Acta Bioethica 2023; 29(2): 237-244

DENTAL STUDENTS' EMPATHY LEVELS AND OPINIONS ABOUT ATTRIBUTES FOR "GOOD DENTIST": A COHORT STUDY

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Abstract: Empathy is fundamental to the physician-patient relationship and influences the clinical outcomes. The aim of this study was to determine the dental students' empathy levels and to compare their opinions on attributes of a "good dentist". This cohort research was included 79 dental students volunteering to participate in the study at a public university. The data were collected by the Dökmen's Empathic Tendency Scale (ETS) and Empathic Skill Scale (ESS). In this study, from the orientation day to the end of the third-year, the dental students' ETS mean scores (respectively 69.59 and 68.34) and ESS mean scores (respectively 142.53 and 140.00) showed a decline. At the end of the third-year, starting clinical rotations and taking patient responsibility may lead to decrease the empathy levels of students. The findings of our study show that female students have higher empathy tendency and skill scores compared to male students ($p<0.001$). In the ranking of the attributes required to be a good dentist, empathy was ranked 4th by the first-year students, while final-years students placed empathy in second rank ($p<0.05$). According to these results, it is possible to claim that the dentist candidates realized that being empathetic is necessary to be a good dentist.

Key words: dental ethics, dental students, empathy, good dentist, physician-patient relations

Niveles de empatía de los estudiantes de odontología y opiniones sobre los atributos del "buen dentista": un estudio de cohorte

Resumen: La empatía es fundamental para la relación médico-paciente e influye en los resultados clínicos. El objetivo de este estudio de cohorte —que incluyó a 79 estudiantes de odontología de una universidad pública que se ofrecieron como voluntarios— fue determinar los niveles de empatía de los estudiantes de odontología y comparar sus opiniones sobre los atributos de un "buen dentista". Los datos se recogieron mediante las Escalas de Tendencia Empática (ETE) y Habilidad Empática (EHE) de Dökmen. Desde el día de orientación hasta el final del tercer año, los puntajes medios ETE de los estudiantes de odontología (69.59 y 68.34, respectivamente) y los puntajes medios de EHE (142.53 y 140.00, respectivamente) mostraron una disminución. Según la literatura, al final del tercer grado, iniciar rotaciones clínicas y asumir la responsabilidad del paciente puede llevar a disminuir los niveles de empatía de los estudiantes. Los hallazgos de nuestro estudio muestran que las estudiantes tienen una mayor tendencia a la empatía y puntajes de habilidad en comparación con los estudiantes ($p<0.001$). En el ranking de los atributos requeridos para ser un buen dentista, la empatía ocupó el cuarto puesto en estudiantes de primer año, mientras que los de último año colocaron la empatía en segundo lugar ($p<0.05$). De acuerdo con estos resultados, es posible afirmar que los candidatos a dentistas se dieron cuenta de que ser empáticos es necesario para ser un buen dentista.

Palabras clave: ética dental, estudiantes de odontología, empatía, buen dentista, relaciones médico-paciente

Nível de empatia de estudantes de odontologia e opiniões sobre os atributos de "bom dentista": um estudo de coorte

Resumo: A empatia é fundamental na relação médico-paciente e influencia os resultados clínicos. O objetivo deste estudo foi determinar os níveis de empatia de estudantes de odontologia e comparar suas opiniões sobre os atributos de um "bom dentista". Esta pesquisa de coorte contou com 79 estudantes de odontologia voluntários para participar do estudo em uma universidade pública. Os dados foram coletados pela Escala de Tendência Empática (ETE) de Dökmen e Escala de Habilidades Empáticas (EHE). Neste estudo, desde o dia da orientação até o final do terceiro ano, os escores médios do ETE dos alunos de odontologia (respectivamente 69,59 e 68,34) e os escores médios do EHE (respectivamente 142,53 e 140,00) apresentaram declínio. No final da terceira série, iniciar os rodízios clínicos e assumir a responsabilidade do paciente pode levar à diminuição dos níveis de empatia dos alunos. Os achados do nosso estudo mostram que os alunos do sexo feminino apresentam maior tendência à empatia e pontuações de habilidades em comparação aos alunos do sexo masculino ($p<0,001$). No ranking dos atributos necessários para ser um bom dentista, a empatia foi classificada em 4º lugar pelos alunos do primeiro ano, enquanto os alunos do último ano colocaram a empatia em segundo lugar ($p<0,05$). De acordo com esses resultados, é possível afirmar que os candidatos a dentista perceberam que ser empático é necessário para ser um bom dentista.

Palavras-chave: ética odontológica, estudantes odontológicos, empatia, bom dentista, relações médico-paciente

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Introduction

As described in literature, the empathy refers to "the action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another of either the past or present without having the feelings, thoughts, and experience fully communicated in an objectively explicit manner"*(1).* Most clinical and counseling psychologists, however, agree that true empathy requires three distinct skills: the ability to share the other person's feelings, the cognitive ability to intuit what another person is feeling, and a "socially beneficial" intention to respond compassionately to that person's distress*(1,2).* In the context of healthcare, empathy can be defined as cognitive and behavioral features that involves the ability to understand how a patient's experiences, concerns, perspective, and feelings are influenced by their symptoms and illness, and the capability to communicate this understanding to the patient. This definition emphasizes the establishment of empathetic communication with the patient for better clinical outcomes*(3-5).*

In medical and dental education, various skills that contribute to the quality of health care could be strengthened by empathy, and medical and dental schools are increasingly aware of their role of in the development empathy of their students. However, there are concerns that the student's empathic disposition may deteriorate during undergraduate medical and dental education, and this will adversely affect the patient-physician relationship*(4,6).* Medical and dental students are anticipated to be empathetic towards their patients as they become clinicians*(7).* However, considering the evidence relating empathy to desired therapeutic and patient outcomes, it is a potential concern that empathy may be declining in medical and dental students. Empirical studies*(8-13)* that directly address the question of changing physician empathy suggest that empathy declines among medical students during training. These studies also found a decrease in medical students' empathetic tendency over the years. Chen and colleagues reported in their cross-sectional study, a noticeable decline in empathy scores in third-year medical students as compared with their second-year counterparts*(10).* Similarly, in a cohort study which was published by Hojat and his colleagues*(6)* significant changes in medical students' empathy during medical school was determined. The decline in empathy scores was observed at the end of the third year which persisted until graduation. In another cross-sectional study with dental school students, Sherman and Cramer*(4)* noticed a significant decline in empathy in second-year students. Unlike medical and dental students, it has been determined that empathic skill level has increased in nursing students over the years*(14,15).*

Since the profession of dentistry has a special trust position in the society, some privileges are given to the profession. In return, the profession makes a commitment to society that its members will adhere to high standards of ethical behavior. Trying to be a good dentist is part of these ethical standards. The characteristics of a good dentist involve certain attributes such as "skillful management of time", "ability to handle people", "recognition of one's own limitations", "having good technical ability", "respect for others' values and feelings", "able to communicate well" "trustworthiness" and "empathy"*(16-18).* As empathy is an important quality for dentists to possess if they are to be moral (i.e., "good") practitioners, then it follows that measuring a candidate's ability to empathize with others could be an important admission criterion to be a good dentist*(5).*

Objective

Although empathy is an integral component to the patient-physician relationship, there has been relatively little research on this important subject topic. Furthermore, the literature contains limited information about the dental students' empathic abilities or attitudes toward empathetic relationships in Türkiye. The previous cohort studies on empathy conducted in our country mostly included medical and nursing students. However, there is also a need to evaluate the changing emphatic levels of dental students using a cohort design. Considering that there is not enough research on this subject yet, we aimed to gather the data from dental students and planned a cohort research study to measure the changes in empathic tendency and skill levels during the undergraduate years of dental education. This study

also investigated the attributes of "good dentist" with respect to the opinions of dental students.

The objectives of the present study were:

1.to examine the changes empathy levels of dental students from the orientation day to the end of the fifth year.

2.to compare the first and the fifth years dental students' opinions regarding the main factors contributing to be a "good dentist".

Methods

This study approved by the Çukurova University Research Ethics Committee was planned as cohort longitudinal design. The participants consisted of 79 dental students (35 males and 44 females) who were followed up throughout their five-year training at Cukurova University School of Dentistry[2] between the years 2016-2021. In September 2016, 102 students were registered in the Cukurova University School of Dentistry. During the orientation program at the beginning of their first year, all students were invited to participate this cohort longitudinal research. Participation was voluntary and only 79 students agreed to participate in the study. These students were informed about the research goals, steps, and the length of the study.

Assessment Tools

For measuring the empathy, the data were collected by the Dökmen's Empathic Tendency and Empathic Skill Scales. Of the many tools for measuring empathic skills, in our study, we preferred to use the Turkish Empathic Tendency Scale (ETS) and Empathic Skill Scale (ESS) developed by Dökmen*(19),* since these scales are the instruments proven validity and reliability for Turkish society. The empathy scales were completed by the participants during the orientation period. Subsequently, the ETS and ESS were readministered to this cohort study five more times in dental school near the end of their first, second, third, fourth, and fifth years in 2016 through 2021.

[2] The dental curriculum in Turkey is five years. Cukurova University School of Dentistry's curriculum runs a 5-year program, comprised of 3 years of preclinical work followed by 2 years of clinical work (clerkships).

Empathic Tendency Scale (ETS): ETS was developed by Dökmen in 1988*(19)* with the aim of measuring the potential of an individual to establish empathic relationships in daily life. ETS is a 20-item, 5-point Likert scale. The lowest points obtained from the scale are 20 with highest points of 100. Total points represent the empathic tendency of participants. High points show high empathic tendency, while low points show low empathic tendency.

Empathetic Skill Scale (ESS): ESS was developed to evaluate the empathetic skill of an individual by Dökmen*(19)*, consists of two forms as scale "A" and "B". There are 6 different problems about daily life and 12 one-sentence empathetic reactions below each problem that can be said to the person with the problem. People are asked to choose 4 of the empathetic reactions below the problems. The point corresponding to each chosen reaction is given based on ESS-A form to the individuals who choose 24 reactions in total, four reactions for each 6 problems. The minimum point is 62 and the maximum point is 219 to be taken from ESS and when the point is high it means the empathy level is high and when the point is low it means the empathy level is low. ESS is grouped as very low (62-92), low (93-124), medium (125-156), high (157-188) and very high (189-219)(19).

In this study, the reliability of the scales was examined by the test-retest method. ETS and ESS reliabilities were respectively found to be as r=0.881 (p<0.001) and r=0.984 (p<0,001). Both scales can be described as highly reliable.

For collecting the data relating to the attributions of "good dentist", a questionnaire was developed by reviewing the literature *(20-23)* and participants were asked to rate the attributions on a 10-point scale (from "0 = no importance" to "10 = very important").

Statistical Analyses

Statistical analyses were performed with SPSS v22 package program. The normal distribution of data was tested by the Shapiro Wilks test and the comparison was made by t-test in independent groups and paired t test in dependent groups,

and descriptive statistics were given as mean± standard deviation. The comparison of the data that did not show normal distribution was made by Mann Whitney U test in independent groups and Wilcoxon test in dependent groups and descriptive values were given as median (min-max) values. According to whether the relationships between the variables show normal or not, the relationships with the Pearson correlation coefficient or the Spearman sequence correlation coefficient were examined. The before and after variation of categorical variables was done with the McNemar Bowker test. Categorical data are given in frequency and percentage. The reliability analysis of the scales was analyzed by test-retest method. The significance level was accepted as $p < 0.05$ in all tests.

Results

This longitudinal research was conducted on 79 dental students (35 male, 44 female) out of 102 first-year students who agreed to participate in the study. The median age of the students at the orientation day was 19 (min-max: 18-23).

The first table shows the comparison of Empathy Tendency Scale and Empathy Skill Scale mean scores of the same students from their beginning semester in 2016 to the end of last semester just before their graduation in 2021 (Table 1). Analysis of differences in ETS and ESS scores from the orientation day of dental school to the end of the third year showed a decline in empathy, which is consistent with previous reports. The second and the third tables show the compared mean scores (Table 2 and 3).

As shown in the tables 4 and 5, the female students consistently have high scores than male students in every year of dental school. Gender differences in all the test administrations were statistically significant ($p<0.001$ and $p<0.05$) (Table 4 and 5).

This study also investigated the opinions of dental students concerning the attributes of a good dentist, and whether their views changed according to the year. The five main factors contributing to be a good dentist were chosen by dental students. The attributes are listed in order of descending importance according to the respondents (Table 6).

Discussion

While the medical students' empathy level has been extensively studied in the literature, the cohort studies investigating empathy of dental students are limited. Considering the lack of empirical research, the present study was planned to evaluate the empathic tendency and skill levels of the dental students and their empathy scores were followed over years. In our cohort study, empathy tendency and skill scores appear to increase during the first-year of dental school but falls after the third-year (before first clinical year) ($p<0.001$), and the scores gradually rise through the final year of dental school ($p<0.05$). There are statistically significant differences between the scores.

On the orientation day, the students' empathy tendency mean score was 69.59, while empathy skill mean score was 142.53. At the end of the final-year, the students' empathy tendency mean score was 70.15, while empathy skill mean score was 144.49. Although the empathy scores of students increase from year to year, both empathy tendency and skill average scores remain in medium level.

According to the medical literature, the levels of empathy begin to decrease in the third year, when most medical students begin clinical rotations and thus interact directly with patients*(6,8,10,24,25)*. Studies have similarly found that first-year dental students have significantly higher empathy scores than students in any of the subsequent three years of dental school and the empathy scores also decreased after patient care responsibilities began*(4,7).* Our results are consistent with previous studies*(3,4,6,8-13)*, suggesting that empathy decreases during clinical training in medical and dental school. In this study, from the orientation day of dental school to the end of the third year the ETS mean scores (respectively 69.59 and 68.34) and ESS mean scores (respectively 142.53 and 140.00) showed a decline in empathy.

For empathy, females are generally found to have higher scores than males. Previous studies have

Table 1: The Year Differences for the Empathy Tendency and Empathy Skill Scores

	ETS		ESS	
	Students number=79		Students number=79	
Year	Mean	SD	Mean	SD
Orientation day-(2016)	69.59	6.98	142.53	14.61
End of year 1	70.11	6.87	142.87	13.15
End of year 2	69.65	6.90	142.76	15.01
End of year 3	68.34	6.70	140.00	12.58
End of year 4	69.08	6.84	142.67	11.27
End of year 5-(2021)	70.15	6.65	144.49	10.09

Table 2: Empathy Tendency Score comparisons with orientation day

Years	ETS (n=79)	Comparisons with orientation day	P
0	69.59±6.98	-	-
1	70.11±6.87	0-1	<0.05
2	69.65±6.90	0-2	0.409
3	68.34±6.70	0-3	<0.001
4	69.08±6.84	0-4	<0.05
5	70.15±6.65	0-5	<0.05

Table 3: Empathy Skill Score comparisons with orientation day

Years	ESS (n=79)	Comparisons with orientation day	p
0	142.53±14.61	-	-
1	142.87±13.15	0-1	0.561
2	142.76±15.01	0-2	0.680
3	140.00±12.58	0-3	<0.001
4	142.67±11.27	0-4	0.782
5	144.49±10.09	0-5	<0.001

Table 4: Empathy Tendency mean scores for males and females

	Male (n=35)	Female (n=44)	P
ETS 0	66.86±6.19	72.14±6.74	0.001
ETS 1	68.34±6.49	71.52±6.92	0.040
ETS 2	66.74±6.11	71.98±6.68	0.001
ETS 3	66.23±5.87	70.93±6.65	0.002
ETS 4	69.69±6.76	73.43±6.50	0.015
ETS 5	69.83±6.65	73.95±5.98	0.005

Table 5: Empathy Skill mean scores for males and females

	Male (n=35)	Female (n=44)	p
ESS 0	136.0(95.0-169.0)	153.0(112.0-175.0)	0.011
ESS 1	136.0(95.0-170.0)	153.5(109.0-177.0)	0.014
ESS 2	136.0(94.0-170.0)	153.5(109.0-177.0)	0.008
ESS 3	132.0(95.0-170.0)	153.5(109.0-177.0)	0.004
ESS 4	137.0(95.0-170.0)	153.5(125.0-177.0)	0.009
ESS 5	137.0(95.0-170.0)	154.5(126.0-177.0)	0.005

Table 6. The attributes mostly stated by the first-year and the final-year dental students

	Importance rating (mean scores)	
	Initial measurement (Orientation day)	Final measurement (End of year 5)
Professional competence	8.89	7.03
	P=0.049	
Being trustworthy	7.63	7.30
	P=0.613	
Communicating effectively with patients	7.16	8.69
	P=0.035	
Empathy	6.87	8.05
	P=0.030	
Respecting patients' dignity and choices	6.57	7.23
	P=0.912	

reported similar relationships between gender and empathy scores*(10,12,26,27).* Our study also showed that the empathic tendency and empathy skill scores of female students were significantly higher than those of male students ($p<0.05$). On the orientation day, the female students' empathy tendency and skill mean scores were respectively 72.14 and 153.0, while male students' empathy tendency and skill mean scores were respectively 66.86 and 136.0. At the end of the final-year, the female students' empathy tendency and skill mean scores were respectively 73.95 and 154.5, while male students' empathy tendency and skill mean scores were respectively 69.83 and 137.0.

The empirical studies*(4,6,8-13)* that directly address the question of empathy suggest that empathy declines among students during training. Health-care students' empathy levels can be affected by different causes such individual socio-cultural factors, socio-cultural environment of the school and education curricula. Distress and elitist thinking (being a doctor is a member of a privileged group) may be other factors could explain the decrease in empathy amongst medical students*(28).* Several stressful aspects of dental education and training, such as long workhours as well as dependence on technology for dental practice and limited chairside interactions, time pressure may contribute to decreases in empathy*(29).*

One of the aims of this study was to investigate the characteristics of a "good dentist" according to the opinions of dental students. While the first-year students stated the "professional com-

petence" as the most important feature to be a good dentist, at their fifth-year the same students stated that the most important feature to be a good dentist was the "communicating effectively with patients". There are statistically significant differences between the students (P=0.049 and P=0.035). Additionally, the attribute of empathy was in the fourth rank for the first-year students while this attribute was in the second rank for the final-year students (P=0.030). There are statistically significant differences between the students. According to these results, it is possible to claim that the dentist candidates realized that being empathetic is necessary to be a good dentist.

The "good dentist" is the one who diagnoses properly, plans treatment within the professional care, implements a therapy that ensures clinical quality and makes an effective communication. However, the commitment to always act in the patient's best interest lies at the basis of being a "good dentist", even when it is against the dentist's own best interest*(5,17).*

According to the Nash*(5),* some may not be good dentists because of their deficits in knowledge, problem solving or skill. It is also possible that their failure in professional goodness could be related to a deficiency of empathy. Because of this deficiency, these dentists can't take on their patients' perspective, they can't really respond to their patients' need in a truly caring manner.

Limitations

The present study was limited by being restricted to dental students at a single Türkiye university. Our research results cannot be applied to all the dental school students in the country. More wide-ranging research would be necessary before generalizations are made.

Conclusion

The most important factor in ensuring patient satisfaction is the empathetic communication between the health personnel and the patient. Based on existing literature demonstrating that empathy declines in medical and dental students throughout the training experience, the expectation of this study was that some decline in empathy would be observed. The findings of this study may present a new perspective for curriculum designers, educators, and researchers. The implementation of a curriculum that includes empathy courses into the undergraduate dentistry education will contribute to the development of an effective physician-patient communication during clinical internships. Considering the evidence relating empathy to desired patient outcomes, it is a potential concern that empathy may be declining in medical and dental students. Professional ethics requires that dentists "treat their patients as they would want to be treated" and thus understanding empathy's role in human behavior is important to all health professionals.

Financial support and sponsorship: None

Conflicts of interest: None

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Received: October 31, 2022
Accepted: January 16, 2023