

## RESEARCH

# Dental Students' Anxiety Level, Awareness of Dental Anxiety, and Attitudes in Treating Patients with Dental Anxiety

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### ABSTRACT

#### Dental Students' Anxiety Level, Awareness of Dental Anxiety, and Attitudes in Treating Patients with Dental Anxiety

**Background:** Successful treatment of patients with dental anxiety requires particular attitudes and knowledge. Dentists who have severe stress, inadequate knowledge, or less sensitivity to anxious patients may affect the success of the treatment. The aim of this study was to evaluate the general anxiety level and occupational perceptions of the final-year dental students and their attitudes to and knowledge level about anxious patients.

**Methods:** The anxiety levels of the dental students were assessed by the Beck Anxiety Inventory. A questionnaire that evaluated professional perceptions, dental anxiety awareness, attitude, and knowledge level was conducted. The answers between the groups were compared, and differences were assessed statistically.

**Results:** One hundred fifty-nine final-year dental students answered the questionnaire. No statistical difference was found between the anxiety levels of the students. 69,2% of students agreed that patients evaluate dentists with their style or behavior rather than their perceived technical competence. Female students and the students with adverse patient experiences perceived dentistry as a more stressful profession (respectively  $p=0,001$ ,  $p=0,003$ ). 39,6% of students had never taken a course related to dental anxiety. 25,8% of students thought that there is a relationship between dental anxiety and wound healing, and 37,1% of students thought that dental anxiety aggravates the inflammatory disease.

**Conclusion:** The final-year dental students need more training in managing their stress and increasing their knowledge about anxious patients. There is a need for further studies involving dental anxiety management strategies with a higher number of dental students or dentists.

### KEYWORDS

Dental Anxiety, Dental Student, Dental Education

### ÖZ

#### Dental Anksiyetesi Olan Hastaların Tedavisinde Diş Hekimliği Öğrencilerinin Anksiyete Düzeyi, Dental Anksiyete Farkındalığı ve Tutumunun Değerlendirilmesi

**Amaç:** Dental anksiyetesi olan hastaların tedavi başarısı, özel tutum ve bilgi gerektirmektedir. Diş hekimlerinin aşırı stresli olması, anksiyetesi olan hastalara karşı bilgisinin yetersiz ve duyarlılığının az olması, tedavilerinin başarısını etkileyebilmektedir. Bu çalışmanın amacı; diş hekimliği son sınıf öğrencilerinin genel anksiyete düzeylerini, mesleki algılarını ve dental anksiyetesi olan hastalara yönelik tutum ve bilgi düzeylerini değerlendirmektir.

**Gereç ve Yöntemler:** Diş hekimliği öğrencilerinin kaygı düzeyleri Beck Anksiyete Ölçeği ile değerlendirildi. Öğrencilere ayrıca mesleki algılarını, dental anksiyete farkındalığını, tutumunu ve bilgi düzeyini değerlendiren bir anket uygulandı. Gruplar arasındaki cevaplar karşılaştırıldı ve farklılıklar istatistiksel olarak değerlendirildi.

**Bulgular:** 159 diş hekimliği son sınıf öğrencisi anketi yanıtladı. Öğrencilerin anksiyete düzeyleri arasında istatistiksel bir farklılık bulunmadı. Öğrencilerin %69,2'si, hastaların diş hekimlerini algılanan teknik yeterliliklerinden ziyade tarzları veya davranışlarıyla değerlendirdiğini belirtti. Diş hekimliğini kız öğrenciler ve olumsuz hasta deneyimi yaşayan öğrenciler daha stresli bir meslek olarak algıladı ( $p=0,001$ ,  $p=0,003$ ). Öğrencilerin %39,6'sı diş kaygısı ile ilgili hiç ders almadığını bildirdi. Öğrencilerin %25,8'i dental anksiyete ile yara iyileşmesi arasında bir ilişki olduğunu düşünürken, %37,1'i dental anksiyetenin enflamatuvar hastalığı ağırlaştırdığını belirtti.

**Sonuç:** Son sınıf diş hekimliği öğrencilerinin kendi streslerini yönetme ve Dental anksiyetesi olan hastalar hakkındaki bilgilerini artırma konusunda daha fazla eğitime ihtiyaçları vardır. Diş hekimliği öğrencisi veya diş hekimi sayısının daha fazla olduğu dental anksiyete yönetim stratejilerini içeren daha ileri çalışmalara ihtiyaç vardır.

### ANAHTAR KELİMELER

Dental Anksiyete, Diş Hekimliği Öğrencisi, Diş Hekimliği Eğitimi

## INTRODUCTION

Dental anxiety (DA) is a state of intense discomfort that develops due to fear for and delusion about dental treatment, which cannot be precisely expressed.<sup>1</sup> This situation may affect individuals' oral and dental health by causing individuals to postpone or give up their dental treatment.<sup>2,3</sup> On the other hand, dentists may feel stressed during the treatment of individuals with dental

anxiety. The dentistry is considered to be a stressful profession. A study of healthcare professionals revealed that the dental profession involves a high level of occupational stress.<sup>4</sup> Stress factors cited by dentists include time-related pressures, heavy workloads, and financial concerns, as well as patients with anxiety and poor cooperation. Studies show that managing patients with DA is an essential source of stress for many dentists.<sup>5</sup>

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In approaching patients with DA the physician's stress, and anxiety may cause disruptions in the treatment of these patients that require special attention and sensitivity.<sup>6</sup>

In recent years, many studies have been conducted on anxiety and behavioral sciences. However, there are limited number of studies on the possible relationship between dentists' and dentistry students' levels of stress and anxiety and how they perceive treating patients with anxiety. It has been shown that dentists sometimes have difficulties in detecting DA.<sup>7,8</sup> Failing to identify this patient group that requires additional treatment methods and special attention can lead to negative experiences for the patient during treatment.<sup>7,9,10</sup>

Today, dentistry faculties have started to allocate more space to this subject in their curricula to graduate qualified dentists who can identify patients with DA, know about treatment methods, and perform dental treatments of these patients with less difficulty. In many countries, attention is paid to behavioral sciences in dental education. However, there are no studies comparing the scope of behavioral science education in the dentistry curriculum in European countries.<sup>11</sup> Undergraduate students trained to treat patients with DA can achieve better behavioral management than those who have not received this type of training.<sup>12</sup> There is no data regarding DA training that dental students receive during their undergraduate education in Turkey.

The purpose of the study is to determine the general anxiety levels of 5th-grade dentistry students and evaluate their knowledge, attitude, and awareness about DA.

## MATERIALS AND METHODS

This descriptive study was conducted for 5th-grade students of two Faculties of Dentistry between January 2019 and March 2020.

Students who met the following criteria were included in the study:

- Being a 5th-grade dentistry student
- Being between the ages of 20-25
- Treating patients for at least the last two years

A total of 159 5th grade dental students were informed about the purpose and method of the study, and informed consent forms were signed.

In the first part of the questionnaire, Beck Anxiety Inventory (BAI) was used to evaluate the students' anxiety level.<sup>13</sup> BAI is proposed as an instrument to assess clinical anxiety and to discriminate between anxious and non-anxious diagnostic groups.<sup>14</sup> This scale measures the frequency of anxiety symptoms experienced by the individual. It is a Likert-type self-rating scale scored between 0 and 3, consisting of 21

items. The higher the total score, the higher the anxiety experienced by the person. It was developed by Beck et al., and its validity and reliability study were conducted in our country by Ulusoy et al.<sup>14</sup>, who determined that the scale has sufficient reliability and validity. The Cronbach alpha value is 0.92. On the BAI, "None" is 0 points, "Mild" is 1 point, "Moderate" is 2 points, and "Serious" is 3 points. The students' answers were evaluated according to these scores, and their anxiety levels were determined according to the following scale:

0-7 points: Minimal anxiety symptoms

8-15 points: Mild anxiety symptoms

16-25 points: Moderate anxiety symptoms

26-63 points: Severe anxiety symptoms

In the second part of the questionnaire, there were twelve questions in total: two questions evaluating students' professional and social image perception, three questions evaluating their stress perceptions, attitudes, and awareness during clinical practices in patients with DA, seven questions evaluating students' knowledge levels and experiences about DA (Table 1). This study was approved by the Ethics Committee of Istanbul Okan University (Approval Number: 2019114-4).

**Table 1.****Questions used in this study**

1. Compared with other professions, what do you think about the amount of stress in being a dentist?					
a) More	b) Less	c) Same			
2. What do you think about the statement "Patients evaluate dentists with their style or behavior rather than their perceived technical competence."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
3. Did you have any courses on dental anxiety?					
a) Yes, a few	b) Yes, many	c) No			
4. What do you think or feel about 'treating patients with dental anxiety'? (1-3 answers can be selected)					
a) Stressful	b) Difficult	c) Positive challenge	d) Exciting	e) Reluctant	f) Making a contribution
5. Do you find yourself good at treating patients with dental anxiety?					
a) Yes, excellent	b) Yes, good	c) Fair	d) No, not so good	e) No, not good at all	
6. What do you think about the statement "dental anxiety is observed more in women than men"?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
7. What do you think about the statement "Prevalence of dental anxiety decreases with age."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
8. What do you think about the statement "Inflammatory diseases are more severe in patients with dental anxiety."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
9. What do you think about the statement "Dental anxiety affects oral care."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
10. What do you think about the statement "dental anxiety and pain sensation in the patient are closely related."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
11. What do you think about the statement "dental anxiety and wound healing in the patient are closely related."?					
a) Strongly agree	b) Agree	c) Neither agree nor disagree	d) Disagree	e) Strongly disagree	
12. What behaviors are characteristic for patients with dental anxiety? (More than one answer can be selected.)					
a) Arriving late for the appointment					
b) Canceling appointments					
c) Applying to a dentist only in emergencies					
d) Poor oral care					
e) Frequent withdrawal from treatment					
f) Not seeing / appreciating the success of the treatment most of the time					

**STATISTICAL EVALUATION**

According to the power analysis, it was decided to include at least 128 students with 95% ( $1-\alpha = 0.95$ ) confidence, 80% ( $1-\beta = 0.80$ ) test power and  $w = 0.351$  effect size.

The first, 3rd, 4th, and 12th questions were evaluated in terms of percentage, while other questions were evaluated with a five-point Likert Scale. Age, gender, number of patients treated per day, and the descriptive information about negative experiences were evaluated as percentages.

The data were analyzed using the IBM SPSS V23 program. Kolmogorov Smirnov test was performed to reveal whether the data were suitable for normal distribution. Independent samples t-test and one-way analysis of variance were used to compare normally distributed data. Mann-Whitney U and Kruskal Wallis tests were used to compare data that did not show normal distribution. Categorical data were analyzed using the chi-square test. The level of significance was taken as  $p < 0.05$ .

**RESULTS**

The demographic data and the anxiety levels of the students are given in Table 2. No statistically significant difference was found when the distribution of the answers given to the questions according to the anxiety levels was examined ( $p > 0.050$ ).

**Table 2.****Demographic data**

	n	%
<b>Gender</b>		
Female	99	62,3
Male	60	37,7
<b>Number of treated patients/a day</b>		
1-3 patients	133	83,6
3-5 patients	26	16,4
<b>Negative experience</b>		
Had	57	35,8
Never had	102	64,2
<b>Beck Anxiety Level</b>		
0-7 points Minimal	34	21,4
8- 15 points Mild	57	35,8
16-25 points Moderate	49	30,8
26-63 points Severe	16	11,9
	Mean ± Sd	Mean (Min.- Max)
Age	23,5 ± 1,2	23 (21- 29)

By gender, a statistically significant difference was found between the distributions of the answers given to the question "Compared with other professions, what do you think about the amount of stress in being a dentist?" ( $p = 0.001$ ). 88.9% of women and 65% of men answered "More".

According to having had a negative experience, there was a statistically significant difference between the distributions of the answers given to the question "Compared with other professions, what do you think about the amount of stress in being a dentist?" ( $p = 0.003$ ). 89.5% of those who had negative experiences and 74.5% of those who did not, answered "More". According to having had a negative experience, a statistically significant difference was found between the distributions of the answers given to the question "What do you think about the statement "DA affects oral care."?" ( $p = 0.031$ ). 43.9% of those who had negative experiences answered: "Agree."

In knowledge-based questions, 54.1% of the students thought that DA is observed more in women than men and 57.2% of the students thought that the prevalence of DA decreases with age. Most of the students believed that DA affects oral care (61.6%), and DA and pain sensation in the patient are closely related (70.4%). On the other hand, 25.8% of the students thought that DA and wound healing are associated.

**DISCUSSION**

Dental anxiety (DA) is a common problem for dentists and for individuals of all age groups from different social classes and results in avoidance of dental treatment, the tendency to delay treatments, or incompatibility.<sup>3,15,16</sup> Despite

advancements in modern dentistry, DA against dental treatments is still emerging as a common problem in many countries.<sup>15,17</sup>

This study was conducted in a Faculty of Dentistry to evaluate the students' general anxiety levels, determine their level of knowledge about DA, and evaluate their attitude towards patients with DA. Only senior students were included in the study, as they were more experienced in a dental clinic setting. It is stated that dentists experience difficulties during the treatment of patients with DA, creating stress for dentists.<sup>18</sup> Therefore, dental students' general anxiety levels were measured in the study. According to studies evaluating their anxiety levels for different reasons, BAI was used to measure students' general anxiety levels.<sup>19-21</sup> Questions of the questionnaire were gathered by examining similar studies on dental professions<sup>11,22,23</sup>.

Dentists' failure to notice the patient's anxiety is a significant problem affecting the treatment process. Additional treatment and unique methods may be required for the successful treatment of patients with DA. The lack of sensitivity of the physician to patients with DA may hinder the treatment process. It is stated that stressed and anxious dentists may be less sensitive to patients' particular needs with DA.<sup>6</sup> In the present study, the anxiety levels of the students were evaluated using BAI. While 57.2% of the students showed minimal and mild anxiety symptoms, 11.9% showed severe anxiety symptoms. When the answers to the questions were evaluated according to BAI, no significant difference was found between the students' anxiety levels. It was thought that the difference was not determined because the anxiety levels of the majority of the students were similar.

Healthcare professionals often work under stress. Dentistry is also difficult because it is a technical profession that requires a consistently high level of skill. In the study, when students' professional and social image perception were evaluated, 79.9 % of senior students found dentistry more stressful than other professions, and 2.5 % found it less stressful. Moore et al.<sup>6</sup>, in their study on dentists, stated that 59.7 % of dentists thought their profession was more stressful than other professions, and 3.3 % thought it was less stressful. The results of the study are in line with the study of Moore et al.<sup>6</sup> A significant relationship was found between having negative clinical experience and finding the dentistry profession more stressful. 89.5 % of those who had negative experiences stated that dentistry is more stressful than other professions. This result shows that the perception of the profession can change with clinical experience.

69.2% of the students think that patients choose their dentists by evaluating their images or behaviors rather than their clinical skills and knowledge. According to the study of Moore et al.<sup>6</sup>, 91.2% of dentists have the same perception of social image. The difference in the study results may be since the students have not yet started professional life and due to their lack of clinical experience. It can be thought that this social image anxiety felt in different countries of the

world also affects professional stress perception.

In recent years, the number of female dentists has been increasing worldwide, and in our country and dentistry has become a female-dominated profession.<sup>24</sup> In parallel with this development, protective and preventive approaches and minimally invasive applications are gaining importance in dentistry. In studies, it has been observed that male and female physicians' and dental care providers' treatment approaches and interactions may differ.<sup>25,26,27</sup> It is thought that female physicians have more preventive and patient-centered attitudes than their male colleagues. Findings show that female physicians give more information about treatments and talk more about psychosocial and emotional problems.<sup>25,26</sup> In this study, female students (88.9%) stated that dentistry was a more stressful profession compared to male students (65%). There was no difference between female students and male students in terms of feeling stressed and having difficulty treating patients with DA. When all students were evaluated, 47.2% of the students stated that the treatment of patients with DA was difficult, and 62.3% stated that they were stressed. Similar results were observed with previous studies.<sup>22,28</sup> Brahm et al.<sup>28</sup> reported that female dentists have more confidence in treating patients with DA and that this patient group constitutes more of their patients than their male colleagues. Among the female students in the present study, the rate of those who found themselves quite good in treating patients with DA was 31.3%. This rate is 26.7% for male students. Although the findings are similar to the study of Brahm et al.<sup>28</sup>, the small study population limits the results. According to the results of the study, in line with previous studies, the fact that women are more stressed during treatments may affect their treatment approaches and cause them to prefer more protective and non-invasive treatments. Since female dentists are more in psychosocial and emotional communication with their patients, they may have lower stress levels and difficulty in patients with DA than men.

According to the results of the study, the students stated that the most characteristic behavior for patients with DA was "to consult a dentist only in emergencies," with a rate of 86.2%. The second characteristic behavior was stated to be "not attending the appointment," with a rate of 79.2%. In the study of Moore et al.<sup>6</sup>, appointment cancellation comes first (88.9%). Applying only for emergency treatments is in the 4th place. It is thought that social and cultural differences affect the answers.

When taking lessons about DA is evaluated; 39.6% of the students stated that they did not take any lessons about DA, and 25.8% said they took many lessons. Having sufficient knowledge at the undergraduate level is extremely important in identifying patients with DA and using behavior management strategies specific to them.

When taking lessons about DA is evaluated; 39.6% of the students stated that they did not take any lessons about DA, and 25.8% said they took many lessons. Having sufficient knowledge at the undergraduate level is extremely important in identifying patients with DA and using behavior management strategies specific to them. Behavioral science, which includes pharmacological and psychological methods, has been included in undergraduate education curricula in many countries to reduce and treat DA.<sup>28-30</sup> Tay et al.<sup>12</sup> showed in their studies that undergraduate students who had education on DA could achieve better behavior management than those who did not. In their study, 54.1% of the students stated that DA was seen more in female patients. In almost all studies examining DA, it has been reported that the female gender is a risk factor for DA.<sup>14,31-34</sup> It was stated that this might be since women have lower pain thresholds and less pain tolerance and that women are more open to expressing their fears than men. It can be said that more than half of the students participating in the study have this knowledge. 61.6% of the students in the study stated a relationship between DA and oral care. In many studies, it has been shown that patients with high DA visit their dentists more irregularly and have worse oral care.<sup>25,35-38</sup> In a study by Kanzig et al.<sup>39</sup>, 98% of dental hygienists stated that DA affects oral hygiene. The higher rate may be because dental hygienists have more experience following the patients' oral care compared to the students. Additionally, in the study, students who had negative experiences stated that DA affected oral care more than students who did not. It can be stated that this statistically significant difference shows the importance of experience. 70.4% of the students stated that there was a relationship between pain sensation and DA. Due to DA, the perception of pain in patients also changes.<sup>22</sup> In this patient group, a higher level of pain was detected during oral surgery, after periodontal therapy, and after dental treatments.<sup>31,40-42</sup> On the other hand, it was reported that when anxiety was reduced by various psychotherapeutic interventions before the procedure, patients felt less postoperative pain. It was observed in the study that the majority of the students knew the relationship between DA and pain. In the study of Diercke et al.<sup>22</sup>, 95% of dentists stated this relationship. The lower rate in the study might be due to the lack of clinical experience of the students. DA and stress also affect wound healing.<sup>43,44</sup> It is stated that patients with low anxiety levels recover faster after third molar extraction.<sup>45</sup> In the studies of Croog et al.<sup>40,46</sup>, it has been reported that there is a significant correlation between the level of wound healing after periodontal treatment and the level of anxiety. In this study, 25.8% of the students stated a relationship between DA and wound healing. In the study of Diercke et al.<sup>22</sup>, 20% of the dentists stated this

relationship. The results of the study are in line with the work of Diercke et al.<sup>22</sup> Anxiety, stress, and depression can affect inflammation by affecting the immune system.<sup>47</sup> It is stated that inflammatory diseases such as periodontitis are more severe in stressed patients.<sup>48</sup> In the current study, it was observed that 37.1% of the students had this information. In the study of Kanzigg et al.<sup>39</sup>, this rate was 38%. Among the students participating in the study, it was observed that there was a lack of information about the relationship between DA and wound healing and its effect on inflammation.

### **CONCLUSION**

The importance of clinical experience in the management of patients with DA cannot be denied. It was observed that those who had limited experience among senior students had negative experiences during treatments found dentistry more stressful. Besides, female students thought their profession was more stressful than male students did, but there was no difference in feeling stressed and having difficulty treating patients with DA compared to male students. Although it is thought that this study contributes to dental education, because of the limited number of students involved in the study, the results may not reflect all senior dental students in Turkey. There is a need for further studies involving dental anxiety management strategies with a higher number of dental students or dentists.

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