

# Cross-cultural adaptation and validation of the Jefferson Scale of Patient's Perceptions of Physician Empathy (JSPPE) for the Portuguese population

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**Objectives:** To translate the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPE) to the European Portuguese spoken language and to verify its reliability and validity.

**Methods:** Cultural adaptation and linguistic translation from English to European Portuguese, revision of translations, semantics equivalence, and grammar correction of the Portuguese wording were made. Readability of the Portuguese version was verified and the analysis of internal consistency and correlation with the subscale “physician–patient relationship” of the Portuguese version of European Task Force on Patient Evaluation of General Practice Care Scale (EuroPEP) were made. Reliability was tested by intertemporal stability and internal consistency. Validity of criteria and construction was also verified.

**Results:** The Portuguese translation was adapted to the 8th or 9th grade level, easy to understand. There was the need to change the visual appearance of the scale, answers below sentences. Interclass correlation coefficient for reliability varied between 0.737 and 1.000 and Cronbach's  $\alpha$  between 0.806 and 0.877. Validity was verified by comparing values of socio-demographic variables for JSPPE index and for EuroPEP with no differences. Correlation values between the total score and its five items varied from 0.806 to 0.934. Criterion validity against EuroPEP had a correlation of 0.831.

**Conclusion:** This study fulfilled the necessary steps to translate, verify the validity and the reliability of the Portuguese version of the JSPPE, with minimum layout alteration. All five items were maintained. The authors recommend the use of the JSPPE in research and clinical practice.

**Keywords:** empathy, physician-patient relationship, patient centered medicine

## Background

Empathic communication is essential when speaking of physician–patient relationship.<sup>1</sup> This multidimensional concept was defined by Hojat as a predominantly cognitive attribute (more than emotional), involving understanding (more than feeling) the patient's experiences, concerns, and perspectives, in combination with the ability to communicate that understanding.<sup>2,3</sup> It contrasts with the concept of sympathy, for with empathy the doctor must retain his abilities of technical analysis and judgment to take action.<sup>2</sup>

When analyzing empathy we must always take into account the patient's participation in the decision-making process which, in the case of General Practice and Family Medicine, falls under the biopsychosocial approach.

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McWhinney and Moira Stewart developed methodologies for person-centered consultation.<sup>4</sup>

A good physician–patient relationship with empathic involvement is associated with better adherence to treatment, higher levels of satisfaction with the doctor and the health system, better memory and understanding of the information given by the doctor and to a better quality of life and psychological, physical, and social well-being.<sup>5</sup>

Hojat and collaborators validated the original version of the Jefferson Scale of Patients Perceptions of Physician Empathy (JSPPPE), a five-item measurement instrument, to be answered by patients on a Lickert scale from 1 (strongly disagree) to 7 (strongly agree), aggregated in a single component.<sup>6</sup> The corrected item-total scores ranged from 0.88 to 0.94 as well as showing strong correlations with scores of patient satisfaction. In the original version, Cronbach's  $\alpha$  coefficient varied between 0.97 and 0.99 for the total sample and for patients in different gender and age groups. This scale measures (i) understanding patients' perspectives, (ii) inquiring about daily life, (iii) showing concern for the patient and their family, (iv) understanding patients' emotions, feelings, and concerns, and (v) patient understanding by the doctor.<sup>6</sup> The global score is obtained by the mean score of all five items.

The same authors have also developed the Jefferson Scale of Empathy (JSE) to measure doctors and student's empathy a student's version recently used to verify the change in beliefs in students recently admitted to Medicine.<sup>7</sup>

Several studies have shown positive associations between medical empathy, patient satisfaction and empowerment, patients becoming more able to withstand their problems, and the scale reaching good levels of internal consistency and reliability.<sup>8–11</sup> In 2011, it was demonstrated that the perceived medical empathy, as measured by JSPPPE, is associated with better clinical outcomes in diabetic patients, as well as in patients with trauma.<sup>12,13</sup>

According to our research, there are no published papers in Portugal about empathy as perceived by the patient, using the JSPPPE scale. Taking this and the importance of empathy to effective physician–patient communication<sup>14</sup> into consideration, it is pertinent to measure it by answering the question “How do patients value empathy in their relationship with their doctor?”.

The goal of this study was to translate the JSPPPE scale to Portuguese spoken in Portugal and verify its reliability and validity.

## Methods

After the original author's authorization, the process of translating the questionnaire into Portuguese followed the sequential approach.<sup>15,16</sup> The English version was first independently translated into Portuguese by two professional language translators, both native Portuguese speakers. The two translations were revised and reconciled in a meeting by a team consisting of one psychologist, one sociologist, one nurse, and three physicians, thus creating the first Portuguese version of the JSPPPE.

The English translation was then made by two General Practitioners (GPs) working in England. In order to ensure semantic equivalence,<sup>17</sup> two experts, Portuguese specialists in Family Medicine, reviewed technical aspects of the translation in terms of understandability and use of medical jargon, to make it more readable for the general public. Finally, a Portuguese linguist guaranteed the grammatical correction of the text.

Readability of the Portuguese version was estimated with the Flesch index on a 100-point scale, with cut-off points at 30, 50, 60, 70, 80, and 90, where the range [90–100] corresponds to a very easy to read text and the interval [0–30] to a text which is very difficult to read.<sup>18,19</sup> This index also allows an estimate of the number of years of education required for an adequate understanding of the text.

This observational study involved the collection of two samples at different times. The purpose of the first one was to evaluate the reliability of the measure and was carried out during the month of July 2015, with interviews of patients from two practices, one Family Health Unit from Baixo Mondego Health Centre Group and one Traditional Health Center from the Pinhal Litoral Health Centre Group. Only those patients who had given written informed consent and attended the interview at the stipulated time were included, according to the ethics committee protocol. Interviews took place immediately after each patient's appointment with their family doctor and consisted of an initial self-fulfillment followed by 15 mins later one with marked answers by the interviewer. Doctors were not aware of the interviews that were made in a non-visible place to doctors according to the study protocol approved by the ethics committee and the board of the health units.”

The second data collection was carried out in 2017 at several Family Medicine practices, also on randomly selected days. The questionnaire was self-administered, except for those unable to read or write, in which case the researcher interviewed them. As before, participants

had previously given informed consent and were given the questionnaire immediately after an appointment with their family doctor, to be filled in a quiet place of the health unit. The study had been approved by all participating Health units, but unbeknownst to the Family Doctors.

This study was approved by the Ethics committee of the Centre Regional Health Authority.

Collected data were stored in computer records, without any identification of the participants. This data were analyzed and some hypotheses were tested in order to demonstrate the reliability and validity of the Portuguese version of the JSPPPE.

A three-part data collection instrument was used: (1) brief collection of socio-demographic data, (2) the previously obtained Portuguese version of the JSPPPE; and (3) “physician–patient relationship” sub-dimension from the Portuguese version of the European Task Force on Patient Evaluation of General Practice Care Scale (EuroPEP).

- Socio-demographic information collected in this study comprised patient age, gender, literacy, and employment status.

Age was organized into three categories, up to 35, from 36 to 65, and over 65 years old. The level of literacy was classified into four categories, ‘only knows how to read and write’, completed 9th grade (or 4th grade for older people), completed 12th grade (or 7th grade for older people), higher education degree. Participants were also questioned on their main occupation and/or source of income. Activities in agriculture, commerce, industry or services, as well as home keeping were classified as active, whereas pensioners, students, and unemployed were classified as inactive.

- The Portuguese version of the JSPPPE consists of five items, each being measured on a seven category concordance scale. The resulting index was obtained by calculating the mean of answers.
- The EuroPEP also allows us to measure relational and satisfaction aspects, often understood as synonyms of empathy. The conceptual model of the Portuguese version of this questionnaire, tested and validated in Portugal and developed by the “Centre for Health Studies and Research of the University of Coimbra”, includes the dimensions “medical care”, “non-medical care”, “organization of services”, and ‘quality of premises.’<sup>20,21</sup> The eight items used in this study

constitute the sub-dimension “physician–patient relationship” of the “medical care” dimension. The score for this sub-dimension was obtained by the mean of the answers to its various items, ignoring “not applicable” answers.

In order to address reliability, we tested intertemporal stability and internal consistency. Intertemporal stability was tested using the interclass correlation coefficient (ICC) in a test–retest design with 15 mins interval between writing (first moment) and an interview (second moment). A score of less than 0.5 is considered weak, between 0.5 and 0.75 moderate, between 0.75 and 0.9 good, and above 0.9 excellent.<sup>22</sup>

Internal consistency, representing the homogeneity of the items, was tested using Cronbach’s  $\alpha$ , with desirable values between 0.7 and 0.9.<sup>23</sup>

For the validity tests of the Portuguese version of the JSPPPE, this study considered the three known forms of content, construction, and criterion validity.<sup>23</sup> Content validity was tested in a pre-test after the cultural and linguistic adaptation, to verify and guarantee the adequacy of the measurable characteristics while simultaneously evaluating the questionnaire filling-out time and difficulties in perception, item clarity, interpretation of the Portuguese language, and visual agreeability of the questionnaire.

Initially, the hypothesis that these socio-demographic variables had no impact on the empathy index felt by the patients was considered.

For construct validity, hypotheses were tested in known groups, taking into account socio-demographic variables and the following research hypothesis:

H<sub>1</sub>: The JSPPPE scores are sensitive to socio-demographic variables

For normally distributed numerical variables, we used Student’s *t*-test and for non-normally distributed as well as for ordinal variables, the Mann–Whitney U and Kruskal–Wallis H tests were used as well as the  $\chi^2$  test.

Additionally, to find the underlying factorial structure of the JSPPPE, a factorial analysis with *varimax* rotation and Kaiser criterion was performed, after confirmation with KMO and Bartlett’s test.<sup>24</sup>

In order to test criterion validity, we used bivariate statistical analysis (Pearson’s correlation coefficient) between the JSPPPE index and the values of the sub-dimension “physician–patient relationship” of the EuroPEP scale. The following research hypothesis was formulated:

H<sub>2</sub>: The JSPPPE scores are related to the EuroPEP “physician–patient ratio”

Considering the specificity of both measures, it is expected that there will be strong and significant correlations between the JSPPPE index and each of the items of the sub-dimension “physician–patient relationship” of the EuroPEP scale.

## Results

### Cultural and linguistic adaptation

Throughout this study, great effort was made to ensure that the translated Portuguese version of JSPPPE was in the agreement with the original English text, both in spirit and semantically.

The process of translating the questionnaire into Portuguese and back-translating into English resulted in a set of sentences that, when analyzed in the light of Flesch’s Reading Ease Test, revealed an average of 2 syllables per word and 11.2 words per sentence, thus obtaining a final result of 68.63, corresponding to an intermediate 8th–9th grade level, publishable and easy to understand.

This was confirmed in the pre-test with the users. However, they showed a desire for changes in the graphical layout, so that the response scale would be placed below the sentence to be classified, rather than being placed at the beginning of the sentence. There was also a need to highlight “. . . phrases about your doctor . . . ” in the text, to make it clear that the questionnaire concerned their opinion about the doctor and not the last consultation.

### Sample and reliability

Table 1 shows the characteristics of the two samples used in this study.

In the first sample, 51.1% were active, 13.6% were under 35 years and 47.7% were over 65 years old, 27.7% were men, and 68.2% had low academic education. The second sample had socio-demographic characteristics similar to the first one ( $p>0.05$ ), with the exception of literacy in which the percentage of participants with medium or high literacy was higher ( $\chi^2=8,3$ ;  $p<0,005$ ).

The Kolmogorov–Smirnov test showed that the mean values of the JSPPPE and EuroPEP scales were normally distributed. Thus, Table 2 presents the descriptive statistics of the JSPPPE empathy scale and the sub-dimension “physician–patient relationship” of EuroPEP. The corresponding Kolmogorov–Smirnov normality test results are also presented.

Table 3 contains the excellent reliability values obtained in this study.

The ICC test–retest reliability ranged from 0.737 to 1.000 and Cronbach’s  $\alpha$  varied between 0.806 and 0.877. On the other hand, the correlation values between the whole scale and its five items ranged from 0.806 to 0.934.

To test the H<sub>1</sub> hypothesis, the values of the JSPPPE index were compared for each of the socio-demographic variables collected. Table 4 presents the results.

As we had anticipated, the socio-demographic variables do not have a discriminatory role in the JSPPPE index.

This index was confirmed in the Portuguese version through a factor analysis with varimax rotation and after verification of KMO (0.873) and Bartlett’s test of sphericity ( $p<0.001$ ). In fact, the Kaiser criterion produced a single index explaining almost 80% of the variance. Table 5 presents the results of this analysis.

To test the hypothesis H<sub>2</sub>, we calculated the correlation coefficients between the JSPPPE scale index and the

**Table 1** Descriptive samples’ socio-demographic characteristics

Variable	Value	Sample 1 (n=51)		Sample 2 (n=258)	
		n	%	Nn	%
Age	≤35	7	13.6	37	14.3
	≥36–65	20	38.7	122	47.3
	≥66	24	47.7	99	38.4
Gender	Men	14	27.7	102	39.5
	Women	37	72.3	156	60.5
Literacy	Low (≤9 years)	35	68.2	120	46.5
	Medium/High (>9 years)	16	31.8	138	53.5
Employment status	Active/employed	26	51.1	124	48.1
	Inactive (student, pensioner, unemployed)	25	48.9	134	51.9

**Table 2** JSPPPE and “physician-patient” relationship score distribution (n=258)

	Min	Max	Mean	SD	CI(95%)	z	Sig
JSPPE	1	7	5.9	1.2	5.8–6.1	3.1	<0.001
Physician–patient relationship	1	5	4.4	0.7	4.4–4.5	3.5	<0.001
<b>JSPPE answers</b>							
Understanding patients’ perspectives	1	7	6.20	1.10	6.1–6.3		
Inquiring about daily life							
Showing concern for the patient and their family	1	7	5,7	1,5	5.5–5.9		
Understanding patients’ emotions, feelings and concerns	1	7	5,9	1,5	5.7–6.1		
Patient understanding by the doctor	1	7	5,9	1,4	5.7–6.1		

**Abbreviations:** Min, minimum; Max, maximum; SD, Standard Deviation; CI, Confidence Interval; z, Kolmogorov–Smirnov; Sig, Significance; JSPPPE, Jefferson Scale of Patient Perceptions of Physician Empathy.

**Table 3** Reliability values by test–retest, internal consistency, item-total correlation, mean±SD, and 95% confidence interval

JSPPE	Test–retest	Internal consistency	Item-total correlation
Score		0.853	
[1] Understanding patients’ perspectives	0.737	0.806	0.806
[2] Inquiring about daily life	0.990	0.821	0.888
[3] Showing concern for the patient and their family	0.937	0.860	0.913
[4] Understanding patients’ emotions, feelings and concerns	0.895	0.877	0.910
[5] Patient understanding by the doctor	1.000	0.850	0.934

**Abbreviation:** JSPPPE, Jefferson Scale of Patient Perceptions of Physician Empathy.

**Table 4** Reliability values by age, gender, literacy, and employment status

Variable	Value	Mean	SD	t/F	Sig
Age	≤35	5.54	1.59	2.35	0.097
	≥36–65	6.00	1.27		
	≥66	6.01	0.98		
Gender	Men	5.97	1.08	0.27	0.784
	Women	5.93	1.31		
Literacy	Can read and write	5.84	1.10	1.06	0.368
	9 years (4th grade)	6.05	1.22		
	12 years (7th grade)	5.85	1.20		
	Higher Education	5.77	1.32		
Employment status	Active	5.87	1.35	0.88	0.382
	Inactive	6.01	1.10		

**Table 5** Reliability values for extracted component of JSPPPE

Component	Total	Eigen values		Loadings		
		% Variance	% Cumulated	Total	% Variance	% Cumulated
1	3.97	79.48	79.49	3.97	79.49	79.49
2	0.44	8.73	88.22			
3	0.27	5.45	93.67			
4	0.19	3.88	97.54			
5	0.12	2.45	100.00			

**Abbreviation:** JSPPPE, Jefferson Scale of Patient Perceptions of Physician Empathy.



**Table 6** Criterion validity between JSPPPE and “physician–patient relationship” (n=258)

EuroPEP	JSPPPE score
“Physician–patient relationship” score	0.831
[1] Making you feel you had time during consultations	0.683
[2] Interest in your personal situation	0.801
[3] Making it easy for you to tell him/her about your problems	0.691
[4] Involving you in decisions about medical care	0.721
[5] Listening to you	0.687
[6] Keeping your records and data confidential	0.541
[7] Quick relief of your symptoms	0.615
[8] Helping you to feel well so that you can perform your normal daily activities	0.687

**Abbreviations:** JSPPPE, Jefferson Scale of Patient Perceptions of Physician Empathy; EuroPEP, European Task Force on Patient Evaluation of General Practice Care Scale.

EuroPEP sub-dimension “physician–patient relationship”. Table 6 presents the results of these correlations.

As can be seen, both scores had a correlation of 0.831. Among the items of the sub-dimension “physician–patient relationship”, the interest shown in their personal situation (item 2) had the highest correlation whereas confidentiality of clinical records (item 6) had the lowest correlation. When we tried to explain the JSPPPE index through the eight items of the sub-dimension “physician–patient relationship”, items 2 and 8 were most significant. Therefore, based on both measures and data from this study it seems that the concept of empathy is perceived by patients as interest displayed in their personal situation and helping them to perform their daily activities.

## Discussion

The physician–patient relationship goes beyond the situational meeting between them. It is more than asking questions, examining the patient, prescribing medication, and giving recommendations. Several studies suggest that this relationship combines technical and personal abilities as well as empathic attitudes.<sup>25,26</sup>

The increasing use of complementary diagnostic tests, the permanent development of technologies and the pressure to reduce costs and consultation times may distance the doctor from the patient; therefore we need to go back to the principles of the therapeutic relationship.<sup>27</sup>

With this study, the JSPPPE was translated to Portuguese, its internal consistency and reliability was verified, and it was validated according to a sub-dimension of EuroPEP, an instrument widely used and with papers published in Portugal.<sup>2,3,21</sup>

The translation of the JSPPPE questionnaire and further proceedings allowed the authors to fulfill all the needed steps to validate the linguistic translation of this

instrument for European Portuguese language which can be different from the Brazilian Portuguese one.<sup>28</sup>

We found no difficulties in the comprehension of the five statements of the JSPPPE questionnaire. However, it was necessary to add a scale from 1 to 7 below each statement in alternative to the formulation of the initial JSPPPE. This was the only change to the original questionnaire. The average time needed to complete the questionnaire was approximately 3 mins, with individuals with higher levels of education tasking less time.

The observation of a significant strong positive correlation between the average score on the JSPPPE and the average score of the physician–patient relationship indicator means that it is possible to measure how the patient perceives empathy with a short five question scale.

The instrument now validated will undoubtedly be of huge value in clinical practice. The application of the JSPPPE in population studies will allow doctors and students to ascertain if this measure can be a marker of adequate consequences of the consultation and be used not only to assess a contact but the experience of the contact eventually prolonged between doctor and patient.

There is still the need to study the association between the value of the perceived doctor’s empathy with indicators of clinical activity such as accessibility, financial and morbidity management indicators, as well as with the impact on doctor’s life and patient’s perception of the quality of life.

## Conclusions

The Portuguese version of the JSPPPE preserved the dimensions used in the construction of the original scale testifying its construct validity.

The application of the JSPPPE will allow the observation of patient’s perception of doctor’s empathy and its use where necessary in national and international studies.

## Abbreviation List

JSPPE, Jefferson Scale of Patients Perceptions of Physician Empathy; JSE, Jefferson Scale of Empathy; GP, General Practitioner; EuroPEP, European Task Force on Patient Evaluation of General Practice Care scale.

## Data sharing statement

All data are available for researchers upon request.

## Ethics approval

This study was approved by the Ethics committee of the Centre Regional Health Authority and the Ethics Committee of the Administração Regional de Saúde do Centro de Portugal.

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## Author contributions

Ana Catarina Domingues, Ana Rita Rodrigues, and Beatriz Pires were leading field authors, collecting data. They read the paper and gave their informed scientific consent. Luiz Miguel Santiago and Pedro Ferreira wrote the paper, and made the statistical work. Denise Velho made scientific inputs and made the English writing. All authors contributed to data analysis, drafting and revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

## Disclosure

The authors report no conflicts of interest in this work.

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