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Research / Araştırma Makalesi

Examination of the Empathy Scores of Students Enrolled in a Faculty of Dentistry

Diş Hekimliği Fakültesi Öğrencilerinin Empati Puanlarının İncelenmesi

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ABSTRACT

Background: To examine the empathy scores of undergraduate and postgraduate students studying at Atatürk University Faculty of Dentistry.

Methods: A total of 465 undergraduate and postgraduate students enrolled in Atatürk University's Faculty of Dentistry during the 2024-2025 academic year participated in the study. A questionnaire form was administered digitally to these students, including 11 questions addressing sociodemographic characteristics and the 20-question Jefferson Scale of Physician Empathy-Student Version (JSPE-S) to assess the students' empathy scores.

Results: The mean empathy score for all students was 83.90±13.67. Male students had significantly higher empathy scores than female students (p=0.001). In terms of maternal education, students with mothers with postgraduate education had significantly higher empathy scores than students with mothers with lower education levels (p=0.004).

Conclusion: This study revealed that dental students and young professionals generally had high levels of empathy, but these levels varied depending on certain personal factors. Empathy training could enable students to communicate more effectively with patients.

Keywords: Empathy; Questionnaire; Students

ÖZ

Arka Plan: Bu çalışmanın amacı, Atatürk Üniversitesi Diş Hekimliği Fakültesi'nde öğrenim gören lisans ve uzmanlık eğitimi gören diş hekimliği öğrencileri arasında planlandı.

Yöntemler: Çalışmaya, 2024-2025 akademik yılında Atatürk Üniversitesi Diş Hekimliği Fakültesi'nde öğrenim gören toplam 465 lisans ve uzmanlık öğrencisi katılmıştır. Öğrencilere, sosyodemografik özelliklere ilişkin 11 soru ve öğrencilerin empati puanlarını değerlendirmek için 20 soruluk Jefferson Hekim Empati Ölçeği-Öğrenci Versiyonu (JSPE-S) içeren bir anket formu dijital olarak uygulanmıştır.

Sonuçlar: Tüm öğrencilerin ortalama empati puanı 83,90±13,67 olarak bulunmuştur. Erkek öğrencilerin empati puanları kadın öğrencilere göre anlamlı derecede daha yüksek bulunmuştur (p=0,001). Anne eğitim düzeyi açısından, yüksek lisans eğitimi almış annelerin öğrencilerin empati puanları, daha düşük eğitim düzeyine sahip annelerin öğrencilerine göre anlamlı derecede daha yüksek bulunmuştur (p=0,004).

Sonuç: Bu çalışma, diş hekimliği öğrencilerinin ve genç profesyonellerin genel olarak yüksek düzeyde empatiye sahip olduklarını, ancak bu düzeylerin bazı kişisel faktörlere bağlı olarak değiştiğini ortaya koymuştur. Empati eğitimi, öğrencilerin hastalarla daha etkili iletişim kurmalarını sağlayabilir.

Anahtar Kelimeler: Empati; Anket; Öğrenciler

Introduction

Empathy is defined as putting oneself in another's shoes, feeling their feelings and thoughts, fully understanding them, and reflecting this understanding back to the other person.[1] Empathy is very important in the healthcare field.[2] In healthcare, where patient-centered approaches are increasingly important, establishing a strong patient-physician relationship is crucial for providing quality healthcare services, and empathy is a fundamental characteristic that a physician must possess to achieve such relationships.[3]

Dentistry is among the professions that involve close interactions with patients. Empathy for patients among both students and professionals is evident in the interactions between individuals during dental treatment.[4-7] These relationships should be present among the students and faculty at any university that trains future dental practitioners.[8,9] A report published by the American Dental Education Association underlined the crucial role of empathy for clinical competence.[10] Accordingly, many dental schools now incorporate training in empathy, information skills, communication, and active listening within their curricula.[11]

Many opportunities exist to improve communication in dentist-patient relationships, from the recognition of the need for dental students to be trained in motivational interviewing and active listening techniques, which few dentists have reported possessing to date,[12] to the ability of patients to access dental information both online and in person. Even though patients now have a better understanding of their oral health needs and dental treatment options, appointments may begin with unrealistic expectations if there are communication barriers between patients and their dentists. This can reinforce the anxiety and stress of patients and perpetuate negative views of dentistry.[13] Therefore, the concept of empathy is emphasized by dental associations,[14] which state that increasing empathy in students is an important goal of clinical education.[11,15] This goal can be extended to postgraduate dentists.

Numerous studies have assessed empathy levels between undergraduate and postgraduate students in different populations.[16-22] There are various instruments for measuring empathy. One of the most commonly used scales to assess empathy in health sciences students is the Jefferson Scale of Physician Empathy-Student Version (JSPE-S), which was validated in and is primarily used with medical students.[23] In a study conducted by Naguib et al.[16] using this scale, female students had significantly higher mean empathy scores than male students. Additionally, female students were found to exhibit more positive outlooks than male students. In a study comparing the empathy levels of dental students in preclinical and clinical stages, Javed et al.[22] found lower empathy levels among preclinical students. The concept of empathy is crucial in dental education because the patient-doctor relationship is of particular importance in the dental profession.

In this context, we planned the present study of undergraduate and postgraduate students currently pursuing dental education. The study's hypothesis was that postgraduate students, who had progressed further in their professional education, would have higher empathy levels than undergraduate students. This study accordingly aimed to examine the empathy scores of undergraduate and postgraduate students enrolled in a faculty of dentistry using the JSPE-S.

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Methods

A total of 465 undergraduate and postgraduate students enrolled in Atatürk University's Faculty of Dentistry in the 2024-2025 academic year, accepted participation in the study after being informed in detail about the study's aim and the protocol. The data were obtained from students using a digital questionnaire. The required ethical committee approval of the study was obtained from the Atatürk University Faculty of Dentistry's Ethics Committee (Decision No: 25; Date: April 2025). Informed consent was obtained from students for the study, which was prepared in conformity with the Helsinki Declaration. Based on the results of the G*Power analysis, the sample size for the study was determined as 128, with a minimum of 64 participants in each group, assuming a power of 0.80, an effect size of 0.5, and a type 1 error (α) of 0.05.[24] To increase the power of the study, 465 participants were included.

The first part of the questionnaire administered to the students consisted of 11 questions including socio-demographic characteristics such as age, sex, and education level, and the second part consisted of a 20-question scale using the JSPE-S to assess the students' empathy scores.[23] The form included items from the JSPE-S, which was adapted for periodontics from previous studies (**Table 1**).[23] The JSPE has two versions, including the JSPE-S for students and the JSPE-HP for physicians and other healthcare professionals[25,26] The JSPE-S is the most commonly used scale for the evaluation of dental professionals and students.[27] The validity and reliability assessment of the Turkish adaptation of this scale were conducted by Gönüllü and Öztuna[28] in 2012. The scale comprises the three subheadings of Compassionate Care (related to emotionality), Perspective Taking (associated with cognition), and Putting Oneself in the Patient's Shoes (related to cognition), and the items are scored using a seven-point Likert-type scale, the response options ranged from "strongly disagree" (1 point) to "strongly agree" (7 points). Based on the responses, total empathy scores varied between 20 and 140, with higher scores indicating higher levels of empathy. Empathy is the result of interactions of certain characteristics of the subheadings that constitute it and is therefore a unique and variable quality.[29]

Table 1. Items from the Jefferson Scale of Physician Empathy-Student Version (JSPE-S)[23]

Subheading	Items
Perspective Taking	(1) When I understand my patients' emotional states, they feel better.
	(2) I find understanding my patients' body language as crucial as oral communication in doctor-patient relationships.
	(3) I have a fine sense of humor, and I believe it helps me achieve better clinical results.
	(4) When treating my patients, I try to put myself in their shoes.
	(5) My patients value understanding their doctors' emotions, which in itself has a therapeutic effect.
	(6) I pay attention to my patients' nonverbal cues and body language, trying to understand what is going on in their minds.
	(7) Empathy is a therapeutic capability that limits my success in the treatment process.
	(8) Understanding the emotional state of my patients and their families is an important component of my relationship with them.
	(9) I try to give my patients better healthcare by thinking like them.
	(10) I think empathy is a crucial therapeutic factor in medical or surgical treatment.
Compassionate Care	(11) My medical or surgical treatment does not affect how my patients and their families feel.
	(12) It is not crucial to pay attention to the patients' emotions when taking the anamnesis.
	(13) Attention to my patients' personal experiences does not affect cure outcomes.
	(14) Patients' illnesses can only be treated with medical or surgical treatment; therefore, emotional connections I establish with my patients have no important impact on the outcome of the treatment.
	(15) Asking patients questions about their personal stories does not help to understand their grievances.
	(16) I do not think emotions have a place in the treatment of medical illnesses.
	(17) I do not enjoy reading non-medical literary or artistic works.
Putting Oneself in the Patient's Shoes	(18) It's hard for me to look at things from my patients' perspective.
	(19) As people are so different, it is hard for me to see things from my patients' perspective.
	(20) Doctors should not be affected by the strong personal bonds between patients and their families.

Statistical Analysis

The Kolmogorov-Smirnov test and skewness and kurtosis analysis were used to identify whether the continuous variables of the study were normally distributed. Since the variables were normally distributed, parametric tests were applied. Descriptive values are presented as mean and standard deviation (mean, SD), percentage (%), and number (n). Cronbach alpha values were calculated as part of the reliability analysis of the scale items. To compare the continuous data between groups, one-way analysis of variance (ANOVA) and independent t-tests were performed. Following the variance analysis, the Duncan test was used to identify the groups from which differences arose. Statistical significance was accepted at $p<0.05$ and IBM SPSS Statistics 26 for Windows was analyzed.

Results

A total of 465 individuals, including 291 women and 174 men, participated in this study. Three-quarters (76.1%) of the participants were undergraduate students, and 23.9% were pursuing a postgraduate degree. Demographic data are shown in **Table 2**.

Table 2. Descriptive statistics of the students

Variable		n	%
Sex	Male	174	37.4%
	Female	291	62.6%
Age	<23 years	231	49.7%
	23-30 years	207	44.5%
	>30 years	27	5.8%
Marital status	Single	425	91.4%
	Married	40	8.6%
Children	Yes	17	3.7%
	No	448	96.3%
Education level	Undergraduate	354	76.1%
	Postgraduate	111	23.9%
Mother's education level	Primary education	205	44.1%
	High school	98	21.1%
	Undergraduate	140	30.1%
	Postgraduate	22	4.7%
Father's education level	Primary education	119	25.6%
	High school	119	25.6%
	Undergraduate	176	37.8%
	Postgraduate	51	11.0%
Branch of dentistry	Oral and maxillofacial surgery	14	3.0%
	Endodontics	15	3.2%
	Oral diagnosis and radiology	11	2.4%
	Orthodontics	19	4.1%
	Pediatric dentistry	15	3.2%
	Periodontology	25	5.4%
	Prosthetic dentistry	48	10.3%
	Restorative dentistry	10	2.2%
	Undergraduate student	308	66.2%
Years working in the profession	<5 years	66	14.2%
	5-15 years	44	9.5%
	>15 years	4	0.9%
	Full-time student/not practicing	351	75.5%
Income level	Low	139	29.9%
	Medium	289	62.2%
	High	37	8.0%
Chose dentistry willingly	Yes	334	71.8%
	No	131	28.2%

Table 3 presents the results of the reliability analysis of the scale items. Cronbach alpha values of >75% for all subheadings showed that the scale was highly reliable. When students' empathy levels were examined by sex, men demonstrated statistically significantly higher empathy scores than women ($p=0.001$). The participants' total empathy scores differed significantly according to their mothers' levels of education, but no difference was found according to paternal education. The mean empathy score of participants whose mothers had received postgraduate education (93.09±18.66) was statistically significantly higher than those of participants whose mothers had completed only primary (82.24±11.47), high school (84.37±13.92), or undergraduate (84.56±15.01) education ($p=0.004$). No statistically significant changes were observed in the students' empathy levels for other demographic variables (**Table 4**).

Table 3. Reliability analysis results of the scale items

	Cronbach alpha	n
Perspective Taking	0.920	10
Compassionate Care	0.896	7
Putting Oneself in the Patient's Shoes	0.752	3
Overall Score	0.771	20

Table 4. Comparison of JSPE-S scores according to demographic data

		Mean±SD	p
Sex	Male	86.79±15.79	0.001*
	Female	82.18±11.93	
Age	<23 years	84,33±13.28	0.655
	23-30 years	83.28±13.88	
	>30 years	85.04±15.64	
Marital status	Single	83.80±13.35	0.605
	Married	84.97±16.87	
Presence of children	Yes	79.18±11.56	0.147
	No	84.08±13.73	
Education	Undergraduate	84.21±13.17	0.394
	Postgraduate	82.94±15.21	
Mother's education level	Primary education	82.24±11.47b	0.004*
	High school	84.37±13.92b	
	Undergraduate	84.56±15.01b	
	Postgraduate	93.09±18.66a	
Father's education level	Primary education	82.76±13.44	0.742
	High school	84.08±13.51	
	Undergraduate	84.25±12.85	
	Postgraduate	84.94±17.20	
Branch of dentistry	Oral and maxillofacial surgery	82.00±10.78	0.934
	Endodontics	83.40±12.07	
	Oral diagnosis and radiology	82.36±13.94	
	Orthodontics	79.68±16.09	
	Pediatric dentistry	82.53±9.20	
	Periodontology	83.16±12.89	
	Prosthetic dentistry	84.02±18.24	
	Restorative dentistry	83.00±13.25	
	Undergraduate student	84.47±13.22	
Years working in the profession	<5 years	84.26±18.29	0.589
	5-15 years	82.07±12.30	
	>15 years	91.00±18.65	
	Full-time student/not practicing	83.99±12.77	
Income level	Low	83.24±12.60	0.790
	Medium	84.17±13.99	
	High	84.30±15.26	
Chose dentistry willingly	Yes	83.84±13.58	0.870
	No	84.07±13.95	

The scores of the JSPE-S dimensions and the total empathy score are presented in **Table 5**, and the relationships between the scores of the three empathy dimensions and the sociodemographic characteristics of the participants are presented in **Table 6**. Statistically significant differences were observed in the scores for the subheadings of Compassionate Care and Putting Oneself in the Patient's Shoes according to sex ($p<0.05$). These subscales were significantly higher in men than in women. Furthermore, statistically significant differences were observed in the scores for the same subscales based on the presence of children ($p<0.05$). Furthermore, a statistically important difference was observed in the scores for Putting Oneself in the Patient's Shoes according to the father's education level ($p=0.037$). In contrast, no differences were observed in the scores for Perspective Taking for any of the studied sociodemographic variables ($p>0.05$).

Table 5. Scores for the subheadings of the JSPE-S

	Mean±SD
Perspective Taking	52.24±10.96
Compassionate Care	22.17±8.67
Putting Oneself in the Patient's Shoes	10.78±3.96
Overall Empathy Score	83.90±13.67

Table 6. Comparison of scores for the subheadings of the JSPE-S according to demographic data

	Perspective Taking	Compassionate Care	Putting Oneself in the Patient's Shoes
Sex	0.314	0.001*	0.012*
Age	0.773	0.634	0.422
Marital status	0.202	0.578	0.833
Presence of children	0.621	0.041*	0.012*
Education	0.903	0.405	0.508
Mother's education level	0.249	0.056	0.535
Father's education level	0.064	0.155	0.037*
Branch of dentistry	0.473	0.783	0.944
Years working in the profession	0.835	0.448	0.252
Income level	0.333	0.824	0.816
Chose dentistry willingly	0.114	0.114	0.099

*Significance levels according to independent t-test or one-way ANOVA; *: p<0.05*

Discussion

Empathy is of critical importance in dentistry, as it is for all healthcare professionals. The profession's human-centered nature necessitates that dentists possess a human-centered perspective.[30,31] To provide effective service, dentistry students and professionals must possess high-quality communication and empathy skills, in addition to technical knowledge and skills.[32] Therefore, improving individuals' education and skills in these areas throughout both their education and their professional lives is of extreme importance. This study was designed to examine differences in empathy scores among undergraduate and postgraduate dental students.

The most fundamental finding of the present study is that the participating undergraduate and postgraduate students generally had high levels of empathy, with a mean score of 83.90. This suggests that aspiring healthcare professionals have a positive view of the empathic approach required by the profession. Many studies in the literature have been conducted at different centers to assess empathy levels.[30,31,33] The empathy score values found in this study are supported by those of some previous studies in the literature.[30,31]

In a study assessing students' empathy levels, Brekalo Prso et al.[17] reported no significant change in empathy scores based on sex; there are a few studies in the literature that support this conclusion.[30,31] However, other studies indicated that women had higher empathy scores.[21,34-37] Researchers have attributed the latter findings to women's more sensitive and social nature and their greater emphasis on interpersonal communication.[31,33] However, in the present study, men had higher total empathy scores than women, as well as empathy scores for the subheadings 'Compassionate Care' and 'Putting Oneself in the Patient's Shoes'. Although some previous studies support our finding, they are few in number.[38-43] This may be due to empathy being a human emotion, genetic differences, socialization differences, and empathy being based on motivation rather than ability.[43] It may also be due to differences in the sample to which the survey was applied and the experience levels of the individuals.

In a cross-sectional study, Aggarwal et al.[21] found that when students' empathy levels were compared according to age, the highest empathy scores were obtained in the 20-24 years group, and the lowest scores were obtained from individuals aged over 25 years. In contrast, Şahin et al.,[33] Hepdeniz et al.,[31] and Brekalo Prso et al.[17] found no significant difference between empathy scores according to age, similar to the results of the present study.

Şahin et al.[33] found that the mean empathy score decreased statistically significantly as the participants' years of enrollment increased. Kaya et al.[35] compared the empathy scores of undergraduate students and observed that empathy scores decreased, albeit not with statistical significance, from the third year of enrollment to the fifth. Aggarwal et al.[21] similarly compared empathy levels across years of enrollment and found the highest empathy scores in third-year students and the lowest in fifth-year students. This was thought to be due to the third-year students' excitement and enthusiasm for entering the clinic, while the workloads of the fifth-year students meant that they were more realistic. The results of the

present study are consistent with that reported in the existing literature. However, Hepdeniz et al.[31] found no statistical significance in the increase of students' empathy scores as their years of enrollment increased.

Hepdeniz et al.[31] detected no significant difference in students' empathy scores according to parental levels of education. In contrast, this study showed that there was a considerable difference in empathy levels according to the education levels of the participants' mothers, but no significant difference was observed for the fathers' education levels. As the mother's education level increased, the participant's empathy level was likely to increase, and this difference was particularly pronounced among participants' whose mothers had postgraduate degrees.

When Güneşer et al.[30] compared students' empathy levels according to income levels, they found that the participants with middle-level incomes had the highest empathy scores, although this finding did not reach statistical significance. Hepdeniz et al.[31] similarly found no significant relationship between students' income levels and empathy scores. In the present study, no important difference was observed between undergraduate and postgraduate students' empathy levels according to income.

Güneşer et al.[30] reported that students who willingly chose dentistry as their profession had significantly higher empathy scores than those who did not. However, supporting the results of this study, Şahin et al.[33] reported no statistically significant relationship between having voluntarily or involuntarily entered the field of dentistry and empathy scores.

Perspective Taking scores were not statistically significantly impacted by any of the studied demographic variables. This result suggests that students' skills in the realm of perspective taking are largely independent of basic demographic and educational characteristics. Furthermore, these skills could be related to other factors not addressed in the present study, such as an individual's personality traits, life experiences, or specific communication training. In contrast, there are a few studies in the literature that find the subheadings of Perspective Taking statistically meaningful and consider it a fundamental element of empathy.[11,35,44,45]

However, considering the other subheadings of empathy, women scored substantially higher than men within the subheadings of Compassionate Care and Putting Oneself in the Patient's Shoes. This suggests that while men may have higher overall levels of empathy, women may be stronger in the context of the emotional and compasssionate subheadings of empathic behavior. Tuncer et al.[34] and Aggarwal et al.[21] reported similar results, but Gönüllü and Öztuna[28] found that, in contrast, men had higher scores for Compassionate Care than women. Brekalo Prso et al.[17] reported that the values of the empathy subheadings scores did not differ considerably by sex. Unlike the present study, Hepdeniz et al.[31] determined that the values of the Perspective Taking and Putting Oneself in the Patient's Shoes subheadings varied according to the students' years of academic enrollment.

Other significant factors found to be related to empathy in our study were whether the participant had children and the education levels of the participants' mothers. Participants with children had significantly higher scores for the subheadings of Compassionate Care and Putting Oneself in the Patient's Shoes compared with those without children. Furthermore, participants whose mothers had completed postgraduate education had significantly higher overall empathy scores compared with all other subgroups of maternal education. These findings may indicate that parenting experiences and maternal education are important factors that can positively shape an individual's capacity for empathy.

The present study has some limitations. First, it was planned in a single faculty. Another is that students from a single academic year were included in the study. Conducting additional research with more participants across a greater number of dental schools could yield results that are more widely applicable.

Conclusion

This study revealed that undergraduate and postgraduate dental students generally had high levels of empathy, but these levels varied depending on a variety of personal factors. In this study, sex, having children, and maternal education significantly affected empathy scores, whereas factors such as age, education, professional experience, income, and voluntarily choosing dentistry did not. The higher overall empathy scores observed among men in this study may constitute a finding specific to this population, warranting further investigation.

Değerlendirme / Peer-Review

İki Dış Hakem / Çift Taraflı Körleme

Etik Beyan / Ethical statement

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.

Bu çalışmanın hazırlık sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan edilir.

Benzerlik Taraması / Similarity scan

Yapıldı – ithenticate

Etik Bildirim / Ethical statement

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Çıkar Çatışması / Conflict of interest

Çıkar çatışması beyan edilmemiştir.

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Veri Toplanması | Data Acquisition: GAOS (%80), MB (%10), HY (%10)
Veri Analizi | Data Analysis: MB (%45), HY (%45), GAOS (%10)
Makalenin Yazımı | Writing up: MB (%60), HY (%40)
Makale Gönderimi ve Revizyonu | Submission and Revision: MB (%40), HY (%40) , GAOS (%20)

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