Empathy in Iranian medical students: A comparison by age, gender, academic performance and specialty preferences

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Abstract

Background: Empathy is an important element of physician-patient communication. Empathy is linked to a number of attributes such as patient treatment compliance and satisfaction, better history taking and physical examination and therefore achieving better clinical outcomes. Previous research indicates that self-reported empathy among medical students declines during the course of their medical education and this decrease in empathy particularly happens when students enter clinical training. Very limited data is available on the concept of empathy among Iranian medical students. The aim of the present study was to investigate empathy among Iranian medical students and the possible differences between students of different levels of medical education.

Methods: The data were collected using convenient sampling. The Jefferson Questionnaire of Physicians Empathy-student version as well as a demographic questionnaire was distributed among 500 medical students in different levels of medical education at medical school of Iran University of Medical Sciences.

Results: Response rate was 91.8% (459/500). Of 459 responders, 150 were first and second year students (Basic sciences), 170 were third to fifth year students (trainees) and 139 sixth and seventh year students (Interns). Sixty nine percent (n=318) were female and 31% (n=141) male. The mean score (SD) of empathy was 101 (15.6). The difference between mean score of empathy of female and male medical students was not significant (101.8 in females vs. 100 in males). The mean score of empathy in "interns" was significantly lower than both "trainees" and "basic sciences students" (96.2, 102 and 104, respectively p<0.05).

Conclusion: The results of this study indicate that the empathy score of interns is significantly lower than other medical students. A longitudinal study is needed to test variations in students' empathy throughout medical school.

Keywords: Empathy, Medical, Education, Students.

Introduction

Physician empathy is a key element of patient–physician communication. Empathy in context of patient care is defined as "a cognitive attribute, rather than emotional, that involves an ability to understand, rather than feel, the patient's inner experiences and perspective and a capability to communicate this understanding" (1).

Empathy with patients facilitates the information flow to and from the patients, (2-6), and is linked to better clinical outcomes (2,3). Empathic behavior of physicians increases patient's quality of life and therefore their satisfaction and patient participation in educational programs related to their diagnosis (4-6).

Educators emphasis on cultivating empathy in medical students. However, many studies show yet a decline in self-reported empathy in medical students as their training progresses. In a systematic review by Neumann et al (7) of the 11 studies reviewed 9 showed a decline in empathy during medical school. Most studies demonstrate a significant decline in empathy at the stage of medical education when students first encounter patients which is the 3rd or 4th year of medical school

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in most medical education systems (8-17).

Very limited data is available on the concept of empathy among Iranian medical students and generalization of findings of studies from elsewhere is uncertain, mainly due to the possible effect of cultural differences as well as significant difference in medical education system.

The aim of the present study was to investigate self-reported empathy and it's alteration during medical school in Iranian medical students.

Methods

This study was conducted in April 2012 in Iran University of Medical Sciences. Ethical approval was granted by Center for Evaluation of Research and Methodology (CERM).

Jefferson Scale of Empathy-student version

The Jefferson Scale of Empathy (JSE) is the first, and most widely studied, assessment tool specifically designed for measurement of physician empathy. The JSE, formerly known as Jefferson Scale of Physician Empathy, was developed by Hojat et al to measure empathy among physicians to 'capture the essence of an empathic relationship in patient care situations' and has been shown to have satisfactory validity and reliability (18,19). The JSE is a self-reporting questionnaire including 20 Likert-type items answered on a seven-point scale (1=''strongly disagree,'' 7=''strongly agree'') and takes approximately 5–7min to complete. The student version of JSE (JSE-S) is designed to measure the orientation of medical students toward physician empathy in patient-care situations. The JSE-S total score ranges from 20 to 140, with higher values indicating a higher degree of empathy. The Persian (Farsi) version of JSE-S used in this study has been translated and validated by Rahimi-Madise et al (20).

Supplementary Questionnaire

Participants were also provided with a supplementary questionnaire which included questions about age, gender, academic year, rank in university entrance exam, academic performance, specialty preferences at the time, their satisfaction with choosing medicine as their major, source of income and if they had any medical condition.

Academic performance was tested using student's score in the 2 major nationally-held standardized tests. The first test, held at the end of the 5th semester, focuses on students' knowledge of basic sciences such as Biochemistry, Anatomy and Physiology. The second exam is held at the end of the 12th semester, focuses on students' clinical knowledge in subjects such as Internal Medicine, Pediatrics, Surgery and Obstetrics and Gynecology.

Students were asked about their specialty of choice and answers were later divided into "People-oriented" and "Technology-oriented" specialties. People-oriented specialties included: Internal medicine, Pediatrics, Neurology, Rehabilitation and physical therapy, Psychiatry, Emergency Medicine, Obstetrics and Gynecology, Cardiology, Ophthalmology and Dermatology. Technology-oriented specialties included: Pathology, General Surgery, Neurosurgery, Orthopedic Surgery, Anesthesiology and Nuclear Medicine. Such categorizations was based on categories used in prior studies (9-14,16-18).

Participants

Medical students at different stages of medical education at Iran University of Medical Sciences were included. Participants can be divided into 3 main groups:

Preclinical students: students in the 5 first semesters (2.5 years) of medical school. Their curriculum consists of lectures, mainly on basic sciences.

Trainees: students of semester 6 to 16 of medical school (3.5 years) who have lectures at campus as well as patient-oriented education at university hospitals. However, they are not in charge of patient care and do not perform procedures.

Interns: student in the last 3 semesters of medical school whose education is exclusively patient-oriented. At this stage of medical education students, for the first time, have responsibility towards their patients and perform procedures such as inserting Nasogastric (NG) tubes, urinary catheter, placing sutures. Interns also have mandatory night shifts and presentations at morning reports.

Procedures

A total of 500 students received JSE-S and the supplementary questionnaire. Questionnaires were distributed among 1st to 5th year medical students (Preclinical and Trainees) after their midterm exams. Questionnaires were handed to 6th year students, Interns, after morning report sessions in teaching hospitals. Purpose of the study was explained to the participants and they were reassured that participation is voluntary and results will be used for research purposes only. Participants were not asked to state their name or student identification number and were not compensated for their participation

Statistical analysis

To test the internal consistency of the Farsi version of JSE-S used in this study, Cronbach's alpha was calculated. Two-way ANOVA was computed to assess differences on total scores related to gender, year of medical school, marital status, occupational status, academic performance and specialty preferences. A $p<0.05$ was considered statistically significant.

Results

Participants

Of the total 500 students 459 returned completed forms (response rate of 91%). Of the total 459 participants 318 (69.3%) were females and 141 (30.7%) were males. An examination of gender composition of the sample and the total class confirmed that the sample represents the total population with regard to gender. Of the total 459 responders, 150 (32.7%) were preclinical students, 170 (37%) trainees and 139 (30.3%) interns (Table 1). Eighty-nine percent (n=408) of participants stated that medicine had been their first choice in the national university entrance exam. When asked whether or not they would choose medicine again, 81.1% of Preclinical students, 76.8% of Trainees and 66.9% of Interns answered affirmatively. This decline in affirmative answer was statistically significant ($p<0.05$) when interns were compared to pre-clinical students. When asked about their specialty of choice, 30.9% of students chose a "People-oriented" specialty and 47.3% preferred one of the "Technology-oriented" specialties.

Table 1. Frequency distribution of participants by gender and stage of medical school

Stage	Number of participants	Female (%)	Male (%)
Preclinical students	150	89 (59.3%)	61 (40.7%)
Trainees	170	127 (74.7%)	43 (25.3%)
Interns	139	102 (73.4%)	37 (26.6%)
Total	459	318 (69.3%)	141 (30.7%)

Table 2. Descriptive statistics of empathy score of participants by gender

Stage	Gender Category	N	Mean	SD
Preclinical	Female	89	107.6	13.70
	Male	61	101.1	17.54
Trainees	Female	127	101.8	14.67
	Male	43	103.2	14.96
Interns	Female	102	96.8	15.48
	Male	37	94.5	15.53

Table 3. Differences of mean empathy scores in different groups of medical students

Stage		Mean difference	SE	p
Preclinical	Trainees	2.75412	1.70900	0.108
	Interns	8.72978*	1.79611	<0.001
Trainees	Preclinical	-2.75412	1.70900	0.108
	Interns	5.97567*	1.74455	0.001
Interns	Trainees	-8.72978*	1.79611	<0.001
	Preclinical	-5.97567*	1.74455	0.001

* Statistically significant

Reliability

The Cronbach's coefficient alpha was 0.83 which indicates a satisfactory reliability.

Empathy scores

Empathy score ranged from 49 to 140. The mean score was 101.29 (SD=15.6). The mean scores of empathy among preclinical students, trainees and interns were 104 (SD=15.6), 102 (SD=14.7) and 96.2 (SD=15.47), respectively (Table 2). The mean score of empathy among Interns was significantly lower than both Trainees and Preclinical students (Table 3). Although female student's empathy score was higher than male students (101.8 vs 100), the difference was not statistically significant. The difference of empathy score among female and male students was further evaluated in students of different stages of medical school (preclinical, trainees and interns) which was not statistically significant. No statistically significant correlation was found between empathy score and age, marital status, occupational status, academic performance or specialty of choice.

Discussion

The mean score of empathy for our sample was 101.29 (SD=15.6) which is lower than that of American students reported by Hojat et al (1) (Mean=115, SD=10, N=685) and Mexican students as reported by Alcorta-Garza et al (21) (Mean=110.4, SD=14.1, N=1022), and the score achieved by both senior and first year Portuguese medical students reported by Magalhães et al (22) (Mean=118.21 and 110.3, respectively, N=476). The mean empathy score calculated in our study is also slightly lower than that of Kataoka et al (23) in Japanese students (Mean=104, SD 13.1, N=400). Our results were similar to those of Shariat et al study on Iranian students (Mean=101.4, SD=14.5, N=1,187) (24). The lower empathy score in Iranian students can be attributed to cultural differences. It should be noted that in different cultures patients' expectation of their physicians or their definition of "the ideal doctor" varies from one another. Which can affect physician's attitude towards patients. Another possible influential factor is the difference in admission process in Iran compared to countries like the United States, where the JSE-S was developed. In Iran entering medical school is solely based on students' score in the "National University Entrance Exam" which is a one-day, multiple choice question exam. No interview is designed to assess neither students' motivation nor their

aim of entering medical school. Moreover, Iranian students enter medical school at the age of 18 and right after finishing high school. Therefore, they might lack inter-personal skills that their counterparts in other countries might achieve through working (part-time or full-time), attending under-graduate school or attending extracurricular activities.

Although female students gained slightly higher empathy score, the difference was not statistically significant. This finding is not in concordance with most previous studies which show higher empathy in female medical students (10,11,23-25). Findings of studies done on this matter in Iran are diverse; While one study done by Shariat et al on medical students demonstrated significantly higher empathy scores among females (24). Rahimi-Madiseh found no significant difference between male and female student's score of empathy (20).

We found no significant association between empathy score and academic performance. As rank in two major, national objective examinations was used as indicator of academic performance, this finding can be compared to those of Hojat et al demonstrating no correlation of empathy scores with results of objective exams such as US-MLE step 1 or 2 (25).

In our study the empathy score was not related to specialty of choice. This finding is not consistent with many studies performed in other countries indicating that students who select People-oriented specialties achieve higher empathy scores than those choosing Technology-oriented specialties (9-11,13,15-17). This can be due to the fact that in Iran many candidates choose their specialty based on factors other than their personal interest; factors such as popularity of the specialty, income and number of night shifts during residency. The nature of residency

entrance exam in Iran, a multiple choice question exam with no inter-view, may also contribute to this finding

Mean empathy score was significantly lower among interns than both stagers and preclinical students. This decreasing trend has been observed in many studies including both in other countries (8-10,13-16) and in one study in Iran (24). The trend shown in this study is inconsistent with that of Rahimi-Madiseh (20) study which showed a decline of empathy in second year and then an increase on third year students.

Although the aim of this study was not to investigate the reasons behind the observed in empathy, a couple of factors are suggested as possible contributing factors:

Sudden increase of workload: The final 1.5 years of medical education in Iran, i.e. internship, is different from the rest of medical training both in form and content. Students suddenly face tremendous amount of work and responsibilities (e. g. night shifts, performing procedures, morning reports). This transition happen overnight leaving most students so overwhelmed that their main concern becomes having as much work done as possible in the limited time available. This leaves almost no place for working on their communication skills with patients. Moreover, the abrupt increase in workload can lead to distress, job burnout and depression which in turn can affect empathy (15,16,26,27).

Lack of role models: The main source of education during internship is observing treatment of patients by residents and attendings. As a result of overcrowding of teaching hospitals in Iran the time dedicated to each patient is usually very limited and therefore even in a teaching round there is often not enough time to go beyond a concise history and physical exam. This

can result in overreliance on lab results and imaging studies by attendings which is inevitably learned by interns as the "proper" form of patient care.

Increased patient encounter: Interns spend almost 3 times more time in the hospital compared to trainees resulting in more encounter with patients morbidity and mortality. Without proper training on empathy and lack of social support this can lead to a sense of helplessness and cause major distress (27). As Interns are constantly told to avoid sympathy with patients which can be destructive to patient-physician relationship and therefore, they might attempt to avoid excessive involvement with patients suffering by seeing patients as an assembly of signs and symptoms rather than a human being.

Decrease in job satisfaction: In our study interns were significantly less likely to choose medicine again in a hypothetical situation. This decrease in satisfaction by one's job might cause further distress, resulting in decrease in empathy.

However, none of the speculations mentioned above has been investigated in this study and further studies should be designed to verify factors resulting in empathy decline in interns.

As very few studies have been done on the concept of empathy on Iranian medical students longitudinal studies are suggested to further investigate empathy in students during their medical education. Moreover, to enhance empathy in medical students communication skills training courses should be integrated into medical curriculum.

Acknowledgments

Conflict of Interest

The author declares no conflict of interest.

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6

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