Scientific Journal of Medical Sciences
Volume 1, Issue 1, Winter 2022
Pages: 23-27
Type: Descriptive Study

# Empathy Level of Medical Interns; Case Study of Ahvaz Jundishapour University of Medical Sciences

**Vefagh Nematollahi A.[1] *MD*, Khavanin A.[1] *MD*, Ghanbaran A.[2] *MD*, Razani F.[3] *MD*, Delirroyfard A.*[4] *MD***

[1] Department of Emergency Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[2] Department of Internal Medicine, Imam Khomeini Hospital Clinical Research Development Unit, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[3] Student Research Committee, Golestan Hospital Clinical Research Development Unit, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[4] Department of Emergency, Imam Khomeini Hospital Clinical Research Development Unit, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

**Abstract**

**Aims:** Empathy plays an influential and essential role in the relationship between patient and physician. One of the well-known instruments for measuring empathy is the Jefferson 20-item questionnaire. This study aimed to determine empathy levels in medical interns of Ahvaz University of Medical Sciences.

**Instrument & Methods:** This cross-sectional study was carried out on 126 medical interns of Ahvaz University of Medical Sciences in 2020. Empathy was measured using the *Jefferson* Scale of Patient's Perceptions of Physician Empathy *(JSPPPE)*. The questionnaire is self-report with a five-point Likert scale. Data were analyzed using SPSS 25 software through the Mann-Whitney U test and Spearman's correlation coefficient.

**Findings:** The average age of the subjects was 25.7±2.2 in the age range of 22-32. 85 (67.5%) subjects were female, and 93 (73.8%) were single. The mean empathy score of medical interns was 71.88±12.19 in the 40-96 range. Empathy score in females was significantly higher than males ($p<0.0001$), and it was higher in the subjects with the hospitalization history than the subjects without hospitalization history ($p=0.037$). There was not a significant difference between the age of the interns with their empathy score ($r=0.08$; $p=0.375$).

**Conclusion:** The empathy level of medical students during the internship is in a relatively favorable situation and is related to gender and hospitalization history.

**Keywords**
Empathy [https://www.ncbi.nlm.nih.gov/mesh/?term=Empathy];
Medical Students [https://www.ncbi.nlm.nih.gov/mesh/?term=Medical+Students];
Jefferson Questionnaire [Not Found]

*Corresponding Author
Tel: +98 (61) 32222922
Fax: +98 (61) 32225763
Post Address: Ahvaz Jundishapur University of Medical Sciences, Golestan Street, Ahvaz, Iran. Postal Code: 6193673111-1519
adelir2891@gmail.com
Received: September 16, 2021 Accepted: November 15, 2021 ePublished: January 15, 2022

## Introduction

Doctors swear allegiance to save patients' lives, and because of this job, they encounter many people of different ages, gender, and social groups during the day. Although these people are different, the doctor knows everyone by the patient's common name. The patients know that the physicians are trustworthy and can share their problems with them. A physician's ability is one of the most important reasons for this trust. The patient's need is not only the physician's experience and scientific skill, but they also choose a physician for treatment who combines treatment with a sense of empathy [1, 2].

The relationship between a physician and patient has two dimensions, instrumental and expressive. The instrumental dimension requires the physician's skill in using therapeutic techniques, performing diagnostic tests, and physical examinations. The expressive dimension reflects the art of medicine, which includes establishing an intimate relationship with the patient and making empathy. According to Aring, empathy is the art of understanding people's feelings without expressing pity and compassion by the tone of speech or behavior [3, 4]. Carl Rogers first proposed empathy science and art in 1931 in clinical work and therapy. The basis of Rogers's hypothesis is based on this principle. If the therapist provides a specific type of relationship, the patient demonstrates the ability to use this relationship for growth and change, and the treatment will be more effective [5, 6]. Understanding the patient's inner experiences and feelings and the ability to see the world from the patient's point of view helps physicians to increase patient satisfaction and improve patient acceptance in following the diagnostic and treatment process and increase the physician's ability to diagnose and treat the disease [6, 7].

Numerous studies show that increasing empathy leads to the more active participation of the patient in the treatment process and increases the rate of recovery. It has been found that less empathy resulted in the weaker treatment of patients [8, 9]. Based on the studies, physicians working in people-centered fields such as obstetrics and gynecology, emergency medicine, and psychiatry have a higher empathy score than physicians working in technology-oriented disciplines such as surgery [10]. Medical professionals see the failures and successes of patients trying to deal with debilitating problems. The relationship of medical professionals with patients provides an opportunity for close communication and emotional intimacy between them due to dealing patients with problems caused by various diseases [11]. Empathy requires letting the patient know that the physician has understood. Such communication is more than just telling the patient that I understand your feelings or pretending to understand by shaking head gestures. Empathy must understand the patient's emotional experience and then convey what we have understood to patients in words or gestures [12].

Physician empathy with the patient's emotional state affects patient care and treatment. The accuracy of a physician's diagnosis will be increased when the physician is aware of and understands the patient's emotional state and physical condition; for example, a patient with symptoms of anxiety, severe anxiety, panic, or hyperthyroidism, or mitral valve prolapse. A physician aware of the patient's emotional state can distinguish between the physical and emotional reasons of the patient's current problem. Empathy may also improve the medical treatment process [13, 14]. Considering the importance of empathy in patient care and the teaching of this ability to students, this study was conducted to investigate the empathy level between medical interns at Ahwaz University of Medical Sciences.

## Instrument and Methods

This cross-sectional study was performed on medical interns of Ahvaz Jundishapur University of Medical Sciences in 2020. One hundred twenty-six interns were selected by the census method based on the willingness of individuals to participate in the design and completion of the related questionnaire and entered the study.

Data were collected using the Jefferson Scale of Patient's Perceptions of Physician *Empathy* (JSPPPE). This scale was first developed in 1972 by Peabodi with 90 items, which is based on a review of psychiatric texts and experiences [15]. The instrument was reviewed by Hojat *et al*., and the final scale was designed with 20 items. The questionnaire has been developed by the self-reported method based on the five-point Likert scale. The respondents give each item a score from 1 to 5, depending on how much they agree, which a score of 1 indicates "disagreement" and a score of 5 indicates a maximum of "agreement". The minimum and maximum scores are 20 and 100, respectively. Higher scores indicate an increase in empathy. The scale was filled out in less than 12 minutes. The validity and reliability of the questionnaire have been reviewed and confirmed in various studies. Also, its validity has been confirmed by Hojat *et al*. [4, 16]. Cronbach's alpha was reported to be 0.78 in this study.

After obtaining the necessary permits and confirming the research in the ethics committee of Ahvaz Jundishapur University of Medical Sciences, interns were sampled, and interns who answered the questionnaire were entered into the study.

After receiving the necessary permits from the University Research Council and approving the research in the ethics committee of Ahvaz Jundishapur University of Medical Sciences, the questionnaire was distributed among the interns. The necessary explanations were provided to them. Interns who filled out the questionnaire were

included in the study. All participants were assured that their names and information would be preserved with the researcher.

The data distribution was not normal based on Kolmogorov-Smirnov's (p=0.009) and Shapiro-Wilk's (p=0.014) tests. Data were analyzed using SPSS 25 software through the Mann-Whitney test (to compare the mean score of empathy based on demographic characteristics) and Spearman correlation coefficient (for empathy score and age).

## Findings

The average age of the subjects was 25.7±2.2 in the age range of 22-32.85 (67.5%) subjects were female, and 93 (73.8%) were single. The mean empathy score of medical interns was 71.88±12.19 in the 40-96 range. Empathy score in females was significantly higher than males (p<0.0001), and it was higher in the subjects with the hospitalization history than the subjects without hospitalization history (p=0.037; Table 1).

**Table 1)** Frequency distribution and comparison of mean score of empathy in the studied samples based on demographic characteristics

| Parameters | | Frequency | Percentage | Mean | Significance level |
|---|---|---|---|---|---|
| **Gender** | Female | 85 | 67.5 | 74.89±10.97 | 0.0001 |
| | Male | 41 | 32.5 | 65.63±12.35 | |
| **Marital status** | Single | 93 | 73.8 | 71.87±11.83 | 0.916 |
| | Married | 33 | 26.2 | 71.91±13.36 | |
| **Level of interest to medicine** | None | 5 | 4.0 | 67.20±17.58 | 0.589 |
| | Low | 20 | 15.9 | 70.40±11.16 | |
| | Medium | 61 | 48.4 | 71.98±11.20 | |
| | High | 40 | 31.7 | 73.05±13.64 | |
| **Hospitalization history** | Yes | 12 | 9.5 | 78.50±09.73 | 0.037 |
| | No | 114 | 90.5 | 71.18±12.25 | |
| **History of chronic illness in the family** | Yes | 27 | 21.4 | 73.33±12.30 | 0.384 |
| | No | 99 | 78.6 | 71.48±12.20 | |
| **History of chronic illness** | Yes | 18 | 14.3 | 76.28±11.85 | 0.069 |
| | No | 108 | 85.7 | 71.15±12.15 | |

There was no significant correlation between the age of the interns and their empathy score (p=0.375; r=0.08).

## Discussion

What the patients need is not only the experience and scientific skill of the physician, but also they choose a physician for treatment who combines treatment with a sense of empathy. The relationship between physician and patient has two dimensions, instrumental and expressive. The instrumental-medical aspects require the physician's use of therapeutic techniques, performing diagnostic tests, and physical examinations. The expressive dimension reflects the art of medicine, which includes establishing a warm and intimate relationship with the patient and feel empathy. The besides manner is an informal term used to describe the behavior of treatment staff with patients. The term refers to building trust and responding to a patient's emotional needs. Specialists have studied bedside manner through observational examples throughout the history of medicine. Teachers have taught their students to be sensitive and responsive to their patients and understand their situations throughout history. One of the important factors in bedside manner is empathy, which is observed in the physician's attitude towards the patient. Hippocrates, the famous physician of ancient Greece, 4th centuries BC, writes about the effects of bedside manner. Even if the patient is aware of the risk of illness, he/she may regain his/her health only through the physician's satisfaction with the physician's expediency [11, 18].

In line with the importance of this area and the lack of attention in the internship community of Ahvaz University of Medical Sciences, this study was designed and implemented in 2020.

According to the Jefferson questionnaire in this study, the empathy score of the subjects was in the range of 40-96, with an average of 71.88 and a standard deviation of 12.19. In Hojat *et al*. in 2020, 525 first and second-year medical students were studied. Some of the students (54) participated in "No One Dies Alone" program courses. A significant difference was observed in the mean score between the participants in the NODA course and students who did not attend the courses [19]. Based on the scale of 20 to 100, the empathy scores by Hojat *et al*. were reported to be 85.9 and 81.4, respectively. Based on the studies, as the duration of the academic period increases, students' empathy scores decrease, so the difference between Hojat *et al*. [19] and ours can be justified.

Williams *et al*. [20] performed a study on 517 medical students in 2020. Most students were in the age range of 21 to 25 and were female (60%). In this study, the mean score of empathy was 80.8 based on the Jefferson questionnaire, while it was 71.88 in our research. The study by Williams *et al*. [20] was carried

out on 318 students in 1st to 3rd academic years. Most students were in the 22-27 age range. The average scores of the Jefferson in first, second, and third-year students were 114.4, 111.9, and 111.4, respectively. This rate was 112.7 and 114 for female and male students, respectively. The observed difference between the scores of girls and boys was not significant [20]. In our study, the mean empathy score in women and men was 74.89±10.97 and 65.63±12.35, respectively. It was found that the level of empathy in female intern students is significantly higher than male students. Despite the differences between our study and the study by Williams *et al*., in almost all other texts, the level of empathy in women was significantly higher than men. In terms of psychological structure and empathetic characteristics of psychology, it seems that the empathy level in women was higher than in men. This difference may be since women are more responsive to emotional actions, and on the other hand, female therapists spend more time caring for patients [21, 22]. However, in this regard, Tisdale *et al*. did not observe a significant difference between men and women in 2020 [23].

Fragkos *et al*. in a review study in 2020 showed that educational interventions have a significant effect on students' empathy. People's age, type of empathy measurement tool, and type of educational intervention can affect the empathy level [24]. Shi *et al*. in 2020 showed an inverse and significant relationship between increasing age and school years with empathy score [25]. In our study, the 20-item Jefferson Questionnaire was used for the assessment of empathy, and no relationship was found between age and the empathy level. The reason for this difference may be due to the internship subjects, and we may achieve a different result with the current results, by performing the study on higher or lower academic year students. Rafati *et al*., in a cross-sectional study, investigated the empathetic perspective of 373 medical students based on Jefferson's empathy scale. The mean score of empathy in medical students was 59.2. Also, a significant relationship was observed between the demographic characteristic, including age, gender, educational level, marital status, and favorite specialty with empathy. The empathy level in students in basic sciences was more than in clinical courses. In our study, no relationship was found between age, marital status, level of interest in the field of study, and a positive history of chronic illness in first-degree relatives with empathy scores. The mean scores of empathy in medical interns with and without a positive history of hospitalization (more than three days) were reported to be 78.5±9.72 and 71.18±12.25, respectively, and showed a significant difference.

In the study of Farahani *et al*. in 2016, the average score of students' empathy was 73.6, and the empathy score also increased with the extension of the academic period. There was a statistically significant relationship between gender and empathy. In addition, with increasing age, the empathy score increased, and single and employed students had higher empathy scores than married and non-employed students. There was no significant relationship between empathy score and interest in nursing, address, and students' GPA [27]. The mean empathy scores in this study and the high empathy in women in our study are consistent with this finding. However, no relationship was found between marital status, empathy score, and age. The reason for this difference is to consider medical students in the first to fourth academic years, compared to our study, which was carried out on interns. Cultural and emotional differences of people in different climates can also affect the results.

## Conclusion

The level of empathy of female interns with a history of hospitalization is higher than male interns without a history of hospitalization.

**Acknowledgments:** We appreciated the participants and people who have played a role in the implementation of this research and have facilitated the research implementation process.

**Ethical Permissions:** This research has been registered with the code IR.AJUMS.HGOLESTAN.REC.1399.11.

**Conflicts of Interests:** No cases have been reported by the authors.

**Authors' Contribution:** Vefagh Nematollahi A (First Author), Introduction Writer/Methodologist (20%); Khavanin A (Second Author), Assistant Researcher (10%); Ghanbaran A (Third Author), Main Researcher (10%); Razani F (Fourth Author), Introduction Writer/Main Researcher (20%); Delirroyfard A (Fifth Author), Statistical Analyst/Discussion Writer (40%)

**Funding/Support:** This research was funded by the Vice-Chancellor for Research of Ahvaz Jundishapur University of Medical Sciences.

## References

1- Sadock BJ, Ahmad S, Sadock VA. Kaplan and Sadock's pocket Handbook of clinical psychiatry. 6th edition. Philadelphia: Wolters Kluwer; 2009.

2- Bartal IBA, Decety J, Mason P. Empathy and pro-social behavior in rats. Science. 2011;334(6061):1427-30.

3- Aring CD. Sympathy and empathy. J Am Med Assoc. 1958;167(4):448-52.

4- Hojat M, Mangione S, Kane GC, Gonnella JS. Relationships between scores of the Jefferson scale of physician empathy (JSPE) and the interpersonal reactivity index (IRI). Med Teach. 2005;27(7):625-8.

5- Rogers CR. A theory of therapy, personality, and interpersonal relationships: As developed in the client-centered framework. New York: McGraw-Hill New York; 1959.

6- Bangash AS, Ali NF, Shehzad AH, Haqqi S. Maintenance of empathy levels among first and final year medical students: A cross sectional study. F1000Res. 2013;2:157.

7- Shakeriniya I. Physician-patient relationship and patient's satisfaction. Med Ethics Hist Med. 2099;2(3):9-16. [Persian]

8- Chen D, Lew R, Hershman W, Orlander J. A cross-sectional measurement of medical student empathy. J Gen Int Med. 2007;22(10):1434-8.
9- Chen DC, Kirshenbaum DS, Yan J, Kirshenbaum E, Aseltine RH. Characterizing changes in student empathy throughout medical school. Med Teach. 2012;34(4):305-11.
10- Hojat M, Gonnella JS, Nasca TJ, Mangione S, Veloksi JJ, Magee M. The Jefferson Scale of physician empathy: Further psychometric data and differences by gender and specialty at item level. Acad Med. 2002;77(10 Suppl):S58-60.
11- Rich BL, Lepine JA, Crawford ER. Job engagement: Antecedents and effects on job performance. Acad Manag J. 2010;53(3):617-35.
12- Riess H. Empathy in medicine—A neurobiological perspective. JAMA. 2010;304(14):1604-5.
13- Cuartero ME, Campos-Vidal JF. Self-care behaviours and their relationship with satisfaction and compassion fatigue levels among social workers. Soc Work Health Care. 2019;58(3):274-90.
14- Boyle MJ, Williams BA, Brown GT, Molloy AM, McKenna LG, Molloy E, et al. Levels of empathy in undergraduate health science students. Internet J Med Educ. 2010;1(1):1-14.
15- Peabody FW. The care of the patient. Holist Med. 1927;88:877-82.
16- Vallabh K. Psychometrics of the student version of the Jefferson Scale of Physician Empathy (JSPE-S) in final-year medical students in Johannesburg in 2008. South Afr J Bioeth Law. 2011;4(2):63-8.
17- Andrew OC, Sofian S. Individual factors and work outcomes of employee engagement. Proced Soc Behav Scie. 2012;40:498-508.
18- Hart PM, Caballero CL, Cooper W, editors. Understanding engagement: Its structure, antecedents and consequences. International Academy of Management and Business Summer Conference. Madrid: Madrid University; 2010.
19- Hojat M, DeSantis J, Ney DB, DeCleene-Do H. Empathy of medical students and compassionate care for dying patients: An assessment of “no one dies alone” program. Journal of Patient Experience. 2020;7(6):1164-8.
20- Williams CR, Rodgers PT, McLaughlin JE, Angelo TA, Shepherd G. Comparing empathy levels in doctor of pharmacy students and exemplary pharmacist preceptors. Am J Pharm Educ. 2020;84(3):7497.
21- Hegazi I, Wilson I. Maintaining empathy in medical school: It is possible. Med Teach. 2013;35(12):1002-8.
22- Wen D, Ma X, Li H, Liu Z, Xian B, Liu Y. Empathy in Chinese medical students: psychometric characteristics and differences by gender and year of medical education. BMC Med Educ. 2013;13(1):130.
23- Tisdale CE, Black AC, Jain S, Lowther E, Madeline L, Troup C, et al. The impact of meeting patients with neurological disorders on medical student empathy. Med Sci Educ. 2020;30(4):1561-8.
24- Fragkos KC, Crampton PE. The effectiveness of teaching clinical empathy to medical students: a systematic review and meta-analysis of randomized controlled trials. Acad Med. 2020;95(6):947-57.
25- Shi M, Du T. Associations of emotional intelligence and gratitude with empathy in medical students. BMC Med Educ. 2020;20:1-8.
26- Rafati S, Rejeh N, Davati A, Foroutani F. Empathic attitudes in medical students: using of the Jefferson Scale of Empathy. Med Ethics J. 2016;10(36):25-34.
27- Ashghali Farahani M, Salehi T, Arab Ameri Z, Hajibabaee F, Hosseini AF, Ghaffari F. Empathy among undergraduate nursing students in Tehran University of Medical Sciences. Med Ethics Hist Med. 2016;9(4):56-67. [Persian]