






Original research article

The influence of clinical training level on the empathy levels of undergraduate and postgraduate dental students

Burcu Baloş Tuncer ¹, Nehir Canıgür Bavbek ^{1,*},
Başak Arslan Avan ¹, Bülent Çelik ²,
Cumhur Tuncer ¹

¹Department of Orthodontics, Faculty of Dentistry,

²Department of Statistics, Faculty of Sciences, Gazi University, Ankara, Turkey

ABSTRACT

OBJECTIVE: To evaluate the effect of clinical training on the empathy levels of undergraduate and postgraduate dental students.

MATERIALS AND METHOD: Two hundred and seventy-six students (undergraduates from third, fourth and fifth-grade, and postgraduates from different departments) completed the student version of the Jefferson Scale of Physician Empathy questionnaire. Total and three subscale (perspective taking, compassionate care, ability to stand in patients' shoes) scores were evaluated. The reliability of the scale was assessed by Cronbach's alpha coefficient (0.77). Independent samples t-test and one-way ANOVA were used for statistical analysis ($p < 0.05$)

RESULTS: The fourth-grade students had the highest mean total empathy score (106.0 ± 13.1) and a statistically significant difference was observed between this group and postgraduate students (98.6 ± 14.2). The mean "compassionate care" subscale score revealed a significant decline for postgraduate students (36.2 ± 7.6) when compared to fourth-grade students (39.9 ± 6.6). The total empathy mean score and "compassionate care" subscale mean score were higher for females (104.2 ± 13.6 , 39.6 ± 7.1 , respectively) than males (99.7 ± 1 , 37.1 ± 7.8 , respectively). Regardless of degree of dental education, participants with a sibling had higher mean scores for "standing in patient's shoes" subscale ($p < 0.05$).

CONCLUSION: The empathy levels of postgraduate students declined with continuing education and this may be due to increased clinical responsibilities and professional attitudes.

KEYWORDS: Continuing education; dental education;

empathy; graduate dental education

CITATION: Baloş Tuncer B, Canıgür Bavbek N, Arslan Avan B, Çelik B, Tuncer C. The influence of clinical training level on the empathy levels of undergraduate and postgraduate dental students. *Acta Odontol Turc* 2021;38(1):1-7

EDITOR: Zühre Akarslan, Gazi University, Ankara, Turkey

COPYRIGHT: © 2021 Baloş Tuncer *et al.* This work is licensed under a [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/). Unrestricted use, distribution and reproduction in any medium is permitted provided the original author and source are credited.

FUNDING: None declared.

CONFLICT OF INTEREST: The authors declare no conflict of interest related to this study.

INTRODUCTION

Patient-centred approaches are becoming more important in healthcare services and high levels of empathic behavior are one of the cornerstones of this field.¹ Empathy can be described as a cognitive and behavioral attribute that concerns the ability of healthcare providers to understand how patients' experiences and feelings are influenced by the disease or its symptoms, and to develop a way of communication in this regards.² The level of empathy may depend on the personal characteristics of individuals, but it is also important to consider empathic thinking during healthcare education in order to graduate clinicians who can understand their patients' expectations.

Dental education includes theoretical courses followed by clinical trainings. Dentistry students face with patients beginning from the undergraduate years till the end of postgraduate education and they take more responsibility as they get experienced. Empathy within the context of dental education has been studied in literature previously in order to evaluate the impact of clinical training. Although there is a tendency to decline empathy levels with increasing patient exposure during clinical trainings, variabilities among different student populations still exist. Differences were explained by factors such as gender, age, different curriculums or cultural backgrounds of students.³⁻⁷

Received: January 13, 2020; Accepted: June 7, 2020

*Corresponding author: Dr. Nehir Canıgür Bavbek, Department of Orthodontics, Faculty of Dentistry, Gazi University, 8. Cadde, 82. Sokak, 06510, Emek, Ankara, Turkey
E-mail: ncanigur@yahoo.com

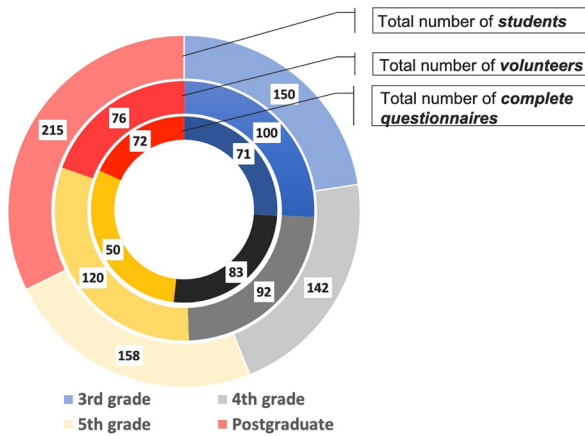


Figure 1. Description related to the determination of sample size of the study

Postgraduate dental students continue their education in specialized areas of dentistry, which represent a transitional level between students and academic staff. Although they mostly treat their patients themselves, they still consult their supervisors when necessary. Therefore, empathic behavior of postgraduate students is also important to understand the evolution of empathic skills during clinical training. There are few studies evaluating the empathy levels among undergraduate and postgraduate dental students at the same time but they reported conflicting results.^{8,9}

When previous literature was evaluated, there is still a need to understand the differences between empathy levels of undergraduate and postgraduate dentistry students. Thus, there is no available data concerning empathy levels of Turkish dentistry students or whether generalized empathic traits of dentistry students can be applied to Turkish students. In the light of this information, the purpose of this study was to evaluate the empathy levels of undergraduate and postgraduate dentistry students using a cross sectional study design. The study aimed to test two hypotheses: (1) Further clinical experience leads to an increase of the empathy levels of dentistry students, (2) Factors such as gender differences and presence of siblings are also important for empathy levels.

MATERIALS AND METHOD

The study was conducted at Gazi University, Faculty of Dentistry after the approval from the Ethics Committee (77082166-604.01.02/E61633). Participation was com-

pletely voluntary, and informed consents were obtained from all participants. All volunteers completed the scale in a single time anonymously and confidentially. The curriculum of dental faculties in Turkey follows a 5-year schedule. The third-grade students attend clinics for observation only, while fourth-grade is the first year of patient care, and fifth-grade represents advanced clinical training. Fourth and fifth-grade students perform patient care under the supervision of academic staff. On the other hand, post-graduate students can treat patients by themselves and consult their supervisors when necessary.

The Turkish version of the Jefferson Scale of Physician Empathy Student version (JSPE-S) was given to the voluntary students who were enrolled for 2018-2019 academic year. This version of JSPE-S had been validated and evaluated previously in Turkish medical students.^{10,11} It is composed of 20 items such that each item is scored on a seven-point Likert-type scale. Ten of the items were positively worded (items 2, 4, 5, 9, 10, 13, 15, 16, 17, 20) and the rest of the items were negatively worded to eliminate the confounding effect. The total score ranged from 20 to 140, where higher scores reflected a higher level of empathic behavior. Besides the total score, the scale analyzed three subscale items: "perspective-taking" (questions 2-4-5-9-10-13-15-16-17-20), "compassionate care" (questions 1-7-8-11-12-14-18-19), and "standing in patient's shoes" (questions 3-6).¹² Only the questionnaires with complete data were evaluated and the selected numbers on the Likert-type scale were recorded as the scores of the items, and these were used for mean calculations. Demographic variables such as age, gender and the presence of siblings were also recorded.

The detailed distribution of participants is given in Figure 1. The final study sample was composed of 276 participants including 226 undergraduate (n = 72 in the third-grade (50 female, 22 male); n = 71 in the fourth-grade (55 female, 16 male); n = 83 in the fifth-grade (60 female, 23 male), and 50 postgraduate students (31 female, 19 male) from different departments with similar academic years of experience. In total, 196 female (71%), and 80 male (29%) dental students participated to the study. The mean age for the whole sample was 23.4 ± 2.5 years.

Data analysis was performed by SPSS Software version 15.0 for Windows (SPSS Inc, IBM, Chicago, IL, USA). Categorical variables were presented as frequencies and percentages. Continuous variables

Table 1. Descriptive statistics of the study sample

	Undergraduate dental students			Postgraduate dental students
	3 rd grade (n=72)	4 th grade (n=71)	5 th grade (n=83)	(n=50)
Female	50 (25.5%)	55 (28.1%)	60 (30.6%)	31 (15.8%)
Male	22 (27.5%)	16 (20.0%)	23 (28.8%)	19 (23.8%)
Mean age	21.4 ± 1.1	22.3 ± 1.0	23.7 ± 1.4	27.3 ± 2.6

Table 2. Mean empathy scores for each item, subscale and total empathy scores of the Jefferson empathy scale and comparison between groups

Items	3 rd grade Mean (SD)	4 th grade Mean (SD)	5 th grade Mean (SD)	Postgraduate Mean (SD)	p
Factor 1."Perspective taking"					
2. My patients feel better when I understand their feelings	6.1 (1.0) ^A	6.6 (0.8) ^B	6.4(0.9) ^{A,B}	6.5 (1.0) ^{A,B}	0.018
4. I consider understanding my patients' body language as important as verbal communication in caregiver-patient relationships	5.9 (1.4)	6.0 (1.3)	6.0 (1.5)	5.9 (1.2)	0.925
5. I have a good sense of humor that I think contributes to a better clinical outcome	4.4 (1.7)	4.6 (1.4)	4.5 (1.6)	4.6 (1.6)	0.809
9. I try to imagine myself in my patients' shoes when providing care to them	5.5 (1.4)	5.9 (1.3)	5.4 (1.5)	5.4 (1.4)	0.108
10. My patients value my understanding of their feelings which is therapeutic in its own right	5.1 (1.8)	5.4 (1.5)	5.0 (1.4)	5.0 (1.5)	0.324
13. I try to understand what is going on in my patients' minds by paying attention to their non-verbal cues and body language	5.2 (1.4)	5.5 (1.4)	5.3 (1.3)	5.2 (1.3)	0.505
15. Empathy is a therapeutic skill without which my success in treatment is limited	5.2 (1.9)	5.2 (1.8)	5.0 (1.7)	4.7 (1.8)	0.444
16. An important component of the relationship with my patients is my understanding of their emotional status, as well as that of their families	4.8 (1.7)	4.6 (1.8)	4.6 (1.6)	4.4 (1.7)	0.540
17. I try to think like my patients in order to render better care	5.2 (1.6) ^{A,B}	5.6 (1.3) ^B	5.2 (1.4) ^{A,B}	4.7 (1.6) ^A	0.026
20. I believe that empathy is an important therapeutic factor in medical or surgical treatment	5.7 (1.7) ^{A,B}	6.0 (1.2) ^B	5.5 (1.5) ^{A,B}	5.1 (1.6) ^A	0.015
Total perspective taking subscale score	53.1 ± 9.8	55.4 ± 8.0	53.0 ± 8.4	51.7 ± 8.8	0.114
Factor 2."Compassionate care"					
1. My understanding of how my patients and their families feel does not influence my medical or surgical treatment ^a	4.3 (2.0) ^B	4.6 (1.8) ^B	3.9(2.1) ^{A,B}	3.4 (1.8) ^A	0.007
7. I try not to pay attention to my patients' emotions in history taking ^a	4.6 (2.1)	4.4 (2.0)	4.5 (2.1)	4.4 (1.8)	0.954
8. Attentiveness to my patients' personal experiences does not influence treatment outcomes ^a	4.6(2.1) ^{A,B}	5.0 (1.8) ^B	4.3(2.1) ^{A,B}	3.9 (2.1) ^A	0.033
11. Patients' illnesses can be cured only by medical or surgical treatment; therefore, emotional ties to my patients do not have a significant influence on medical or surgical outcomes ^a	5.3 (1.8)	5.3 (1.7)	5.5 (1.5)	4.9 (1.8)	0.242
12. Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints ^a	5.0 (1.9)	5.5 (1.4)	5.4 (1.4)	4.9 (1.8)	0.127
14. I believe that emotion has no place in the treatment of medical illness ^a	5.4 (1.8)	5.7 (1.7)	5.7 (1.5)	5.0 (1.9)	0.063
19. I do not enjoy reading non-medical literature or the arts ^a	6.3 (1.3)	6.1 (1.4)	6.5 (1.0)	6.4 (1.5)	0.233
Total compassionate care subscale score	39.2 ± 7.0^{A,B}	39.9 ± 6.6^B	39.2 ± 7.9^{A,B}	36.2 ± 7.6^A	0.037
Factor 3."Standing in patient's shoes"					
3. It is difficult for me to view things from my patients' perspectives ^a	5.6 (1.1)	5.7 (1.4)	5.4 (1.3)	5.4 (1.4)	0.503
6. Because people are different, it is difficult for me to see things from my patients' perspectives ^a	5.1 (1.3)	5.2 (1.7)	5.2 (1.3)	5.1 (1.3)	0.975
18. I do not allow myself to be influenced by strong personal bonds between my patients and their family members ^a	3.3 (1.6)	3.3 (1.8)	3.6 (1.8)	3.5 (1.7)	0.549
Total standing in patient's shoes subscale score	10.8 ± 2.5	10.6 ± 2.4	10.5 ± 2.3	10.7 ± 2.1	0.831
Total Jefferson empathy scale score	103.1 ± 14.5^{A, B}	106.0 ± 13.1^B	102.6 ± 13.3^{A, B}	98.6 ± 14.2^A	0.037

^aRelated questions were reverse-scored (strongly agree = 1, strongly disagree = 7).

^{A,B}Different capital letters in each row indicate significant differences between the groups

were expressed as mean and standard deviation (SD). Empathy scores were compared between two groups by using independent samples t-test, and four groups by using One-way Analysis of Variance, followed by Tukey's HSD post-hoc test. The Cronbach's alpha coefficient was calculated to evaluate the internal consistency aspect of the reliability of the scale. $P < 0.05$ was considered statistically significant.

RESULTS

The descriptive statistics were presented in Table 1.

Individual evaluation of mean scores of questions

The mean score of each question and intergroup comparisons were presented in Table 2. Mean scores of question-1 were significantly lower for postgraduate students than for third and fourth-grade students ($p < 0.01$, respectively). For question-2, the mean scores of fourth-grade students were significantly higher than the mean scores of third-grade students ($p < 0.05$). For questions 8, 17 and 20 postgraduate students had significantly lower scores than fourth-grade students with a significance level of $p < 0.05$ respectively.

Subscale and total empathy scores

The mean scores for sub-scale items of "perspective taking", "compassionate care" and "standing in the patient's shoes" and the mean total empathy scores of undergraduate and postgraduate students and intergroup comparisons were given in Table 2.

When compared to the postgraduate students, the fourth-grade students had significantly higher mean scores for "compassionate care" subscale (39.9 ± 6.6 ,

36.2 ± 7.6 , respectively, $p < 0.05$) and for the total scale (106.0 ± 13.1 , 98.6 ± 14.2 , respectively $p < 0.05$). However, the results showed no other significant difference in empathy scores between third, fourth and fifth grade students.

Gender differences

Comparison of the mean empathy scores between genders were given in Table 3. Independent from educational-grade, females presented higher scores than males for "compassionate care" subscale item (39.6 ± 7.1 , 37.1 ± 7.8 , $p < 0.05$) and also for total scale (104.2 ± 13.6 , 99.7 ± 14.0 , $p < 0.05$). However, gender difference was not significant when the groups were compared with regard to their educational degrees ($p > 0.05$).

Comparison of subscale items and total scores among students with or without siblings were presented in Table 4. Students with siblings had higher empathy scores for "standing in patient's shoes" item ($p < 0.05$).

DISCUSSION

This study was conducted to evaluate whether empathy levels of dentistry students change with the level of clinical education together with the effect of gender and presence of siblings. Our findings showed that empathy levels of fourth grade students were the highest, and a decline was noted for postgraduate students. In addition, significant gender differences were found for the total and compassionate care subscale scores, declaring that females displayed higher empathy levels than males in the total sample. However, this difference was not significant when the groups were analyzed regarding their level of clinical education. Presence of siblings

Table 3. Comparison of item scores and total scale scores of dental students relative to genders

Perspective taking	3 rd grade	4 th grade	5 th grade	Postgraduate	P	Total
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	(Intragroup comparison)	Mean \pm SD
Female	54.4 \pm 9.4	55.9 \pm 7.8	53.3 \pm 8.3	51.3 \pm 9.2	0.092	54.0 \pm 8.7
Male	50.1 \pm 10.3	53.6 \pm 8.7	52.2 \pm 8.9	52.3 \pm 8.5	0.707	51.9 \pm 9.1
P (Intergroup comparison)	0.090	0.300	0.605	0.685	-	0.079
Compassionate care	3 rd grade	4 th grade	5 th grade	Postgraduate	p	Total
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	(Intragroup comparison)	Mean \pm SD
Female	40.1 \pm 6.8	40.2 \pm 6.2	40.1 \pm 7.1	36.5 \pm 8.3	0.068	39.6 \pm 7.1
Male	37.1 \pm 7.1	38.9 \pm 8.0	36.8 \pm 9.3	35.7 \pm 6.6	0.689	37.1 \pm 7.8
P (Intergroup comparison)	0.091	0.492	0.093	0.751	-	0.010
Standing in patient's shoes	3 rd grade	4 th grade	5 th grade	Postgraduate	p	Total
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	(Intragroup comparison)	Mean \pm SD
Female	10.5 \pm 2.5	10.7 \pm 2.4	10.6 \pm 2.3	10.8 \pm 1.9	0.904	10.6 \pm 2.3
Male	11.5 \pm 2.5	10.1 \pm 2.2	10.3 \pm 2.6	10.5 \pm 2.3	0.247	10.7 \pm 2.4
P (Intergroup comparison)	0.111	0.357	0.727	0.608	-	0.918
Total scale	3 rd grade	4 th grade	5 th grade	Postgraduate	p	Total
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	(Intragroup comparison)	Mean \pm SD
Female	105.0 \pm 13.1	106.9 \pm 12.9	103.9 \pm 12.7	98.5 \pm 16.1	0.052	104.2 \pm 13.6
Male	98.8 \pm 16.7	102.6 \pm 13.4	99.3 \pm 14.5	98.6 \pm 10.8	0.823	99.7 \pm 14.0
P (Intergroup comparison)	0.091	0.249	0.167	0.994	-	0.014

SD: standard deviation

Table 4. Comparison of item scores among students with or without siblings

Items	With siblings (n=171; 62.0%)	Without siblings (n=105; 38.0%)	P
	Mean ± SD	Mean ± SD	
Perspective taking	53.7 ± 8.4	52.8 ± 9.4	0.421
Compassionate care	39.4 ± 7.0	37.9 ± 7.9	0.094
Standing in patient's shoes	10.9 ± 2.2	10.2 ± 2.5	0.009
Total	104.1 ± 12.9	100.9 ± 15.1	0.063

SD: standard deviation

had also a positive effect on empathic behavior of dentistry students. It can therefore be stated that our first hypothesis was rejected while the second hypothesis was partially accepted.

Due to technological advancements, healthcare workflow progressed rapidly, making medical practice easier, quicker and more effective. However, communication between patients and their healthcare providers must be at the core of clinical practice since medicine is a human service profession, and the importance of personal communication skills should not be neglected.^{13,14} According to Stephenson *et al.*¹⁵ empathy is an essential aspect of professionalism for the clinicians who were already engaged in practice. Hence, effective communication and empathic skills are related with better patient satisfaction, increased patient cooperation and adherence to treatment.^{16,17} In this respect, enhancing empathy skills should still be considered during healthcare training and data related to empathic behavior of dental/medical students from different countries, regions or ethnic backgrounds is crucial to develop an educational strategy. Schwartz and Bohay¹³ suggested that empathy can be learned. It is not possible to explain all aspects of empathy, but it is possible to take attention on early exposure to the concept of empathy for students. Likewise, more emphasis should be given to the role of clinical supervisors as empathetic models for students.¹³ Carvajal *et al.*¹⁸ reported that faculty staff had higher levels of empathy when compared to students and raised a question whether their empathic behaviors would enhance the empathy levels of students. For this reason, postgraduate students were included to the present cohort, as their empathic behaviors could be important to understand the transition from studentship to professional academic life.

Previous reports presented tendency for a decline in empathy during education in medicine, dentistry and other health careers, which was defined as empathic erosion.^{3,14,19,20,21} At the beginning of medical education, most students are enthusiastic and filled with idealism.²² However, the third year of education seems to be the turning point for the empathic behaviors of students since the basic preclinical sciences leave their dominance to clinical training, and the empathy levels begin to decrease with the initiation of direct contact with patients.^{3,14,19} Yarascavitch *et al.*²³ reported a pro-

gressive decline in emotive empathy in the third-year dental students, but the researchers also noticed an increase in cognitive empathy in the third and fourth years. They attributed their results to the development of professional empathy. In that respect, our results showed some differences with general findings in previous literature. The curriculum in Turkish dental schools contains basic theoretical courses and clinical observations at the third-grade, without direct patient contact while fourth-graders start their clinical training and patient care activities under the supervision of clinical mentors. Our findings in this study revealed a non-significant increase in empathy scores from the third to fourth-grade students. In addition, the highest empathy scores were found for the fourth-grade students. Conversely, Kalyan *et al.*⁹ found the highest empathy level for postgraduates and third-grade dental students. Besides, Ameh *et al.*⁷ were unable to detect a significant difference in empathy between preclinical and clinical years in dental school. Our results were supported by findings of Carvajal *et al.*¹⁸, who reported that clinical education improves the empathy levels of students with increased knowledge and patient interaction when compared to preclinical classes. We considered that the intention to serve patients might have created a high responsibility and motivation for the fourth-grade students. The high levels of empathy demonstrated by our cohort may also be explained by Hawthorne effect. Students' awareness of observational activity of their supervisors might have altered their usual interactions, and stimulate them to be more careful which results in "textbook" behaviors.²⁴

The empathy levels of fifth-grade students did not reveal any significant differences between fourth-grade students and postgraduate students, which might possibly depend on a transition period from a student perspective to a professional perspective. Fifth-grade students in this cohort mainly focused on treating increased number of patients, and they targeted graduation. In line with our findings, Kalyan *et al.*⁹ reported a decline in empathy scores at the final year of dental school, which was related to high stress levels due to quota completion and increased academic load before graduation. When compared to fourth-grade students, we observed a significant decline in total empathy levels and compassionate care subscale item of postgrad-

uate students. Similar to our results, there are reports which indicate that empathy continues to decline during residency training in medicine.^{25,26} The reasons for this ironic result may include challenges of a new social environment, increased clinical tasks, increased responsibilities, more professional workload, and lack of clinical mentors.^{14,27} Unlike undergraduate dentistry students, postgraduate students have to deal with patients on their own and take responsibility. For this reason, they might start to see their patients as part of a business, instead of approaching them as human beings. In other words, sense of sharing patients' thoughts and feelings leave its place to realities and professionalism. This social behavior of healthcare providers has been described as mechanistic dehumanization.²⁸ There are a limited number of studies regarding empathy levels of dental postgraduate students and their results are conflicting. Similar to our findings, Aggarwal *et al.*⁹ reported lower empathy scores, while Kalyan *et al.*⁹ reported higher empathy scores for postgraduate dentistry students. These results point out the tendency of an empathic erosion in postgraduate training, which should be considered by educators in order to develop educational interventions in residency programs.

Besides education, some personal characteristics might also influence empathic behaviors. A previous study conducted with dental students, has agreed that empathy is a variable behavior and that females have higher levels of empathy.²⁹ Likewise, in our study female students revealed higher levels of empathy scores than males for total and compassionate care sub-scale item, which is in consistence with literature findings.^{3,8,21} Particularly, compassion is reported to be gender-related due to neural mechanisms evolved differently and features learned socially since it is a moral emotion triggered especially by the perception of suffering in others.³⁰ Women respond the feeling of compassion with a higher activity of empathy, but in men the feeling of compassion is expressed by the moral judgement, triggering a helping behavior.³¹ In addition, we were unable to detect any gender differences when level of clinical practice was considered. This result might reveal that being a female is a superior factor for empathic skills rather than education. Contrary to general consensus in literature, Kalyan *et al.*⁹ reported higher empathy scores for men while Ameh *et al.*⁷ found no statistically significant difference between males and females. These responses might depend on several variables such as different economic conditions, cultural, moral, educational and interpersonal behaviors, personal experiences, or levels of anxiety.^{32,33} At this point, social relationships with siblings, quality of the relationships, and empathic behaviors related to providing support by siblings can make an impact in empathic care.³³ Supporting this phenomenon, in our study students with siblings demonstrated significantly higher empathy levels.

There are some limitations related to this study, such as the cross-sectional design and the constitution of the study sample solely from the same dental faculty.

Cross-sectional design can be considered relevant to determine differences in empathy at different years of education but it is not possible to detect the changes or evolution in empathic behavior with education. In addition, the dentistry faculties receive students from different parts of the country but they might still not be representative for the whole population. Finally, it would be wise to include academicians with higher degrees to understand whether empathic decline continues after postgraduate education. Therefore, we believe further longitudinal studies evaluating empathy levels of dentistry students including different faculties within the country would address these limitations.

CONCLUSION

This study shows empathic decline during postgraduate period of dental training. In addition, increased clinical experience is not an effective tool to enhance empathic skills of dental students. However, apart from the degree of clinical training, being a female is a good predictor of better empathic thinking. Therefore, from a curricular point of view, there is a need of modulating the teaching strategy to improve the empathic skills of dentistry students in order to give them a better understanding of patient behaviours.

REFERENCES

1. Bauchat JR, Seropian M, Jeffries PR. Communication and empathy in the patient-centered care model-Why simulation-based training is not optional. *Clin Simul Nurs* 2016;12:356-9.
2. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M. Physician empathy: definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002;159:1563-9.
3. Sherman JJ, Cramer A. Measurement of changes in empathy during dental school. *J Dent Educ* 2005;69:338-45.
4. Diaz-Narváez VP, Coronado AME, Bilbao JL, González F, Padilla M, Howard M, *et al.* Empathy levels of dental students of Central America and the Caribbean. *Health* 2015;7:1678-86.
5. Waldrop D, Nochajski T, Davis EL, Fabiano J, Goldberg L. Empathy in Dentistry: How attitudes and interaction with older adults make a difference. *Gerontol Geriatr Educ* 2016;37:359-80.
6. Gonzalez-Martinez F, Tirado-Amador L, Bueno-Hernandez J, Chica-Duque B, Díaz-Narváez VP. Changes in empathy levels on dentistry's students of public University in Cartagena City, Colombia. *Pesq Bras Odontoped Clin Integr* 2018;18:e3989.
7. Ameh PO, Uti OG, Daramola OO. Empathy among dental students in a Nigerian institution. *Eur J Dent Educ* 2019;23:135-42.
8. Aggarwal VP, Garg R, Goyal N, Kaur P, Singhal S, Singla N, *et al.* Exploring the missing link-Empathy among dental students: An institutional cross-sectional survey. *Dent Res J (Isfahan)* 2016;13:419-23.
9. Kalyan VS, Manjula S, Padma TM, Pratap KV, Vineela P, Varma SC. Assessment of empathy among clinical dental students in a teaching dental institution in Telangana State, India. *J Indian Assoc Public Health Dent* 2017;15:162-5.
10. Gonullu I, Oztuna D. A Turkish adaptation of the Student Version of the Jefferson Scale of Physician Empathy. *Marmara Med J* 2012;25:87-92.
11. Bilgel N, Ozcakir A. Turkish version of the Jefferson Scale of Empathy psychometric properties. *Eur Sci J* 2017;13:101-11.
12. Hojat M, LaNoue M. Exploration and confirmation of the latent

variable structure of the Jefferson scale of empathy. *Int J Med Educ* 2014;5:73-81.

13. Schwartz B, Bohay R. Can patients help teach professionalism and empathy to dental students? Adding patient videos to a lecture course. *J Dent Educ* 2012;76:174-84.

14. Hojat M, Vergare MJ, Maxwell K, Brainard G, Herrine SK, Isenberg GA, et al. The devil is in the third year: a longitudinal study of erosion of empathy in medical school. *Acad Med* 2009;84:1182-91.

15. Stephenson A, Higgs R, Sugarman J. Teaching professional development in medical schools. *Lancet* 2001;357:867-70.

16. Kim SS, Kaplowitz S, Johnston MV. The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof* 2004;27:237-51.

17. Sinha PK, Nanda RS, McNeil DW. Perceived orthodontist behaviours that predict patient-satisfaction, orthodontist-patient relationship, and patient adherence in orthodontic treatment. *Am J Orthod Dentofac Orthop* 1996;110:370-7.

18. Carvajal M, López S, Sarabia-Alvarez P, Fontealba J, Padilla M, Sumi J, et al. Empathy Levels of Dental Faculty and Students: A Survey Study at an Academic Dental Institution in Chile. *J Dent Educ* 2019;83:1134-41.

19. Chen D, Lew R, Hershman W, Orlander J. A cross-sectional measurement of medical student empathy. *J Gen Intern Med* 2007;22:1434-8.

20. Galán JM, Romero R, Morillo MS, Alarcón M. Descent of empathy in nursing students and analysis of possible factors involved. *Psicologia Educativa* 2014;20:53-60.

21. Hojat M, Mangione S, Nasca TJ, Rattner S, Erdmann JB, Gonnella JS, et al. An empirical study of decline in empathy in medical school. *Med Educ* 2004;38:934-41.

22. Kay J. Traumatic deidealization and future of medicine. *JAMA* 1990;263:572-3.

23. Yarascavitch C, Regehr G, Hodges B, Haas DA. Changes in dental student empathy during training. *J Dent Educ* 2009;73:509-517.

24. Adair JG. The Hawthorne effect: a reconsideration of the methodological artifact. *J Appl Psychol* 1984;69:334-45.

25. Mangione S, Kane GC, Caruso JW, Gonnella JS, Nasca TJ, Hojat M. Assessment of empathy in different years of internal medicine training. *Med Teach* 2002;24:370-3.

26. Bellini LM, Shea JA. Mood change and empathy decline persist during three years of internal medicine training. *Acad Med* 2005;80:164-7.

27. Wright SM, Kern DE, Kolodner K, Howard DM, Brancati FL. Attributes of excellent attending-physician role models. *N Engl J Med* 1998;339:1986-93.

28. Haslam N, Loughnan S. Dehumanization and inhumanization. *Annu Rev Psychol* 2014;65:399-423.

29. Vera C. Empathetic orientation in dentistry students from Latin America. Literature review. *J Oral Res* 2014;3:123-7.

30. Mercadillo RE, Diaz JL, Pasaye EH, Barrios FA. Perception of suffering and compassion experience: brain gender disparities. *Brain Cogn* 2011;76:5-14.

31. Diaz-Narváez VP, Coronado AME, Bilbao JL, González F, Padilla M, Howard M, et al. Empathy gender in dental students in Latin America: an exploratory and cross-sectional study. *Health* 2015;7:1527-35.

32. Michalska KJ, Kinzler KD, Decety J. Age-related sex differences in explicit measures of empathy do not predict brain responses across childhood and adolescence. *Dev Cogn Neurosci* 2013;3:22-32.

33. Wałęcka-Matyja K. Relationships with siblings as a predictor of empathy and humor styles in early adulthood. *Arch Psychiatry Psychother* 2017;19:43-51.

Klinik eğitim düzeyinin lisans ve lisansüstü diş hekimliği öğrencilerinin empati seviyeleri üzerine etkisi

ÖZET

AMAÇ: Bu çalışmanın amacı klinik eğitim düzeyinin lisans ve lisansüstü diş hekimliği öğrencilerinin empati düzeyleri üzerindeki etkisini değerlendirmektir.

GEREÇ VE YÖNTEM: İki yüz yetmiş altı öğrenci (üçüncü, dördüncü ve beşinci sınıf öğrencileri ve farklı bölümlerden doktora öğrencileri) Jefferson Hekim Empati Ölçeği anketinin öğrenci versiyonunu yanıtladı. Toplam skor ve üç alt grup (hastanın bakış açısını yakalama, sağlık hizmeti verirken duyarlı olma, hastanın yerine kendini koyma) skoru değerlendirildi. Ölçeğin güvenilirliği Cronbach alfa katsayısı (0.77) ile değerlendirildi. İstatistiksel analiz için bağımsız örneklem t-testi ve tek yönlü varyans analizi (ANOVA) kullanıldı ($p < 0.05$).

BULGULAR: Dördüncü sınıf öğrencileri en yüksek toplam empati skoruna (106.0 ± 13.1) sahipti ve bu grup ile lisansüstü öğrencileri (98.6 ± 14.2) arasında istatistiksel olarak anlamlı bir fark gözlemlendi. "Sağlık hizmeti verirken duyarlı olma" alt grup skoru ortalaması, lisansüstü öğrenciler için (36.2 ± 7.6), dördüncü sınıf öğrencilerine (39.9 ± 6.6) kıyasla önemli bir düşüş gösterdi. Kadınların toplam empati ortalama skoru ve "sağlık hizmeti verirken duyarlı olma" alt grup ortalama skoru (sırasıyla 104.2 ± 13.6 , 39.6 ± 7.1), erkeklerden (sırasıyla 99.7 ± 1 , 37.1 ± 7.8) daha yüksek bulundu. Kardeş sahibi olan katılımcılarda, diş hekimliği eğitiminin derecesinden bağımsız olarak, "hastanın yerine kendini koyma" alt grup ortalama skorunda anlamlı artış gözlemlendi ($p < 0.05$).

SONUÇ: Lisansüstü öğrencilerinin empati düzeyleri devam eden klinik eğitimle birlikte azalma göstermiştir ve bu durum artan klinik sorumluluklar ve profesyonel tutumla ilişkilendirilebilir.

ANAHTAR KELİMELER: Diş hekimliği eğitimi; empati; lisans diş hekimliği eğitimi; sürekli eğitim