

# Evaluation of the Relationship Between Dental History and Oral Care Habits with Dental Fear Among Dentistry Students

## *Diş Hekimliği Öğrencileri Arasında Dental Geçmiş ve Ağız Bakım Alışkanlıklarının Dental Korku ile İlişkisinin Değerlendirilmesi*

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### ABSTRACT

**Aim:** The aim was to compare the levels of dental fear among dentistry students both between classes and between preclinical and clinical periods and to investigate the relationship between dental fear and gender, dental history, and hygiene.

**Materials and Method:** 369 dentistry students participated in the study. The Kleinknecht Dental Fear Survey Scale (DFS) was used to measure dental fear levels. Demographic data such as class year, gender, smoking status, and dental history were collected in the first part of the survey. In the second part, students were asked about their dental hygiene habits and in the last part, dental fear scale questions were asked. Normality was assessed with the Shapiro-Wilk test. Mann-Whitney U, Kruskal-Wallis, and Linear by Linear Association tests were used for statistical analyses.

**Results:** The dental fear score of women ( $17.0 \pm 18.1$ ) was higher than that of men ( $12.3 \pm 14.1$ ). While the DFS score in the preclinical groups was  $17.4 \pm 18.7$ , the DFS score in the clinical group was  $10.2 \pm 10.0$ . While the dental fear score of those who visited the dentist less frequently was higher ( $45.6 \pm 22.9$ ), it was observed that the DFS score of the individuals decreased significantly as the frequency of tooth brushing increased ( $p < 0.001$ ). The DFS score of those who brushed their teeth twice a day was lower than the other groups ( $9.3 \pm 9.4$ ). As the class year increased, improvement was achieved in oral hygiene habits.

**Conclusion:** Dental fear in dentistry students was found to be related to gender, education stage and oral hygiene habits. This study emphasizes the importance of strategies aimed at reducing dental fear, especially in the preclinical period and improving oral hygiene habits. Addressing dental fear in educational processes may contribute to the training of more conscious and confident dentists in the future.

**Keywords:** Dental anxiety; Dental education; Dental fear; Dentist visit; Oral health

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### ÖZET

**Amaç:** Diş hekimliği öğrencileri arasında hem sınıflar arası hem de klinik öncesi ve klinik dönemler arası diş hekimliği korkusu düzeylerini karşılaştırmak ve dental korkunun cinsiyet, dental geçmiş ve hijyen ile ilişkisini araştırmak amaçlanmıştır.

**Gereç ve Yöntem:** Çalışmaya 369 diş hekimliği öğrencisi katılmıştır. Dental korku düzeylerini ölçmek için Kleinknecht Dental Korku Anket Ölçeği (DFS) kullanılmıştır. Anketin ilk bölümünde sınıf yılı, cinsiyet, sigara içme durumu ve dental geçmiş bilgileri gibi demografik veriler toplanmıştır. İkinci bölümde öğrencilere dental hijyen alışkanlıkları sorulmuş ve son bölümde ise dental korku ölçeği soruları sorulmuştur. Normalite, Shapiro-Wilk testi ile değerlendirildi. İstatistiksel analizler için Mann-Whitney U, Kruskal-Wallis ve Linear trend testleri kullanıldı.

**Bulgular:** Kadınların dental korku skoru ( $17.0 \pm 18.1$ ) erkeklerden daha yüksek idi ( $12.3 \pm 14.1$ ). Klinik öncesi gruppardaki DFS puanı  $17.4 \pm 18.7$  iken, klinik grubunda DFS puanı  $10.2 \pm 10.0$  idi. Diş hekimini daha az sıkılıkla ziyaret edenlerin dental korku skoru daha yüksek iken ( $45.6 \pm 22.9$ ), Diş fırçalama sıklığı arttıkça bireylerin DFS puanının anlamlı derecede azaldığı gözlandı ( $p < 0.001$ ). Dişlerini günde 2 kez fırçalayanların DFS puanı diğer gruppardan daha düşüktü ( $9.3 \pm 9.4$ ). Sınıf yılı arttıkça, ağız hijyenini alışkanlıklarında iyileşme elde edildi.

**Sonuç:** Diş hekimliği öğrencilerinde dental korkunun cinsiyet, eğitim aşaması ve ağız hijyenini alışkanlıklarıyla ilişkili olduğu görülmüştür. Bu çalışma, dental korkunun azaltılması için özellikle klinik öncesi dönemde ve ağız hijyenini alışkanlıklarını geliştirmeye yönelik stratejilerin önemini vurgulamaktadır. Eğitim süreçlerinde dental korkunun ele alınması, gelecekte daha bilinçli ve özgüvenli diş hekimleri yetiştirmesine katkı sağlayabilir.

**Anahtar Kelimeler:** Ağız sağlığı; Dental anksiyete; Dental eğitim; Dental korku; Diş hekimi ziyaret

## INTRODUCTION

Oral health is a state of health that allows individuals to speak, eat, and socialize without any discomfort or embarrassment, contributing to their overall well-being.<sup>1</sup> Pathological changes occurring in the oral cavity can lead to functional and aesthetic limitations. Raising awareness among dental students, who are future dentists, about the importance of oral health is an effective way of protecting patients' oral health and preventing oral diseases. Dental students are expected to set an example of necessary hygiene behaviors to instill proper oral care habits in their patients.<sup>2</sup> In this regard, questioning the oral hygiene habits of dental students and identifying deficiencies in this area are of great importance.

Anxiety is a state of discomfort marked by psychic tension caused by inner distress, worry, fear, or obsession, while dental anxiety refers to a generalized state of fear and worry that develops due to dental treatment.<sup>3</sup> Dental anxiety is an undefined and slow-developing condition, with no specific trigger causing its onset. Dental fear, on the other hand, is caused by real, quickly developing, specific stimuli. Despite technological advances in modern dentistry, anxiety and fear related to dental treatment persist in society.<sup>4</sup> Anxiety prevents patients from seeking dental care, leading to more frequent and severe oral health issues, which in turn result in complex cases that require time-consuming advanced treatments.<sup>5</sup>

Factors such as traumatic dental experiences, personal characteristics, gender, age, and level of education affect patients' levels of dental fear.<sup>6</sup> It has been determined that psychological and environmental factors also play a role in the development of fear of dentists.<sup>7</sup> Studies have shown that age and gender are associated with dental fear and anxiety, with younger patients and women being more likely to experience fear and anxiety.<sup>8</sup> Additionally, it has been reported that individuals who have undergone invasive procedures, such as tooth extraction, have significantly higher levels of dental anxiety compared to those who have not had such experiences.<sup>9</sup>

One of the most widely used tools for determining the level of dental fear is Kleinknecht's Dental Fear Questionnaire (DFS).<sup>10</sup> The DFS was introduced by Kleinknecht in 1973<sup>11</sup> consisting of 27 items, later re-

duced to 20 items in 1984<sup>10</sup> and reflecting avoidance of dental treatment, physiological reactions to dental treatment, fear evoked by different dental procedures. The DFS scale can serve as a screening tool alongside other screening tools to identify these patients so that appropriate strategies can be implemented to alleviate their fear. In Turkey, dentistry is a five-year undergraduate program that simultaneously includes both theoretical and practical education. The first three years of the undergraduate program are the pre-clinical period, while students begin actively treating patients in the clinic starting from the 4th year. The purpose of this study is to compare the levels of dental fear among 1st-, 2nd-, 3rd-, 4th-, and 5th-year dental students, both among different class years and between pre-clinical and clinical periods. How gender, dental history, and hygiene habits are related to dental fear will also be investigated. The null hypothesis of this study was that there would be no significant difference in the levels of fear of dentists between different grade years and preclinical-clinical periods, as well as gender, dental history and hygiene habits.

## MATERIALS AND METHOD

### Participants and setting

This cross-sectional study was conducted in May 2024 on 1st-, 2nd-, 3rd-, 4th-, and 5th-year dental students at Bolu Abant İzzet Baysal University Faculty of Dentistry. Prior to the study, detailed information about the research was provided to the students, and written, informed consent was obtained voluntarily from each student. The research was initiated with the approval of Bolu Abant İzzet Baysal University Ethics Committee (Decision No: 2024/50) (05.03.2024) for Non-Interventional Clinical Research and was conducted in accordance with the principles of the Helsinki Declaration. A survey consisting of a total of 42 questions divided into three main sections was created online via Google Forms and sent to the participants. The study was conducted with a total of 369 students.

### Outcome measures

The first section of the survey consisted of questions about the students' year of class, gender, smoking status, and dental history. The students' class years were recorded individually and grouped into two cat-

egories: preclinical and clinical. The dental history section gathered information on the frequency of dental visits, the reason for the most recent dental visit, and the number of filled, extracted, and root canal treated teeth.

The second part of the survey included questions related to the students' dental hygiene habits, and the final part of the survey aimed to assess the

**Table 1.** Demographic characteristics and dental history information of the students

		n (%)
<b>Gender</b>	Female	178 (48.2)
	Male	191 (51.8)
<b>Class</b>	1st year	62 (16.8)
	2nd year	85 (23.0)
	3rd year	77 (20.9)
	4th year	59 (16.0)
	5th year	86 (23.3)
<b>Preclinical and clinical groups</b>	Preclinical	224 (60.7)
	Clinical	145 (39.3)
<b>Smoking</b>	Yes	89 (24.1)
	No	280 (75.9)
<b>Dental visit frequency</b>	<1 year	198 (53.7)
	2-5 year	140 (37.9)
	>5 year	31 (8.4)
<b>Reason for the last dental visit</b>	Check-up	170 (46.1)
	Toothache	78 (21.1)
	Gingiva bleeding	7 (1.9)
	Orthodontics	28 (7.6)
	Jaw joint problem	10 (2.7)
	Trauma	5 (1.4)
	Filling	21 (5.7)
	Root canal treatment	29 (7.9)
	Deterraj	7 (1.9)
	Tooth extraction	14 (3.8)
<b>Number of filled teeth</b>	0	77 (20.9)
	1-3	151 (40.9)
	>3	141 (38.2)
<b>Number of extracted teeth</b>	0	244 (66.1)
	1-3	83 (22.5)
	>3	42 (11.4)
<b>Number of root canal treated teeth</b>	0	219 (59.3)
	1-3	140 (37.9)
	>3	10 (2.7)

students' levels of dental fear. To evaluate the latter, Kleinknecht's Dental Fear Survey Scale (DFS) was used. The scale consists of 20 items categorized into three sections: avoidance, physiological arousal, and fear of specific stimuli/situations. Students were asked to respond based on their level of agreement with the statements. Possible responses included not anxious, slightly anxious, anxious, very anxious, and extremely anxious. When using the Likert scale, not anxious corresponded to 1 point, slightly anxious to 2 points, anxious to 3 points, very anxious to 4 points, and extremely anxious to 5 points. The possible total score for the 20 questions ranged from 20–100. According to Kleinknecht's DFS, a total score of  $\leq 35$  is classified as not fearful, a score of  $36 \leq \text{DFS} \leq 52$  as slightly fearful, and a score of  $\geq 53$  as highly fearful.<sup>12</sup>

### Statistical Analysis

The normal distribution assumption was checked using the Shapiro–Wilk test. When the assumption of normality was not met, the Mann–Whitney U test was used to compare two independent groups, and the Kruskal–Wallis test was used to compare three or more independent groups. The Linear by Linear Association Test was used to assess the linear relationship between class level, an ordinal independent variable, and categorical dependent variables. The analyses were conducted using IBM SPSS 25 software.

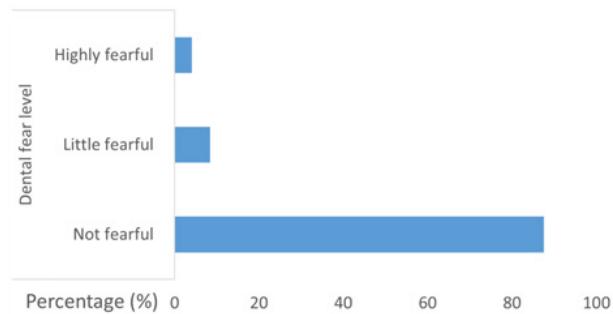
## RESULTS

### Demographics and Descriptive Data

The study was conducted on a total of 369 dental students, including 178 female (48.2%) and 191 male (51.8%). Of the students who participated in the study, 16.8% were in the 1st year, 23% in the 2nd year, 20.9% in the 3rd year, 16% in the 4th year, and 23.3% in the 5th year. When categorized into preclinical and clinical groups, 60.7% were preclinical, and 39.3% clinical students. Almost a quarter (24.1%) of the students reported smoking, while 75.9% were non-smokers. Regarding dental history, most of the students (53.7%) reported visiting a dentist less than once a year. As the reason for their last dental visit, 46.1% of the students chose the "check-up" option. It was found that 40.9% of the students had 1–3 filled teeth, 66.1% of the students had no extracted teeth,

**Table 2.** Dental hygiene habits of students

		n (%)
<b>Toothbrush type</b>	Manual	314 (85.1)
	Electric toothbrush	28 (7.6)
	Both	27 (7.3)
<b>Tooth brushing frequency</b>	Once a day	74 (20.1)
	Twice a day	287 (77.8)
	Rarely	8 (2.2)
<b>Tooth brushing time</b>	One minute or less	54 (14.6)
	Two minutes	204 (55.3)
	More than two minutes	111 (30.1)
<b>Tooth brushing method</b>	Horizontal movements	33 (8.9)
	Vertical movements	114 (30.9)
	Circular movements	181 (49.1)
<b>What time of day do you brush your teeth?</b>	Irregular random movements	41 (11.1)
	Upon waking in the morning and before going to bed at night	251 (68.0)
	Daytime only	28 (7.6)
	Nighttime only	47 (12.7)
	After meals	42 (11.4)
<b>Frequency of changing toothbrush</b>	Never	1 (0.3)
	Less than 3 months	99 (26.8)
	Between 4-6 months	212 (57.5)
<b>Toothpaste usage</b>	6 months and more	58 (15.7)
	Yes	359 (97.3)
	Sometimes	4 (1.1)
<b>Choosing specifically fluoride in toothpaste</b>	No	6 (1.6)
	Yes	277 (75.1)
	Sometimes	61 (16.5)
<b>Use dental floss</b>	No	31 (8.4)
	Yes	157 (42.5)
	Sometimes	78 (21.1)
<b>Use of mouthwash</b>	No	134 (36.3)
	Yes	55 (14.9)
	Sometimes	26 (7.0)
<b>Toothpaste selection criteria</b>	No	288 (78.0)
	Dentist's recommendation	93 (25.2)
	Cost	81 (22.0)
	Ingredient	160 (43.4)
	Appearance of its packaging	35 (9.5)

**Figure 1.** Dental fear level of students

59.3% had no teeth treated with root canal therapy (Table 1).

Regarding dental hygiene habits, 85.1% used a manual toothbrush, 77.8% brushed their teeth twice a day, 55.3% brushed for two minutes, 49.1% brushed their teeth using circular movements, 68% brushed their teeth both upon waking in the morning and before going to bed at night, and 57.5% changed their toothbrushes every 4–6 months. Furthermore, 97.3% used toothpaste, 75.1% used fluoride toothpaste, 42.5% used dental floss, 78% did not use mouthwash. Fewer than half of the students (43.4%) indicated that they chose their toothpaste based on its ingredients (Table 2).

### DFS scores

In terms of fear scores, it was found that 87.5% of the students were not fearful, 8.4% were little fearful, and 4.1% were highly fearful (Figure 1). The DFS score ranged from 0 to 80, with a mean of  $14.6 \pm 16.3$ . Statistically significant differences were observed when comparing DFS scores between groups based on demographic characteristics, the preclinical/clinical variable, gender, frequency of dental visits, the reason for the last dental visit, the number of extracted teeth, and frequency of toothbrushing ( $p < 0.05$ ). It was observed that women had higher DFS scores than men. Specifically, a statistically significant difference was observed between 1st-year students and those in the 3rd, 4th, and 5th years, with 1st-year students having higher DFS scores. The DFS scores of the preclinical group were higher than those of the clinical group. No statistically significant differences were found in DFS scores based on smoking status ( $p > 0.05$ ). Students who visited the dentist every five years or more had higher DFS scores compared to those who visited the dentist less than once a year

**Table 3.** Distribution and comparison of DFS scores according to demographic data and dental history information of the students

		Mean.±S.D. (M.)*	p
<b>Gender</b>	Female	17.0±18.1 (10) <sup>a</sup>	0.011**
	Male	12.3±14.1 (8) <sup>b</sup>	
<b>Class</b>	1st year	27.6±24.4 (16.5) <sup>a</sup>	<0.001**
	2nd year	15.4±15.3 (11) <sup>a</sup>	
	3rd year	11.3±13.0 (7) <sup>b</sup>	
	4th year	11.3±10.0 (9) <sup>b</sup>	
	5th year	9.4±10 (7) <sup>b</sup>	
<b>Preclinical/clinical</b>	Preclinical	17.4±18.7 (10.5) <sup>a</sup>	0.005**
<b>Smoking</b>	Clinical	10.2±10.0 (7) <sup>b</sup>	
	Yes	14.1±17.7 (8) <sup>a</sup>	0.350
	No	14.7±15.8 (9) <sup>a</sup>	
<b>Dental visit frequency</b>	<1 year	9.7±9.2 (7) <sup>a</sup>	<0.001**
	2-5 year	14.6±14.7 (10) <sup>a</sup>	
	>5 year	45.6±22.9 (50) <sup>b</sup>	
<b>Reason for the last dental visit</b>	Check-up	7.2±7 (5.5) <sup>a</sup>	<0.001**
	Toothache	20.0±18.3 (13) <sup>b</sup>	
	Gingiva bleeding	14±7.85 (13) <sup>abc</sup>	
	Orthodontics	13.7±14.7 (6.5) <sup>ab</sup>	
	Jaw joint problem	17.8±21.3 (12.5) <sup>abc</sup>	
	Trauma	11.2±4.4 (11) <sup>abc</sup>	
	Filling	14.9±13.6 (13) <sup>ab</sup>	
	Root canal treatment	38.8±17.8 (45) <sup>c</sup>	
	Deterraj	12.7±15.2 (7) <sup>abc</sup>	
<b>Number of extracted teeth</b>	0	9.7±9.4 (7) <sup>a</sup>	<0.001**
	1-3	10.7±9 (10) <sup>a</sup>	
	>3	50.3±14.3 (48) <sup>b</sup>	
<b>Tooth brushing frequency</b>	Once a day	18.6±25.8 (8.5) <sup>a</sup>	<0.001**
	Twice a day	9.3±9.4 (7) <sup>b</sup>	
	Rarely	34.4±20.4 (40) <sup>a</sup>	

or every 2–5 years. It was found that students whose last dental visit was for root canal treatment had higher DFS scores compared to those who visited for a checkup, orthodontics, fillings, or gum bleeding. Additionally, students who visited the dentist due to toothache had higher DFS scores compared to those who visited for a checkup. Students with more than three extracted teeth had higher DFS scores compared to those with 1–3 or no extracted teeth. Students who brushed their teeth once a day had higher DFS scores than those who brushed twice a day (Table 3).

Statistically significant differences were found between class level and variables such as dental visit time and hygiene habits ( $p < 0.05$ ). Specifically, most 4th- and 5th-year students visited the dentist less than once a year, while most preclinic students visited the dentist every 2–5 years. It was also found that the use of dental floss and mouthwash increased as the year of class increased. The choice of toothpaste was more often based on its ingredients rather than cost or dentist recommendations as the class year increased (Table 4).

**Table 4.** Comparison of the relationship between the class year and dental history information and hygiene habits of the students

		Class					p
		1st year n (%)	2nd year n (%)	3rd year n (%)	4th year n (%)	5th year n (%)	
<b>Dental visit frequency</b>	<1 year	1 (1.6)	17 (20.0)	47 (61.0)	58 (98.3)	75 (87.2)	<0.001*
	2-5 year	39 (62.9)	62 (72.9)	28 (36.4)	1 (1.7)	10 (11.6)	
	>5 year	22 (35.5)	6 (7.1)	2 (2.6)	0 (0)	1 (1.2)	
<b>Dental floss usage</b>	Yes	6 (9.7)	7 (8.2)	15 (19.5)	55 (93.2)	74 (86.0)	<0.001*
	Sometimes	15 (24.2)	20 (23.5)	28 (36.4)	4 (6.8)	11 (12.8)	
	No	41 (66.1)	58 (68.2)	34 (44.2)	0 (0)	1 (1.2)	
<b>Mouthwash usage</b>	Yes	1 (1.6)	1 (1.2)	1 (1.3)	14 (23.7)	38 (44.2)	<0.001*
	Sometimes	7 (11.3)	3 (3.5)	5 (6.5)	3 (5.1)	8 (9.3)	
	No	54 (87.1)	81 (95.3)	71 (92.2)	42 (71.2)	40 (46.5)	
<b>Toothpaste selection criteria</b>	Dentist's recommendation	21 (33.9)	31 (36.5)	18 (23.4)	8 (13.6)	15 (17.4)	<0.001*
	Cost	26 (41.9)	30 (35.3)	20 (26.0)	5 (8.5)	0 (0)	
	Ingredient	1 (1.6)	8 (9.4)	36 (46.8)	44 (74.6)	71 (82.6)	
	Appearance of Its packaging	14 (22.6)	16 (18.8)	3 (3.9)	2 (3.4)	0 (0)	

\* Linear by Linear Association Test

## DISCUSSION

This study compared the levels of dental fear among dental students across different class years and between preclinical and clinical periods. It also examined how gender, dental history, and hygiene habits are related to dental fear. The null hypothesis of this study was that the levels of fear of dentists would not show a significant difference between class years, preclinical and clinical periods, gender, dental history and hygiene habits. However, since the findings revealed that there were significant differences, the null hypothesis of the present study was rejected.

The findings showed that 1st-year students had significantly higher levels of dental fear compared to students in more advanced years. Additionally, it was found that preclinical students had higher levels of dental fear compared to students in clinical years. Consistent with the findings of this study, other studies evaluating dental anxiety in dental students have reported a decrease in anxiety levels as students' progress in their education.<sup>13</sup> This result can be explained by the fact that students gain more clinical experience and acquire more comprehensive dental knowledge in later years.<sup>8</sup> Hypnosis, systematic de-

sensitization, gradual exposure, effective communication, and computer-based tools are some of the methods that can be used to reduce dental anxiety and fear of dental procedures.<sup>14</sup> As dental students are exposed to the dental environment and situations that may cause anxiety, their levels of dental fear may change over time.<sup>15</sup>

It was found that women had higher levels of dental fear compared to men. Previous studies comparing gender with dental fear levels have also found that women experience more dental fear.<sup>16</sup> This has been explained in the literature by the higher pain threshold in women and their ability to express their emotions more easily and openly.<sup>17</sup>

Participants who visited a dentist less frequently (every five years or more) had higher levels of dental fear compared to those who visited the dentist more regularly. Doganer *et al.*<sup>18</sup> reported that participants who avoided treatment had higher levels of dental anxiety compared to those who attended regular appointments. There is evidence that individuals with high levels of dental anxiety and fear are more likely to delay treatment until an emergency arises and are less likely to opt for conservative treatments com-

pared to those without anxiety.<sup>19</sup> Considering their high levels of anxiety, it is not surprising that these individuals postpone their dental visits. High dental fear has been associated with less frequent and irregular dental visits, appointment cancellations, and/or postponement of dental treatments.<sup>20</sup>

The highest level of dental fear was observed in participants whose last visit to the dentist was for root canal treatment, followed by those who visited for wisdom tooth extraction and toothache. Participants with more than three tooth extractions reported higher levels of dental fear compared to other groups. Invasive procedures and dental pain have been identified as major causes of dental fear.<sup>21</sup> Similarly, the dental fear of the students participating in this study likely stemmed from their fear of injections and dental pain. Seeing a dental syringe in the clinic or feeling an injection can cause stress in individuals, thereby increasing their dental fear. This highlights the importance of applying topical anesthesia before dental injections in invasive procedures, such as root canals or tooth extractions, or using different techniques to administer injections without showing the syringe to the patient. Moreover, effective, and safe local anesthesia administration is crucial in dentistry to create a painless treatment environment when performing dental procedures.<sup>22</sup>

Participants who brushed their teeth more frequently (twice a day) had significantly lower levels of dental fear compared to other groups. Yıldırım *et al.*<sup>23</sup> found, in a similar study, that individuals who brushed their teeth irregularly or not at all had significantly higher levels of dental fear compared to those who brushed regularly. Dental fear has been associated with a negative attitude toward brushing, and a connection has been established between fear and poor oral health and hygiene.<sup>24</sup>

It was found that as the number of years in the program increased, oral hygiene habits improved, with a higher frequency of dental floss and mouthwash use. In their studies investigating oral hygiene habits among dental students, Yıldız *et al.*<sup>25</sup> and Bozorgi *et al.*<sup>26</sup> found that the rate of dental floss use was significantly higher in the final year of undergraduate education compared to the first year. Similarly, in a study by Kawarura *et al.*<sup>27</sup> that compared self-reported oral health behavior scores among dental

students, final-year students had significantly higher scores than first-year students, with higher scores indicating better dental hygiene habits. The results reported by Kawarura *et al.*<sup>27</sup>, which align with the findings of this study, demonstrate an increased level of self-care final-year students, possibly due to the influence of preventive dentistry courses.

While 33.9% of preclinical dentistry students choose toothpaste based on cost and 31.3% based on dentist recommendations, 79.3% of clinical students pay attention to the ingredient when choosing toothpaste. This result can be explained by the broader theoretical knowledge that students acquire during their clinical years.

Data for this study were collected from a large sample. Kleinknecht's Dental Fear Survey (DFS) is a frequently used scale that helps individuals quickly and accurately assess their fear levels,<sup>28</sup> and measures dental fear focused on specific situations and procedures.<sup>29</sup> In this respect, as in other studies that have used the DFS scale in assessing dental fear levels,<sup>30</sup> the current study also used the DFS scale, a well-established and reliable scale for determining students' dental fear levels.

This study has several limitations. First, it is a cross-sectional study, so causal conclusions cannot be drawn. Second, the research was conducted with students from only one university; studies involving broader populations may yield different results. Previous studies have either compared students' levels of dental fear only with demographic data or only between different academic periods. There are no comprehensive studies that, like this one, compare individuals' levels of dental fear with their dental history, frequency of dental visits, and oral hygiene habits.

## CONCLUSION

This study revealed that dental students' fear of dentists varied according to gender, educational level, and oral hygiene habits. Fear of dentists was found to be higher in female students, while preclinical period students experienced more fear than clinical period students. Students who visited the dentist less frequently had higher levels of fear, while students with better oral hygiene had lower levels of fear of dentists. However, it should be taken into consider-

ation that tooth brushing frequency alone may not be a determining factor, and that fear of dentists may also be related to individuals' general attitudes towards oral hygiene and avoidance behaviors.

It was observed that oral hygiene habits of the students improved as the level of education increased. This suggests that increased awareness and clinical experience may have a positive impact on preventive behaviors. It should also be taken into account that fear of dentists may affect not only regular dental visits but also individuals' daily oral care habits. These findings highlight the importance of interventions that focus on the preclinical period and promote positive behavioral changes towards oral hygiene. Considering that fear of dentists may be associated with negative attitudes towards oral hygiene, it is recommended to develop educational programs that provide students with awareness to manage fear of dentists. In addition, considering that fear of dentists may prevent individuals from regular dental visits, dentists should be aware of this issue and develop supportive and motivating approaches for fear management.

## CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

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