



Research Paper

Comparative Empathy Levels Among Medical Students at Isfahan University of Medical Sciences



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ABSTRACT

Background and Objectives: Empathizing, defined as understanding and accepting the feelings, needs, and sufferings of others, is one of the most important components of therapy. The treatment team is responsible for understanding the feelings and worries of the patient. Based on the evaluation of different patients in different conditions, it has been proven that empathy enhances the quality of the mutual relationship between physicians and patients.

Methods: The assessment of the relationship between empathy and its related variables has been the subject of various studies over the last decades. The purpose of this cross-sectional study was to evaluate the degree of empathy among medical students of Isfahan University of Medical Sciences. For this purpose, we used the medical student version of the Jefferson scale of empathy (JSE).

Results: The empathy among medical students of Isfahan University of Medical Sciences was higher than the mean score on JSE. Medical students' empathy had no significant relationship with their educational level and gender.

Conclusion: There was no significant difference in the level of empathy among the students participating in the research based on gender. There was also no significant difference in the level of empathy toward patients among medical students in basic sciences, clerkship, and internship.

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Introduction

According to the Merriam-Webster dictionary, empathy is the process of comprehending, being conscious of, being attuned to, and sharing in the feelings, thoughts, and experiences of someone else [1] and according to the definition of Carl Rogers, it means understanding the personal world of others as if it were one's own world [2]. Rogers defines it as understanding the personal world of others as if it were one's own [2]. In the context of medicine, empathy means understanding the patient's feelings without the therapist allowing those feelings to influence medical decisions. This approach enables the physician to grasp the meaning of the patient's words, experiences, and feelings while simultaneously viewing the situation from the patient's perspective, without internalizing the patient's circumstances [3].

In a qualitative study conducted in 2017 aimed at providing a comprehensive, common, and scientific definition of empathy in France, it was shown that empathy includes at least six key stages. These steps are: 1) Physician-patient encounter, 2) Understanding each other's position, 3) Building rapport with the patient 4) Applying communication skills, 5) establishing interpersonal communication and providing information to the patient, and 6) Utilizing patient education skills [4]. Heinz Kohut defines empathy using two terms: First, "vicarious," which refers to the work we do on behalf of another person, and second, "introspection," which means searching for inner feelings and experiences. As a result, we can define empathy as vicarious introspection, or understanding of another's inner feelings) [5].

Empathy includes two emotional and cognitive dimensions [6]. Cognitive empathy refers to our ability to place ourselves in the position of others and view issues from their perspective, while emotional empathy occurs when we genuinely understand the feelings of others as if those feelings were our own [6]. Empathy has cultural and biological roots, and the combination of these two factors leads to the appearance of this trait in a person [7]. Also, empathy toward the patient has two major effects on the treatment process: First, it fosters an effective and useful relationship between the patient and the therapist, which is the basic condition for creating a suitable treatment environment, second, it helps the patient to identify his/her problems better and assists the therapist to move toward a better and deeper understanding of the disease [8].

Empathy in the healthcare system was first proposed in 1931 by Carl Rogers. The basis of empathy within the healthcare system is that empathic behavior from health service providers causes the patient to give positive feedback, and as a result, the quality of mutual communication will be improved and the treatment process will be carried out more effectively [2]. Corey believes that healthcare providers must understand the patient's feelings and concerns. This understanding motivates the patient to better cooperate with the treatment team, and as a result, they can understand the patient's world while maintaining their professional independence [9].

The quality of the mutual relationship between the patient and the physician is related to the level of empathy. For example, physicians who maintain a more empathetic relationship with their patients are generally more skilled in taking medical histories, which results in more accurate diagnoses and increased patient satisfaction. Also, this empathetic approach can reduce instances of medical malpractice and the resulting consequences, such as legal complaints against physicians [10].

Lal et al. also found that people with higher empathy have more job satisfaction and feel more immune to the stresses of the work environment when examining the factors affecting job satisfaction [11]. Empathy enables patients to feel that their physician can understand their mental world in harmony with their feelings while still maintaining professional independence [12]. Empathy between healthcare providers and patients has significant positive results and effects. These include increased patient compliance with medical advice, enhanced resilience against the hardships of the disease and making the treatment pleasant for the patient, reduced patient's anxiety, cooperation in advancing the treatment process, and finally improved treatment results [7].

Khodabakhsh and Mansoori consider empathy as one of the main rights of patients and believe that empathy is of great importance in the management of the health system and in the field of modern ethics. These researchers argue that the effective use of various methods available for promoting health, from prevention to treatment, relies heavily on the empathic behavior of the treatment team [13].

On the other hand, the lack of empathic communication in the relationship between physician and patient may disrupt the processes of diagnosis, care, and treatment. This can cause patients to be dissatisfied with the treatment process, causing them to pay less attention to the physician's recommendations for care and treatment.

Also, these patients are more likely to consider changing physicians or treatment centers [12]. In general, it should be said that empathy plays an essential role in advancing health goals, from prevention to final treatment, as it increases patients' trust in their physicians and enhances their satisfaction [14].

In their study, Alaei et al. emphasized that empathy increases communication skills and ultimately improves patient satisfaction. This positive effect of empathy occurs for several reasons, including increasing the patient's trust in the physician, expedited treatment processes, reduced likelihood of changing physicians, improved understanding of the patient, which minimizes the complications of the treatment, better comprehension of the underlying conditions of the patient, and clearer explanations of appropriate treatment plans. Additionally, empathy minimizes drug side effects, increases physicians' skill in self-criticism, and addresses their shortcomings [15].

The question raised here is whether teaching what empathy is and how to do it can be effective in improving empathic performance. Hojat et al. during research in this regard, invited two groups of physicians to participate in a study. In this study, they taught the principles of empathic communication to the first group, and the second group, as a control group, did not receive such training. The results of this study showed a quantitative and qualitative increase in empathetic behaviors in the first group. They showed that teaching the principles of empathy has a significant effect on increasing empathic behaviors in the treatment team [16].

Also, by examining the changes in the empathy score of 45 medical students after a training period, Kim et al. showed that their empathy score increased after receiving the training. Therefore, it can be concluded that empathy is a learnable skill [17].

It is necessary to adjust the curriculum of medical students in such a way that they find the opportunity to strengthen empathy and display it in relation to patients. Modifying the curriculum structure is necessary to ensure that students receive training that fosters better interactions with patients and improves the quality of healthcare [18].

Other studies in this field consider empathy to be teachable and learnable, viewing it as the cornerstone of communication skills [19].

According to some theorists, in addition to education, previous experience with empathy can also predispose individuals to exhibit empathic behavior in difficult situations. In other words, differences in individual experiences regarding empathy affect the emergence of empathic emotions and behaviors [20].

Empathy is an important ability that harmonizes a person with the feelings and thoughts of others, connects him/her to their social world, and facilitates helping others. Empathy is the motivating force of social behavior that leads to group cohesion [5, 9].

In addition, empathy is influenced by culture-based norms and affects the patient-physician relationship. For this reason, communication patterns between physicians and patients differ from culture to culture [21]. For example, in a cross-cultural study conducted between a medical center in Iran and one in England, three professors of *Al-Zahra University* compared the level of social intelligence and empathy among patients in medical students in these two countries. This study showed that social intelligence, including awareness and social skills, is higher in Iranian students. Also, in this study, Iranian students showed more empathetic behaviors with patients. In general, according to the mentioned study, social intelligence and empathy with patients are two variables that play an important role in improving patient outcomes [22].

In recent years, several studies have been conducted to investigate the level of empathy in medical students and the factors affecting it [23].

Logically, to design appropriate strategies to improve the current situation, the existing situation must first be evaluated in order to determine the level of empathy between different groups of treatment staff. Investigating this issue in medical students plays a key role because firstly, empathy can lead to more curiosity to learn and engage with the issues ahead, thereby significantly enhancing the educational process. Secondly, empathy is largely skill-oriented, which means that it can be improved significantly by making people aware of the importance of this issue and making changes in the educational curriculum. Thirdly, understanding the current situation of students in terms of empathetic behaviors can reveal new horizons for future planning aimed at improving conditions.

The current study aimed to evaluate the level of empathy toward patients among medical students of [Isfahan University of Medical Sciences](#) and to compare empathy levels across three stages: Basic science, clerkship, and internship. It is hoped that this study will provide a foundation for designing appropriate strategies to overcome barriers to empathy and to expand and deepen it in the therapeutic environments affiliated with this university.

Methods

This cross-sectional study was conducted in 2021 at [Isfahan University of Medical Sciences](#). The inclusion criteria were studying medicine at the [Isfahan University of Medical Sciences](#) in one of the basic sciences, clerkship, and internship levels, and willingness to fill out the questionnaires.

The exclusion criterion was the failure to complete at least 80% of the questions of the questionnaires. After obtaining the ethical code and the relevant permissions, the participants were given the necessary explanations regarding the goals and methods of the research. Then, informed oral consent was obtained from interested students, and the JSE was provided to them. The participants were assured that all the information obtained from the questionnaires would be confidential under the strict supervision of the research team and would only be used to further the project's objectives.

The sample size was calculated using Morgan's sample size table [24] and students were entered into the study by simple random sampling strategy using a table of random numbers from their list. In this research, 400 general medicine students completed the questionnaires across three stages: Basic science, clerkship, and internship.

Researchers at the Center for Medical Education and Healthcare Research at [Kimmel Medical College](#) in Sydney developed an English version of the JSE to measure empathy in physicians and other healthcare providers, medical students, and healthcare students [24]. In 2000, a special questionnaire for physicians' empathy was prepared and organized by Hojat et al. at [Thomas Jefferson University](#). This questionnaire was designed in two versions: S for students and HP for physicians [4]. Hojat et al. developed the JSPE through a thorough review of the literature and pilot studies with medical students, residents, and practicing physicians. They utilized both qualitative and quantitative methods, including the Delphi technique and psychometric tests to create and refine the tool. The results of their internal consistency reli-

ability testing, as determined by Cronbach's coefficient α , indicated high consistency in the 80s for all groups tested, including medical students, residents, physicians, and nurse practitioners. The test re-test reliability among physicians tested approximately 3-4 months apart, was found to be 0.65 [16].

In the current research, data collection was done using the student version of this questionnaire. After collecting the completed questionnaires, scoring was done. Responses ranging from "completely agree" to "completely disagree" were assigned points from 7 to 1, respectively and the total scores for individuals were calculated within a range of 20 to 140 points. The mean score was calculated to be 70, with a higher score indicating a higher level of empathy. Then, using the points obtained, the level of empathy at each level of education was also calculated and the scores of different levels were compared. Also, the effect of gender on the level of empathy at each level was evaluated. The Mean \pm SD, mode, range of changes and variance were measured for the mentioned samples using statistical programs, such as SPSS software version 16 and independent t-test. Finally, all the obtained results and figures were analyzed. A $P < 0.05$ was defined as the level of significance.

Results

A total of 400 medical students from [Isfahan University of Medical Sciences](#) participated in the study. Among these, 100 cases (25%) were in basic sciences, 146 cases (36.5%) were in clerkship and 154 cases (38.5%) were in internships. Also, 255 cases (63.75%) were female (comprising 63 basic science majors, 97 clerks and 95 interns) and 145 cases (36.25%) were male (comprising 37 basic science majors, 49 clerks, and 59 interns). Of the 400 distributed questionnaires, all were completed and returned, and only a part of the questions remained unanswered (98% response rate). The personal characteristics of medical students participating in the study are summarized in [Table 1](#).

The following results focus on the items in which the word "empathy" is directly used. These items include numbers 2, 4, 5, 6, 7, 8, 15 and 17 of the questionnaire.

Item # 2: I believe that empathy with the patient does not affect the process of treating patients. In general, 323 students (81%) disagreed with this item.

Item # 4: Empathy is a kind of therapeutic skill and does not limit the treatment. A total of 275 students (70%) expressed their agreement with this item.

Table 1. Comparison of the students' empathy scores toward patients based on the participants' characteristics

Parameters		Mean±SD	P
Gender	Male	110.9291±13.07013	0.496*
	Female	111.9707±13.80782	
Education level	Basic sciences	112.1646±13.90391	0.26**
	Clerkship	112.7581±12.79251	
	Internship	110.0698±13.92008	

*Independent t-test, **Repeated measures ANOVA.



Item # 5: I believe empathy is important in medical and dental treatments. In total, 280 students (71%) agreed with this statement.

Item #6: If the patient understands my empathy, he/she will feel better. A total of 340 students (87%) declared their agreement with this item.

Item # 7: The patient's problems should only be solved by dental and medical treatments, and empathy has no place in the treatment of the disease. A total of 284 students (72%) expressed their disagreement with this statement.

Item # 8: An important component in the relationship with the patient is empathy towards him/her and his/her relatives. According to the obtained statistics, 259 students (66%) agreed with this item.

Item # 15: I try not to empathize with the patient while taking the history and examining the patient's health. A total of 230 students (59%) expressed their disagreement with this issue.

Item # 17: In my opinion, empathy with the patient makes the medical and dental treatments more effective. In total, 271 students (69%) agreed with this statement.

The score range of this questionnaire is between 20 and 140, with a mean score of 70.

The mean score for empathy among basic science students toward patients was 112.16. This mean was reported to be 112.75 and 110.06 for the clerkship and internship students, respectively. Therefore, it can be said that the mean score of empathy across all three levels of education was higher than the overall mean. Also, due to the similarity of the mean scores at the three stages, it can be concluded that the level of empathy of medical

students toward patients has not changed significantly as they progressed through their education.

Also, the mean empathy scores of female and male students in different grades were 111.9707 and 110.9291, respectively. Accordingly, no significant difference was found in the students' empathy scores by gender. Therefore, no statistically significant relationship was found between the level of empathy of medical students and either of the two factors: Education level and gender.

Discussion

The results of the present study showed that empathy among medical students at [Isfahan University of Medical Sciences](#) was higher than the mean and had no significant relationship with factors, such as educational level and gender. This finding is consistent with the results of Díaz Narváez et al. [25] and Kazemipoor et al. [26], but differs from those of Hashemipour et al. [27] Shariat et al. [28] and Rafati et al. [12].

In some studies, conducted in the field of empathy towards patients, it has been reported that the level of empathy in female students is higher than in male students [29, 30], which is consistent with the psychological characteristics and emotional strength of women. The higher level of empathy in women can also be attributed to the fact that female therapists typically spend more time caring for patients than male therapists [12].

The results of some studies, such as those by Kazemipoor et al. [26], Shariat et al. [28] and Jabarifar et al. [31], similar to the results of the present study, indicate that educational level does not significantly affect the level of empathic relationships. However, according to some other studies, such as those by Hojat et al. [32], Sadeghiye et al. [33], Hashemipour et al. [27] and Rafati et al. [12], students' empathetic relationship with patients

gradually decreases. The latter studies mainly show that the level of empathy diminishes during medical school and residency and this decline in empathy can threaten the quality of healthcare [34].

Rafati et al. found that the desire to empathize with patients is higher among students who have just entered the field of providing health services. As they progress to higher levels of education, their level of empathy towards patients decreases. This decline in empathy is attributed to the gradual distancing of students from the perspective of a layperson as they adopt the mindset of specialists. This shift is accompanied by changes such as a greater focus on treating the disease rather than the individual patient, as well as an increased emphasis on performing purely technical tasks in providing service. This leads to a deterioration in the quality of communication with patients and finally intensifies the reduction of empathy [12].

The effect of expertise in medicine on empathy has also been the subject of various studies. Some of these studies indicate that the level of empathy among physicians in technology-oriented specialties is lower than that of physicians in people-oriented specialties [34]. In another study, psychiatric assistants had the highest empathy score compared to other assistants, and ophthalmology and dermatology assistants had the lowest empathy score [34].

Finally, it should be said that the differing results in studies related to students' empathy can be attributed to several factors, including the lack of a single definition of empathy, the use of various data collection tools, and the evaluation of different dimensions of empathy (emotional and cognitive dimensions).

Although this research confirms a relatively acceptable level of empathy towards patients among medical students, the level of empathy can be maximized through training and activities that promote the internalization of empathy.

Conclusion

There was no significant difference in the level of empathy of the students participating in the research by gender. Also, there was no significant difference in the level of empathy toward patients among medical students in basic sciences, clerkship, and internship.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of **Isfahan University of Medical Sciences**, Isfahan, Iran (Code: IR.MUI.MED.REC.1401.289). According to national codes of ethics in medical researches, participants were given the necessary explanations regarding the goals and methods of the research, and informed oral consent was obtained from interested students. They were assured that all the information obtained from the questionnaires would be confidential under the strict supervision of the research team and would only be used to further the project's goals.

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Authors' contributions

Conceptualistic, supervision, and data analysis: Neda Yavari; Data collection and writing the original draft: Nasrollah Nouri; Methodology and data analysis: Narges Motamedi; Review and editing: Neda Yavari and Narges Motamedi; Final approval: All authors.

Conflict of interest

The authors reported no conflict of interests.

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