

**Empathy Score among Student Residence Assistants in Iran**

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**Type of article:** Original

**Abstract**

**Introduction:** Empathy, an essential component of the physician–patient relationship, may be linked to positive patient outcomes. This study aimed to determine the empathy score among student residence assistants (RAs).

**Methods:** In this descriptive design (cross-sectional study), 102 Iranian RAs participated in the study during 2015, completing the Jefferson Scale of Empathy (JSPE). Data collection was analyzed using SPSS version 17. MANOVA, independent-samples t-test, Spearman correlation and confirmatory factor analysis (CFA) were used for data analysis.

**Results:** Mean score of JSE in the sample was 87.06 ( $\pm 15.14$ ). The mean scores for perspective taking, compassionate care, and standing in the patients shoes were 38.90 ( $\pm 13.11$ ), 39.27 ( $\pm 7.94$ ), and 8.89 ( $\pm 2.80$ ) respectively. Among the three specialties, (psychiatric, internal medicine, surgery) results showed significant differences in total empathy score ( $p=0.001$ ) and perspective taking score ( $p=0.008$ ).

**Conclusions:** this study showed significant differences in total empathy score and perspective taking in three specialties. We suggest that the curriculum in Iranian RAs include more teaching on empathy and communicational skills.

**Keywords:** Empathy, Physician, Psychometrics, Iran

**1. Introduction**

Empathy is one of the most important aspects in the medical profession (1-10) and when it is employed in the right capacity it can be very effective in the relationship between doctor and patient (11). Empathy is a very important tool in understanding the concerns and suffering of the patient from their perspective, so that the patient feels understood and has been given assistance (12-15). There are many definitions and theories regarding this subject (16-18). Some studies (16, 19) suggest that empathy in physicians would lead to better patient care because (a) it increases satisfaction (2, 19), (b) it increases indulgency (20), (c) it enhances the ability of physicians to diagnose and treat (20), and (d) it could lead to a significant reduction in medical malpractice (21). Empathy also has significant effect on improving clinical outcomes (9, 13). The Jefferson Scale of Empathy (JSE) is an instrument that

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Received: June 09, 2016, Accepted: September 22, 2016, Published: December 2016

iThenticate screening: August 14, 2016, English editing: November 04, 2016, Quality control: December 02, 2016

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has been designed to assess empathy in the medical profession (HP version) and related students (S-version) (22). In Iran, several studies have been carried out in the field on medical students (2, 22), but there is no study regarding one of the most important components of the patient-physician relationship which is among RAs and their potential as future professionals. This study has been conducted to evaluate empathy among RAs for the first time. The aim of this study was to measure empathy score among RAs in Mashhad, Iran, during a period from March to September, 2015.

## **2. Material and Methods**

### **2.1. Participants**

This cross sectional study was performed from March to September, 2015. Similar studies were used to determine the sample size (3). In Iran, a traditional curriculum is followed, with 4 year programs for different specialties. The Iranian student version of the JPSE-S was distributed to 120 clinical RAs from five large governmental hospitals in Mashhad (Iran) in September 2015 and they were given twenty minutes to independently complete the questionnaire. A total of 98 volunteers completed the JSPE-S. Participation was completely voluntary and RAs received no remuneration for their part in the study. The protocol was approved by Research Ethics Committee of Mashhad University of Medical Sciences. The study was performed in accordance with the Declaration of Helsinki and subsequent revisions. Written informed consents were obtained from the RAs before entering the study.

### **2.2. Measures**

JSPE-Health Professional Version is an instrument to measure patient care among physicians (17). JSPE is a self-report tool and includes 20 Likert-type items answered on a seven point scale (from strongly disagree to strongly agree). Persian translation of this scale has been used by previous studies (2). The same translation was used in this study. Furthermore, a factor structure of JSE has been evaluated using Exploratory Factor Analysis (EFA) and a three-factor structure has been used, including perspective taking, compassionate care, and ability to stand in patients' shoes (14).

### **2.3. Statistical analysis**

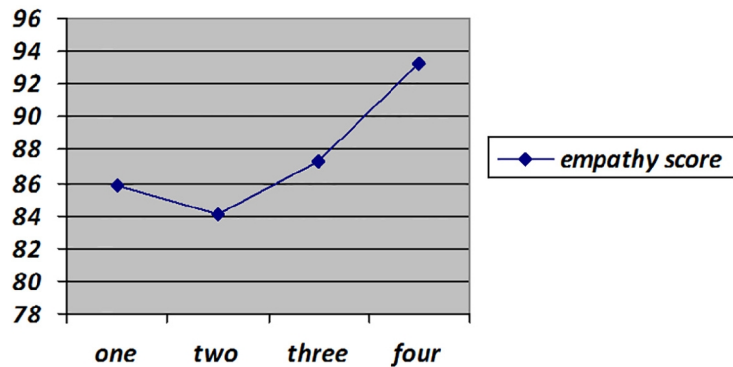
The data of this study were analyzed using SPSS version 17 (SPSS Inc., Chicago, Illinois, USA) descriptive statistics including tests for assessing the normality of the data and independent-samples t-test to assess the difference of empathy between the two sexes. Independent sample t-test and multivariate analysis of variance (MANOVA) were used to assess the effect of gender on scores of JSE and its three factors. In order to investigate the underlying components of the JSPE, data were subjected to principal component analysis (PCA) by using Varimax rotation method.

## **3. Results**

Of the 120 RAs who received the JSPE-S, 98 completed and returned the survey. Seventy Four of the 98 who completed the survey were effective, giving an overall effective response rate of 83.5%. The average age was  $31.49 \pm 4.49$  and the majority were male (58%). There were three specialties: 15 (20.3%) in surgery, 30 (40.5%) in internal medicine, and 29 (39.2%) in psychiatry. There were no statistically significant differences between the groups regarding gender and age ( $p \geq 0.05$ ). Mean score of JSE in the sample was  $87.06 (\pm 15.14)$ . Mean score of JSE in female was  $83.87 (\pm 15.68)$  and in male was  $89.37 (\pm 14.48)$ . The mean scores for each of the three factors of the scale were also calculated. The mean scores for perspective taking were  $38.90 (\pm 13.11)$  and compassionate care were  $39.27 (\pm 7.94)$ , Standing in the patients' shoes was  $8.89 (\pm 2.80)$ . Construct validity of the empathy scale showed that three meaningful factors emerged. Table 1 shows the rotated factor loadings for the JSPE, based on the responses of the 70 RAs. Subsequent tests of between-subjects effects showed that the female group scored significantly higher on perspective taking ( $p=0.044$ ) (Mean of perspective taking in female vs. male:  $39.7/35.7$ ). Also, an inverse significant relationship was found between the RAs' age and mean empathy score (Pearson correlation =  $-0.204$ ,  $p=0.08$ ). Statistical analysis showed that perspective taking between the two age groups was statistically significant ( $p=0.027$ ; confidence interval CI =  $1.39-13.35$ ). Spearman's rho test also showed a significant negative correlation between age and average score of empathy (Correlation coefficient:  $-0.257$ ;  $p=0.02$ ). Among the three specialties: psychiatric, internal medicine, and surgery, statistical analysis showed that there was a significant difference in total empathy score and perspective taking. Total empathy score ( $p=0.001$ ) and perspective taking ( $p=0.008$ ). Post hoc tests also showed that empathy score in psychiatric RAs is more than surgery RAs (Table 2, Figure 1). In the fourth year of education, students had higher perspective taking scores than students in second year ( $p=0.04$ ). In compassionate care between groups, there was a significant difference ( $p \leq 0.001$ ) and the average score of empathy extended further by increasing the interest in their field.

**Table 1.** Rotated Factor Loadings for the Jefferson Scale of Physician Empathy, Based on the Responses of 70 Physicians

Question	Factor 1	Factor 2	Factor 3	Factor 4
1. An important component of the relationship with my patients is my understanding of the emotional status of the patients and their families.		0.456	-0.397	
2. I try to understand what is going on in my patients' minds by paying attention to their nonverbal cues and body language.	0.880			
3. I believe that empathy is an important therapeutic factor in medical treatment.				-0.662
4. Empathy is a therapeutic skill without which my success as a physician would be limited.	0.585			
5. My understanding of my patients' feelings gives them a sense of validation that is therapeutic in its own right.		0.445		
6. My patients feel better when I understand their feelings.		0.501		-0.411
7. I consider understanding my patients' body language as important as verbal communication in physician-patient relationships.		0.690		
8. I try to imagine myself in my patients' shoes when providing care to them		0.703		
9. I have a good sense of humor, which I think contributes to a better clinical outcome.	0.367		-0.591	
10. I try to think like my patients in order to render better care.	0.786			
11. Patients' illnesses can be cured only by medical treatment; therefore, affectional ties to my patients cannot have a significant place in this endeavor.		0.504		
12. Attentiveness to my patients' personal experiences is irrelevant to treatment effectiveness.		0.669	-0.439	
13. I try not to pay attention to my patients' emotions in interviewing and history taking.	0.436		0.535	-0.371
14. I believe that emotion has no place in the treatment of medical illness.		0.302	-0.840	
15. I do not allow myself to be touched by intense emotional relationships among my patients and their family members.	0.674			
16. My understanding of how my patients and their families feel is an irrelevant factor in medical treatment.	0.717	-0.402		
17. I do not enjoy reading nonmedical literature or experiencing the arts				-0.727
18. I consider asking patients about what is happening in their lives an unimportant factor in understanding their physical complaints.			0.573	0.384
19. It is difficult for me to view things from my patients' perspectives.			-0.563	
20. Because people are different, it is almost impossible for me to see things from my patients' perspectives.	0.702			
Eigenvalue	4.490	3.261	1.720	1.611
% Variance	22.450	16.305	8.599	8.099



**Figure 1.** Empathy score among years of education

**Table 2.** Empathy score among different specialties

Dependent Variable	(I) Specialty	(J) Specialty	Mean Difference (I-J)	Std. Error	p-value
Perspecting taking	Surgery	Internal medicine	0.10000	3.95688	1.000
		psychiatric	-9.55862*	3.97956	0.049
	Internal medicine	Surgery	-0.10000	3.95688	1.000
		psychiatric	-9.65862*	3.25851	0.011
	psychiatric	Surgery	9.55862*	3.97956	0.049
		Internal medicine	9.65862*	3.25851	0.011
total Empathy score	Surgery	Internal medicine	-1.30000	4.40502	0.953
		psychiatric	-13.79770*	4.43026	0.007
	Internal medicine	Surgery	1.30000	4.40502	0.953
		psychiatric	-12.49770*	3.62755	0.003
	psychiatric	Surgery	13.79770*	4.43026	0.007
		Internal medicine	12.49770*	3.62755	0.003

#### 4. Discussion

The aim of this study was to examine the levels of patient empathy in RAs. The mean empathy score of this study (mean = 87.67) was lower than in the Japanese (mean = 104.3), Kuwaiti (mean = 104.6), Iranian medical students (mean = 105.1 and 110.41), and Chinese (mean = 109.60) (22-24) studies respectively. This may be due to the differences in cultural factors, custom, ethnicity, spiritual belief, educational system, variation of selection of RAs, and availability of appropriate role model. Average score of empathy was higher in women than in men, which is similar to other studies (25) (26-29). Also in dental students, it was shown that females scored significantly higher on the JSPE than males (29, 30) (31). Women show a greater understanding of the emotional support, which is important to develop interpersonal relationships with patients (32). Also, several studies have shown that female physicians (2) and female medical students (1, 23) gain higher empathy scores in the care of patients. The results of this study are aligned with previous studies. However, few studies have shown no gender difference in empathy (33-34). Gender also has shown the difference of empathy in the three factors of the scale and observed that, difference exists only in perspective taking, while in the study of van Ryn et al. (33), in both domains of perspective taking and compassionate care, there were significant differences. In the study of Prabhu et al. (34), the mean empathy score of male students is greater than that of female students. In this study, regarding empathy among different ages, there was a decrease with increase in age, which is similar with the study of Khademalhosseini et al. (30). But in a Deliang Wen study, there were no significant differences in the age groups. These studies are similar to those of Chinese (25), Japanese (23), Korean (33), Portuguese (34), and Kuwaiti (24) medical students, but were different with American (35, 36) medical students. It seems that the differences in culture are partly justified. In this study, empathy score among RAs was found to increase by the advance in their educational years. RAs should be educated in a way that they learn both scientific concepts of medicine and communication with patients and also learn how to empathize with them. RAs must learn how to treat patients, not just to treat their diseases (29, 37). A cohort study conducted on internal residency students showed that the amount of empathy with patients was much higher in the first year as compared to the last year of specialty (38), which was contradictory to our study.

#### 5. Limitations

This study was cross-sectional in nature so causal inference can not be mentioned and also a prospective study is needed to follow RAs annually from the beginning of first year until graduation, Also larger study populations covering different RAs are required to validate the results of this study

#### 6. Conclusions

This study shows significant differences in total empathy score and perspective taking in three specialties. Practical significance of these findings is that there is need for a curriculum regarding Iranian student residence assistants. With an increased sample size, a cohort study could be a possible route for future research on this topic.

#### Acknowledgments:

The authors would like to thank Psychiatry and Behavioral Sciences Research Center, Ibn-e-Sina Hospital, Mashhad University of Medical Sciences. The voluntary participation and cooperation of the RAs in the study is highly appreciated.

**Conflict of Interest:**

There is no conflict of interest to be declared.

**Authors' contributions:**

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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