

Empathy In Medical Education: Be A Relative Before Becoming A Doctor

Tıp Eğitiminde Empati: Doktor Olmadan Önce Hasta Yakını Ol

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Özet

Giriş: Empati, duygusal zekanın bir parçası ve etkili iletişim becerileri açısından tıp disiplinlerinde önemli bir kavramdır. “Doktor Olmadan Önce Hasta Yakını Ol” projesi, prelinik aşamada hasta ile teması olmayan tıp fakültesi öğrencilerine uygulanarak, empatinin öğrenciler tarafından içselleştirmesi amaçlanmıştır.

Gereç ve Yöntem: Öğrencilerin etik kurallar çerçevesinde hasta ve yakınlarıyla görüşmeleri ve hastanedeki tanı ve tedavi süreçlerini görmeleri sağlanmıştır. Araştırmanın nicel boyutunda, Jefferson Empati Ölçeği öğrenci versiyonu ve genel empati ölçeğini içeren bir anket formu uygulamadan önce uygulanmış, Jefferson Empati Ölçeği öğrenci versiyonu ve genel empati ölçeği uygulamadan sonra tekrar uygulanmıştır.

Araştırmanın nitel boyutunda, öğrencilerden deneyimlerine dayalı raporlar yazmaları istenmiş ve yazdıkları raporlar doküman olarak ele alınarak analiz edilmiştir.

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Bulgular: Öğrencilerin yaş ortalaması $20,31 \pm 0,85$ olup %55,7'si (n=64) kadın öğrencidir. Empati uygulama etkinliğinden sonra Jefferson empati ölçeği puanında empati uygulama etkinliğinden öncesine göre anlamlı bir artış olmuştur ($p=0,0001$). Toronto Empati Ölçeği puanında ise empati uygulama etkinliği sonrasında, empati uygulama etkinliği öncesine göre istatistiksel olarak anlamlı fark olmamakla birlikte artış olduğu saptanmıştır ($p=0,097$). Öğrencilerin nitel raporları incelendiğinde, empati ifadesini içeren toplam 354 kod bulunmuştur. Empatinin, en sık bekleme süresi, kişisel memnuniyet ve hastalığa ilişkin üzüntü ile ifade edildiği görülmüştür.

Tartışma: Empati düzeylerini hem nitel hem de nicel olarak değerlendirdiğimiz bu çalışma sonucunda, empati düzeylerinin arttığını ve hasta memnuniyetinin arttığını bulduk. Bu nedenle projemizin tüm tıp fakültelerinin eğitim müfredatında uygulanabilir olduğu kanaatindeyiz.

Abstract

Aim: Empathy is an important concept in medical disciplines as part of emotional intelligence and effective communication skills. "Be a relative before becoming a doctor" project is intended to be applied to medical school students who do not have contact with the patient at the preclinical stage which will enable students to internalize empathy.

Materyal and method: Students were enabled to meet with the patient and their relatives within ethical rules and to see the diagnosis and treatment processes in the hospital. In the quantitative dimension of the research, a survey form containing the Jefferson Empathy Scale student version and the general empathy scale was applied before the practice, the Jefferson Empathy Scale student version and the general empathy scale were applied again after the practice. In the qualitative dimension of the research, students were asked to write reports based on their experiences, and the reports they wrote were treated as documents and analyzed.

Results: The mean age of the students was 20.31 ± 0.85 and 55.7% (n=64) were female students. There was a significant increase in the Jefferson empathy scale score after the empathy practice activity compared to before the empathy practice activity ($p=0.0001$). Toronto Empathy Scale score increases after the empathy practice activity, although there is no statistically significant difference compared to before the empathy practice activity ($p=0.097$). When the qualitative reports of students were examined, a total of 354 codes containing the expression of empathy were found. It was observed that empathy was most frequently expressed with waiting time, personal satisfaction and sadness about the disease.

Discussion: As a result of this study, in which we evaluated empathy levels both qualitatively and quantitatively, we found that empathy levels increased and patient satisfaction. For this reason, we believe that our project is applicable in the educational curriculum of all medical faculties.

INTRODUCTION

Effective use of communication skills has a very important role in preventing many conflicts, supporting persuasion and reconciliation processes, and determining the direction and success of the communication process. Among these skills, empathy is a very important communication skill that ensures tolerance and understanding between the parties of communication and has the power to completely change the effect to be created by the communication process (1).

Empathy is an important concept in medical disciplines as part of emotional intelligence and effective communication skills. Physicians' empathy skills, which are an effective part of patient-physician communication, enable them to understand the situation and feelings of the patient, to make the patient feel understood, and to look from the patient's point of view. Empathy (clinical empathy) between patient and physicians is defined as "a cognitive trait that includes the ability to understand and

communicate the patient's internal experiences and perspectives"(1-3).

The physician who can empathize with the patient, understands the (patient's) problems more deeply and becomes more effective in solving them. It is known that patient-physician communication, which forms the basis of clinical medicine, increases the patient's quality of life, is very important especially in eliminating psychosomatic symptoms, and also has positive contributions in bringing objective, measurable parameters such as plasma glucose and blood pressure within normal limits (4-6). Physicians need to develop their communication and empathy skills in order to be able to professionally approach the social and psychological problems of their patients.

On the other hand, the presence or absence of empathic communication in the physician-patient relationship may underlie some of the negative behaviors encountered in the health sector. Violence comes first, and the target of verbal or physical violence may be a patient or a physician. Studies examining violence in the workplace, especially in the health sector, approach the matter in terms of violence which may be conducted by both the physician and the patient (7-11). One of the most important points emphasized in these studies is empathic communication (12). Studies show that as the empathic tendency levels of healthcare professionals increase, their aggression tendencies decrease (9). The fact that empathy skills are so important in the physician-patient relationship and that empathetic communication is one of the factors that will help reduce violence in health sector, underlines the importance to conduct studies with a view to develop empathy skills in the education processes of physician candidates (13-16).

In the literature, it is possible to find studies involving hospitalization of medical students, accompanying patients during polyclinic visits, visiting patients at home, participating in empathy-enhancing communication workshops, drama activities, writing memoirs of patients, reading books and poems about the experiences of the diseased and disabled individuals,

watching movies. There are practices that include discussions (17-21).

"Be a relative before becoming a doctor" project is intended to be applied to second year medical school students who do not have contact with the patient at the preclinical stage, since it is deemed necessary to raise the empathic behavior model from the level of 'knows' to the level of 'does', and in that framework it is aimed to develop, increase and reinforce the empathic abilities of the students during their learning, in line with the goal of 'learning by experience', which will enable students to internalize empathy.

2. MATERIAL AND METHODS

In this study, which aims to improve the empathy skills of Pamukkale University Faculty of Medicine second year students towards patients, the "Mixed Method", combining the quantitative and qualitative patterns, was used. Based on the "concurrent triangulation strategy", which is one of the mixed method types, the quantitative and qualitative data of the research were collected at the same time and the results were integrated in the discussion part (22). In the quantitative aspect of the study, a questionnaire including the Jefferson Empathy scale student version and the general empathy scale was employed before the practice, and in the second stage, both the qualitative interview and the Jefferson Empathy scale student version and the general empathy scale were employed after the practice (23,24).

In addition, the patients who performed the practice were also required to fill out a patient satisfaction questionnaire. In the qualitative aspect of the research, students were asked to write reports based on their experiences, and the reports they wrote were analyzed as documents. Thus, it was tried to discover the meaning that the students included in the study attributed to their lives by examining the reports they wrote based on their experiences.

2.1. Study group: All second-year students in the preclinical stage who had no previous contact with the patient were included in the study between the years 2021-2022. After the

practice, the qualitative reports of 453 medical school students were evaluated and 270 reports containing the expression of empathy were included in the study. Questionnaire forms prepared to be based on empathy scales were applied to 128 medical school sophomore students before and after the practice in the second semester of 2022, and 115 students who completed the questionnaire were evaluated.

2.1.1. Inclusion Criteria

1. Being a student at Pamukkale University Faculty of Medicine,
2. Having given consent to participate in the study, when informed about it

2.1.2. Exclusion Criteria

1. Not volunteering to participate in the study,
2. Students who left the study for any reason despite participating in the survey, were excluded from the study.

2.2. Data collection:

Patients and students, whose informed consent forms obtained before, were randomly matched with patients. The students waited with the patients and stood by them during the examination and consultation phases. At the end of the day, they were asked to write a report about how they felt, how they spent their time and what they thought. All reports were read by three researchers using Braun and Clarke's thematic analysis method, and themes in qualitative data were identified, analyzed and reported. These reports were discussed among researchers and common codes were obtained (25,26).

The first questionnaire made to the students before the empathy practice consisted of 53 questions. The first 20 questions, prepared after a thorough literature review, included the socio-demographic characteristics of the students and the factors related to empathy. It was followed by the student version of the 20-question Jefferson Empathy scale and the Toronto empathy scale (23,24).

The second questionnaire made to the students following the practice in order to evaluate the effectiveness of empathy practice training,

consisted of 64 questions. The first 31 of those questions included the information of the patient accompanied by the student and the evaluation of the process experienced by the patient in the outpatient clinics. It was also followed by the student version of the Jefferson Empathy scale with 20 questions and the Toronto empathy scale.

In addition to the above-mentioned questionnaires, another questionnaire consisting of 32 questions, including the sociodemographic characteristics of the patient and the characteristics of the disease, as well as the questions evaluating the satisfaction of the patient, was applied to the patients who were matched with the students.

Student version of the Jefferson Empathy scale; It is a 20-item 7-point Likert-type scale used to measure empathy. The scale has three sub-dimensions (Understanding the Patient, Compassionate Care, Perspective Taking). The Turkish reliability and validity study was conducted by the volunteer and his/her friend. High scores on the scale indicate a high level of empathy (23).

Toronto empathy scale; It is a 5-point Likert-type scale consisting of 13 questions evaluating general empathy skills. Validity and reliability study was conducted by Totan et al. High scores on the scale indicate a high level of empathy (24).

2.3. Project and Data Collection Process

The lecturer in charge held a meeting with the students chosen to participate in the practice, and informed them about the process and what the expectations were. Then, the preliminary practice of the questionnaires was made and the students were matched with the patients. Receiving support from the polyclinic secretary, the students were matched with patients on a voluntary basis in the units they were directed to Infectious Diseases and Clinical Microbiology outpatient clinic, Neurology outpatient clinic, Orthopedics outpatient clinic, Family Medicine outpatient clinic, Ophthalmology polyclinic, Cardiology outpatient clinic, Neurosurgery outpatient clinic, Chest Diseases outpatient

clinic, Endocrinology outpatient clinic, Rheumatology outpatient clinic, Surgery outpatient clinic, Nephrology outpatient clinic outpatient clinic. Before the beginning of the process, the students gave a brief information about the practice to the patients they were matched with, and asked them to sign the

“Consent Form”.

Students accompanying the patients during the outpatient clinic visit, as if they were their relatives, waited in line with the patients, accompanied them during their processes of examination, giving blood sample, imaging, etc. When the patient’s outpatient visit was over, the students filled out the questionnaires again and were also asked to report their experiences and feelings regarding the practice process at the end of the day. Those reports were handled as documents and were subjected to analysis.

2.4. Statistical analysis

The data obtained from the scales in the study were analyzed using the SPSS 23 package program. Continuous variables were given as mean \pm standard deviation and categorical variables as numbers and percentages. Significance Test of Difference Between Two Means and Analysis of Variance in comparison of independent group differences when parametric test assumptions were provided; When parametric test assumptions were not met, Mann-Whitney U test and Kruskal Wallis Analysis of Variance were used to compare independent group differences. In addition, the relationships between continuous variables were analyzed with Spearman or Pearson correlation analyzes and the differences between categorical variables were analyzed with Chi-square analysis.

In the research, “content analysis” was carried out on the reports written by the students. The main purpose of content analysis is to gather and interpret similar data within the framework of certain concepts and themes. This process takes place in four stages: 1- coding the data, 2- finding the themes, 3- organizing the themes and sub-themes, 4- defining and interpreting the

findings (27). 453 reports written by students were read and expressions containing empathy were coded. Empathy expression was found in 270 reports and a total of 354 codes were determined. Based on these codes, themes were determined. Within the scope of the research, four major and 17 minor themes were reached. The themes were reported by supporting direct quotations.

After the analysis of the quantitative and qualitative data, the increase in the scores in both the Toronto and Jefferson scales compared to the pre-practice was examined. The reports written by the students, in which a statistical increase was determined in the survey results, were re-examined and codes were determined based on the state of empathic expression. The most emphasized codes are given under the heading of findings and discussion.

2.5. Ethical permission

This study received approval no. 2, dated 19/01/2021 from Pamukkale University Clinical Research Ethics Committee, stating that there is no ethical objection to the study. In addition, students and patients who agreed to participate in the study were informed about the study and signed a consent form.

3. RESULTS

Due to the nature of mixed research, both quantitative and qualitative data were obtained in this study. First of all, the quantitative findings reached in line with the analysis of the data obtained from the scales were revealed, and then the qualitative data obtained as a result of the analysis of the reports were included.

The mean age of the 115 second year medical school students who participated in the survey study was 20.31 ± 0.85 , and 55.7% (n=64) were female students .

The students’ Jefferson Empathy scale score was 5.24 ± 0.65 before the empathy practice activity, and the Jefferson Empathy scale score was 5.44 ± 0.75 after the practice. In all students, the Jefferson Empathy scale score shows a statistically significant difference after the empathy practice activity compared to before

the empathy practice activity. Compared to before the empathy practice activity, there was a significant increase in the Jefferson Empathy scale score after the empathy practice activity ($p=0.0001$).

The students also had a Toronto empathy scale score of 4.22 ± 0.48 before the practice of empathy and 4.25 ± 0.58 after the practice. The Toronto Empathy scale score of all students increased after the empathy practice activity, although there was no statistically significant difference compared to before the empathy practice activity ($p=0.097$) (Table 1).

The demographic characteristics of the students and the empathy scale score changes before and after the empathy practice are presented in Table 2.

Considering the percentages of change obtained from the scale scores of the students before and after the empathy practice; Statistically significant difference was found in total Jefferson scores, compassionate care and perspective taking sub-dimension scores according to the presence of psychiatric illness. It was observed that the scores of those who had psychiatric disorders decreased, while those who did not had an increase were observed ($p=0.03$; $p=0.039$; $p=0.015$).

Considering the percentages of change obtained from the scale scores of the students before and after the empathy practice; Statistically significant difference was found in total Toronto empathy score according to the presence of chronic disease in first degree relative. In the Toronto empathy score, it was observed that the scores of those with a first degree relative with a chronic disease decreased, while the scores of those who did not showed an increase ($p=0.009$). Students' gender, age, chronic disease status, choice of medical school, interest in art, having pets, number of siblings, number of children in the family, academic score average, sleep patterns, smoking and alcohol use status, with whom and where they live, economic status, when looking at the change percentages obtained from the scale scores before and after the empathy practice; There was no statistically significant difference in total Jefferson scores

and total Toronto empathy scores.

Within the scope of the empathy practice activity, the patients accompanied by the students were 53% ($n=61$) female, 67.3% ($n=76$) married, and 24.6% ($n=28$) high school or equivalent school graduates.

Within the scope of the empathy practice activity, 56.1% ($n=64$) of the patients accompanied by the students applied directly to the hospital, and 21.1% ($n=24$) applied to the hospital by making an appointment over the phone. 80.0% ($n=92$) of the patients stated that they were satisfied with the way of addressing the student, 77.4% ($n=89$) with the behavior of the student, 79.8% ($n=91$) with the student's interest.

The characteristics of the patients accompanied by the students within the scope of the empathy practice activity and the empathy scale score change percentages of the students before and after the empathy practice are given in Table 3.

Considering the percentages of change obtained from the scale scores of the students before and after the empathy practice according to the patient's profession; A statistically significant difference was found in the understanding of the patient sub-dimension score. In the sub-dimension of understanding the patient, there was a decrease in the empathy scores of the students accompanying the farmer and retirees of the patient's profession, while an increase in the empathy scores of the students accompanying the patients who were students and housewives ($p=0.018$).

Considering the percentages of change obtained from the scale scores of the students before and after the empathy practice, based on the answers given by the patients about the questions they had asked the doctor about their illnesses, a statistically significant difference was found in understanding the patient sub-dimension and Toronto total scores. In the sub-dimension of understanding the patient, an increase was observed in those who answered that it did not have any effect, while a decrease was observed in those who gave the answer "I have no idea" ($p=0.041$). When the Toronto total scores were examined, it was observed that while an increase was observed in those who gave the first answer,

while a decrease was observed in those who gave the second answer ($p=0.04$).

Considering the percentages of change obtained from the scale scores of the students before and after the empathy practice, and taking into account the negative effect of the hospital environment on the patient's psychology while answering the questions; a statistically significant difference was found in the understanding of the patient sub-dimension score. In the sub-dimension of understanding the patient, it was observed that there was a significantly higher increase in those who gave the answer that it does not affect the patient ($p=0.033$).

Considering the relationship between the student's scoring of his/her condition due to the illness and the scale scores; only the Toronto total score was statistically significant. It was observed that there was a statistically significant, positive and weak correlation between the student's comprehension scores and the change in Toronto total score ($r=0.216$; $p=0.02$).

Considering the student as the relative of the patient he/she was accompanying, and upon examining the relations between the scoring and the scale scores; it was seen that there was only a statistically significant correlation with the perspective taking score. It was observed that there was a statistically significant, positive and weak correlation between the student's scores obtained following his/her accompanying the patient as a relative and the change in perspective taking score ($r=0.25$; $p=0.007$).

In conclusion,

When the changes between the empathy scale scores of the students before and after the empathy practice activity were examined, an increase was observed in the empathy scores after the empathy practice activity. If the students were diagnosed with a psychiatric illness and had a chronic illness in their first-degree relatives, it was observed that there was a decrease in their empathy scores after the empathy practice activity.

When the qualitative reports of 473 students, who are second year students of the Faculty of Medicine, were examined, a total of 354 codes were obtained in the reports of 270 students

that included empathy. 17 minor themes were created under 4 major themes. Major and minor themes are presented in Table 4.

After the practice, it was seen that 28 of the 50 students whose scores increased in both the Toronto and Jefferson scales had 38 expressions of empathy in the report analysis. It was observed that empathy was mostly related with waiting time, personal satisfaction and the patient's sadness about the disease.

One of the major themes reached as a result of the analyzes of the student reports was grouped under the name of "Empathy towards the Patient". Table 5 shows the minor themes and their frequencies emerged under this major theme.

It has been observed that empathy towards the patient is mostly empathized with the illness and the difficulty of the hospital procedures, the waiting time and the sadness for the illness.

"Being sick is a difficult thing because you wait in line so much. And being old and sick is even harder. I was in the eye clinic. It is very difficult for patients to have visual problems and to wait in line that way" (Report 25).

"The patient was disturbed and upset both by his age, his state of health, and the hospital environment. I also realized that, considering the age of the patient, waiting for examination at the hospital and being transferred from one room to another is a tiring process. We need to consider that not only doctors but also patients are under stress both physically and psychologically. I hope to become a doctor who empathizes with his patients in the future, no matter how difficult my profession is" (Report 112).

"At this time, I really felt sorry for the patient. Because I felt like I experienced his pain. I got that feeling too, but I don't know how to express it in words. I had the same feeling again while writing this. It was not easy for the patient and for me. It was the patient who actually suffered, but I experienced the same feeling with the patient, although not as much as the pain he felt" (Report 37).

The themes of empathy towards the other patient were found to be respect for the patient, glad to be healed, and communication/behavior style, in

order of frequency.

“It is one of our very important duties as doctor candidates not to forget how much the patients are worn out both physically and psychologically during the treatment process and to understand them” (Report 49).

“When we talked to the patient and listened to the developmental stages of his illness, and then went to the examination room together, I shared the patient’s excitement about the latest situation with the patient and was as happy as he was when I heard about the good developments” (Report 105).

“If there is one thing I understand and one empathy I can establish, it is: A sick person can already get nervous for his own health. As doctors, we must understand them and approach them in a way that relieves their fears. Thank you for this practice” (Report 68).

Another Major theme reached in line with the analyzes is “Empathy for the Profession”. Table 6 shows the minor themes and their frequencies under this major theme.

Occupational awareness and hospital functioning were found to be the most common themes of empathy for the profession, respectively.

“First of all, it was a really valuable experience to spend time with the patients and listen to their stories. The difficulties experienced by the patients have made me reevaluate the seemingly unimportant things in my life. I also noticed that treating patients with compassion and understanding has a positive effect on their morale. This reminded me that even small gestures can make a big difference in people’s lives. As a result, it has helped me today to understand the power of empathy and how we can help others” (Report 73).

“Thanks to this project, he saw again how chaotic and difficult the hospital was and how the doctors worked with great devotion. (Report 89)

The second most common themes of empathy for the profession were doctor communication, doctor’s perception from the patient’s point of view, and respect for the profession, respectively. “I can say that observing the patient’s mood told us how we should treat him in the future.

The unconditional trust of patients in us is invaluable. It is impossible to be rude in the face of this trust, but we still need to improve ourselves in order to use communication skills effectively. We must give satisfactory answers to the questions in the minds of patients. (Report 252).

“This practice taught me that the examination process in patients’ eyes is much longer than in doctors” (Report 109)

“First of all, I felt lucky to be a part of this app. Because I think that being a patient’s relative will add a lot to me in the future before I step into the medical life. I had moments of experience where I observed both the patient’s relative and the patient’s psychology. At the same time, it made me feel very happy when I helped my patient in the hospital. I once again experienced the sanctity of my profession, which I will practice in the future”. (Report 203).

The least common themes of empathy for the profession were the high number of patients and time pressure.

“I congratulate the doctor for the great success because he can think what is the patients’ problem and treatment in 5 minutes, without stopping. This project made me say again that I am glad I chose medical school.” (Report 12)

“When I saw how many patients there were, I once again remembered the difficulty of my profession by seeing how tired our doctors were and how many people tried to receive treatment during the day” (Report 54)

One of the Major themes reached in line with the analyzes is “Empathy for Oneself”. Table 7 shows the minor themes and their frequencies under this major theme.

It was found that the most common themes of self-empathy were personal satisfaction and gratitude for being healthy.

“This event made me feel like a doctor and for the first time in my life, I shared the problems of people I did not know and tried to understand them.

“This project reminded me to be thankful for my health again and once again made me sure about why I wanted to be a doctor” (Report 193).

Another theme was the development of multiple

perspectives, both as a patient and as a doctor. “The empathy homework I prepared lastly taught me to look from the eyes of the patient and the doctor. It was difficult for the patients to explain their problems and struggle to find a cure for their diseases. It was also difficult for doctors to take the right anamnesis, make the most accurate diagnosis, initiate appropriate treatment and cope with the heavy patient load. With this assignment, I was able to look at the event from two different eyes, and I was also professionally motivated by seeing the gratitude of the patients to the doctor after everything was over” (Report 165).

4. Discussion

Developing empathetic communication within the framework of communication skills can play an important role in preventing the problem of violence in the health sector, as well as contributing to the improvement of the general health quality from the individual to the society. For this reason, strengthening the empathy levels of physician candidates in the medical education process will positively improve their future responsibilities in the health sector and the role they will play in individual and public health (28).

This study was carried out both qualitatively and quantitatively. The project of “Become a relative of the patient before becoming a doctor” was implemented in order to improve the empathy skills of medical students in the education process. The students explained their experiences starting from the first moment they met the patient, both through the empathy scale questionnaires, and the reports they prepared. When mixed evaluation was made in our study, it was seen that 28 of the 50 students whose scores increased in both the Toronto and Jefferson scales after the practice, had 38 empathy expressions in the report analysis. It was observed that empathy was mostly related with the waiting time, personal satisfaction and the patient’s sadness about the disease. Our study is the first mixed study in Turkey in which the empathy levels of medical students were evaluated qualitatively and quantitatively.

Studies evaluating the level of empathy in medical students in Turkey have generally been conducted through survey studies (29-33). In studies conducted in our country in 2015 and 2017, the empathy levels of first, second and third year medical faculty students were measured, and it was commented that the empathy levels of the students in the next grades decreased due to the difficulty of the medical education process (32,33). In the world literature, the empathy levels of medical students were evaluated with questionnaires using empathy scales, and it was revealed that there were significant losses in empathy during and after medical education (6,34-36). These studies show the importance that empathy practices should be included in the curriculum in the preclinical period, as in our study, as it has been shown that students’ empathy levels decrease in the future.

In our study, upon examining the percentages of change obtained from the scale scores before and after the empathy practice in terms of gender, age, chronic disease status, choice of medical school, interest in arts, having pets, number of siblings, number of children in the family, academic score average, sleeping pattern, smoking and use of alcohol, with whom and where they live, economic status, and place of residence; it was seen that there was no statistically significant difference in total Jefferson scores and total Toronto empathy scores. A literature survey showed that there were some reports indicating a higher level of empathy in female medical students, while some others were stating that no significant relationship was found out between gender and empathy level, similar to the results of our study (37-39).

In our study; It was observed that there was a decrease in empathy scores after the empathy practice activity, if the students were diagnosed with a psychiatric illness and had a chronic illness in their first-degree relatives. Moir et al. (40) reported that anxiety, depression, and stress reduce the signal activity in mirror neurons, thereby reducing the understanding and empathy of the other person. Therefore, as in our study, we think that the stress caused by having a psychiatric illness and having a chronic

illness in the family affects the level of empathy. In our study, the students were not only taught through theoretical education, but also through one-to-one contact with the patient.

Similar to our study, the studies examined in the literature were also seen to be emphasizing the effectiveness of one-to-one practice with the patient, accompanying to learning through practical studies to be included in the curriculum, as a method that will ensure the reflection of empathy knowledge (14,15,17).

In our study, students had the opportunity to observe the attitudes and behaviors of doctors, who are role models, towards patients while accompanying patients. In the literature, it has been emphasized that the most important factor in increasing the empathy level of physician candidates is interaction with the role model (41,42).

In the satisfaction survey applied to the patients participating in our study, it was seen that this project, to increase empathic skills increased patient satisfaction. There are studies showing that there is a correlation between patient satisfaction, adherence to treatment, better clinical outcomes and less malpractice as a result of increasing empathic skills in the field of medical education (43).

In our study, two different empathy scales were used to increase the level of reliability. In the post-practice evaluation, it was found that the empathy level increased significantly with one scale, while the other scale showed an increase in percentage, but there was no significant increase. In the literature, different results have been reported in studies in which post-training evaluations were made with empathy scales. For example, in two studies measuring attitudes towards empathy after education, it was found that the level of empathy decreased and it was emphasized that the same student should be followed in all classes (44,45). In another study, it was emphasized that empathy knowledge increased after the training, but there was no increase in empathy skills (46).

In our study, the report in which the students clearly expressed all their experiences and feelings was analyzed by taking into qualitative

evaluation, considering that due to the increase in students' awareness of empathy after the practice, different results such as a decrease in the level of empathy may be obtained in the results of the questionnaire, and that the questionnaires made immediately after the practice may not reflect the real level of empathy. In the literature, there have been criticisms about the quantitative measurement of the empathy skills of medical students with scaled questionnaires, and it has been stated that the reports written by the students about how they feel are more valuable (47-49).

In two separate studies conducted in Germany, the factors affecting empathy were listed as; the prejudices, contact with the patient, practical skills, patient characteristics, physician-patient relationship, working conditions, and time pressure. Furthermore, detailed qualitative studies were recommended in the abovementioned studies (50,51).

In the qualitative study of Laughey et al. (52), the risks of empathic approach such as burnout and difficulty in coping were mentioned. It has been emphasized that the students should be made familiar with the strategies of coping with the emotional aspects of empathy with the patient, through training workshops and cognitive behavioral therapy techniques.

In another qualitative study, positive role models, time pressure and stress were reported as factors that positively affect empathy. The said study recommends the integration of empathic assessment into education. In that way, the students, establishing contact with the patients in the early years of their profession, will become good role models in the future for their students, and will be their mentors in terms of improving empathy skills (53).

In conclusion, despite the limitations such as being conducted in a single center and not evaluating the empathy skills of the same students in the next academic year, we found out that our study has been effective in increasing empathy levels both qualitatively and quantitatively, and in ensuring patient satisfaction. Furthermore, it has allowed us to evaluate empathy levels in a versatile way. Based on those findings, we

believe that our project can be applied in the education curriculum of medical faculties all over Turkey.

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Table 1: Students' empathy scale scores and percentages of change before and after empathy practice

		Mean ± S.S	Med (IQR)	P value	
Total Jefferson	Before empathy	5.24 ± 0.65	5.2 (4.85 - 5.75)		
	practice			0.0001*	(t=-
	After empathy	5.44 ± 0.75	5.5 (4.9 - 6)	3.85)	
	practice				
Percent age Change	Before empathy	4.41 ± 11.4	4.69 (-2.25 - 11.82)		
	practice				
	After empathy			0.005*	(z=-
	practice			2.789)	
Understanding the Patient	Before empathy	4.3 ± 1.23	4.5 (3.5 - 5)		
	practice				
	After empathy	4.63 ± 1.43	4.5 (4 - 5.5)		
	practice				
Compassionate Maintenance	Before empathy	5.66 ± 0.95	5.86 (4.86 - 6.43)		
	practice			0.001*	(z=-
	After empathy	5.9 ± 0.92	6 (5.29 - 6.71)	3.274)	
	practice				

	Percent age Change	6.46 ± 22.07	3.23 (-2.08 - 12.12)	-
	Before empathy	5.36 ± 0.89	5.5 (4.7 - 6)	
Taking Perspective	practice After empathy	5.52 ± 1	5.6 (5 - 6.3)	0.002* (z=- 3.121)
	practice Percent age Change	3.56 ± 13.6	4.69 (-1.92 - 11.86)	-
	Before empathy	4.22 ± 0.48	4.31 (3.92 - 4.62)	
Total Toronto	practice After empathy	4.25 ± 0.58	4.31 (3.92 - 4.69)	0.097 (z=-1.661)
	practice Percent age Change	0.85 ± 10.19	1.61 (-3.45 - 5.36)	

Table 2: Comparison of students' demographic characteristics and empathy scale score change percentages before and after empathy practice

			Total_	Understa	Compas	Taking	Total
			Jefferson	nding	sionate	Perspect	Toronto
			Patient	the	Mainten	ive	
			Percent	Percent	Percent	Percent	Percent
			age	age	age	age	age
			Change	Change	Change	Change	Change
Gender (n / %)	Male	51	4.2 ± 12.1 (5.9)	15.4± 45.3 (8.3)	7.9 ± 26.3 (6.5)	2.2± 14.4 (5.2)	1.7± 12.9 (1.6)
	Female	64	4.6 ± 10.9 (4.4)	11.6± 38.1 (0)	5.3 ± 18.2 (2.5)	4.6± 12.9 (3.7)	0.2± 7.3 (1.6)
	P value		0.975	0.83	0.674	0.725	0.514
Age	Mean ± S.S; Med (IQR)	20.31 ± 0.85	-0.072 p=0.442	-0.087 p=0.357	-0.012 p=0.901	-0.097 p=0.304	0.043 p=0.647
	Chronic disease (n / %)	No	102	4.8 ± 11.5 (5.2)	13.3± 42.6 (0)	7.7 ± 22.6 (4.3)	3.7± 13.5 (4.9)
	Yes	13	1.6 ± 10.3 (3.5)	12.7± 30.6 (9.1)	-3.2± 14.6 (0)	2.2± 14.8 (1.4)	-0.6±6.5 (0)
	P value		0.345	0.901	0.091	0.836	0.404
Psychiatric illness (n / %)	No	109	5.1 ± 10.7 (5.2)	13.5± 42.2 (0)	7.4 ± 21.9 (4.3)	4.3± 13.3 (5.2)	0.6± 8.8 (1.6)
	Yes	6	-8.4± 16.7 (-3.1)	9±20.1 (9.1)	-10±21.2 (-4.2)	9.5±12.4 (-6.2)	6±25.9 (0.8)
	P value		0.03*	0.98	0.039*	0.015*	0.97
Chronic disease in family	No	61	4.1 ± 11.6 (4.4)	12.5± 44.1 (0)	5±19 (3.1)	4.4± 13.9 (6.3)	3±11.2 (3.4)

(n / %)	Yes	53	4.5 ± 11.2 (4.7)	14.2±38.7 (0)	7.9 ± 25.4 (3.2)	± 2.4± 13.3 (2.2)	-1.6± 8.4 (0)
P value			0.807	0.857	0.516	0.465	0.009*
<hr/>							
Willfully selected of medical faculty							
(n / %)	No	13	5.1 ± 7.2 (7.4)	4.6 ± 20.3 (0)	4.4 ± 6.9 (4.4)	7.4± 11.8 (11.3)	1.3 ± 5.9 (0)
(n / %)	Yes	102	4.3 ± 11.9 (4.4)	14.4± 43.2 (8)	6.7 ± 23.3 (3.2)	± 3.1± 13.8 (3.7)	0.8± 10.6 (1.7)
P value			0.707	0.384	0.856	0.181	0.781
<hr/>							
Interest in art science							
(n / %)	No	55	5.5 ± 12.9 (5.6)	15.5 ± 45 (0)	7.2 ± 21 (4.4)	4.6± 13.9 (6.3)	2.5 ± 11 (1.8)
(n / %)	Yes	60	3.4 ± 9.8 (4.4)	11.2 ± 37.9 (8)	5.8 ± 23.2 (2.8)	± 2.6± 13.4 (2)	-0.7± 9.2 (1.6)
P value			0.3	0.862	0.618	0.341	0.11
<hr/>							
Having a pet							
(n / %)	No	87	4.2 ± 10.7 (4.3)	11.6 ± 41 (7.7)	6.5 ± 22.3 (3.2)	± 3.7± 13.7 (3.8)	0.5± 8.8 (1.6)
(n / %)	Yes	28	5.2 ± 13.7 (6.6)	18.6 ± 42.6 (0)	6.3 ± 21.8 (2.7)	± 3.2± 13.5 (6.4)	1.9± 13.7 (1.8)
P value			0.48	0.714	0.948	0.708	0.627
<hr/>							
Number of siblings							
A.O ± S.S;		1.68 ± 1.22	r=0.063	0.13	0.004	0.163	0.132
Med (IQR)			p=0.502	p=0.169	p=0.971	p=0.082	p=0.163
<hr/>							
Which child among siblings							
A.O ± S.S;		1.76 ± 0.9	r=-0.073	0.003	-0.045	-0.031	-0.071
Med (IQR)			p=0.438	p=0.976	p=0.632	p=0.743	p=0.45

Academic mean score	A.O ± S.S; Med (IQR)	74.92 ± 6.45	r=-0.028 p=0.773	-0.027 p=0.781	-0.009 p=0.928	-0.054 p=0.581	-0.09 p=0.359
Sleep patterns (n / %)	Good	28	5.8±8.1 (5.4)	20.2± 47.9 (11.8)	3.9 ± 21.7 (1.6)	6.5±7 (6)	0.6±9 (0.8)
	Moderately	69	4.5±11 (4.6)	12.1± 40.6 (0)	8.2 ± 21.6 (3.2)	2.5± 14.7 (2.9)	1.1± 11.3 (1.8)
	Bad	18	1.9 ± 16.6 (5.2)	6.8 ± 32.8 (6.3)	3.9±25 (4.4)	3.1± 16.7 (7.5)	0.2±7.6 (1.6)
P value			0.815	0.419	0.75	0.456	0.89
Drinking alcohol (n / %)	Frequently	8	-3.7± 19.8 (3.2)	18.9± 47.8 (0)	-6.5± 23.3 (3.3)	-3.7± 17.6 (1.2)	-0.4± 10.1 (0.9)
	sometimes	23	3.4 ± 10.1 (5.8)	16.2± 42.2 (14.3)	2.6 ± 16.7 (0)	3.1± 11.7 (3.8)	1.3±9.1 (1.8)
	rarely	28	6.7±9.8 (4.6)	12.8± 46.4 (3.8)	14 ± 31.9 (3.7)	3.9±8.8 (2.8)	0.1± 10.6 (- 0.8)
	never	56	4.8 ± 10.9 (4.5)	11.5± 38.2 (8)	6.1 ± 16.5 (4.5)	4.6± 15.6 (5.5)	1.2± 10.6 (1.6)
P value			0.757	0.937	0.362	0.714	0.971
Smoking (n / %)	No	84	4.1 ± 10.6 (3.8)	12.9± 40.6 (8)	4.7±16.7 (3.2)	3.8± 13.1 (2.5)	1.4±9.6 (1.6)

	Yes	30	5.4 ± 13.6 (8.4)	14.7± 44.4 (0)	11.7± 32.9 (6.6)	2.9± 15.2 (6.4)	-0.5± 11.8 (1.9)
P value			0.168	0.821	0.34	0.627	0.979
	hostel	28	5.2 ± 11.3 (5.5)	17.9± 38.4 (8)	6.7 ± 13.3 (5.9)	2.1±17 (5.6)	2.8± 13.2 (2.5)
With whom/w here does he/she live (n / %)	Alone in house	63	4.7 ± 12.1 (4.6)	12.7± 43.2 (7.7)	7.9 ± 26.8 (4.3)	4.2± 12.9 (3.8)	0.1± 8.5 (0)
	With friends	6	3.6 ± 10.8 (1.7)	17.8± 54.3 (0)	- 0.5±11.7 (2.4)	5.1±7 (4.6)	-0.7± 17.3 (0.2)
	With family	18	2.5 ± 9.6 (5.2)	6.7 ± 36.6 (0)	3.3 ± 17.2 (2.4)	3 ± 12.3 (7.1)	0.9± 7.5 (1.9)
P value			0.925	0.838	0.797	0.989	0.765
	income less than expense	10	1.1 ± 10.7 (4.7)	28.5± 60.9 (11.3)	2.9 ± 10.8 (3.3)	-2.7± 20.9 (1.8)	3 ± 21.1 (0.8)
Economic status (n / %)	income equals expense	63	5±10.2 (4.7)	14.8± 45.2 (0)	7.4 ± 23.6 (4.7)	4.2± 12.1 (4.8)	-0.1± 8.7 (1.6)
	income more than expenses	42	4.3 ± 13.3 (4.5)	7.4 ± 27.2 (0)	5.8 ± 21.9 (2.5)	4.1± 13.7 (3.6)	1.7± 8.5 (1.7)
P value			0.614	0.675	0.948	0.688	0.881
	In the city center	68	4.3 ± 11.7 (4.4)	15 ± 45.4 (9.2)	6.9 ± 23.6 (2.5)	3.2± 14.4 (1.8)	0.5± 10.8 (1.6)
Residing (n / %)	District	45	4.8±11 (7.2)	11.4± 35.4 (0)	5.4 ± 19.9 (5.3)	4.4± 12.4 (6.4)	1.3± 9.4 (1.7)
	Rural	2	1.7±18 (1.7)	-2.1± 20.6 (2.1)	15.6± 22.1 (15.6)	-3.5± 14.2 (3.5)	1±4.7 (1)
P value			0.585	0.818	0.787	0.538	0.701

Table 3: Comparison of the characteristics of the patients accompanied by the students in the empathy practice and the empathy scale score change percentages of the students before and after the empathy practice

		n	%	Total_J efferson Percent _Chang e	Patient_Un derstanding Percent_Ch ange	Caring_ Care Percent _Chang e	Taking Perspe ctive Percent _Chan ge	Total_T oplam_ Percent _Chang e
Gender	Male	54	47	2.7± 11.6 (4.5)	7.3±41.6 (0)	4.1± 18.9 (2.2)	2.2± 14.2 (3.8)	0.3± 11.9 (1.6)
	Female	61	53	6 ± 11.1 (5.2)	18.6 ± 40.6 (9.1)	8.5± 24.5 (5.3)	4.8 ± 13 (5.6)	1.3 ± 8.4 (3.3)
	P value			0.342	0.086	0.319	0.51	0.218
Patient age	Mean ± S.S; Med (IQR)	47.51 ± 19.06	46 (28.75 - 64)	-0.02 (p=0.83)	-0.139 (p=0.14)	-0.073 (p=0.44)	0.002 (p=0.9 87)	-0.039 (p=0.67 9)
marital status of the patient	Single	37	32.7	2.4±12. 8 (2.8)	7.6±33.6 (0)	5.1±21. 4 (6.5)	2.9±16. 7 (4.8)	0.5±15. 4 (0)
	Married	76	67.3	4.7 ± 9.9 (5.5)	15.5 ± 44.5 (8)	5.8 ± 20.8 (2.8)	3.5 ± 11.8 (3.7)	1.3 ± 6.5 (1.7)
	P value			0.263	0.322	0.639	0.985	0.315

Patient's occupation	Officer	9	7.8	2.4 ± 13 (2.8)	-4.6 ± 18.8 (0)	1.1 ± 16.2 (6.5)	4.8 ± 13.7 (9.8)	-1.5 ± 10.2 (1.7)
	employee	15	13	2.4 ± 13.2 (4.4)	27.1 ± 52.5 (9.1)	5.8 ± 24.4 (3.1)	-0.8 ± 22.3 (0)	-1.7 ± 10.3 (1.6)
	housewife	29	25.2	7.2 ± 7.8 (5.8)	26.7 ± 50.5 (20)	11.5 ± 27 (6.8)	4.3 ± 9.2 (4.7)	2.1 ± 8.5 (3.4)
	Self-employed	13	11.3	6.6 ± 10.7 (5.6)	10.5 ± 26.7 (11.1)	14.2 ± 20.8 (6.5)	2.3 ± 8.7 (3.8)	3.9 ± 17.9 (1.9)
	Student	15	13	8.2 ± 13.6 (7.1)	26.7 ± 35.9 (18.2)	7.4 ± 21.5 (6.5)	9.4 ± 16.1 (9.4)	0.7 ± 12.2 (0)
	Retired	27	23.5	1.1 ± 11.5 (2.4)	-2.1 ± 31.4 (0)	1.4 ± 18.1 (0)	2.1 ± 12.3 (5.7)	0.8 ± 6.4 (1.6)
	Daily work**	1	0.9	-	-	-	-	-
	Farmer	6	5.2	2.7 ± 12.4 (2.2)	-16 ± 27.9 (-3.6)	-2.7 ± 16.3 (-1)	7.1 ± 8.4 (9.2)	0.2 ± 4.2 (0)
	P value			0.488	0.018*	0.389	0.538	0.947
	Educational status of the patient	illiterate*	2	1.8	-4.2 ± 12 (4.2)	-38.9 ± 7.9 (-38.9)	-8.3 ± 35.4 (-8.3)	4 ± 3.4 (4)
	can read and write	4	3.5	2.8 ± 11 (3.8)	11.3 ± 35.1 (2.7)	6.8 ± 8.3 (7.1)	0.9 ± 10.2 (3.2)	2 ± 8.5 (1.7)

	primary school	39	34.2	3.5± 12.1 (5.8)	23±51.7 (12.5)	5 ± 26.3 (3.2)	2.2± 12.7 (3.6)	-0.3± 8.5 (0)
	primary or secondary school	13	11.4	6 ± 11.4 (6.1)	4.4 ± 24.7 (0)	7.1± 28.3 (2.5)	7.7± 14.8 (8.9)	4.9± 15.9 (1.8)
	high school and equivalent university	28	24.6	5.8± 10.3 (3.7)	18.9 ± 34.3 (3.8)	7.9± 15.5 (3.1)	3.5± 11.8 (2.6)	1.1 ± 10 (3)
	graduate	24	21.1	5 ± 11.2 (4.1)	3.5 ± 36.2 (4.2)	9.7± 20.4 (8.3)	3.7± 16.7 (5.5)	0.9 ± 11 (3.7)
		4	3.5	-2.2± 15.9 (0.4)	-16.1 ± 21.1 (-10)	-2.2± 18.6 (1.2)	1.1 ± 20 (6.1)	-0.6± 2.6 (- 0.4)
	P value			0.959	0.219	0.759	0.948	0.733
Economic status of the patient	Income less than expense	28	24.3	0±13 (2.3)	9.3±46.8 (0)	4.1± 31.3 (1.6)	-1.2± 16.8 (1.7)	0.4± 14.5 (0)
	Income equals expense	81	70.4	6 ± 10.7 (5.9)	15±40.4 (8.3)	8±18.6 (6.5)	4.8± 12.3 (5.1)	1.3 ± 8.6 (1.8)
	Income more than expenses	6	5.2	3.1 ± 8.8 (0.2)	8 ± 27.4 (5)	-4 ± 10.2 (0)	8.3± 8.9 (8.7)	-2.6± 4.6 (- 2.7)
	P value			0.074	0.601	0.074	0.213	0.205
Department to which the patient control applied	Surgical clinic	26	28.3	6.3± 12.1 (6.8)	14.2 ± 43.3 (8.7)	11.7± 31.8 (6.9)	2.9± 11.9 (5.3)	-0.2± 9.3 (0.8)
	Internal medicine	58	63	4.5± 11.6 (4.7)	12.2±36.4 (9.2)	4.7± 17.0 (3.2)	5.2± 14.3 (5.7)	1.9± 10.2 (1.8)
	P value			0.587	0.881	0.598	0.873	0.495

Table 4: Major and minor themes

Major theme	Empathy towards the patient	Empathy towards the profession	Empathy towards self	Other
Minor theme	Waiting time	Excessive number of patients	Personal satisfaction	Ability to see from both patient and doctor perspectives/multiple perspectives
	Feeling of sadness about illness	Doctor communication	Be thankful for being healthy	
	Social support	Hospital functioning		
	Communication /behavior	Stress due to limited time		
	Glad you're getting better	Doctor's perception from the patient's eyes		
	Difficulty of the process	Awareness of the profession		
	Respect for the patient	Respect for the profession		

Table 5: The theme of empathy towards the patient

Major Themes	Empathy for the Patient	f
Minor Themes	Waiting time	30
	Don't be sad about the disease	31
	Social support	9
	Communication/behavior	7
	Glad you're getting better	13
	Difficulty of the process	47
	Respect for the patient	23

Table 6: The theme of Empathy for the profession

Major Theme	Empathy for the Profession	f
Minor Theme	Excessive number of patients	2
	Doctor communication	17
	Hospital functioning	29
	Stress due to limited time	5
	Doctor's perception from the patient's eyes	16
	Awareness of the profession	35
	Respect for the profession	15

Table 7: The theme of empathy for oneself

Major Theme	Empathy for Oneself	f
Minor Theme	personal satisfaction	48
	Be thankful for being healthy	9