.5 billion) in compensation is spent on persons disabled by diagnosis or treatment.[12] It is estimated that the physical, financial, and social costs of medical malpractice in the USA are between $17 million and $29 million.[13] Nalliah analyzed the increases in the number of malpractice payments between 2004 and 2014 and found that 11.2% of malpractice payments in the USA were against dentists. Interestingly, although malpractice payments to healthcare professionals, especially non-dentists, are decreasing, payments to dentists are rising.[14]

Patients tend to seek more rights in recent years due to the advances in terms of patient rights and the increasing awareness of patients on the subject. In accordance with "The Universal Declaration of Human Rights", each person has the right to medical care and this text forms the basis of the concept of patient rights.[15] The first document outlining patient rights is the Lisbon Declaration adopted by the World Medical Association in 1981.[16] "Patient Rights Regulations" were first issued in Turkey in 1998 by the Official Gazette of the Republic of Turkish.[17] An updated final form was published in 2014.[18] The Communication Center was founded by the Ministry of Health of the Republic of Turkey for patient communications in 2004. "Compulsory Financial Liability Insurance for Medical Errors" came into force in 2010 to compensate for the harm suffered by patients due to medical malpractice. In the insurance system, where there are four risk groups, while dentists are in

the 2nd risk group, oral and maxillofacial surgeons are in the 3rd risk group.[19] In the new Turkish Penal Code (TPC), which came into force on 1 June 2005, the penalty amounts of the law articles restricting the rights and freedoms of the former TPC were significantly increased. Especially with the TPC coming into force, the issue of malpractice in medicine and dentistry has become increasingly important and started to be discussed among physicians and dentists. It was noted that after the adoption of this law, physicians turned to defensive medicine practices, especially in surgical branches.[20]

Defensive dentistry practices may produce some results that may lead to significant violations in terms of both the principles of universal medical ethics, the obligations of the dentist, and patient rights, which are seen as a reflection of basic human rights in the field of health care. One of the most important discussion points of defensive dentistry practices is that such practices are carried out by deviating from the usual medical standards, although they are often not medically necessary.[21] It is observed that the patient, who was subjected to an unnecessary dental procedure due to these practices, may also experience violations of material and moral personality values by violating the assets, as well as the health, life, and bodily integrity. In such dental interventions without indications, it is accepted that the dentist will have legal responsibility due to intent.[22] The dentist who applies to positive defensive dental practices acts on the basis of his own legal security rather than the benefit of his patient. For this reason, it is seen that dentists who are defensive dentistry practitioners act in contradiction with the obligation to fulfill the performance of acting in accordance with the interests of the attorney arising from the proxy contract. The implementation of defensive practices that go beyond the medical standards also results in violations of any rights of the patient, such as bodily integrity, life rights, medical care, diagnosis, and treatment in accordance with medical requirements.[23]

Defensive medicine was debated worldwide and high rates were observed in multiple research including from various countries involving 98% in Japan, 73% in the USA, 54-62% in Israel, and 60% in Italy.[24-27] The first defensive medicine study investigating the incidence of defensive medicine in doctors in Turkey was reported to be 78.3%. 79.7% of this consisted of positive defensive medicine practices and 75.6% of negative defensive medicine practices *(Aynacı Y. Investigation of defensive (recessive) medicine practices in physicians. Selçuk University, Meram Faculty of Medicine Department of Forensic Medicine, Specialization Thesis. Konya, 2008)*. In the 2015 study of Selçuk involving 220 physicians, defensive medicine behavior rates ranged from 74.1% to 89.1% *(Selçuk M. Defensive Medicine. Izmir University Institute of Social Sciences, Health Law Master Thesis. İzmir, 2015)*. In a study conducted among family physicians in Turkey, a branch towards the low risk of malpractice lawsuits, even though it was found that the common practice of defensive medicine.[28] In a study conducted between neurosurgeons, 72% of the respondents reported that they practiced defensive medicine.[29] Defensive medicine, ranging from 83 to 96%, has been reported to be commonly practiced in Turkey by obstetricians and gynecologists.[30] In a study conducted with the physicians in different specialties, at a university hospital in Turkey in 2020, 94.2% of the physicians stated that they practiced at least one positive or negative defensive medicine. In this study, pediatric surgeons were the most commonly practicing defensive medicine.[31] In a study among assistant physicians in Turkey, the frequency of positive and negative defensive medicine was found as 98% and 92%, respectively.[32] It has been stated that recently, defensive dentistry practices have increased among dentists as well as medical doctors. In a study conducted among dentists in Turkey, the practice of defensive dentistry of 78% of the dentists was reported to be "high level".[33]

Defensive medicine is typically practiced by physicians in risky surgical areas such as general surgery, gynecology, orthopedic surgery, and neurosurgery.[2,34] Oral and maxillofacial surgery is one of the riskiest dentistry departments and is the most experienced in dental malpractice claims. It is reported that the most common and most destructive errors in dental practice are in oral and maxillofacial surgery. Improper dental treatment, improper method, errors leading to paresthesia, neglect in complications man-

agement, and implant placement errors are listed as the most common errors in oral and maxillofacial surgery.[35] Oral and maxillofacial surgery patients may have poor past experience with surgical procedures. It is stated that it is inevitable for this patient group to complain of neglect or wrong application during the treatment and the complaints in this area are high in relation to this situation.[36] In a study of dental malpractice cases in Turkey, it was reported to be mostly related to prosthetic and surgical patients.[37] The study investigating defensive dentistry practices of oral and maxillofacial surgeons is not included in English literature. The purpose of this study to evaluate the knowledge, attitudes and behaviors of oral and maxillofacial surgeons in Turkey about defensive dentistry.

MATERIAL AND METHODS

This cross-sectional study was conducted between August 2019 and December 2019. The study was approved by the Ethics Committee of the Faculty of Medicine, Afyonkarahisar Health Sciences University (Approval date: 05.07.2019/number: 8-230). The study was carried out in accordance with the Declaration of Helsinki principles. The research included oral and maxillofacial surgeons who agreed to participate. The Turkish version of the 14-item Defensive Medical Behavior Scale (DMBS) was adapted for this study and a Defensive Dentistry Behavior Scale (DDBS) was obtained. The DMBS was developed by Başer et al. and is used for assessing defensive medicine knowledge, attitude and behavior.[33] The validity and reliability of the Turkish version of the scale have been done before (Cronbach alpha=0.853).[38] The first nine questions of the DDBS relate to the positive defensive dentistry and five questions relate to negative defensive dentistry. The answers to the questions of attitude measurement were arranged with the Likert scale. For 14 questions measuring attitudes, the terms "strongly agree", "very agree", "moderately agree", "slightly agree", "less agree" were used. Total scores were determined for each physician by giving points as strongly agree (5 points), very agree (4 points), moderately agree (3 points), slightly agree (2 points), less agree (1 point). The total scores were classified as very high (56-70 points), high (42-55 points), moderate (28-41 points), low level (14-27 points). For the four questions that measure the level of knowledge, "yes"-"no" options were used.

Based on the data from a previous study, a sample size of 90 participants was calculated using G*Power version 3.1.9.2 (Heinrich-Heine-Universita¨t Dusseldorf, Germany; power 0.80, a=0.05).[30] Oral and maxillofacial surgeons still working in the public or private sector were included in the study. General dental practitioners and retired oral and maxillofacial surgeons were excluded from the study. We have not been able to reach a reliable database of e-mail addresses of oral and maxillofacial surgeons nationwide. The questionnaire was sent to the e-mail addresses obtained from the websites of universities or hospitals where the physicians work. In this way, a total of 180 oral and maxillofacial surgeons were mailed, of which only 109 agreed to participate in the study.

STATISTICAL ANALYSIS

The data obtained were transferred to the Statistical Package for the Social Sciences (SPSS-version 22) program and analyzed. First, percentage distributions were calculated in statistical analyses, and then parametric or non-parametric tests were used. Independent samples t-test and ANOVA were used to determine whether the opinions of the participants changed according to the age, gender, working year and working place of the participants. The mean difference was considered significant at the 0.05 level.

RESULTS

A total of 109 out of the 180 distributed questionnaires were answered. The response rate was 60.5%. Seven questionnaires were excluded from the study due to insufficient data. The analysis was carried out on the results for the remaining 102 participants. A Cronbach alpha internal consistency coefficient of 0.871 was calculated for all DDBS items.

The distribution of the socio-demographic characteristics of the participants was given in Table 1. According to this, 73.5% of the participants were male, 52% were 30-39 years old and 64.7% were married. Of the participants, 58.8% were working at

TABLE 1: Socio-demographic characteristics of the participants.

Demographic data	Number (n)	Percentage (%)
Age		
≤30 years old	23	22.5
30-39 years old	53	52
40-49 years old	19	18.6
50 years old≤	7	6.9
Gender		
Male	75	73.5
Female	27	26.5
Marital status		
Married	66	64.7
Single	36	35.3
Working experiences		
1-5 years	64	62.7
6-10 years	14	13.7
11-15 years	16	15.7
16 years and more	8	7.9
Working place		
Ministry of Health	15	14.7
University	60	58.8
Private sector	27	26.5
Total	102	100

university and 62.7% had 5 years or less professional experience.

Table 2 showed the number and percentage of DDBS scores. The mean DDBS score was 26.147 (14-70). The most common form of positive defensive dentistry ($\overline{X}$=3.77) was "I explain dental practices to my patients in more detail in order to avoid legal problem", while the lowest frequency ($\overline{X}$=1.62) was observed for "I admit patients for reasons other than indications (eg social indication) in order to avoid legal problems". The most common form of negative defensive dentistry ($\overline{X}$=2.57) was "I avoid treatment protocols with high complication rates in order to avoid legal problems." while the lowest frequency ($\overline{X}$=1.82) was observed for "I referral risky patients despite the possibility of treatment in order to avoid legal problems".

In this study, it was found that 2% of oral and maxillofacial surgeons practiced "very high", 41.2% of "high", 37.3% of "moderate" and 19.6% of "low" level defensive dentistry (Table 3). The change of DDBS scores according to demographic variables was given in Table 4. There was no significant difference between the participants in terms of gender, marital status, age groups, work experience, and place of work (p>0.005). Eighty point four percent of oral and maxillofacial surgeons have never heard of the concept of defensive dentistry, while 91.2% do not know the content of this concept. Three point nine percent of the participants stated that faced with dental malpractice throughout their professional life. Most physicians (76.5%) stated that dental malpractice cases will have an impact on their professional performance.

DISCUSSION

In the modern world of dentistry, defensive dentistry seems to be an attempt to reduce the exposure of dentists to malpractice cases.[10] The practice of defensive dentistry is a subject that has been discussed all over the world, but cross-sectional studies are very few.[39] There are no other studies in the literature that measure the attitudes of defensive dentistry of oral and maxillofacial surgeons. The results of the study revealed that 43.2% of oral and maxillofacial surgeons performed "high", 37.3% "moderate" and 19.6% "low" level of defensive dentistry. In the study, DDBS scores were examined in terms of demographic changes; there was no significant difference in terms of age, sex, marital status, working experience, and working place in both dimensions of the scale. Başer et al. reported that 78.8% of the dentists applied defensive dentistry in "high", 15.2% "moderate" and 6.1% "low" levels.[33] It is seen that the defensive dentistry practices of the oral and maxillofacial surgeons are lower than the dentists in Turkey. In addition, they are also undoubtedly lower than findings obtained from more risky branches such as obstetrics (83-96%), neurosurgery (72%) in Turkey.[29,30]

Depending on the conditions, there are positive and negative defensive dentistry applications.[40] In some countries, physicians may turn to positive defensive dentistry, while in some countries, they may turn to negative defensive dentistry.[33] In this study, the most common defensive dental practices of oral and maxillofacial surgeons were detailed explanation

TABLE 2: Attitudes and behaviors of oral and maxillofacial surgeons about defensive dentistry.

Questions Questions of positive defensive dentistry	Strongly agree n (%)	Very agree n (%)	Moderately agree n (%)	Slightly agree n (%)	Less agree n (%)	$\bar{X}$
1. I would like more examinations to patients other than those I deem necessary in order to avoid legal problems.	4 (3.9)	2 (2.0)	30 (29.4)	39 (38.2)	27 (26.5)	2.18
2. I prescribe most of the drugs that I can prescribe to my patients in order to avoid legal problems.	4 (3.9)	23 (22.5)	40 (39.2)	12 (11.8)	23 (22.5)	2.73
3. I would like more consultation about the complications that may occur in my patients in order to avoid legal problems.	14 (13.7)	30 (29.4)	38 (37.3)	20 (19.6)	-	3.37
4. I admit patients for reasons other than indications (eg social indication) in order to avoid legal problems.	4 (3.9)	-	14 (13.7)	20 (19.)	64 (62.)	1.62
5. I use imaging techniques more frequently in order to avoid legal problems.	2 (2)	29 (28.4)	25 (24.5)	38 (37.3)	8 (7.8)	2.79
6. I explain dental practices to my patients in more detail in order to avoid legal problems.	24 (23.5)	41 (40)	27 (26.5)	10 (9.8)	-	3.77
7. I spend more time with my patients in order to avoid legal problems.	5 (4.9)	24 (23.5)	38 (37.3)	12 (11.8)	23 (22.5)	2.76
8. I keep the records in more detail in order to avoid legal problems.	11 (10.8)	38 (37.3)	33 (32.4)	6 (5.9)	14 (13.7)	3.25
9. I attach more importance to informed consent forms in order to avoid legal problems.	20 (19.6)	51 (50)	13 (12.7)	10 (9.8)	8 (7.8)	3.63
Questions of negative defensive dentistry						
10. I avoid patients who are likely to complain/sue in order to avoid legal problems.	10 (9.8)	20 (19.6)	12 (11.8)	37 (36.3)	23 (22.5)	2.41
11. I avoid patients with complex problems that are difficult to diagnose and treat in order to avoid legal problems.	2 (2.0)	21 (20.6)	25 (24.5)	29 (28.4)	25 (24.5)	2.11
12. I avoid treatment protocols with high complication rates in order to avoid legal problems.	10 (9.8)	20 (19.6)	12 (11.8)	37 (36.3)	23 (22.5)	2.57
13. I tend to prefer non-invasive protocols instead of interventional treatment protocols in order to avoid legal problems.	2 (2.0)	21 (20.6)	25 (24.5)	29 (28.4)	25 (24.5)	2.47
14. I referral risky patients despite the possibility of treatment in order to avoid legal problems.	-	6 (5.9)	22 (21.6)	22 (21.6)	52 (51.0)	1.82

TABLE 3: Attitude level of defensive dentistry among participants.

Attitude Level	Number (n)	Percentage (%)
Very high level (56-70 point)	2	2
High level (42-55 point)	42	41.2
Moderare level (28-41 point)	38	37.3
Low level (14-27 point)	20	19.6

of dental surgical procedures to patients (100%), asking for more consultation (100%), giving more importance to informed consent forms (92.18%), and keeping records more detailed (86.4%). Although these procedures are necessary standard procedures in the context of medical ethics, excessive and exaggerated application of these practices to protect against malpractice claims can be considered as defensive dentistry practice. A study conducted in Turkey in 2014; the highest defensive dentistry practices of dentists were found to be spending more time for patients (81.9%), more explanation for patients (89.4%), and more detailed patient records (89.4%).[33] A 2010 report by the American Academy of Orthopedic Surgeons stated that more than 90% of physicians reported practicing positive defensive medicine.[41] Although practices are designed to protect against legal problems, they can be viewed as beneficial in terms of medical ethical values due to their contribution to the patient-physician relationship.[42] In the present study, also it was observed that

TABLE 4: The mean scores of positive and negative defensive dentistry applications.

Demographic features	n	Positive defensive dentistry	p value	Negative defensive dentistry	p value
Gender					
Male	75	26.66±6.00	0.134	11.74±4.91	1.188*
Female	27	24.70±5.09		10.44±4.81	
Marital status					
Married	66	26.62±5.55	0.267	11.37±4.43	0.953*
Single	36	25.27±6.25		11.44±5.71	
Age					
Under 30 years	23	27.73±6.60	0.625	11.69±5.02	0.646†
30-39 years	53	25.43±5.65		11.00±4.84	
40-49 years	19	26.78±5.56		11.78±5.02	
50 years and older	7	24.57±4.68		12.42±6.32	
Working year					
1-5 years	64	25.75±6.25	0.731	11.25±5.12	0.081†
6-10 years	14	27.92±3.47		10.21±3.46	
11-15 years	16	25.31±4.88		13.56±4.60	
16 years and more	8	26.50±3.53		18.00±1.41	
Working place					
Ministry of Health	15	27.46±6.42	0.538	11.8667±4.61	0.092†
University	60	26.23±5.80		11.8500±5.12	
Private	27	25.22±5.57		10.1481±4.44	

*: The results of the independent sample t-test; †: The results of the one-way analysis of variance.

defensive attitudes included more tests, using more diagnostic tools, and writing more medications. These attitudes are considered defensive dentistry applications which cause the cost of health services to increase. The increased cost of health care can be due to defensive dentistry's direct and indirect costs. For instance, the annual cost of defensive medicine has been estimated to be $200 billion in the American Health Care System.[29] In addition, if we take into account the indirect costs of defensive medicine, this cost may be higher than expected. These extra tests increase the doctor's income but may also place his or her patient at additional risk for medical errors.[43] This situation will make defensive dentistry unethical practice.

Negative defensive dentistry scores of the participants were lower than positive defensive dentistry scores in this study. It was revealed that 77.5% of oral and maxillofacial surgeons avoided treatment protocols with a high complication rate, in order to refrain from legal problems. Similarly, 75.5% of surgeons preferred non-invasive protocols instead of interventional treatment protocols and 75.5% avoided patients with a high likelihood of a complaint. Selçuk reported that 77.7% of physicians reported hospitalizing patients for reasons other than the medical necessity to protect themselves against legal sanctions *(Selçuk M. Defensive Medicine. Izmir University Institute of Social Sciences, Health Law Master Thesis. İzmir, 2015).* Negative defensive dentistry manifests itself in the fact that dentists never mention risky treatments to their patients and tend to relatively easier and less risky treatments. In fact, the dentist should fully explain the risks of all treatment options to the patient and record them with notes. Similarly, the patient's response and a decision should be recorded. This is because everyone agrees that comprehensive and contemporary records give the highest chance for a case to be successfully defended.[10] Negative defensive dentistry has little effect on health care costs, but it has poor consequences for patient health due to the lack of potentially useful diagnostic or therapeutic methods.[1] The fact that the physician refuses to look after the patient in order to avoid legal responsibility, directs the patient to different physicians or health institutions although it is not necessary, results in a violation of the patient's life, health, and body integrity with negligent behaviors.[44]

A substantial rise in malpractice litigation against doctors and dentists has been seen in Turkey and the world in conjunction with improved quality of medical care and higher patient expectations in recent years.[45] The incidence of cases of medical malpractice in Turkey ranges from 10.5% to 12.3%.[31] However, in this study, the incidence of malpractice was lower (3.9%) among oral and maxillofacial surgeons. It has been reported that malpractice lawsuits filed against doctors affect doctors' choice of expertise and push away from risky branches *(Aynacı Y. Investigation of defensive (recessive) medicine practices in physicians. Selçuk University, Meram Faculty of Medicine Department of Forensic Medicine, Specialization Thesis. Konya, 2008)*. There is no specific medical malpractice law and medically specialized court in Turkey. The concepts of neglect and conscious negligence in the TPC do not meet the conditions for complications and malpractice.[29] Medical malpractice insurance is mandatory for all physicians in Turkey. In a study conducted in Turkey in 2020, the participants reported that insurance coverage was inadequate for doctors. In addition, half of the physicians stated that they were considering changing their specialty due to the stress of malpractice.[31]

Defensive dentistry practices have a number of negative consequences for patients, physicians, and health systems. The cost of oral and dental health services may increase as a result of unnecessary examinations and additional procedures as a result of defensive dentistry applications. As a result of defensive dentistry applications, the workload of dentists increases, morale and motivation decrease, and the risk of error increases. Patient complaints and dissatisfaction increase and may be more exposed to malpractice complaints. As a result of defensive dentistry applications, patients can not receive the treatment they need from the physician, and there may be disruptions and delays in patient access and treatment. Seventy-six percent of USA physicians indicated that defensive medicine decreases patients' access to healthcare.[25] Most of the defensive dentistry practices are contrary to patient rights and may cause physical and economic harm to patients and this results in dental malpractice. The fact that the physician refuses to look after the patient in order to avoid legal responsibility, directs the patient to different physicians or health institutions although it is not necessary, results in a violation of the patient's life, health, and body integrity with negligent behaviors.

One of the most important discussion points of defensive dental practices is that such practices are carried out although they are not medically necessary and deviate from the usual medical standards. Defensive dental practices usually take place in the form of applying the dentist to various dental examinations without indication or avoiding the treatment of the patient in order to protect against possible malpractice claims. Here, the factor that pushes the dentist to perform a certain dental procedure is their legal security rather than the patient's interest. Defensive dentistry practices constitute a violation of the principles of attorney contract established between the patient and the dentist and the professional ethics rules, because of the violation of the patient's obligation to protect his interests. On the other hand, a physically unnecessary dental intervention application of the dentist, who does not have any contractual relationship with the patient, is a violation of the patient's life, health and physical integrity and creates the unfair act of the dentist.[44]

There are many technical, ethical, legal, social and economic dimensions of defensive dentistry which causes many negative consequences for patients, physicians and dentists, and health systems. The reasons for and possible consequences of defensive dentistry need to be well analyzed in many ways. Comprehensive studies should be conducted to investigate the causes and possible consequences of oral and maxillofacial surgeons' defensive dentistry applications. Adverse effects of defensive dentistry are seen not only on physicians and patients but also on the health systems and society. To eliminate defensive dentistry, reduce possible costs and risks, and improve the quality of health care services, all stakeholders such as dentists, patients, patient relatives, health managers, politicians, lawyers, insurers and the media should do their duties cooperatively.

The main limitations of this study include the fact that self-reports by physicians may be biased towards presenting a socially favorable or politically appropriate response. In addition, the small sample size may limit the generalization of the findings.

CONCLUSION

This study revealed that oral and maxillofacial surgeons in Turkey performed a moderate level of defensive dentistry. Also, it is seen that surgeons have insufficient knowledge about defensive dentistry. To reduce defensive dentistry, oral and maxillofacial surgeons should prefer evidence-based dentistry applications and establish appropriate protocols and service standards in the clinic. Only clinical history and examination-related tests should be requested. Difficult cases should be discussed and evaluated with other physician colleagues and these decisions should be recorded in writing. Oral and maxillofacial surgeons should establish good communication and cooperation with patients on the basis of trust. A working climate should be created to ensure that dentists are happy to serve. Oral and maxillofacial surgeons should be able to provide services in a manner that gives priority to medical rules and principles, is open to scientific developments, can take risks if necessary, and is aware of its responsibilities and ethical values.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. Tancredi LR, Barondess JA. The problem of defensive medicine. Science. 1978; 200(4344):879-82. [Crossref] [PubMed]
2. Studdert DM, Mello MM, Sage WM, DesRoches CM, Peugh J, Zapert K, et al. Defensive medicine among high-risk specialist physicians in a volatile malpractice environment. JAMA. 2005;293(21):2609-17.[Crossref] [PubMed]
3. Onesti A. [Defensive dentistry and low-risk clinical practice] [São Paulo]: University of São Paulo; 2010. (Date of access: 4.12.2019) [Link]
4. U.S. Congress, Office of Technology Assess¬ment, Defensive Medicine and Medical Mal¬practice, OTA-H--6O2 (Washington, DC: U.S. Government Printing Office, July 1994). (Date of access: 4.12.2019) [Link]
5. Kelleher M. State-sponsored dental terrorism? Br Dent J. 2017;223(10):759-64.[Crossref] [PubMed]
6. Al Hassan A. Defensive dentistry and the young dentist - this isn't what we signed up for. Br Dent J. 2017;223(10):757-8.[Crossref] [PubMed]
7. Patel K. Young dentists: breaking the silence. Br Dent J. 2018;224(10):767-8.[Crossref] [PubMed]
8. UK dental practices are struggling to fill roles. Br Dent J. 2018;224(2):60. [Crossref] [PubMed]
9. FHDC. Half of NHS young dentists heading for the exit. (Date of access: 4.12.2019) [Link]
10. Hancocks S. Defensive dentistry. Br Dent J. 2005;199(9):543. (Date of access: 4.12.2019). [Crossref]
11. Makary MA, Daniel M. Medical error-the third leading cause of death in the US. BMJ. 2016;353:i2139.[Crossref] [PubMed]
12. Traina F. Medical malpractice: The experience in italy. In: Clinical Orthopaedics and Related Research. Vol 467. Springer New York; 2009:434-42.[Crossref] [PubMed] [PMC]
13. Kohn LT, Janet M. Corrigan and MSD. To Err Is Human. Building a Safer Health System. 1999;6(2) .[Crossref]
14. 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. [Crossref] [PubMed]
15. United Nations. Universal Declaration of Human Rights. (Date of access: 26.4.2020) [Link]
16. WMA - The World Medical Association. WMA Declaration of Lisbon on the Rights of the Patient. (Date of access: 26.4.2020) [Link]
17. Resmî Gazete (7.10.1920, Sayı: 23420). (Date of access: 26.4.2020) Hasta Hakları Yönetmeliği, s.67-76.[Link]
18. Resmî Gazete (7.10.1920, Sayı: 23420) sayılı Hasta Hakları Yönetmeliğinde Değişiklik Yapılmasına Dair Yönetmelik. (Date of access: 26.4.2020). [Link]
19. Türkiye Sigorta Birliği. Tıbbi Kötü Uygulamaya İlişkin Zorunlu Mali Sorumluluk Sigortası Genel Şartları. (Date of access: 27.4.2020) [Link]
20. Yılmaz A, Demiral G, Şahin G, Yener O, Kocataş A, Bölük S. [The impact of Turkish PenalCode (TPC) which entered into force in 2005 on surgeons]. J For Med. 2013;27(3): 158-72. [Crossref]
21. Yılmaz K, Polat O, Kocamaz B. [The legal analysis of defensive medicine acts]. TAAD. 2014;5(16):19-51.[Link]

22. Gökcan HT. Tıbbi Müdahaleden Doğan Hukuki ve Cezai Sorumluluk. 2. Baskı. Ankara: Seçkin Yayıncılık; 2014.
23. Yılmaz K. Defansif Tıp. 1. Baskı. Ankara: Seçkin Yayıncılık; 2014.
24. Hiyama T, Yoshihara M, Tanaka S, Urabe Y, Ikegami Y, Fukuhara T, et al. Defensive medicine practices among gastroenterologists in Japan. World J Gastroenterol. 2006;12(47): 7671-5. [Crossref] [PubMed] [PMC]
25. Healthcare J. A Costly Defense: Physicians Sound off on the High Price of Defensive Medicine in the U.S. [Link]
26. Reuveni I, Pelov I, Reuveni H, Bonne O, Canetti L. Cross-sectional survey on defensive practices and defensive behaviours among Israeli psychiatrists. BMJ Open. 2017;7(3): e014153. [Crossref] [PubMed] [PMC]
27. Panella M, Rinaldi C, Leigheb F, Knesse S, Donnarumma C, Kul S,et al. Prevalence and costs of defensive medicine: a national survey of Italian physicians. J Health Serv Res Policy. 2017;22(4):211-7.[Crossref] [PubMed]
28. Başer A, Kolcu G, Çığırgil Y, Kadınkız B, Öngel K. [Evaluation of the opinions of family doctors working in Izmir Karsiyaka district on defensive medical practices]. Smyrna Tıp Dergisi. 2014:16-24.[Link]
29. Solaroglu I, Izci Y, Yeter HG, Metin MM, Keles GE. Health transformation project and defensive medicine practice among neurosurgeons in Turkey. PLoS One. 2014;9(10):e111446. [Crossref] [PubMed] [PMC]
30. Küçük M. Defensive medicine among obstetricians and gynaecologists in Turkey. J Obstet Gynaecol. 2018;38(2):200-5.[Crossref] [PubMed]
31. Calikoglu EO, Aras A. 'Defensive medicine among different surgical disciplines: a descriptive cross-sectional study. J Forensic Leg Med. 2020;73:101970.[Crossref] [PubMed]
32. Göcen Ö, Yılmaz A, Aslanhan H, Çelepkolu T, Tuncay S, Dirican E. [Assistant physicians' knowledge and attitudes about defensive medical practices, work-related stress and burnout levels]. TJFMPC. 2018;12(2):77-87. [Crossref]
33. Başer A, Başer Kolcu Mİ, Kolcu G, Tuncer Ö, Altuntaş M. [Dentists' views about defensive dentistry: a cross-sectional study]. Tepecik Eğit Hast Derg. 2014;24(2):103-9.[Crossref]
34. Zhu L, Li L, Lang J. The attitudes towards defensive medicine among physicians of obstetrics and gynaecology in China: a questionnaire survey in a national congress. BMJ Open. 2018;8(2):e019752.[Crossref] [PubMed] [PMC]
35. Kiani M, Sheikhazadi A. A five-year survey for dental malpractice claims in Tehran, Iran. J Forensic Leg Med. 2009;16(2):76-82.[Crossref] [PubMed]
36. Henderson SJ. Risk management in clinical practice. Part 11. Oral surgery. Br Dent J. 2011;210(1):17-23.[Crossref] [PubMed]
37. Karaarslan B, Şirin Karaarslan E, Çelik S, Ertaş E, Çelik N. [Evaluation of malpractice cases in dentistry which was discussed in high health council during 2 1-2 7 years]. Turkiye Klinikleri J Dental Sci. 2010;16(2):142-8. [Link]
38. Başer A, Başer Kolcu Mİ, Kolcu G, Gök Balcı U. [Validity and reliability of the Turkish version of the defensive medicine behaviour scale: preliminary study]. Tepecik Eğit Hast Derg. 2014; 24(2):99-102.[Crossref]
39. Eijkman MA, Assink MH, Hofmans-Okkes IM. Defensive dental behaviour: illusion or reality? Int Dent J. 1997;47(5):298-302.[Crossref] [PubMed]
40. Sekhar MS, Vyas N. Defensive medicine: a bane to healthcare. Ann Med Health Sci Res. 2013;3(2):295-6.[Crossref] [PubMed] [PMC]
41. Healthcare Finance News. Defensive medicine adds billions to annual U.S. healthcare costs. (Date of access: 18.7.2020) [Link]
42. Williams S. On the defensive. Africa Casebook 2011; 19(8-1): 1.[Link]
43. Healey B. Physicians, defensive medicine and ethics. Proceedings of the Academy of Health Care Management. 2010;7(1). [Link]
44. Şahin B, Alcali Ö. [Defense Medical Concept and the Effect of Defensive Medical Applications on the Legal Liability of The Physician] TAAD, 2020; 11(41): 483-510.[Link]
45. Büken E, Ornek Büken N, Büken B. Obstetric and gynecologic malpractice in Turkey: incidence, impact, causes and prevention. J Clin Forensic Med. 2004;11(5):233-47.[Crossref] [PubMed]