Original Article

The Jefferson Scale of Physician Empathy: A Preliminary Study of Validity and Reliability among Physicians in Nigerian Tertiary Hospital

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Abstract

Introduction: Physician empathy has been shown to have a substantial effect on doctor–patient relationship, therapeutic adherence, and overall treatment outcome. Despite its important role, physician empathy is under-researched in Nigeria. **Aims:** This study aims to investigate the validity and reliability of the Jefferson Scale of Physician Empathy (JSPE) (Health Professional version) among Nigerian physicians in the University of Uyo teaching hospital, Uyo, Nigeria. **Participants and Methods:** In this cross-sectional study, a brief sociodemographic questionnaire, the Emotional intelligence scale (EIS), and the JSPE were administered to 120 doctors in the University of Uyo teaching hospital. Data were analyzed using SPSS version 22. **Results:** Cronbach's and split half coefficients were 0.73 and 0.66, respectively. Correlation coefficient with the EIS was 0.49 ($P < 0.05$). Exploratory factor analysis yielded three factors that were not quite consistent with previous reports. We found empathy to be significantly higher among older physicians, those who were involved in administrative duties and those with a higher rank ($P < 0.05$). After regression analysis, age, sex, and administrative role emerged as significant predictors of physician empathy ($P < 0.05$). **Conclusions:** The JSPE had fairly strong reliability coefficients and an acceptable convergent validity with the EIS which measures a related construct. It can serve as a useful measure of patient-related empathy among Nigerian doctors.

Keywords: Empathy, Jefferson, physician, scale, validity

Introduction

Human relations are typified by "caring and sharing" in a bid to solve problems and establish positive emotions, and ultimately relieve the burden encountered in daily living.[1] Similarly, the physician–patient relationship is characterized by a need to contribute in a volitional and intentional manner; toward the well-being of another human.[1] The ability of a physician to discern and manage with understanding, the emotions which emerge during the health-care process, is a desirable professional skill and attribute-EMPATHY.[2] More so, his aptness at doing so in an impersonal manner which allows for balanced reasoning and unprejudiced decision-making is an invaluable tool towards achieving success in therapeutic alliance and the overall management of the patient.[3]

Empathy has been defined as "the capacity to think and feel oneself into the inner life of another person."[3] Kohut's definition of empathy as "vicarious introspection," may provide a deeper insight into this personality attribute.[4] Greater sensitivity to external signals such as body language and facial expressions, together with the ability to interpret such signals; has been found to have a positive influence on empathy.

The concept of emotional intelligence has also been demonstrated to be positively linked to empathy.[5] Brought to the limelight in the 90s by Goleman, emotional intelligence has been defined as "a set of abilities (verbal and nonverbal), that enables a person to generate, recognize, express, understand, and evaluate their own and others' emotions, in order to guide thinking and action and successfully cope with

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environmental demands and pressures."[6,7] Empathy is one of the five dimensions of emotional intelligence, others including self-awareness, self-regulation, internal motivation, and social skills.[8] Several scientific studies have demonstrated emotional intelligence to be a positive predictor of empathy amongst medical doctors and the relationship between both concepts has been a basis of convergent validity in research.[9-12]

A division of empathy into effective and cognitive types is recognized. Affective empathy is concerned with the emotional response to an individual in a pathetic situation.[13] Cognitive empathy, on the other hand, deals primarily with the ability of an individual to think from another person's perspective; and in addition, includes the capacity to identify with imaginary people involved in pitiable conditions.[14,15]

Empathy in the doctor–patient context appears to be beneficial to both parties, as proven by studies conducted to ascertain the role of empathy in medical practice. For instance, doctors who show a higher level of empathy have been demonstrated to get better clinical results, as empathy in the doctor–patient relationship was found to be associated with better communication; thereby resulting in greater medication adherence and active participation by patients in their own management.[16] In addition, doctors who are more empathic have been shown to experience job satisfaction, a general sense of fulfillment, and less likely to feel "burnt out," than their less empathic counterparts.[17,18]

The increasing recognition of empathy as an important ingredient in the doctor–patient relationship has led to the development and widespread use of the Jefferson Physician Empathy Scale, for an objective assessment of this construct.[16] To the best of our knowledge, this instrument is yet to be used in Nigeria. The objective was to determine the validity, reliability, and factor structure of the Jefferson physician empathy scale among Nigerians.

Participants and Methods

Study design and location

This was a cross-sectional study conducted in the University of Uyo teaching hospital, Akwa Ibom State. It is a government-owned tertiary institution located in the South-South region of Nigeria with a 520-bed capacity, serving over 4 million state citizens. With about 11 clinical departments, it runs both inpatient and outpatient services, catering for the health needs of about 1200 patients per day. It is a recognized institution for undergraduate and postgraduate training of medical doctors in Nigeria, with affiliations to the National Postgraduate Medical College of Nigeria and the West African College of Physicians. Its physician workforce is mostly comprised of doctors who are admitted into the residency training program of its various departments.

Study instruments

The Jefferson Scale of Physician Empathy (JSPE) (Health Professional version) is a 20-item self-report instrument based on a 7-point Likert-type scale with scores ranging from 1 (strongly disagree), to 7 (strongly), developed to assess physician empathy. It has three meaningful dimensions – perspective taking, compassionate care, and standing in the patient's shoes. It has been validated and used in several studies among health professionals.[16,19] It has been found to have good internal reliability among resident doctors (Cronbach's alpha 0.87) and physicians (Cronbach's alpha 0.85).[20]

The emotional intelligence scale (EIS) is a 33 item instrument rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5), developed for the measurement of emotional intelligence.[21] It is reported to assess three broad dimensions: (a) the appraisal and expression of emotion, (b) the regulation of emotion, and (c) the utilization of emotion.[22] The authors reported a Cronbach alpha (α) of 0.90 and a test-retest reliability was 0.78 after 2 weeks.[21] A test-retest reliability and internal consistency of 0.82 and 0.90, respectively, have been reported among Nigerians.[23,24]

Study sampling and procedure

A list of doctors in each department of the hospital was acquired and within each department, about half were randomly selected using a table of random numbers. With this approach, 120 doctors were recruited from a total of 250 medical officers and resident doctors in the hospital.

Each selected doctor was approached, and first, the aims and objectives of the study were explained and a written informed consent obtained. The study questionnaires were then administered with the help of a trained research assistant. Data were collected over a period of 2 weeks.

Ethical consideration

Ethical approval was obtained from the Health Research Ethics Committee of the Federal Neuropsychiatric Hospital, Calabar, Cross River State. This study was performed in accordance with the ethical principles enshrined in the Helsinki Declaration and the National Human Research Ethical code.

Data analysis

Internal consistency was determined by computation of Cronbach's coefficient alpha. The minimum acceptable level of Cronbach's alpha for a self-report questionnaire was assumed to be 0.6.[25]

For convergent validity, the correlation between the JSPE and the EIS was examined using the Pearson product-moment statistic (Pearson's correlation coefficient).

To determine its factor structure, an exploratory factor analysis with direct varimax rotation was conducted. Multivariate regression analysis was also used to determine predictors of empathy. Statistical analyses were accomplished in IBM SPSS Statistics Version 22 (IBM Corp., Armonk, NY).

Results

Among our 120 respondents, the majority (45.0%) were between 31 and 35 years of age. We had more males (58.3%)

than females (41.7%), and most were of the Christian religion (99.2%). About 55% were married while 45.0% were unmarried. More details are displayed in Table 1.

The mean score on the Jefferson Scale of Empathy (JSE) was 112.6 with a standard deviation of 10.87. The minimum score was 85 and the maximum was 139. Cronbach's alpha was 0.73 while the split-half coefficient was 0.66. As an indicator of convergent validity, Pearson's correlation coefficient between JSE and EIS was 0.48 ($P < 0.05$).

Kaiser–Meyer–Olkin Measure of Sampling Adequacy was 0.70, suggesting that the items were appropriate for principal components analysis.[26] Rotation method was varimax. Parallel analysis using mean eigenvalues suggested the retention of three factors, accounting for 37% of the variance.

Factor one loaded nine items (1, 5, 7, 8, 12, 13, 15, 16, and 17), with four items from the "compassionate care" subscale and five items from the "perspective taking" subscale.[16] Factor two loaded seven items (2, 4, 9, 10, 14, 19, and 20), with five from the perspective taking subscale and two from the compassionate care subscale. Factor three loaded four items (3, 6, 11, and 18), two items which constitute the "standing in patient's shoes" subscale (items 3 and 6) and an extra item from the "compassionate care" subscale (item 11). Item 18 had a loading of <0.3 which we considered non-significant. Several items had cross-loadings of >0.3 on more than one factor (3, 8, 10, 11, 12, 14, and 15). This is displayed in Table 2.

Table 1: Sociodemographic variables

Variable	Frequency (%)
Age	
<30	26 (21.7)
31-35	54 (45.0)
36-40	31 (25.8)
>40	9 (7.5)
Sex	
Male	70 (58.3)
Female	50 (41.7)
Religion	
Christian	119 (99.2)
Other	1 (0.8)
Rank	
Medical officer	22 (18.3)
Registrar	45 (37.5)
Senior registrar	53 (44.2)
Marital status	
Single	54 (45.0)
Married	66 (55.0)
Admin duties	
Yes	27 (22.5)
No	93 (77.5)
Specialty	
Anesthesiology	7 (5.8)
Community med	6 (5.0)
Family medicine	15 (12.5)
Internal medicine	19 (15.8)
Laboratory medicine	12 (10.0)
Obstetrics and Gynecology	17 (14.2)
Pediatrics	14 (11.7)
Radiology	8 (6.7)
Surgery	22 (18.3)

Table 3 shows group comparisons of empathy on the basis of sociodemographic and other variables. Some variables were made dichotomous for ease of interpretation and presentation. Age, rank, and involvement in administrative duties were found to be significantly associated with empathy ($P < 0.05$).

Variables with significance level of ≥0.10 (i.e., age, sex, rank, and involvement in administrative duties) were entered into a multiple regression equation to test their ability to predict empathy [Table 4]. The model was found to be significant, $F(4, 115) = 5.75$, $P < 0.05$, $R^2 = 0.167$. Only age, sex, and involvement in administrative duties contributed significantly to the model ($P < 0.05$).

Discussion

The mean empathy score in our sample was similar to that in several other studies. The original scale development study reported a mean of 118 among resident doctors in the United States.[27] Other studies reported means of 113 among Polish physicians, 114 among Brazilian physicians and 98 among Korean physicians.[12,28,29] Studies of empathy among African physicians are quite scarce. The only we could find was conducted among South African medical students using the student version of the scale which reported a mean empathy score of 107.[30]

Even though the Cronbach's alpha was mostly lower than that reported in other studies,[12,16,29] it was >0.7 and passes the recommended threshold for acceptability.[25] Correlation with the EIS was better than was found in a polish validation study,[12] and is sufficient to support the validity of scale.

The factor structure of the JSPE was different from that reported in most studies.[12,27-29] This may be due to our relatively small sample size. However, according to recommendations, a sample size of 100 or more, or a sample size that is five times the number of variables in consideration (in this case 20), is sufficient for factor analysis.[31,32] Another possibility that could explain our finding is that the factor structure of empathy, especially as measured by the JSPE, is not consistent across cultures. This was suggested to be the case in a study that was conducted in a multi-cultural context, which found significant differences in factor structure of the scale when groups were compared on the basis of cultural difference.[33]

Majority of studies find that females score higher on empathy as measured by the JPSE, which is consistent with our report.[19] Several possible explanations of this finding have been offered[19] and include greater capacity for social relationships in women compared to men and the role of social learning and cultural factors in shaping empathy. The human

Table 2: Rotated factor loadings for the Jefferson scale of physician empathy

	Items	Factors		
		1	2	3
1	My understanding of how my patients and their families feel does not influence medical or surgical treatment	0.52	0.08	−0.04
5	I have a good sense of humor that I think contributes to a better clinical outcome	0.43	−0.09	0.09
7	I try not to pay attention to my patients' emotions in history taking or in asking about their physical health	0.54	−0.25	0.15
8	Attentiveness to my patients' personal experiences does not influence treatment outcomes	0.56	0.07	0.35
12	Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	0.52	0.30	0.34
13	I try to understand what is going on in my patients' minds by paying attention to their nonverbal cues and body language	0.52	0.27	0.07
15	Empathy is a therapeutic skill without which success in treatment is limited	0.60	0.30	−0.18
16	An important component of the relationship with my patients is my understanding their emotional status, as well as that of their families	0.65	0.18	−0.28
17	I try to think like my patients in order to render better care	0.53	0.09	−0.47
2	My patients feel better when I understand their feelings	0.02	0.44	0.01
4	I consider understanding my patients' body language as important as verbal communication in Caregiver-patient relationships	0.06	0.48	0.02
9	I try to imagine myself in my patients' shoes when providing care to them	0.12	0.39	0.05
10	My patients value my understanding of their feelings which is therapeutic it its own right	0.42	0.58	−0.17
14	I believe that emotion has no place in the treatment of medical illness	0.34	0.60	0.08
19	I do not enjoy reading nonmedical literature or the arts	−0.10	0.54	0.11
20	I believe that empathy is an important therapeutic factor in medical or surgical treatment	0.10	0.59	−0.12
18	I do not allow myself to influenced by strong personal bonds between my patients and their family members	0.02	−0.04	0.27
3	It is difficult for me to view things from my patients' perspectives	0.31	0.01	0.66
6	Because people are different, it is difficult for me to see things from my patients' perspectives	0.11	0.19	0.68
11	Patients' illnesses can be cured only by medical or surgical treatment; therefore, emotional ties to my patients do not have a significant influence on medical or surgical outcomes	0.08	0.38	0.40

Table 3: Group comparisons of empathy

Variable	Means	Significance
Age		
34 and below	110.6	*t*=2.57
35 and above	115.8	*P*=0.01
Sex		
Male	111.5	*t*=2.76
Female	114.2	*P*=0.09
Rank		
Medical officer	108.6	*F*=3.4
Registrar	111.4	*t*=0.03
Senior registrar	115.3	
Marital status		
Single	110.8	*t*=1.6
Married	114.0	*P*=1.07
Admin duties		
Yes (27)	118	*t*=1.6
No (93)	110	*P*=0.001
Specialty		
Anesthesiology	111.8	*F*=0.73
Community med	116.6	*P*=0.66
Family medicine	113.2	
Internal medicine	115.4	
Laboratory medicine	112.4	
O and G	112.3	
Pediatrics	110.5	
Radiology	116.5	
Surgery	112.6	

evolutionary history, which for example selected for greater expressions of nurturing by women in their child-rearing role, is thought to be a another plausible explanation. Other physiological and hormonal factors are also thought to be contributory.[19]

Findings regarding the relationship between age and empathy have been inconsistent. Whereas some found higher levels of empathy among younger physicians and medical students,[34-36] other studies, in agreement with ours, reported significantly higher levels among older subjects.[37,38] Some studies, however, did not find any significant relationship between age and empathy.[39,40] More research, especially longitudinal surveys would be needed to answer this question with any finality.

We found that physicians with a higher rank had higher levels of empathy. Since these physicians also tend to be older, we believe that their age and not their rank *per se* is responsible for this finding. Perhaps this is why it failed to emerge as a predictor of empathy after regression analysis.

Our finding that physicians who had administrative duties also had higher levels of empathy has not been previously researched. It is possible that people with higher levels of empathy and better social skills tend to gravitate toward administrative roles where their skills would be an added advantage. Or it could be the other way round, in which case physicians with administrative roles learn over time to have and exhibit more empathy to function better at their duties.

Table 4: Multivariate regression analysis showing predictors of empathy

Model	β	*t*	*p*-value	95% CI for B	
				Lower bound	Upper bound
Female sex	0.200	2.262	0.026	0.545	8.237
Rank	0.030	0.286	0.775	−2.612	3.494
Admin duties	−0.238	−2.562	0.012	−10.960	−1.403
Older age	0.242	2.331	0.021	0.092	1.127

CI: Confidence interval

Conclusions

Empathy has been shown to be related to better outcome in clinical settings, and this justifies research in this regard. We have demonstrated that the JSPE has acceptable validity and reliability to warrant its use as a measure of empathy among physicians in the local context.

Our study, however, has a few limitations that should be mentioned. First, our sample size was small, and this may limit the applicability of our findings. Sampling was limited to about half of the doctor population because this study was conducted as a small scale preliminary evaluation of the instrument for use in a larger study and resources were scarce. We recommend that a larger study should be conducted to get more robust results. Second, the JSPE was developed in a different cultural context than ours. Even though we show that it can be useful locally, its different factor structure may indicate that the construct of empathy is not uniform across cultures. There may be a need to investigate the construct in the local socio-cultural context and design a scale that would be more suitable. Third, the JPSE is a self-report measure and therefore may be subject to recall bias and/or response distortions. Finally, our study was limited to just one large hospital and this may limit generalizability.

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Conflicts of interest

There are no conflicts of interest.

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