

# Evaluation of Empathy and Its Related Factors among Students of Nursing and Midwifery School of Mashhad University of Medical Sciences Using Persian Version JSE-HPS

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## Abstract

**Background:** Empathy and its positive effects are of utmost importance in the relationship between patient and health care providers.

**Objectives:** This study was conducted to determine the level of empathy and its related factors among students of Nursing and Midwifery Faculty of Mashhad University of Medical Sciences in 2016.

**Methods:** In this cross-sectional study, 353 students from the Faculty of Nursing and Midwifery were selected by stratified random sampling. The data collection tool was the Persian version of Scale of Empathy- Health provider student version (SE-HPS) that the validity and reliability of the Persian version have been confirmed. Data was analyzed using SPSS software version 20.

**Results:** The mean total score of empathy among students was  $102.76 \pm 15.87$ . Among the 3 subscales of SE-HPS, the highest mean was related to the subscale of Perspective taking ( $53.41 \pm 10.34$ ). The mean scores of the subscales of Compassionate care and Standing in the patient's shoes were  $40.1 \pm 7.71$  and  $9.24 \pm 2.93$ , respectively. The results show that the mean score of empathy was in female students and those whose mothers had college education statistically significantly higher. The results of linear regression showed that gender, mother's education and field of study are the factors influencing empathy.

**Conclusion:** According to the results of the study about the amount of empathy among students and the role of empathy in improving the quality of service provider relationship with the patient, educational planning seems necessary to strengthen the empathy between students and patients.

**Keywords:** Caring, Compassion, Empathy, Patients, Students

## 1. Background

Empathizing means understanding their feelings (1,2). Empathy includes the sensitivity to existing emotions and the necessary theological facilities for communication with another, which leads to greater understanding and also proper use of language to induce the concepts. If we are able to find empathy with others, we will undoubtedly be in a position to understand them. This is a special kind of perception that enables a person to fully perceive the others emotionally and mentally. Some believe that empathy is a special ability through which one can understand the attitude of his/her individual or audience and look at the world from his/her eye (3,4).

In the field of medicine and health profession, empathy is one of the most important issues and is a very important component in the relationship between physician or health care provider with patients (5,6). Both patient and physician benefit from the formation of empathic relationships (3) because empathy with patients plays an important role in increasing patient's active participation, patient's satisfaction (7,8), and better patient's compliance with care and treatment. As well as, empathic relationships causes the feeling of being respected and valued and has human dignity for the

patient (8). When patients feel that physician understand them, they are more likely to follow their care and treatment recommendations, so the acceptance of treatment by patient will be higher. In addition they are more satisfied and complain less about their physician. Also empathic relationships encourage the patient to cooperate more with the caregiver and therapist and stimulate this feeling in the patient that the therapist is able to understand the patient's mental world in harmony with his or her feelings (3), which also leads to increasing satisfaction of the patients. Lack of empathy can have a negative effect on the diagnosis, treatment and care of the patient.

Brunero et al. quoted LaMonica reported that increased nurses' empathy with cancer patients reduced anxiety, depression and hostility (4). Another study also reported that the empathic relationship between the nurse and patient led to a reduction in the level of stress among the patients and also is as an obstacle to potential psychiatric complications. Hojjat et al. have recently shown a relationship between physician's empathy and optimal physiological outcomes in diabetic patients (9). In other studies, there is also a positive correlation between empathy and patients' responses such as pain relief, improvement in the number of

pulses and respiration, and patients also reported less concern and discomfort (4).

Despite the importance of empathy in healthcare, there are few researches in this area is very small. Moreover the studies in this area show that the level of empathy among students is decreasing. In Iran, the students' empathy with patients has been rarely researched. Mainly in these researches the medical and dentistry students have been studied, and no study has been performed on the measurement of empathy in paramedical students; therefore, we decided to study empathy in this group of students. So, due to the importance of empathy and its positive effects on the relationship between patient and health care providers, this study was performed.

## 2. Objectives

Determine the level of empathy and its related factors in the students of Nursing and Midwifery Faculty of Mashhad University of Medical Sciences in 2016.

## 3. Methods

This cross-sectional study was performed after confirmation by the Ethics Committee of the University (MUMS. REC 911639). The statistical population of the study consisted of all students of the Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences. The sampling method was stratified randomly, so that the fields of the Faculty of Nursing and Midwifery at BC level were considered as classes and the share of each field was determined based on the total population. The sample size was obtained using the formula of "Determining the sample size for estimating the mean of an attribute in a limited population". In which,  $N = 1000$  (total number of nursing and midwifery students in Mashhad),  $S^2 = 144$  (the variance of empathy score in students) and  $d$  was considered to be 1 according to the researcher's views. Thus, with confidence level of 95% and test power of 80%, the sample size was obtained as 353 cases.

$$n = \frac{N \left( Z_{1-\frac{\alpha}{2}} \right)^2 S^2}{(d)^2 (N - 1) + \left( Z_{1-\frac{\alpha}{2}} \right)^2 S^2}$$

The researcher provided all the necessary explanations about the purpose, the method of conducting the research and the eligibility for the withdrawal from the study to all eligible qualified students, and obtained informed written consent from them for participation in the research.

A questionnaire was designed to examine the demographic and social characteristics, then the Persian version of the JSE-HPS questionnaire was

completed by students through self-report. The inclusion criteria were being Iranian and the students of Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences. The exclusion criteria included incomplete response to the questionnaire, withdrawal from the participation in the research, guest or transfer student or graduation from another field except the current one.

The data collection tool included 1-Demographic characteristics questionnaire of the research unit: A researcher-made questionnaire containing the questions related to personal, social and educational characteristics, 2- The Persian version of JSE-HPS questionnaire; this questionnaire consisted of 20 items about the empathy of students providing health services to the patient.

Responses were based on the Likert criteria, so that the person who complete the questionnaire gives the score from one to seven based on the amount of his/her agreement; that the score of 1 shows disagreement (very disagree) and the score of 7 represents the maximum agreement (Very agree). I strongly disagree, I disagree, I disagree, I do not comment, I agree, I completely agree. In other words, the score of 7 to 1 is given to completely agree to strongly disagree. The questionnaire has 10 negative items which is reciprocally scored. Therefore, each item is scored based on a 7-point Likert scale and the total score of individuals ranges from 20-140. A higher score from the questionnaire means that the level of empathy with the patient is higher in the individual and the student has more tendency toward empathy in the care of the patient. The higher total score shows more empathy with the patient in the individual. It should be noted that this scale has three sub-scales of Perspective taking, Compassionate care and Standing in the patient's shoes. The questionnaires were completed by students through self-report.

The validity of the Persian version of JSE-HPS was confirmed through face and content validity by the research team and some related experts and students. The qualitative method was used to determine the face validity. Thus, Persian version of JSE-HPS was given to some experts related to the research subject and the eligible students, and their views on the level of difficulty, the degree of mismatch and ambiguity were collected (10) and based on that, the necessary revision were made. To evaluate the content validity, three criteria of simplicity, relevance and clarity were assessed and content validity of the tool through content validity index was obtained as 0.94 the items of tool ranging 0.80-1. Cronbach's alpha coefficient was used to determine the reliability. The Cronbach's alpha coefficient for the whole scale was 0.63, and for the subscales of the viewpoint, empathic care and put himself instead of patient were 0.63, 0.71 and 0.62 respectively.

The factor structure of the Persian version of the JSE-HPS questionnaire have been confirmed in the study of Karimi et al. (11).

Data were entered and analyzed by SPSS (version 16). Descriptive statistics including central index (mean) and dispersion (standard deviation) and frequency distribution tables were used to describe the characteristics. To compare the total score of empathy in the students by demographic characteristics, t-test and one-way ANOVA were used if the distribution of the total score of empathy was normal. Finally, multiple linear regression was used to examine the effective factors on the total score of empathy. In all tests, the confidence coefficient was 95% and  $P < 0.05$  was considered significant.

#### 4. Results

In this study, 353 students participated. 11 questionnaires were excluded due to incomplete information of the students. Finally, the data of 342 students were analyzed. The mean age of the participants in the study was  $22.52 \pm 3.05$  and 70.3% of the students (241 students) were single, 95 (27.7%) were male and 248 (72.3%) were female. The residency status of 235 (68.5%) was native and 108 (31.5%) were non-native. The income level of 303 (88.3%) was at enough level, 21 (6.2%) lower than enough and 19 (5.5%) more than enough. Information about the student's field of study and academic year have been shown in Table 1.

The mean total score of empathy among the students was  $102.76 \pm 15.87$  and the mean score of the subscale of Perspective taking was  $53.41 \pm 10.34$  and the mean scores of Compassionate care and Standing in the patient's shoes were  $40.10 \pm 7.71$  and  $9.24 \pm 2.93$ , respectively. The results of t-test showed that the mean score of empathy in male and female students was statistically significant ( $P = 0.04$ ), so that the mean score of empathy in female students ( $103.66 \pm 15.87$ ) was higher than male students ( $100.15 \pm 15.63$ ). Also, the results of student t-test

indicated that there was a significant relationship between mother's level of education and student's empathy score ( $P = 0.004$ ), so that the average score of empathy was higher in the students whose mothers had college education ( $107.80 \pm 14.36$ ) compared to those whose mothers did not have college education ( $101.56 \pm 15.15$ ). Also, the mean score of empathy was higher in the students whose fathers had college education than other students ( $103.50 \pm 16.71$  vs.  $102.30 \pm 15.35$ ), but the difference was not statistically significant.

The results of one-way ANOVA test also showed that there was no significant relationship between empathy score and field of education ( $P = 0.09$ ). The highest mean of empathy score was related to the nursing students with mean of ( $105.51 \pm 16.30$ ) and the lowest mean of empathy score was related to the emergency medical group ( $95.08 \pm 15.15$ ). The results of empathy score in different academic fields are shown in Table 1. The results of one-way ANOVA test showed no statistical relationship between academic year and empathy score ( $P = 0.61$ ). Other results of the study also showed no significant relationship between age, marital status, interest in the field of education, mother's occupation and father's occupation.

The mean scores of subscales and the total score of empathy were studied in the first and last year students. The results showed that there was no significant difference in the sub-scales of Perspective taking and Standing in the patient's shoes and the total score of empathy in the first and last year students. But there was a statistically significant difference in the subscale of Compassionate care. So that, the mean score of Compassionate care was  $39.84 \pm 8.44$  in the last year students that was higher than the mean score of first year students ( $35.37 \pm 11.36$ ). The mean of the subscales and the total score of empathy by the first and last year students are shown in Table 2.

Multiple linear regression was used to investigate the factors affecting empathy. The results of linear

**Table 1.** Mean total score of empathy by gender, field of education and academic year of students

Variable	N (%)	Mean $\pm$ SD
Gender	Girl	248(72.3)
	Boy	95(27.7)
Field of education	Nursing	122(35.6)
	Midwifery	71(20.7)
	anesthesia	66(19.2)
	operating room	59(17.2)
	medical emergencies	25(7.3)
	First year	27(7.9)
Academic year	Second year	75(21.9)
	Third year	174(50.7)
	Fourth year	67(19.5)
		102.96 $\pm$ 16.02

**Table 2.** Mean total score of empathy and its subscales by the first and last year of education

Academic year	Perspective taking	Compassionate care	Standing in the patient's shoes	total score of empathy
First year	55.30 $\pm$ 12.25	35.37 $\pm$ 11.36	8.74 $\pm$ 3.76	90.41 $\pm$ 17.70
Last year	53.91 $\pm$ 9.17	39.84 $\pm$ 8.44	9.21 $\pm$ 2.60	102.96 $\pm$ 16.06

**Table 3.** Factors affecting empathy using linear regression model by Random Removal Method

Variable		Regression coefficient	Beta	Confidence interval of 95%	P
Gender	female	4.22	0.12	(0.43,8)	0.03
	male	-	-	-	-
Mother's education	college	7.77	0.20	(3.51, 12.02)	<0.0001
	non-college	-	-	-	-
Educational field	nursing	5.90	0.18	(2.35,9.45)	0.001
	medical emergencies	-	-	-	-

regression showed that gender, mother's education and field of education are the factors affecting empathy (Table 3). So that, the mean of empathy score increased as 4.22 in female compared to male ( $P = 0.03$ ). Also, if the mother has college education, the mean score of empathy increases by 7.77 ( $P < 0.0001$ ). The mean of empathy score increased by 5.9 in the field of nursing compared to medical emergencies fields ( $P = 0.001$ ). But empathy was not significantly different in the fields of midwifery, anesthesia and operating room compared to medical emergencies field.

## 5. Discussion

In this study, mean total score of empathy among students was  $102.01 \pm 17.05$ ; the nursing students had the highest score and the students of emergency medicine had the lowest score of empathy. There was significant difference between the total score of empathy based on gender and mother's level of education. The results of this study are partly consistent with the results of other studies. So that, in the study of Shariat and Habibi (2013) which evaluated the level of empathy in medical students, mean total score of empathy was  $101.4 \pm 14.5$  (12). In the studies of Shariat and Habibi (2013) and Fields et al. (2011) and Rafati et al. (2016), also there was significant difference between the scores of empathy and gender in students of health service providers, and the mean score was higher in female students. Other studies have also reported that gender is related to empathy and the level of empathy is higher in women than men. The researchers believed that women grow in an emotional socialization process, and because of gender roles which are determined warmly in the interpersonal relationship, tendencies toward social relationships, and also sensitivities in interpersonal relationships, they tend more to some altruistic and empathic behaviors (9,12-14).

In the study of Shariat and Kaykhavoni (2010) which evaluated the level of empathy in the residents of clinical fields, the mean empathy score was 114.1, and no significant difference was observed between the scores of women and men. The reason for this inconsistency can be related to the study population (7).

In the present study, total score of empathy and the scores of the subscales of Compassionate care and Standing in the patient's shoes increased with increasing in the student's academic years. But, the

mean score of the subscale of Perspective taking was higher in the first year students than that of the last year students.

Shariat and Habibi (2013) showed that the students' empathy scores are negatively related to their years of education and the level of empathy reduced with education in the medical faculty (12).

Osken et al. (2012) have also shown that empathy decreases with increasing the years of study in nursing students (5). Chen et al. (2007) also showed that the students' empathy scores before the clinical course was higher than that in the clinical course (8). While the results of the study of Magalhães et al. (2011) showed that empathy score of medical students in last year of education was higher than the first-year students' empathy score (15). Dehning et al. (2012) also in their study which compared the empathy score between the first-year and the last-year medical students reported no statistically significant difference in the emotional dimension of empathy between first and last year medical students, but in terms of cognitive dimension of empathy, the score of the last year students was significantly higher than those of the first year students (16).

The possible causes of lower levels of empathy in higher education levels have been reported to be increasing the need for technical skills in higher academic years, increasing fatigue and increasing stress during academic years, and the probable distancing from the student's skills to specialist education and also insufficient attention to the human aspects of the relationship between the physician and the patient in the student's educational content, less attention to patient-centered in providing services, and less attention to communicating with the patient and more focus on performing a technique in providing services, which ultimately leads to decreased empathy (17,18).

It is worth noting that different results in various studies can be due to the use of various data collection tools, different definitions and dimensions of empathy and intercultural differences.

Today, empathy has been accepted as the basis for communication with patients and is essential in health profession (19). So that universities of medical sciences should teach health students in a way that increase their empathy with patients and leads them to pay attention to the patient's perception and recognition of their feelings and perceptions and also their social, economic, cultural and religious backgrounds and their language. In addition, empathy

should be one of the educational goals and be included in the curricula of medical and nursing schools, so that students at the time of graduation are equipped with empathy and communication skills and be able to create and maintain stable care and treatment empathic relations. Because empathic relationships with the patient lead to better treatment outcomes.

One of the strengths of the present study is that the present study is the first study in Iran with aim to examine empathy among students using the Persian version of the JSE-HPS.

Since the present study was carried out among the students of the Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences, so due to limitation in terms of generalizability, it is recommended to be performed in other medical sciences universities.

Also, one of the limitations of this study was trusting to the accuracy of the responses given by the research units that in this study, through explanation and attracting the women's assurance, it was tried to provide confidence about the truthfulness of the research units in answering the questionnaires and reflecting the facts.

## 6. Conclusion

Considering the role of empathy in improving the quality of service providers' relations with the patient, educational planning seems to be necessary to strengthen the empathy space between students and patients, and the university should include these concepts in the curriculum of health care providers' students [11,13]. Therefore, considering the importance of empathy in the field of medical communication, development of training which addresses empathic relationships with the patient and providing the interventions to teach empathy is a useful step towards promoting health.

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## Conflicts of interest

None.

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