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### An investigation of the empathy with patients and association with communicational skills and compliance of professional ethics in medical students of Jahrom University of Medical Sciences: a pilot study from the south of IRAN

**Background:** Patients' right in the field of health services plays an important role in physician – patients' relationship and is an important factor in health system management. Empathy and communication skills are nowadays one of the important issues in the field of treatment. Professional ethics are also an intrinsic part of the medical profession, and it is important to consider the components that influence professional ethics. The aim of this study was to determine the level of empathy and the relationship between these two components with respect to professional ethics.

**Methods:** This cross-sectional study was conducted on 3 levels of clinical students by consensus sampling in Jahrom University of Medical Sciences. Data gathering included demographic information form, revised communication skills questionnaire, interpersonal reactivity index (empathy), and the questionnaire of compliance with professional ethics standards. Communication skills questionnaire consisted of 34 items in a 5-point Likert scale. The interpersonal reactivity index consisted of 28-items and 5-degree spectrum, and the professional ethics criteria questionnaire consisted of 31 questions in a five-option Likert scale.

**Results:** The highest average in assessing compliance with professional ethics was in the domain of patient care with a value of  $27.30 \pm 4.8$ ; the highest average in the communication skills was in the domain of regulating emotions with a value of  $24.04 \pm 3.32$ , and in the area of empathy it was related to personal distress skill with a value of  $17.26 \pm 6.9$ . Based on the results of regression analysis, it was determined that empathy could significantly predict communication skills ( $p=0.0001$ ). Also there are correlation between empathy and some sub domains in communication skills and compliance with professional ethics. Communication skills correlated to compliance of professional ethics. All of them was significant ( $p<0.05$ ).

**Conclusion:** Considering empathy as a human skill in medical care and its relationship with communication skills and compliance with ethical codes, it is necessary to train these skills in workshop programs to improve students' knowledge and practice about them.

**Keywords:** Empathy, Communication skills, Professional ethics, Medical students, Medical ethic

### بررسی میزان همدلی با بیماران و همسویی آن با مهارت های ارتباطی و رعایت اخلاق حرفه ای در دانشجویان پزشکی جهرم: یک مطالعه پایلوت در جنوب ایران

**زمینه و هدف:** رعایت حقوق بیمار در عرصه خدمات سلامت، نقش مهمی را در بهبود و تنظیم رابطه پزشک و بیمار ایفا می کند و در مدیریت نظام سلامت از اهمیت بالایی برخوردار است. همدلی و مهارت های ارتباطی امروزه به عنوان یکی از موضوعات مهم در حوزه درمان مطرح شده اند. رعایت اخلاق حرفه ای نیز جزء ماهیت ذاتی حرفه پزشکی است و بررسی مولفه هایی که بر روی رعایت اخلاق حرفه ای تأثیر میگذارد بسیار با اهمیت است. هدف این مطالعه بررسی میزان همدلی و ارتباط بین فردی دانشجویان پزشکی و ارتباط بین این دو مؤلفه با رعایت اخلاق حرفه ای بوده است.

**روش:** مطالعه حاضر یک مطالعه مقطعی است که بر روی دانشجویان پزشکی دانشگاه علوم پزشکی جهرم انجام شده است. نمونه گیری به صورت سرشماری از کلیه دانشجویان در سه مقطع بالینی، کارآموزی و کارورزی انجام گرفت. ابزارهای مورد استفاده شامل: فرم اطلاعات دموگرافیک، نسخه تجدید نظر شده پرسشنامه مهارت های ارتباطی جرابک، پرسشنامه شاخص واکنش پذیری بین فردی (همدلی) و پرسشنامه رعایت معیارهای اخلاق حرفه ای می باشند. پرسشنامه مهارت های ارتباطی با ۲۴ ماده با ۵ حیطه، شاخص واکنش پذیری بین فردی با ۲۸ سوال در یک طیف ۵ درجه ای با ۴ حیطه و پرسشنامه رعایت معیارهای اخلاق حرفه ای با ۳۱ سوال پنج گزینه ای و ۸ حیطه استفاده شد. داده ها با استفاده از نرم افزار SPSS نسخه ۲۱ مورد تجزیه و تحلیل قرار گرفتند.

**یافته ها:** بالاترین میانگین در سنجش رعایت اخلاق حرفه ای به حیطه کیفیت مراقبت از بیمار با مقدار ( $27.30 \pm 4.8$ )، در مهارت های ارتباطی به حیطه نظم دهی به هیجان ها با مقدار ( $24.04 \pm 3.32$ ) و در حیطه همدلی مربوط به حیطه مهارت پریشانی شخصی با مقدار ( $17.26 \pm 6.9$ ) اختصاص داشت. بر اساس نتایج رگرسیون مشخص شد که همدلی به صورت معنی داری قادر به پیش بینی مهارت های ارتباطی میباشد ( $p=0.0001$ ). ارتباط معنی داری بین همدلی و برخی زیر حیطه های مهارت های ارتباطی و سپس با شاخصهای رعایت اخلاق حرفه ای وجود داشت. مهارت های ارتباطی نیز با رعایت اخلاق حرفه ای مرتبط بود ( $p<0.05$ ).

**نتیجه گیری:** به نظر میرسد همدلی به عنوان یک مهارت انسانی در مراقبت های پزشکی با مهارت های ارتباطی دانشجویان و سپس رعایت کدهای اخلاقی ارتباط داشته و لازم است در امر آموزش کاربردی آن در دانشجویان مد نظر قرار گیرد.

**واژه های کلیدی:** همدلی، مهارت های ارتباطی، اخلاق حرفه ای، دانشجویان پزشکی

### تقييم التعاطف مع المرضى وارتباطه بمهارات الاتصال والأخلاقيات المهنية لدى طلاب كلية الطب في مدينه جهرم: دراسة تجريبية في جنوب إيران

**الخلفية والهدف:** إن مراعاة حقوق المرضى في مجال الخدمات الصحية يلعب دوراً هاماً في تحسين وتنظيم العلاقة بين الطبيب والمريض وهو ذو أهمية كبيرة في إدارة النظام الصحي. تعد مهارات التعاطف والتواصل في الوقت الحاضر واحدة من أهم القضايا في مجال العلاج. تعتبر الأخلاقيات المهنية جزءاً جوهرياً من مهنة الطب، ومن المهم فحص المكونات التي تؤثر على الأخلاقيات المهنية. كان الغرض من هذه الدراسة هو التحقيق في التعاطف والعلاقة الشخصية بين طلاب الطب والعلاقة بين هذين العنصرين مع الأخلاقيات المهنية.

**الطريقة:** أجريت هذه الدراسة مستعرضة على 3 مستوى من الطلاب السريريين عن طريق أخذ العينات بالإجماع في جامعة جهرم للعلوم الطبية. شمل جمع البيانات نموذج المعلومات الديموغرافية، استبيان مهارات الاتصال المنفتح، مؤشر التفاعل بين الأفراد (التعاطف) واستبيان الامتثال لمعايير الأخلاقيات المهنية. تم استبيان مهارات الاتصال في 34 بند مع 5 نقاط من مقياس ليكرت، مؤشر التفاعل بين الأفراد من 28 بنداً مع 5 درجات للطيف واستبيان معايير الأخلاقيات المهنية مع 31 سؤالاً بمقياس ليكرت ذو خمسة خيارات. تم تحليل البيانات باستخدام برنامج SPSS 21.

**النتائج:** اختص أعلى متوسط في تقييم الامتثال لأخلاقيات المهنة مجال رعاية المرضى بقيمة  $27.30 \pm 4.8$ ؛ في مهارات الاتصال مجال تنظيم العواطف بقيمة  $24.04 \pm 3.32$  وفي مجال التعاطف كان مرتبطاً بمهارة الضيق الشخصي بقيمة  $17.26 \pm 6.9$ . بناء على نتائج تحليل التراجع، تم تحديد أن التعاطف يمكن أن يتنبأ بشكل كبير بمهارات الاتصال ( $P=0.0001$ ). هناك أيضاً علاقة بين التعاطف وبعض المجال الفرعي في مهارات الاتصال والامتثال للأخلاقيات المهنية و كان أيضاً مهارات الاتصال مرتبطة بالامتثال للأخلاقيات المهنية. وكان كل منهم كبير ( $P<0.05$ ).

**الخلاصة:** بالنظر إلى التعاطف باعتباره مهارة إنسانية في الرعاية الطبية وعلاقتها بمهارات الاتصال والامتثال للقواعد الأخلاقية، من الضروري تدريب هذه المهارات في برامج ورشة العمل وتحسين معرفة الطلاب وممارستها حول ذلك.

**الكلمات المفتاحية:** التعاطف، مهارات الاتصال، الأخلاقيات المهنية، طلاب الطب

بیماروں کے ساتھ ہمدردی سے پیش آنا اور پیشہ ورانہ اخلاق پر عمل پیرا ہونا، اس موضوع پر جہرم یونیورسٹی آف میڈیکل سائنس میں انجام دی گئی تھی، جنوبی ایران میں یہ ایک پائلٹ اسٹڈی ہے

**بیک گراؤنڈ:** طبی خدمات فراہم کرنے کے عمل میں بیمار کے حقوق کی رعایت کرنے سے ڈاکٹر اور بیمار کے رابطے میں بہتری آتی ہے، میڈیکل سروسز کی فراہمی میں اس بات کی نہایت اہمیت ہے۔ بیمار کے ساتھ ہمدردی اور محبت سے پیش آنا علاج کرنے کے عمل میں بنیادی اہمیت کا حامل قرار دیا گیا ہے۔ پیشہ ورانہ اخلاقی اصول بھی طبابت کا لازمی جز ہے۔ وہ عوامل بھی نہایت اہمیت کے حامل ہیں جو ڈاکٹر کے پیشہ ورانہ اخلاق پر موثر ثابت ہوتے ہیں۔ اس تحقیق میں میڈیکل اسٹوڈنٹس اور بیمار کے درمیان محبت اور ہمدردی پر مبنی رابطے نیز اس کے ساتھ ساتھ پیشہ ورانہ اصولوں پر پابند رہنے کا جائزہ لیا گیا ہے۔

**روش:** یہ ایک عارضی تحقیق ہے۔ اس میں جہرم شہر کی یونیورسٹی آف میڈیکل سائنس کے طلباء کو شریک کیا گیا تھا۔ طلباء کو کلیینیکل، انٹرن، اور ریزیڈنٹ کے گروپوں میں بانٹا گیا۔ ڈیٹا حاصل کرنے کے لئے سوالنامہ دیا گیا جس میں ڈیموگرافیک امور، ہمدردی کے نتیجے میں سامنے آنے والا رد عمل، مریض کے ساتھ رابطہ برقرار کرنے کی چوتھیں مہارتوں اور پیشہ ورانہ کارکردگی کے بارے میں سوالات کے گئے تھے اس میں اکتیس سوالات تھے ہر سوال کے ضمن میں پانچ جواب لکھے گئے تھے اور یہ آٹھ موضوعات پر مشتمل تھے۔ ڈیٹا کا تجزیہ ایس پی ایس ورژن اکیس سے کیا گیا۔

**نتیجے:** سب سے زیادہ نمبر پیشہ ورانہ اخلاق میں بیمار کی اچھی نگہداشت کو ملے، اسکے بعد بیمار کی پریشانی کو دور کرنے کی کارکردگی کو نمبر ملے ہیں۔ رگریشن ٹسٹ سے پتہ چلا ہے کہ ہمدردی سے پیش آنے سے بیمار کے ساتھ اچھے برتاؤ کے راستے خود بخود نکل آتے ہیں۔ اس سے یہ بھی پتہ چلا ہے کہ رابطہ برقرار کرنے کی مہارتیں خود بخود پیشہ ورانہ صلاحیتوں سے جڑی ہوئی ہیں۔

**سفرارش:** ہمدردی ایک نہایت اہم انسانی صفت ہے جو طبی خدمات کی فراہمی میں میڈیکل طلباء اور ڈاکٹروں کو بیمار کے ساتھ اچھے اخلاقی اصول اپنانے پر مائل کرتی ہے، اسی وجہ سے یہ ضروری ہے کہ ان اقدار کی طرف طلباء کی توجہ مبذول کرائی جائے۔

**کلیدی الفاظ:** ہمدردی، رابطے کے اصول، پیشہ ورانہ اصول

## INTRODUCTION

Respecting the patient's rights in the field of health services plays an important role in improving the relationship between the physician and patient, and it is very important in the management of a health system. Given that one of the most basic principles of medicine and patient's rights is having an informed consent with their physician, empathy and communication skills are nowadays considered as one of the important issues in the field of treatment. Also, given the importance of understanding and focusing on education, evidence-based medicine in the growth of medical students, the importance of teaching methods that improve the communication between the patient and physician and as a result of community health promotion has been shown to increase their effectiveness (1,2)

Empathy has a long history and its origins date back to the late 19th century. The Latin word of 'empathy' derives from the German word 'einfühlung' which means the perception of beauty, as well as the Greek word 'empathia' which means understanding the factors beyond oneself (3).

It is the ability to be in others' shoes, and thus to better understand their feelings and experiences. Empathy consists of two parts: a cognitive part that is the ability to recognize the feelings and experiences of others and an emotional part, which is the division of emotions and experiences. The goal of empathy in medicine is mostly related to its cognitive part. According to studies, the level of communication skills in physicians has a direct effect on the patients' satisfaction and collaboration for complete treatment and follow-up of the doctor's orders and, ultimately, the final outcome of the treatment (4). The essence of empathic communication is to have a strong relationship with the patient, the accurate and thorough understanding of the patient's sense of illness and pain by the physician. Besides, it is an effective demonstration of this understanding to the patient, which makes the patient feel that his pain and problems are fully understood by the physician and are valuable to the physician and, as a result, the patient will be more cooperative with his doctor (5, 6). Nowadays in medical science, the physician's expression of sympathy with the patient is considered as a major component of medical interview. And many studies have shown that increasing the communication skills and empathy with the patient not only increases the chance of further treatment, but it improves the doctor's job satisfaction and reduces his work stresses (7-9). Good communication between doctor and patient is the foundation of good medical cares. Research shows that most of the medical diagnoses and treatment decisions are based on the information obtained from the interview.

The ability to communicate is a basic human skill and, like many skills, some people have more intrinsic talent to communicate more effectively than others, but skills can and must progress. A review of communication skills training studies for medical students and doctors has shown that this training has been successful in establishing communication. The purpose of communication is to exchange information, create common understanding, bring trust, and reach a common decision. Physicians need to learn basic skills such

As physician-patient interpersonal skills such as greeting, active listening, empathy, respect, interest, humility, tolerance, secrecy, information gathering, patient information and education, as well as advanced communication skills (10,11).

Professional ethics is a set of principles and standards that defines the behavior of individuals and groups and is a rational thinking process aiming to determine which values in an organization are to be preserved and disseminated (7,8). On the other hand, it is a set of active and reactive behaviors to provide the most desirable social relationships possible for their members in carrying out their professional and occupational tasks. Likewise, it is a kind of moral commitment and work with conscientious individuals (6). Also it will develop the primary health care and patient-centered care. Communication skills are a main component of approach to care (12).

Professional ethics is a thoughtful and rational thinking process for the preservation and dissemination of professional values in order to provide the best status for the realization of the rights of the right-holders in a suitable social relationship (13,14).

In a study by Khodabakhsh et al. aiming at investigating the relationship between amnesty and empathy in medical and nursing students, the results showed that amnesty plays an important role in empathy and insights on the quality of the relationship between the doctor, nurse and patient (15).

Moreover, in the study of Mir Haghjo et al., which examined the communication skills of the patient and its related factors in nursing students, the results showed that communication skills of students are in a moderate to good level. With regard to the relationship between communication skill trainings and mastery over them and also the positive correlation of age with communication skills in this study, communication skill trainings seem to be beneficial in upgrading these skills preferably at the time of entering the university (16).

In a study investigating the communication skills of dental professionals and their effects on patients' satisfaction in Mashhad University of Medical Sciences, the results showed that communication skills were an integral part of the physicians' clinical skills. Using the correct verbal and non-verbal communication skills such as patient respect, attention to and empathy with the patient, asking open questions, listening actively and using intelligible words for patients, they can increase the effectiveness of the medical interview and treatment process, as well as the level of satisfaction in patients (17).

Compliance with professional ethics is an essential part of the medical profession. The mission of this statement is to provide health, care, treatment, and rehabilitation services at the highest standards of care for the maintenance and promotion of community health (18).

Compliance with professional ethics in the organization is necessary to prevent conflict in the society and, on the other hand, to ensure long-term interests by making rational decisions. What should be taken into consideration in the face of professional ethics is that professional ethics consists of individual ethics and job ethics at the first step, and then as a legal entity at the organizational level (14).

Considering the importance of compliance with professional ethics, the goal of the present study is to investigate the predictive effects of empathy on professional ethics. This topic, in addition to the impact of empathy on communication skills, is one of the important topics discussed in this paper.

Also empathy and communication are considered very important issues in medicine, which increase the patients' satisfaction and better diagnosis and treatment of disorders. Providing an appropriate interpersonal relationship between the physician and patient is one of the important goals of communication. Our goal is to determine the relationship between empathy and communication skills as an important issue in medical skills. Also compliance of ethical codes and related factors is an important issue in medicine. Considering the fact that no study has been done on both components so far, and also relation with this component and compliance of ethic codes, this study aimed to investigate the coherence of patient empathy with communication skills in medical students of Jahrom.

## METHODS

This cross-sectional study was conducted on medical students of Jahrom University of Medical Sciences. Sampling was done by census sampling from all medical students in three educational areas of students during Internship. All students in clinical stages who were willing to participate in the study were included in study. The exclusive criterion was the failure to complete the questionnaire correctly. The tools used in this study included a demographic information form (age, gender, field of study, term of education, native or non-native), a revised communication skills questionnaire, an interpersonal reactivity index (empathy), and the questionnaire of compliance with professional ethics standards. In order to measure the students' communication skills, the revised version of the communication skills questionnaire developed by the students was used. The questionnaire has 34 items in a 5-point Likert scale (1 = never, 5 = always). The scope of the questionnaire includes verbal and non-verbal message comprehension skills, excitement regulation skills, listening skills, insight skills in relation to the communication process, and timeliness. This questionnaire was normalized in Iranian population (19). The interpersonal reactivity index of the 28-item questionnaire was used in a 5-degree spectrum to measure empathy. This instrument measures the four components of personal distractions, sympathetic attention, attainment of perspective, and imaginary empathy. The normalization and

validation of this questionnaire were established with previous Iranian samples (20).

The professional ethics criteria questionnaire was used to assess compliance with professional ethics standards in the domains of accountability, patient respect, and quality of patient care from the viewpoint of medical students in this study. This questionnaire included 31 questions in a five-option Likert scale (Always, often, sometimes, rarely, never). At this scale, the score less than or equal to 62 was considered as an undesirable performance, the score 63 to 93 showed a relatively desirable performance, and the score 94 to 124 indicated a desirable performance. This questionnaire was normalized and used by Iranian researchers (21).

Descriptive statistics such as correlation coefficient, mean and standard deviation and regression coefficient was used to predict two variables on empathy. Finally, all data were analyzed using SPSS software version 21. Intervention performed in studies involving human participants were in accordance with the ethical committee of Jahrom University of Medical Sciences. Proposal extracted from the present study confirmed in ethical committee code number (IR.Jums.REC.1395.111).

## RESULTS

The results of the research showed that 71% of the participants were women and the rest were men. Thirty-five of these students were Intern, 40 were Extern, and 45 were students. Number of students in Internal ward (12), Pediatrics (21), Orthopedic (8), psychiatry (3), Urology (2), Surgery (15), Obstetric (15), Ophthalmology (3), ENT (4), Rehabilitation (4), Emergency and Screen (8), Anesthesia (3), Skin (2) reported that most students have a moderate degree of communication with 50 (62.5%). The students' communication skills based on skill level were average level 50(62.5 %).

The results of Table 1 showed that paying attention to empathy with a mean of 15.86 and imaginary empathy with an average of 13.15 have the highest level of empathy index. Although the average of the domains is generally low (Table 1). The Relationship between communication skills and empathy dimensions was statistically significant with correlation coefficient ( $p=0.001$ ).

The results of table 2 showed that compliance with professional ethics has a percentage of the index in the majority of students with high mean values.

The Relationship between Communication Skills and Compliance with Professional Ethics in Students with correlation coefficient showed that only relationship

**Table 1. Average score of empathy areas in students**

Indicator	Mean	Minimum	Maximum	Standard deviation
Personality distress	14.68	12	24	6.04
Attention to empathy	15.86	20	28	5.4
Attaining a viewpoint	13.52	2	24	4.39
Imaginary empathy	15.13	2	28	5.99

**Table 2. Average of compliance with professional ethics in students**

Indicator	Mean	Standard deviation	Minimum	Maximum
Patient Right's Anxiety (1question)	58.64	12.98	19	80
Respect for the team (2 questions)	7.47	1.6	2	10
Patient education (3 questions)	14.56	3.34	4	20
Sense of Duty (4 questions)	17.2	3.86	7	20
Conflict management (3 questions)	11.85	2.47	5	15
Commitment to secrecy (2 questions)	19.92	3.81	9	25
Commitment to patient (2 questions)	7.32	1.3	2	10
Improving Quality of Care (6 questions)	27.30	4.88	15	35

**Table 3. The relationship between empathy and professional ethics from correlation coefficient**

compliance with Professional Ethics		Empathy	Respect for patient's rights	Patient education	Respect to the treatment team	Sense of Duty	Conflict management	Commitment to secrecy	Commitment, justice	Improving Quality of Care (6 questions)
Personality distress	R		0.06	0.27	0.25	0.13	34	0.17	0.15	0.16
	P		0.58	0.01*	0.02*	0.22	0.02*	0.11	0.15	0.23
Attention to empathy	R		0.07	0.25	0.30	0.09	0.08	0.14	0.37	0.21
	P		0.45	0.005	0.001*	0.31	0.35	0.11	0.11	0.11
Attaining a viewpoint	R		0.61	120	0.20	0.05	0.56	0.72	0.91	0.73
	P		0.53	0.20	0.03*	0.11	0.11	0.11	0.11	0.11
Imaginary empathy	R		0.04	0.20	0.23	0.05	0.52	0.03	0.97	0.59
	P		0.62	0.03*	0.01*	0.56	0.40	0.68	0.11	0.11

\*P is significant

between communication skills and respect for the team ( $p=0.004$ ) and respect to the patient ( $p=0.03$ ) was statistically significant. Therefore, the higher the communication skills, the better the team performs in respect to the team and patients.

The results showed that there is a meaningful relationship between the empathy index and compliance with professional ethics. There is a significant relationship between imaginary empathy, training the patient and respect for the treatment team, and attaining a vision and respect for the treatment team, attention to empathy and respect for the treatment team, and ultimately, personality distress and training the patient, and respect for the team of treatment and conflict management (Table 3).

Regression results in the prediction of research variables indicated that empathy with values of 0.02% can predict the variance of ethical codes ( $r^2= 0.02$ ). According to the results, empathy predicts 0.03 variance of moral behavior changes and with respect to the meaningfulness of values in the table it can be stated that the explanatory model is significant in predicting variance (Table 4).

The results of empathy prediction on communication skills showed that empathy has the power of predicting communication skills ( $r^2 = 0.10$ ) and other results suggest a

significant difference in empathy between communication skills and based on the beta values, it can predict 0.32 of interpersonal communication skills (Table 5).

**DISCUSSION**

In present study the most students had a moderate degree of communication. Research from Tehran University of medical sciences showed that educational experience of students improves their communication performance (22).

Another evidence showed that communication skills in Iranian students was moderate (23,24).

Resent results showed that paying attention to empathy and imaginary empathy have the highest level of empathy index. Although the average of the domains is generally low. Also results showed that the higher the communication skills, the better the team performs in respect to the team and patients. Some research showed that the communication skills of students can be improved by strengthening their moral intelligence. This research confirmed our results about relation between two variables (25,26).

In recent study, results indicated the positive relation between empathy and compliance with professional ethics. The results confirmed by another research about empathy have declined during medical school and this problem may

Table 4. Regression test to predict of empathy to ethical performance						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Beta			
1	(Constant)	141.713	8.129		17.432	0.0001
	Empathy	0.241	0.122	0.181	1.968	0.051
a. Dependent Variable: ethic						

Table 5. Regression test to predict of empathy to interpersonal relationship						
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	50.018	4.493		11.131	0.0001
	Empathy	0.248	0.068	0.325	3.667	0.0001
a. Dependent Variable: interpersonal						

compromise striving toward professionalism (27).

In a study by Khodabakhsh et al. with the aim of investigating the relationship between amnesty and empathy in medical and nursing students, results showed that amnesty played an important role in empathy and was an insight into the quality of the relationship between doctor, nurse and patient (21). In our study, the most students have a moderate degree of communication. These results were confirmed by other researcher.

In a study which examined the communication skills of the patient and its related factors in nursing students, the results showed that communication skills of students are at a moderate to good level. The same results were also acquired in recent study (28).

In the present study, the relationship between empathy skills and communication skills in medical students was significant and empathy could predict communication skills in these students. The research conducted by Vogel D, Meyer, Harendza showed that there was a positive relationship between empathy and communication in students. Meanwhile, women had more empathy than men and there was a significant relationship between non-verbal communication and empathy. Men used open questions at the start of a communication, while women had better verbal communications (29).

In another study, it was shown that the relationship between non-verbal communication and body orientation was positive with sympathy. In this study, women had more empathy than men (26).

In the present study, the level of empathy was low, and among the indicators, imaginary empathy and empathy attention were of greater value. The study also showed that the level of empathy in different groups of graduated students and current students was low (30)

In recent study empathy predicted compliance with professional ethics. Some research showed that lower

empathy scores in medical students relate to lower professionalism scores in medical students, residents, and faculty (31).

Some research confirmed that reductions of empathy in medical students are due to burnout. Also compassion, and humanitarian attitudes may be students' responses to stressors within the learning environment. These factors decrease empathy in medical students (32,33). However, another research stated a very weak decline in mean ratings of empathy in medical school (34).

Limitation of this study is that the sampling was from one university. It is needed to develop this method to another university and extend this method by other researchers.

Considering empathy as a human skill in medical care and its relationship with communication skills and compliance with ethical codes, also correlation between communication skills and compliance with professional ethic, it is necessary to develop students' knowledge by necessary workshops and improve these skills in students' practices.

#### Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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