Research Article

Establishing the Construct Validity and Internal Consistency for Urdu Version of Jefferson Scale of Empathy-S (JSE-S)

Muhammad SR*

Abstract

Empathy is known to result in better patients' outcome. This study was conducted to establish the construct validity and internal consistency for Urdu translation of Jefferson Scale of Empathy, Student version(JSE-S), and to measure empathy among a sample of undergraduate medical students of Pakistan. The design of this study was cross-sectional and all the medical students of first through fifth year enrolled at Muhammad Medical College, Ibne Sina University, Mirpurkhas during the study period of 2019 were asked to fill the JSE-S translated into Urdu language. The identity of the participants was kept confidential. The Principal component factor analysis with varimax rotation and Cronbach's alpha coefficient were calculated to check validity and reliability of the scale. ANOVA was used to examine the differences in empathy between gender, academic years, and specialty preferences. The mean empathy score was 107.22 ($\pm$12.844). The total empathy and mean empathy of Hojat's 3 factors were calculated, they were highest for prospective taking (6.09 ± 0.694), then compassionate care (4.97 ± 0.97), and lowest for Standing in Patient's shoes (3.63 ± 1.51). The internal consistency reliability of the questionnaire had a Cronbach's alpha coefficient of 0.684 and a Cronbach's alpha based on standardized items of 0.704. There were significant associations between gender and empathy scores. The level of empathy in medical students gradually increased after clinical training in medical college. A nonsignificant difference was found between empathy scores and specialty preferences. It is suggested that the module of empathy should be included in the medical curriculum in Pakistan

Introduction

Empathy is defined as a cognitive attribute that engages understanding a patient's suffering and concerns combined with an ability to communicate this understanding and an intention to help" [1]. For optimal patient outcome, strong physician-patient relationship is necessary. If patient outcome is to be rationalized, then empathy is considered as key element. Jefferson Scale of Empathy was developed by Jefferson Medical College (now Sidney Kimmel Medical College) of Thomas Jefferson University Center for Research in Medical Education and Health Care. Jefferson Scale of Empathy [2] (JSE) is the most widely used scale to measure empathy. It is available in three versions namely

Medical students (S-version)

Health Professions (HP-version)

Health Professions students (HPS-version)

Affiliation:

Chancellor & Professor of Surgery Muhammad Medical College, Ibne sina University, Mirpurkhas, Sindh, Pakistan

*Corresponding author:

Muhammad SR, Chancellor & Professor of Surgery Muhammad Medical College, Ibne sina University, Mirpurkhas, Sindh, Pakistan.

JSE has been translated into 56 languages. Original version is available in English which has been validated [3-5], with permission to translate it into local language. However, Asano-Gonnella Center for research in medical education & health care did not endorse any translation and therefore it is prime responsibility of researchers to validate translated version of JSE [6]. The translated versions of Jefferson Scale of Empathy have been used in more than 70 countries. Almost all published studies reported Cronbach's alpha coefficients in range of 0.70 to 0.80 which indicate good reliability [7]. Yet it is important to establish construct validity and internal consistency of any translated version before it is use with confidence.

Objective:

The objective of this study is to establish the construct validity and internal consistency for Urdu translation of Jefferson Scale of Empathy Student version.

Methodology

Ethical Approval

Prior approval taken from Research and Ethical Review board of Muhammad Medical College vide letter no ERB/113/2019.

Instrument

Urdu version of Jefferson scale of Empathy student version (JSE-S) is used. The Jefferson Scale of Empathy Student Version (JSE-S) has 20 items each is scored on 7-point Likert scale. Among these 10 items refers "positive" and scored as "Strongly Disagree=1……. Strongly Agree=7". While other 10 items refer "negative" and scored reversely as Strongly Disagree=7, Strongly Agree=1.

As the aim of this study has been to assess the construct validity and reliability of the Urdu version of JSE-S, the average scoring of each item (with standard deviation) calculated and compared with those of the other studies.

Each year 100 students get admission in Muhammad Medical College, making a total of 500 students across the 5 years. As some students failed in their final examination; JSE-S Urdu version was distributed to 521 students between January 2015 and February 2015. Appropriate information and instructions given to each student to fill the questionnaire and asked not to hesitate in case feel difficulty to understand any item of the questionnaire form. It was also clearly mentioned that responding survey form is not a test of their academic performance and subsequently will not get any reward in any form. Participants were given choice to submit completed form either anonymously or even if they mention name/seat number, yet the identity of any respondent will not be disclosed/share at any forum.

Data Analysis

Survey forms with answers of 15 questions or less will be considered incomplete and therefore will not considered for data analysis. However when survey forms show response for 16-19 question, the mean score of responses will be calculated and this mean score will be used for missing items. The adequacy and appropriateness of the data for calculating reliability analysis and construct validity, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy [8] and the Bartlett's Test of Sphericity [9] will be used. When data found suitable; the reliability analysis will be calculated using Cronbach's α and construct validity by using principal component analysis (PCA) also known as Factor Analysis.

Results

The breakup of 521 students with respect to study year and gender is shown in table no 1. Among 521 students, 405 students returned the form giving response rate of 77.88%. however only three hundreds and eighty-eight students answered all 20 items. The table no 1 shows the response rate with respect to year of study and gender. The overall mean empathy in the study was 107.22 (±12.844)/out of 140. The empathy score with ±SD is shown in table no 3. The total empathy and mean empathy of Hojat's 3 factors were calculated, they were highest for prospective taking (6.09 ± 0.694), then compassionate care (4.97 ± 0.97), and lowest for Standing in Patient's shoes (3.63 ±1.51) see table no 4.

Reliability

The internal consistency reliability of the questionnaire had a Cronbach's alpha coefficient of 0.684 and a Cronbach's alpha based on standardized items of 0.704.

Cronbach's Alpha if item deleted

An analysis was run to see how much alpha is affected if each item is deleted. Results are summarized in table 5. Deletion of items causes minimal change to alpha ranging from .650 (Item 14) to 0.697 (Item 18). From this analysis, it appears that all 20 items designed to measure JSE-S, work well and contribute to the overall reliability of JSE-S Urdu Version. As evident from table no 5 that the deletion of items causes minimal change to alpha ranging from .650 (Item 14) to 0.697 (Item 18). From this analysis, it appears that all 20 items designed to measure JSE-S, work well and contribute to the overall reliability of JSE-S Urdu Version.

Construct validity

Construct validity refers to the degree to which a test or measure assesses the underlying theoretical construct it is supposed to measure. To analyze that the Urdu version of JSE-S actually measures the empathy in the same way as the original English version; we performed Principal Components Analysis (PCA) (a dimension reduction

Table 1: Year of study and Gender distribution

Year of Study (MBBS)	Male	Female	Total
1st Year	52	49	101
2nd Year	60	42	102
3rd Year	48	47	95
4th Year	70	50	120
Final Year	66	37	103
Total	296	225	521

Table 2: Response Rate with respect to Gender and Year of Study

Year of Study (MBBS)	Male	Female
1st Year	48	45
2nd Year	38	38
3rd Year	39	38
4th Year	32	43
Final Year	48	36
Total	205	200

Table 3: Mean Empathy Score with SD

	Item	Mean (±SD)
1	Physician's understanding of their patients' feelings and the feelings of their patients' families do not influence medical or surgical treatment.	5.3 (2.05)
2	Patients feel better when their physicians understand their feelings.	6.6 (0.86)
3	It is difficult for a physician to view things from a patient's perspective.	3.9 (1.9)
4	Understanding body language is as important as verbal communication in physician-patient relationship.	6.1 (1.36)
5	A physician's sense of humour results in a better clinical outcome.	6.0 (1.37)
6	Because patients are different, it is difficult to see things from patients' perspective.	3.3 (1.77)
7	Attention to patients' emotion is not important in history taking.	5.3 (2.08)
8	Attentiveness to patients' personal experience does not influence clinical outcome.	5.2 (1.88)
9	Physicians should try to stand in their patients' shoes when providing care to them.	5.7 (1.77)
10	Patients value a Physician's understanding of their feelings, which is therapeutic in its own right.	6.2 (1.32)
11	Patients' illness can only be cured by medical or surgical treatment; therefore, Physicians' emotional ties with their patients do not have a significant influence on medical or surgical treatment.	5.2 (1.91)
12	Asking patients what is happening in their personal lives is not helpful in understanding their physical complaints.	5.5 (1.83)
13	Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and their body language.	6.0 (1.33)
14	I believe that emotions have no place in the treatment of medical illness.	5.3 (1.91)
15	Empathy is a therapeutic skill without which the Physician's success is limited.	5.9 (1.38)
16	Physicians' understanding of the physical status of their patients, as well as that of their families is one important component of the Physician-patient relationship.	5.8 (1.55)
17	Physicians should try to think their patients in order to give better care.	6.2 (1.17)
18	Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members.	2.7 (1.89)
19	I do not enjoy reading non-medical literature or the art.	5.1 (2.06)
20	I believe that empathy is an important therapeutic factor in medical treatment.	6.2 (1.17)

technique). For current study Kaiser-Meyer-Olkin (KMO) test yielded an index of 0.764, suggesting a support for factor analysis. Bartlett's test of sphericity is 985.518 and is highly significant ($P = 000$) (indicating a high probability of significant relationships between the variables).

Principal Component Analysis (PCA)

Factor analysis is the most powerful statistical procedure for scrutinizing relations between observed and latent variables [10]. Three factors F1, F2, F3 viz "Perspective Taking", "Compassionate Care" and "Standing in Patient's Shoes" respectively emerged as shown in table no 6.

Table 4: 3 Factor Mean Score with SD

Overall Empathy		107.73 ±12.576
Factor 1	Patient's Perspective	6.09 ±1.33
Factor 2	Compassionate Care	4.97 ±1.96
Factor 3	Standing in patient's shoes	3.63 ±1.85

Table 5: Table 1Cronbach's Alpha if item deleted

ItemNumber1	0.665
ItemNumber2	0.673
ItemNumber3	0.693
ItemNumber4	0.684
ItemNumber5	0.673
ItemNumber6	0.688
ItemNumber7	0.666
ItemNumber8	0.664
ItemNumber9	0.666
ItemNumber10	0.669
ItemNumber11	0.658
ItemNumber12	0.67
ItemNumber3	0.676
ItemNumber14	0.65
ItemNumber15	0.671
ItemNumber16	0.657
ItemNumber17	0.67
ItemNumber18	0.697
ItemNumber19	0.683
ItemNumber20	0.667

Table 6: Factor analysis for Perspective Taking", "Compassionate Care" and "Standing in Patient's Shoes"

Item	F1	F2	F3
9. Physicians should try to stand in their patients' shoes when providing care to them.	0.652		
16 Physicians' understanding of the physical status of their patients, as well as that of their families is one important component of the Physician-patient relationship	0.589		
20 I believe that empathy is an important therapeutic factor in medical treatment.	0.575		
17 Physicians should try to think their patients in order to give better care.	0.561		
15 Empathy is a therapeutic skill without which the Physician's success is limited.	0.556		
2 Patients feel better when their physicians understand their feelings.	0.53		
14R I believe that emotions have no place in the treatment of medical illness.	0.467		
10 Patients value a Physician's understanding of their feelings, which is therapeutic in its own right.	0.421		
5 A physician's sense of humour results in a better clinical outcome.	0.414		
8R Attentiveness to patients' personal experience does not influence clinical outcome.		0.64	
12R Asking patients what is happening in their personal lives is not helpful in understanding their physical complaints.		0.614	
11R Patients' illness can only be cured by medical or surgical treatment; therefore Physicians' emotional ties with their patients do not have a significant influence on medical or surgical treatment.		0.535	
7R Attention to patients' emotion is not important in history taking.		0.447	
1R Physician's understanding of their patients' feelings and the feelings of their patients' families do not influence medical or surgical treatment.		0.408	
3R It is difficult for a physician to view things from a patient's perspective.		0.348	
19R I do not enjoy reading non-medical literature or the art.		0.25	
6R Because patients are different, it is difficult to see things from patients' perspective.		0.358	
18R Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members.		0.095	
4 Understanding body language is as important as verbal communication in physician-patient relationship.			0.523
13 Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and their body language.			0.508

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Discussion

The results of present study confirm the content, validity, reliability of Urdu version of JSE-S. Overall response rate for questionnaire was 77.88% which is comparatively less when compared to the study of Asma Mostafa et al who reported it to be 81.69%. Gender wise response rate was higher for female students (88.9%) as compared to male (69.26%); A finding when which is not much surprising as literature showed that female exhibit not only higher response [12], but also found to be better compliant even with psychiatric disorder [13]; female scientists are more collaborative than their male counterparts [14,15].

The overall Cronbach's alpha for present study was 0.684. Although a Cronbach alpha above 0.6 had been termed "acceptable by some authors [16], others [17] prefer a figure exceeding 0.7. The deletion of only item 18 would raise Cronbach's alpha to 0.7. This shows the reliability of the Urdu version of JSE-S.

The principal component analysis shows a three-factor solution that is somewhat similar to the pattern in other studies [11,18,19]. This also provides support for the construct validity of the Urdu version of JSE-S. It is Although not clear, yet our students have scored higher than the Italian students19 for Perspective taking which reflects cognitive skills including information processing, reasoning, appraisal, and communicating empathy, as well as greater altruistic motivation [20]. Imagining the self and imagining the other in pain activate similar neural mechanisms. Imagining the self and imagining the other in pain activate similar neural mechanisms; therefore enable one's ability to perceive other's pain in identical manner [21]. We found, increase ability among our students, to perceive others' pain. This may be explained by the fact that Pakistan is badly affected, for more than 2 decade, by terrorism. As conditions of terrorism is improving since last 4-5 years it will be interesting to note if this trend continues in subsequent years.

Another striking feature for current study was that students showed lesser ability to address the patient's psychosocial problems and understanding the patient's experience, feelings and clues [20] than their Italian counterparts [19]. Currently study showed that Pakistani students find it difficult to address client's psychosocial problems when compared to published literature [22]. The reason for these differences is not clear but may be due to religious, cultural and economical issues. Islam discourages communication between men and women. In Pakistani culture too, such interaction is discouraged. Joshua Horden [23] has mentioned that some of the religious and cultural taboos adversely affect communication with the patients. It is also known that the patients from higher social classes communicate more actively and show more affective expressiveness, eliciting more information from their doctor. Patients from lower social classes are often disadvantaged because of the doctor's misperception of their desire and need for information and their ability to take part in the care process [24]. Hence the religion, culture and economical factors may have affected the empathy of our patients.

Finally, the item 18R "Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members" has raised some concern. This is the only item where our students have scored very low (2.67 out of 7). This item has scored lowest in many other studies too [11,19]. Besides the fact that it is the only item whose deletion would raise Cronbach's alpha to 0.7, lowering the overall internal consistency of the entire scale. It is also the only item that has failed to load significantly. The problem may lie in the phrasing/wording of the item. It perhaps suggests that it is asking about a non-professional, intimate relationship. The fact that it has been negatively worded may have added to the complexity of the item.

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