

Investigation of Stress Factors and Stress Levels of Dentistry Students with Pedodontics Practice Stress Scale: A Questionnaire-Based Cross-Sectional Study

Çocuk Diş Hekimliği Uygulama Stres Ölçeği Kullanılarak Diş Hekimliği Öğrencilerinin Stres Faktörleri ve Stres Düzeylerinin İncelenmesi: Anket Temelli Kesitsel Bir Çalışma

Esra ÖZGÖÇMEN TULA^a , Merve ALKIŞ^b 

^aBursa Uludağ University, Faculty of Dentistry, Department of Pediatric Dentistry, Bursa, Türkiye

^aBursa Uludağ Üniversitesi, Diş Hekimliği Fakültesi, Pedodonti AD, Bursa, Türkiye

^bUşak University, Faculty of Dentistry, Department of Pediatric Dentistry, Bursa, Türkiye

^bUşak Üniversitesi, Diş Hekimliği Fakültesi, Pedodonti AD, Bursa, Türkiye

ABSTRACT

Background: Stress among dental students can arise from multiple factors. High stress levels during clinical pediatric dentistry training may negatively affect students' performance, confidence, and the quality of patient care, making this an essential issue for both education and clinical practice. The aim of this study was to evaluate stress levels and associated factors among undergraduate dental students during pediatric dentistry clinical practice using the Pedodontics Practice Stress Scale (PPSS).

Methods: This study was conducted with 272 4th- and 5th-year dental students from Bursa Uludağ University and Uşak University. Participants completed an online questionnaire that included demographic characteristics and the PPSS. The groups were compared in terms of stressors. Data analysis included Independent Samples t-test or Mann-Whitney U test, Spearman correlation, and binary logistic regression ($p < 0.05$).

Results: Of the participants, 59.2% were female and 40.8% were male. Female students demonstrated significantly higher stress scores across all PPSS domains and total scores ($p < 0.001$). Comparison by academic year revealed no significant differences in mean total stress scores ($p = 0.777$). Students whose first choice was not dentistry reported higher complication-related ($p = 0.006$) and total stress scores ($p = 0.022$). Females were 3.4 times more likely to experience high stress than males (OR=3.37, 95% CI [1.56-7.28], $p = 0.002$). All PPSS domains were positively correlated with total stress.

Conclusion: In pediatric dentistry practice, factors such as gender, first career choice, child and parent behaviors, and the likelihood of complications cause varying stress levels among students.

Keywords: Pediatric dentistry, stress, Pedodontics Practice Stress Scale (PPSS)

ÖZ

Giriş: Diş hekimliği öğrencilerinde stres, birçok faktörden kaynaklanabilir. Pediatrik diş hekimliği klinik eğitimi sırasında yüksek stres düzeyleri, öğrencilerin performansını, özgüvenini ve hasta bakımının kalitesini olumsuz etkileyebilir; bu da konuyu hem de klinik uygulama açısından hayati bir mesele haline getirir. Bu çalışmanın amacı, Pediatrik Diş Hekimliği Klinik Uygulama Stres Ölçeği (PPSS) kullanılarak, lisans düzeyindeki diş hekimliği öğrencilerinde pediatrik diş hekimliği klinik uygulaması sırasında stres düzeylerini ve bununla ilişkili faktörleri değerlendirmektir.

Yöntemler: Bu çalışma, Bursa Uludağ Üniversitesi ve Uşak Üniversitesi'nden 272 dördüncü ve beşinci sınıf diş hekimliği öğrencisiyle gerçekleştirilmiştir. Katılımcılar, demografik özellikleri ve PPSS'yi içeren bir çevrimiçi anketi doldürmüştür. Gruplar, stres faktörleri açısından karşılaştırılmıştır. Veri analizi, Bağımsız Örnekler t-testi veya Mann-Whitney U testi, Spearman korelasyonu ve ikili lojistik regresyonu içermektedir ($p < 0,05$).

Bulgular: Katılımcıların %59,2'si kadın, %40,8'i erkekti. Kadın öğrenciler, PPSS'nin tüm alt ölçeklerinde ve toplam puanlarda istatistiksel olarak anlamlı derecede daha yüksek stres puanları sergiledi ($p < 0,001$). Akademik sınıflara göre yapılan karşılaştırmada, ortalama toplam stres puanlarında anlamlı bir fark saptanmadı ($p = 0,777$). İlk tercihi diş hekimliği olmayan öğrenciler, komplikasyonlarla ilgili ($p = 0,006$) ve toplam stres puanlarında ($p = 0,022$) daha yüksek değerler bildirdi. Kadınların yüksek stres yaşama olasılığı erkeklere göre 3,4 kat daha yüksekti (OR=3,37, %95 CI [1,56-7,28], $p = 0,002$). Tüm PPSS alanları toplam stres ile pozitif korelasyon göstermiştir.

Sonuç: Pediatrik diş hekimliği uygulamalarında cinsiyet, ilk kariyer tercihi, çocuk ve ebeveyn davranışları ve komplikasyon olasılığı gibi faktörler öğrenciler arasında değişen stres düzeylerine neden olmaktadır.

Anahtar Kelimeler: Pediatrik diş hekimliği, stres, Pedodonti Pratiği Stres Ölçeği (PPSS)

Introduction

Stress is a mental and emotional response that occurs when an individual is exposed to adverse or challenging environmental conditions.^{1,2} The development of clinical competencies³ and the responsibilities associated with patient care make dental education programs an extremely stressful and intense learning environment.⁴ Dentistry students must cope with stress, anxiety, and depression from the early stages of their careers.⁵

The source of stress in dental students may be the academic and sociocultural environment.^{6,7} In addition to these factors, the individual's personality traits may also affect the stress level.⁸ These stress factors can negatively affect the physical and psychological health of students, cause a decrease in clinical and academic success, and also lead to a loss of professional motivation.^{2,9,10} It is known that long-term stress has adverse effects on learning, productivity, and ultimately the health of students.^{11,12} Although stress levels have been

reported to increase as dental students progress through their training,^{3,12} studies specifically examining the stress associated with pediatric dentistry practice remain limited.

The pedodontics clinic is a clinical environment that creates more intense stress due to its various dynamics and difficulties.¹³ Dentistry students only encounter child patients and parents during clinical practice, so they do not have sufficient experience communicating with children, implementing clinical procedures, and directing behavior.¹⁴ During the pedodontics education process, dentistry students frequently encounter child patients who are crying, restless, or resistant to treatment; this situation leads to increased anxiety and tension in students and loss of self-confidence.¹³ These factors lead to students experiencing high stress levels in pedodontic clinics.^{14,15} The variety of treatment protocols and materials used in pediatric patients, the differences between primary and permanent teeth, and the fact that children have different physiological and anatomical structures than adults increase the need for theoretical knowledge in the

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Sorumlu yazar/Corresponding Author: Esra ÖZGÖÇMEN TULA

E-mail: esraozgocmentula@uludag.edu.tr

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pedodontic clinic.¹⁶ It is also emphasized that theoretical knowledge and clinical experience are essential to manage complications that may occur in the clinic.¹⁷ These factors can also be seen as significant sources of stress for dentistry students.

Evaluating the stress factors and levels dentistry students encounter during pedodontic practice is essential for improving their education processes. Although there are various studies examining the stress and anxiety levels of students.^{16,18} To our knowledge, the number of studies that comprehensively address the factors that may create stress in the pedodontics clinic is limited. This study aims to evaluate the stress levels of undergraduate dentistry students during pedodontics practices using the "Pedodontics Practice Stress Scale" (PPSS), analyze the stress factors, and compare the stress factors according to the students' clinical experience. In addition, in light of the findings, it is aimed to develop stress management strategies and integrate them into educational programs.

This study hypothesizes that the stress levels and sources experienced by dental students during pedodontic procedures vary depending on their clinical experience.

Method

This study was conducted per the ethical principles of the Declaration of Helsinki. All participants were informed about the study's purpose, procedures, risks, and benefits, and provided written informed consent. The Health Research Ethics Committee approved the study protocol, Bursa Uludağ University Faculty of Medicine (Approval Number: 2025-9/14).

Participant selection

The study population comprised 4th- and 5th-year dental students enrolled in the 2024-2025 academic year at the Faculties of Dentistry of Bursa Uludağ University (98 students) and Uşak University (174 students) who voluntarily agreed to participate in the study. Dental students who declined participation and those who had not initiated pedodontic clinical education were excluded from the study.

Sample Size Calculation

This study calculated the sample size using the G*Power 3.1.9.2 software.¹⁹ Assuming a 95% confidence level ($\alpha = 0.05$) and a standardized effect size of 0.1616 derived from a similar study,¹⁸ the minimum required sample size per group was determined to be 124, based on a theoretical power of 0.80. To account for potential dropouts during the study process, the sample size was increased by 10%, resulting in a minimum of 136 participants per group (124 + 10%).

Survey Instrument

The survey, which included a demographic information form with questions regarding students' gender, age, year of study, and whether dentistry was their first-choice program, and the PPSS, was created using an online platform (Google Forms) and distributed to participants online.¹⁸ The survey link was also shared via WhatsApp Messenger, a widely used messaging application. Students' email addresses and contact numbers were obtained through existing student WhatsApp groups and referrals. Multiple responses from the same participant were identified using email IDs and excluded, ensuring that only one response per participant was included in the analysis. Participant confidentiality was maintained through anonymous participation per the Declaration of Helsinki. The survey form did not contain any information such as the participant's name or university name.²⁰

The survey was distributed to 4th- and 5th-year dental students through relevant faculty members.¹⁸ The PPSS has been introduced as a valid and reliable instrument for assessing stress in pediatric dentistry clinics. The PPSS consists of 29 items rated by students on a scale from 1 (low stress level) to 5 (high stress level), indicating their stress level. The scale includes questions across four domains: procedures (items 1-10), complications (items 11-17), the child (items 18-22), and the parent (items 23-29). In the procedures section, treatments performed on adult and pediatric patients are scored separately. Each item is rated using a 5-point Likert scale from 1 to 5.¹⁶ The total stress score is calculated by summing the scores of the relevant items. A total score of 71.5 or above indicates the presence of stress.¹⁸

Statistical Analysis

Descriptive statistics of the data, including frequency, percentage, mean, standard deviation, median, and the 25th and 75th percentiles, were reported. The assumption of normality was assessed using the Shapiro-Wilk test. At the same time, homogeneity of variances was evaluated using Levene's test, for comparisons between two independent groups, an Independent Samples t-test was employed when the normality assumption was met. In contrast, the Mann-Whitney U test was applied when this assumption was violated. Correlations between non-normally distributed continuous variables were examined using Spearman's correlation analysis. Binary logistic regression analysis was used to analyze the high stress risk factors. All statistical analyses were performed using IBM SPSS 27. Statistical significance was set at a p-value <0.05 for all analyses.

Results

A total of 272 dental students were included in the present study, comprising 136 4th-year students (50%) and 136 5th-year students (50%). Of the participants, 161 (59.02%) were female and 111 (40.08%) were male. Among the respondents, 123 (45.2%) reported selecting dentistry as their first-choice field of study, whereas 149 (54.8%) indicated an alternative field as their initial preference. An analysis of first-choice preference by gender revealed that 40.37% (n=65) of female participants reported selecting dentistry as their first choice, while 59.63% (n=96) indicated an alternative field as their first preference. Among male participants, 52.25% (n=58) identified dentistry as their first choice, whereas 47.75% (n=53) reported selecting a different field as their primary preference. The detailed demographic and general characteristics of the study population are provided in Table 1.

Table 1. Sociodemographic characteristics of the participants

Variable	Group	Number (n)	Percentage (%)
Education Level	4th-year students	136	50.0
	5th-year students	136	50.0
Gender All students	Male	111	40.8
	Female	161	59.2
4th-year students	Male	58	42.65
	Female	78	57.35
5th-year students	Male	52	38.24
	Female	84	61.76
Dentistry is the first-choice profession All students	Yes	123	45.2
	No	149	54.8
4th-year students	Yes	59	43.38
	No	77	56.62
5th-year students	Yes	64	47.06
	No	72	52.94
Min.-Max.		Mean±S.D.(Median)	
Age	21-35	23.26±1.34(23)	

A comparative analysis of stress scores revealed statistically significant differences primarily based on gender and, to a lesser extent, participants' first-choice preference for dentistry. Female participants consistently reported higher stress levels than their male counterparts across all domains, including child-related ($p<0.001$), adult-related ($p<0.001$), complication-related ($p<0.001$), patient-related factors ($p=0.003$), parent-related factors ($p<0.001$), and overall total stress scores ($p<0.001$). Furthermore, students who did not select dentistry as their first career choice demonstrated significantly higher stress scores in adult-related ($p=0.007$), complication-related ($p=0.006$), and total stress domains ($p=0.022$) compared to those whose initial preference was dentistry. In contrast, no statistically significant differences in stress scores were observed across academic year levels in any domain ($p>0.05$). A detailed distribution and comparison of these findings are presented in Table 2.

Table 2. Comparative Analysis of Stress Scores Across Demographic and Academic Determinants

Stress			Mean.±SD	Median (%25-%75 quartile)	Test statistic	p
scores						
Procedure in a pediatric patient	Education Level	4th-year students	26.18±6.39	26(22-30)	-0.388†	0.698
		5th-year students	26.12±6.89	26(21,5-31)		
	Gender	Male	24.00±6.57	24(20-28)	-4594	<0.001*
		Female	27.63±6.28	28(23-32)		
	First choice	No	26.68±6.19	27(22-31)	1474	0.142
		Yes	25.5±7.10	25(21-29)		
Procedure in an adult patient	Education Level	4th-year students	21.39±5.44	21.5(18-25)	1146	0.253
		5th-year students	20.52±6.95	20(16-24,5)		
	Gender	Male	18.94±6.31	18(15-22)	-4588	<0.001*
		Female	22.35±5.82	22(18-26)		
	First choice	No	21.88±6.23	21(18-26)	2715	0.007*
		Yes	19.84±6.11	19(16-25)		
Complications	Education Level	4th-year students	26.34±4.98	27(23-29,5)	-0.057	0.955
		5th-year students	26.38±5.67	27.5(22-30,5)		
	Gender	Male	24.07±5.27	24(20-28)	-6274	<0.001*
		Female	27.93±4.79	28(26-31)		
	First choice	No	27.17±4.89	28(24-31)	2798	0.006*
		Yes	25.37±5.68	26(21-29)		
Child-related factors	Education Level	4th-year students	17.32±3.69	18(15-19)	0.910	0.364
		5th-year students	16.86±4.53	17(14-20)		
	Gender	Male	16.20±4.01	17(14-18)	-2995	0.003*
		Female	17.70±4.11	18(15-20)		
	First choice	No	17.53±3.82	18(15-20)	1953	0.052
		Yes	16.55±4.43	17(14-19)		
Parent-related factors	Education Level	4th-year students	21.38±5.79	21.5(17-26)	-0.579†	0.563
		5th-year students	21.95±6.59	22(17-27)		
	Gender	Male	19.87±6.55	19(16-24)	-4.117†	<0.001*
		Female	22.89±5.65	23(19-27)		
	First choice	No	21.63±5.92	22(18-26)	-0.008†	0.994
		Yes	21.70±6.55	22(17-26)		
Stress total	Education Level	4th-year students	112.60±19.91	115.5(100-125)	-0.284	0.777
		5th-year students	111.82±24.65	108.5(96,5-130)		
	Gender	Male	103.08±22.32	104(92-117)	-5930	<0.001*
		Female	118.50±20.18	120(106-131)		
	First choice	No	114.89±21.36	116(102-128)	-2.294†	0.022*
		Yes	108.96±23.21	109(94-123)		

In binary logistic regression, the probability of women experiencing high stress was significantly higher than that of men, OR = 3.37, 95% CI [1.56, 7.28], p = 0.002.

Risk factors affecting stress level were examined using multivariable logistic regression analysis, and the results are presented in **Table 3**. Accordingly, in the same class and first-choice situation, the odds ratio for women having high stress was approximately 3.4 times higher than for men (OR = 3.398; p = 0.002).

Table 3. Analysis of Risk Factors Influencing Elevated Stress Levels

		Stress		Univariate		Multiple	
		Low (n=33)	High (n=239)	OR (% 95% CI)	p	OR (% 95% CI)	p
Age Education Level	4th year students*	23.18±1.13	23.27±1.37	0.530 (0.250-1.126)	0.099	0.491 (0.226-1.064)	0.071
	5th year students	12(36.4)	125 (51.9)				
		21 (63.6)	115 (48.1)				
Gender	Male*	22 (66.7)	89 (37.2)	3.371 (1.561-7.279)	0.002	3.398 (1.553-7.437)	0.002
	Female	11 (33.3)	150 (62.8)				
Dentistry is the first-choice profession	No*	14 (42.4)	135 (56.5)	0.568 (0.272-1.185)	0.132	0.659 (0.309-1.408)	0.282
	Yes	19 (57.6)	104 (43.5)				
Constant						7405	0.000

* Reference category

Table 4 presents the correlations between stress levels across all domains of the PPSS scale. A positive association was identified across all domains of the scale. Statistical analysis demonstrated a strong positive correlation between the total stress score and the child-related stress domain ($r = 0.826$; $p < 0.001$), along with statistically significant, moderate-to-high positive correlations between the total stress score and the remaining domains of the instrument.

Table 4. Correlation Matrix of Stress Score Dimensions

Stress scores		1	2	3	4	5	6
Procedure in a pediatric patient (1)	r	-	0.701	0.435	0.505	0.483	0.826
	p		<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Procedure in an adult patient (2)	r			0.432	0.405	0.386	0.770
	p			<0.001*	<0.001*	<0.001*	<0.001*
Complications (3)	r				0.517	0.451	0.717
	p				<0.001*	<0.001*	<0.001*
Child-related factors (4)	r					0.582	0.743
	p					<0.001*	<0.001*
Parent-related factors (5)	r						0.748
	p						<0.001*
Total (6)							-

*p<0.05 and r: correlation coefficient

Discussion

Pedodontic clinics are work environments where the treatment of patients under the age of 18, who are often difficult and undesirable to treat, is carried out, and which are generally considered challenging by dentists.^{15,21} Although there are various studies in the literature that evaluate stress-inducing factors in dental practice and examine stress levels^{5,15,21,22}, the number of studies that use the PPSS scale to assess the prevalence and causes of stress experienced by dental students during pediatric dentistry practice is quite limited. This study was conducted to determine the stress levels experienced by dental students in Turkey during pediatric dentistry clinical training according to their educational level and to identify the factors affecting this situation. Although this study hypothesized that stress levels would differ according to both clinical experience and various stress sources, no significant differences were detected across academic years. However, stress levels were influenced by several individual and motivational factors—such as gender, first career choice, and complication-related concerns. Therefore, the hypothesis was partially supported: clinical experience did not alter stress levels, whereas personal and motivation-driven stressors played a substantial role.

Pediatric dentistry is recognized as a specialty that can cause high stress levels during training and professional life. The main factors determining stress levels in pediatric patient management include gender, nationality, parenthood, education level, frequency of treating pediatric patients, pediatric patient management skills, level of knowledge about child psychology, individual characteristics of the pediatric patient, and parents' attitudes toward the treatment process.¹⁸ Studies examining stress levels among dentists and dental students have found that students' stress levels increase as they progress through their studies.^{2,12,23,24} A study that developed the PPSS scale found that 5th-year dental students experienced more stress than 4th-year students.^{2,16} Using different assessment methods, Colin et al. demonstrated that year of study is an important determinant of stress, with senior students reporting higher stress levels compared with those in the early years of the program.⁵ Similarly, Marchewka et al. showed that first-year students exhibited higher average stress levels than fifth-year students.²⁵ This situation can be explained by the increased clinical workload in the final year of dental education¹⁸ and the fact that prospective dentists treat less cooperative children with more complex cases as the education process progresses. In this study, although 5th-year students had lower stress levels than 4th-year students on the PPSS scale's total stress, "procedure in pediatric patient," and "child-related factors" subscales, no statistically significant difference was found between the level of education and the level of stress. This finding is consistent with previous research, which also reported no significant variation in total stress scores when compared according to the level of education.¹⁸ This situation may be related to decreased stress levels after treating several pediatric patients.²¹ Additionally, 4th-year students applying behavior management techniques for the first time in the clinic may experience increased stress levels due to concerns about being unable to manage the child or making mistakes in the treatment protocol. However, the lower stress levels observed in 4th-year students in the "complications" and "parent-related factors" subgroups may be related to the fact that 4th-year students only treat cooperative children during clinical training, do not work with anxious children, apply treatments that lead to more easily manageable complications,

or have insufficient knowledge about complications. Furthermore, the fact that students work under the supervision of academics during clinical training and know they can get help when needed contributes to their feeling more secure.¹⁸ Consequently, considering the unique educational conditions of each faculty, stress levels may vary among groups at different educational levels and may be assessed as low or high.

When evaluated in terms of gender, this study found that female participants had significantly higher total stress levels and stress levels in all subgroups compared to male participants, according to the PPSS scale. This finding is consistent with previous research results showing that female dental students or dentists have higher stress levels than males.^{15,16,18,23,24,26} Mishra et al., employing the Dental Environment Stress (DES) scale to evaluate stress levels, found that female students exhibited significantly higher mean DES scores than their male counterparts.²⁷ Consistently, the systematic review by Khanagar et al. highlighted that dental students experience substantial stress throughout their training, with female students in particular reporting higher levels of depression, stress, and anxiety compared with students in other health-related fields.²⁸ Furthermore, when risk factors affecting high stress levels were examined using binary logistic regression analysis, both univariate and multivariate model analyses revealed that women had a higher risk of experiencing high stress than men (p=0.002). Women's higher stress levels are associated with their more sensitive, sympathetic, and supportive approach towards patients.²⁹ Factors that may explain women's higher stress levels include their biological tendency to secrete higher levels of stress hormones, their intense emotional awareness, and their strong empathy skills, particularly when patients are in pain or fearful of dental treatment.¹⁸ Female students' greater comfort in expressing stress can be explained by male students' tendency to hide stress, particularly in our region, to appear strong.¹³ Conversely, there is also data in the literature indicating that male students have higher stress levels than female students.³⁰ It can be stated that gender-related differences in stress levels may be influenced by both the unique clinical conditions of the education programs and individual factors.

In this study, students who did not choose dentistry as their first career choice were found to have significantly higher stress scores related to complications (p=0.006) and total stress (p=0.022). Similarly, students who did not choose dentistry as their first choice reported higher levels of both general stress^{10,30} and post-graduation unemployment anxiety.³⁰ These findings suggest that students who chose dentistry as their first choice developed stronger motivation, a sense of belonging, and identification with the profession; thus, they were able to demonstrate greater resilience and capacity to cope with professional stress in the face of difficulties and unexpected complications encountered during clinical practice.

In this study, binary logistic regression analysis revealed that female students were significantly more likely to experience high stress than male students (OR = 3.37, 95% CI [1.56, 7.28], p = 0.002). However, it was observed that the likelihood of 5th-year students experiencing high stress was not statistically significantly different compared to 4th-year students, and that dentistry being ranked first in the professional preference list did not significantly affect the likelihood of experiencing high stress. Factors that may cause stress in dental students in the literature include faculty rules and regulations, working conditions until late hours, workload, receiving criticism from staff, lack of confidence in becoming a successful dentist, fear of not being able to continue to graduate school, fear of unemployment, facing parents after failure, financial resources, gender, and choosing dentistry as the first career choice.³⁰ Considering these factors, faculties collaborating with education specialists to develop student-centered curricula have the potential to support the psychological well-being of dental students and reduce their stress levels.²⁸ Furthermore, promoting healthy lifestyle habits and integrating stress-reducing methods such as yoga and meditation into the curriculum may contribute to the development of psychologically healthier dentists in the future.¹⁰

The first limitation of this study is that individual differences may have influenced participants' responses. Although the survey achieved a balanced distribution in grade levels, the inequality in participation rates between genders suggests that online surveys may not always be the most effective method for data collection. In addition, because the study relied entirely on self-reported data, the results may be affected by biases such as recall bias, meaning that the perceived stress levels may not fully reflect students' actual clinical

experiences. Furthermore, since stress levels were assessed solely based on the PPSS scale, the measurements reflect stress averages, and a process-oriented analysis could not be performed. The study was conducted at two universities in different geographical regions to represent the whole of Turkey. Although the specified sample size was achieved, comprehensive studies are needed to cover students from more dental schools nationally. Future research should be designed longitudinally rather than cross-sectionally. It should be conducted to include more institutions and students at both the national and international levels, increasing the accuracy and generalizability of the findings.

Conclusions

This study aimed to evaluate the stress levels of dental students participating in pediatric dentistry clinical training and to identify the factors influencing these stress levels. The study hypothesized that stress levels and stress sources would vary according to clinical experience; however, while no significant differences were found between academic years, several individual and motivation-related factors were shown to play a determining role. Therefore, the study hypothesis was partially supported.

The finding that female students exhibited higher total stress levels and higher scores across all PPSS subgroups highlights gender as an important determinant of stress. Additionally, the observation that students who did not choose dentistry as their first preference reported higher complication-related and total stress scores underscores the role of professional motivation in shaping stress responses.

These findings indicate the need for developing strategies aimed at reducing stress experienced during pediatric dentistry clinical training. Integrating topics such as behavior management, complication management, communication skills, and coping strategies into educational programs may help students adapt more effectively to the clinical environment and manage stress more efficiently. Such curricular enhancements are expected to reduce professional stress levels and support the delivery of safer, more effective, and sustainable pediatric dental care.

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It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited are stated in the bibliography.

Benzerlik Taraması / Similarity scan

Yapıldı - iThenticate

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Yazarlar çıkar çatışması bildirmemiştir. | The authors have no conflict of interest to declare.

Yazar Katkıları / Author Contributions

Çalışmanın Tasarlanması | Design of Study: EÖT (%100)

Veri Toplanması | Data Acquisition: EÖT (%50), MA (%50)

Veri Analizi | Data Analysis: EÖT (%75), MA (%25)

Makalenin Yazımı | Writing up: EÖT (%75), MA (%25)

Makale Gönderimi ve Revizyonu | Submission and Revision: EÖT (%50), MA (%50)

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