



## Ability to Care as an Indicator of Future Pharmacist Performance

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### Abstract

**Objective.** The purpose of this research was to validate the Jefferson Scale of Empathy for Health Profession Students using a sample of pharmacy students (JSE-HPS).

**Methods.** The JSE-HPS (20 items), a healthcare-specific adaption of the original Jefferson Scale of Empathy, was administered to 187 first-year pharmacy students at Midwestern University Chicago College of Pharmacy.

**Results.** Perspective-taking accounted for 31% of the difference in this study, whereas compassionate care accounted for 8%. These features are consistent with the instrument's construct validity for pharmacy students since they are also present in studies of physicians and medical students. The current study confirmed previous findings with medical students and physicians, finding that the mean JSE-HPS score for medical students was comparable to that reported for doctors. Generally speaking, women did better than men.

**Conclusions.** The results show that the JSE-HPS is a viable and reliable tool for evaluating empathy among pharmacy students. Psychometrics, validity, reliability, and scales pertaining to the measurement of empathy in pharmacy and health professions students.

### INTRODUCTION

The ability to empathize is crucial in the doctor-patient connection. Clinical success in diabetes patients is inversely proportional to the level of empathy shown by their healthcare professionals [1, 2]. Improved patient compliance, higher rates of accurate diagnosis and prognosis, greater levels of patient satisfaction, fewer instances of patient dissatisfaction, and a lower likelihood of litigation against healthcare providers were all associated with indicators of empathic engagement in patient care. Empathy is based not only on psychological and interpersonal considerations, as previously discussed (10,11), but also on neurobiological underpinnings, as shown by neuroimaging research. There is a concerning loss in empathy among health-profession students during the course of their education (12,13), despite the critical role that empathy plays in patient care. 14-16 Because of these results, educators in the health professions are worried about how to both reverse the trend toward less empathy in the next generation and teach their students to be more empathetic. Only once empathy has been operationally defined and statistically assessed can this issue be studied scientifically. One cannot easily define empathy. It's been called a nebulous concept that defies precise measurement. 17 This article does not provide a comprehensive examination of the numerous descriptions and definitions of empathy that have been published elsewhere.

1 For the sake of patient care, empathy may be seen as primarily a cognitive quality characterized by an awareness of and concern for another person's feelings and experiences, the ability to articulate these feelings and experiences clearly, and the motivation to provide assistance. 1,18



Having a validated instrument tailored to measuring empathy in the context of patient care has facilitated empirical studies on the topic. There are a handful of empathy-measuring tools that can be used on a large sample of the population. The Interpersonal Reactivity Index, the Empathy Scale, and the Emotional Empathy Scale are the most often used tools for measuring empathy in the context of patient care, despite none of these measures having been developed with this purpose in mind. 21 These and other measures of empathy have been described in more detail elsewhere. 1(p63-74)

Nearly a decade ago, the requirement for a content-specific and context-relevant tool to assess physicians' levels of empathy led to the creation of the Jefferson Scale of Physician Empathy (JSPE).

The original version of the measure has been reported in investigations with medical students<sup>22,25</sup>, physicians<sup>24</sup>, nurses<sup>26</sup>, and nurse practitioners<sup>27</sup>.

A large number of scholars from different countries have taken an interest in the original JSPE, which has led to it being translated into 39 other tongues. Strong psychometrics and simplicity of administration and interpretation of the original scale have prompted researchers to administer the JSPE to medical students and doctors, as well as health-profession students at dental<sup>16</sup>, nursing<sup>26</sup>, and pharmacy<sup>27</sup> institutions. 28 Scores on the original scale could only be used as a surrogate for measuring empathy with other students in the health-professions since they were developed for use with medical students and doctors. As a result, it was preferable to make some minor adjustments to the original scale's language in order to increase its face validity for use with students in a wide range of health professions, including pharmacy.

As a result of further adjustments made by the original scale's designers, the Jefferson Scale of Empathy- Health Profession Student version was born (JSE- HPS). The rise in requests to license the scale to additional schools of health professions necessitated this revision.

In the JSE-HPS for those studying healthcare, "physician" was changed to "healthcare provider" in 13 items from the medical-student version. In the version written for medical students, the phrase "physicians should attempt to stand in their patients' shoes when giving treatment to them" was changed to "healthcare providers should try to stand in their patients' shoes when providing care to them." Others need no alterations (e.g., "Because individuals are diverse, it is difficult to perceive things from patients' perspectives"). Findings from a study of undergraduate nursing students attest to the validity and reliability of the JSE-HPS. 29 As far as we know, the JSE-measuring HPS's properties have not been studied in pharmacy students. The current research aimed to test the JSE-validity HPS's and reliability among a group of pharmacy students. This updated version should be applicable in comparison research across the spectrum of health professions since it does not contain the title of a particular health professional such as pharmacist, nurse, dental hygienist, or physical therapist.

## METHODS

First-year students from Chicago College of Pharmacy at Midwestern University (n=187; 87% of the total class size = 214) participated in the study as a convenience sample. In less than 10 minutes, you could complete the 20-item JSE-HPS instrument, which used a 7-point Likert scale (strongly agree: 5, strongly disagree: 1) to rate your level of agreement or disagreement. Ten negatively phrased scale items were flipped and scored higher. Those with higher scores tended to exhibit conduct that encouraged compassionate, interactive care for their patients.

In January 2011, as part of a mandatory course, students who attended an empathy workshop were given the JSE-HPS. To gauge the workshop's success, students took the JSPE-HPS before they participated in any of the activities. In order to protect their anonymity, respondents were requested to generate a four-digit/letter code (which might be numeric, alphabetic, or a combination of the two) on the survey and write it down for use in later testing. We also wanted to know the pupils' ages and genders. Confidentiality of student responses was ensured by shredding the survey once it had been digitized. The Institutional Review Board of Midwestern University deemed the research to be exempt from review.

Examining the JSPE-foundational HPS's factors required principal component factor extraction with orthogonal



rotation. The t test for unrelated groups and the correlational approach were also used. The statistical software used was SAS, 9.1 for Windows (Statistical Analysis System Institute, Cary, NC), and the threshold of statistical significance (likelihood of type 1 error) was set to 0.05.

The complete range of replies (1-7) was utilized for each question on the JSE-HPS, with the exception of the reverse-score item, for which the range was (2-7): "Attention to the patient's personal experiences does not affect therapy results." From a low of 3.7 (for the reverse-scoring question "Because individuals are different, it is difficult to perceive things from patients' perspectives") to a high of 6.3 (for the item "Patients feel better when their healthcare professionals understand their sentiments"), the items' mean scores varied from 3.7 to 6.3. The items' standard deviations were between 1.0 and 1.7.

Correlations between the adjusted item scores and the overall scores were also analyzed. The corresponding item was left out of the final tally while computing these correlations. From 0.09 to 0.69, with a median of 0.55, the adjusted item-total score correlations showed a wide range of variability. This resulted in the strongest item-total score correlation ( $r = 0.69$ ), item requiring a rationale equivalent to "Care professionals' comprehension of the emotional condition of their patients and their families is an important part of healthcare provider-patient interactions." The statement "It is difficult for a healthcare practitioner to perceive things from patients' viewpoints" had the lowest association with the overall score. Table 1 displays the item-total score correlations after corrections were made.

Prior to factor extraction, we utilized Kaiser's measure of sample adequacy, and the total score was 0.86, indicating that we had sufficient data for factor analysis. The intercorrelation matrix was shown to be factorable ( $\chi(190) = 1254.1, P, 0.001$ ) using Bartlett's test for sphericity. The eigenvalues for the resulting five factors were 6.2, 1.6, 1.2, and 1.1. When it comes to retaining factors with an eigenvalue larger than, we did not follow Kaiser's recommendation 30.

## DISCUSSION

The findings provide evidence supporting the psychometric soundness of the JSE-HPS for pharmacy students.

Table 1. Descriptive Statistics for the Jefferson Scale of Empathy – Health Profession Students Version and Pharmacy Students Performance (N=187)

Score, Mean (SD)	110.7 (12.1)
25 <sup>th</sup> Percentile Score	104
50 <sup>th</sup> Percentile (Median) Score	111
75 <sup>th</sup> Percentile Score	119
Possible Score Range	20-140
Actual Score Range	40-134
Alpha Reliability Coefficient	0.84

Result of factor analysis indicates that the pattern of factor structure of the JSE-HPS for pharmacy students is somewhat similar to that found for medical students<sup>1</sup> and physicians.<sup>24</sup> A similar grand factor (perspective taking) also emerged in the JSE for samples of medical students and physicians.<sup>1,24</sup> For example, in this study, there are 9 items under factor 1 and 6 items under factor 2 that also emerged under factors 1 and 2, respectively, in a sample of American physicians.<sup>24</sup>

A somewhat similar pattern of factor structure was also observed in 3 other studies in which the original scale was used with students at dental school,<sup>16</sup> with Mexican medical students,<sup>34</sup> and with Japanese medical students.<sup>35</sup> The similarity in factor structure of the original and therevised scales suggests



that, despite modifications made in the JSE-HPS, the underlying components of the scale, particularly the prominent factors of perspective-taking and compassionate care, remained intact. Perspective-taking and compassion have been described as the core ingredients of empathy.<sup>1</sup> Therefore, the consistency of the underlying factors with the conceptual framework<sup>36</sup> of empathy and replicability of major underlying factor that emerged in this study, as in other research with physicians, provides support for the construct validity of the JSE-HPS version for pharmacy students. The naming of factors is a subjective matter. We named factor 1 as perspective-taking construct because most of the items under this factor describe an attempt to understand the concern of the patient (the word *understand- ing* is used in 6 items under this factor). Factor 2 is called compassionate care because most of the items describe feeling and emotion associated with empathic understanding. Compassion has been described as an area of overlap between empathy (a predominantly cognitive attribute) and sympathy (a predominantly affective attribute).<sup>1(p11)</sup> Our finding that female pharmacy students obtained a significantly higher average empathy score than did their male counterparts is consistent with previous findings involving physicians<sup>24</sup> and medical students.<sup>22,25</sup> This finding also can be considered an indicator of the validity of the JSE-HPS in pharmacy students (validity by the method of “contrasted groups” to confirm differences in the expected direction).<sup>37</sup> The internal consistency aspect of the scale’s reliability was supported by the coefficient alpha, which is at an acceptable level for psychological and educational tests.<sup>38</sup> Limitations of this study, including the single-institution research and the convenience sample, may jeopardize the external validity or generalization of the findings. Further research is needed to confirm these findings in different samples of not only pharmacy students but also students in other healthcare professions schools.

Further research is also needed to examine whether the 2-factor solution would be sufficient in different samples and whether those items with insignificant item-totals score correlations and those in residual factors must be modified, retained, or removed from the instrument. We suggest retaining all of those items in the instrument for comparative purposes, unless additional findings confirm that they do not add to the validity and reliability. Availability of the scale provides ample opportunities for the assessment of educational programs intended to enhance healthcare professions students’ empathic engagement in patient care. Future research can use the scale in a pretest-posttest study to empirically examine changes in empathy over time during pharmacy education. We already have embarked on a study to assess the effects of a workshop on a variation of the “aging game,”<sup>39</sup> focusing on pharmacy students’ empathic understanding of elderly patients.

## CONCLUSION

The JSE-HPS for pharmacy students can be used in the assessment of educational outcomes of different programs to enhance empathy, in research on correlates of empathy in pharmacy education and practice, and in group comparisons within the pharmacy discipline as well as between pharmacy and other health profession disciplines. The psychometric support of the JSE-HPS reported in this study can bolster researcher confidence in using a validated instrument for empathy studies in pharmacy education.

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