Translation and cross-cultural adaptation of six short screening questions on biopsychosocial aspects of chronic pain

Tradução e adaptação transcultural de seis perguntas breves de triagem dos aspectos biopsicossociais da dor crônica

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ABSTRACT

BACKGROUND AND OBJECTIVES: It is now recognized that psychosocial factors influence the patient's painful experience. For the assessment of patients with chronic pain to become broader and focused on the real needs of the patient, it's necessary to be aware of the existence or not of these factors. The objective of this study was to perform the translation and cross-cultural adaptation of six brief screening questions for biopsychosocial aspects in patients with chronic pain for the Brazilian context.
METHODS: After the consent of the author of the instrument, the study followed the protocol of translation and cross-cultural adaptation according to international guidelines[22], divided into 6 stages: initial translation, synthesis of translations, back-translation, expert committee, pre-test and analysis of content and appearance.
RESULTS: The pre-test was applied to 40 patients with chronic pain, aged over 18 years. The mean age was 57±10 years, most of them had incomplete elementary education and were away from work. No difficulty in comprehension when answering the questions was perceived by the examiner or reported by the patients. The readability test score was of 100 points and the average time to apply the questions was 4 to 5 minutes.
CONCLUSION: The results allow us to affirm that the six short questions can be used to assess psychosocial factors related to anxiety, stress, depression, fear of movement and catastrophization in patients with chronic pain because it's easy to understand and quick to apply.
Keywords: Chronic pain, Depression, Surveys and questionnaires, Translating.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Para que a avaliação de pacientes com dor crônica se torne mais ampla e focada nas reais necessidades do paciente, é necessário levar em consideração os fatores psicossociais que influenciam na experiência dolorosa. O objetivo deste estudo foi realizar a tradução e adaptação transcultural para o contexto brasileiro de seis perguntas breves de triagem dos aspectos biopsicossociais em pacientes com dor crônica.
MÉTODOS: Após o consentimento do autor do instrumento, o estudo seguiu o protocolo de tradução e adaptação transcultural de acordo com as diretrizes internacionais, dividido nas etapas: tradução inicial, síntese das traduções, retrotradução, comitê de especialistas, pré-teste e análise do conteúdo e aparência.
RESULTADOS: O pré-teste foi aplicado em 40 pacientes com dor crônica, com idade acima de 18 anos. A idade média foi de 57±10 anos, grande parte tinha ensino fundamental incompleto e estava afastada da atividade laboral. Não houve dificuldade de compreensão para responder as perguntas. O teste de legibilidade foi de 100 pontos e o tempo de aplicação das perguntas foi de 4 a 5 minutos.
CONCLUSÃO: Os resultados permitem afirmar que as seis perguntas curtas podem ser utilizadas para avaliação de fatores psicossociais relacionados à ansiedade, estresse, depressão, medo do movimento e catastrofização em pacientes com dor crônica por ser de fácil entendimento e rápida aplicação.
Descritores: Depressão, Dor crônica, Inquéritos e questionários, Tradução.

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INTRODUCTION

Chronic pain (CP) is a worldwide public health concern and is a burden both to individuals and society[1,2]. Considered as pain that persists for 3 to 6 months or more, its prevalence has been increasing according to age[3,4]. Recently, the International Association for the Study of Pain (IASP) revised the concept of pain, which was defined as "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage". In addition to revising the concept, explanatory notes were added, including: "Pain is always a personal experience that is influenced, to varying degrees, by biological, psychological and social factors"[5].
The social and economic costs of CP are immense[6,7], with an estimated annual prevalence between 15 and 45% in the general population, associated with greater disability[2,8], early retirement[3,4,9]

and decline in quality of life[7,10], being considered more prevalent than heart disease, diabetes and cancer combined[1,2].

Besides the complex pathophysiological processes involved, it's accepted that psychosocial factors influence the patient's experience and treatment of pain[11]. Evidence shows a very strong relationship between CP, cognition and emotional variables. Cognitive factors include beliefs related to pain, such as low self-efficacy, catastrophization and kinesiophobia as well as, for emotional variables, anxiety, depression and stress[12-16].

Knowledge about the presence or absence of these factors related to CP can help both therapist and patient to better understand the process and condition of pain[4,7,17-19]. A review on current issues involving the treatment of CP has shown that it's still focused on the biomedical model of pain, not focusing on biopsychosocial aspects[8]. McGill's pain questionnaire, validated in Brazil[20], evaluates pain in sensory, affective and evaluative dimensions, but focuses almost exclusively on the description of pain[21].

Due to the need of a more complete evaluation, several psychosocial screening questionnaires with better accuracy in relation to the informal judgment of health professionals were developed. The questionnaires, however, are extensive, sometimes complex and require more time to be applied, many times being difficult for both the evaluator and the patient, which means that these instruments are not used routinely in clinical practice and, thus, many psychosocial comorbidities do not receive support and necessary treatment[9,18]. Routine screening of these factors could be facilitated with brief validated screening questions[18].

The study[18] compared six short screening questions for biopsychosocial aspects of chronic low back pain with scores from already validated full questionnaires, finding good sensitivity and specificity. The aspects evaluated were: depression, anxiety, stress, catastrophization and kinesiophobia. For anxiety and depression, the study showed a correlation of 0.62 to 0.83, diagnostic accuracy of 78 to 91%, sensitivity of 70 to 82% and specificity of 75 to 95%, while for catastrophization and kinesiophobia, the correlation was of 0.89 to 0.95, diagnostic accuracy of 88 to 93%, sensitivity of 78 to 88% and specificity of 91 to 96%.

Another study[9] used the same questions under different CP conditions. Anxiety, stress and depression demonstrated sensitivity of 71.2 to 80.8% and specificity of 70.6 to 73.1%, kinesiophobia and catastrophization demonstrated sensitivity of 75.7 to 90.7% and specificity of 60.9 to 74.4%. Such results indicate, therefore, that short questions could help the early detection of biopsychosocial disorders in a simpler, faster and more reliable manner.

This study's objective was to make a cross-cultural translation and adaptation to Brazilian Portuguese of the six brief screening questions on the biopsychosocial aspects, anxiety, depression, stress, kinesiophobia and catastrophization in patients with CP, providing a simple tool that can be quickly applied.

METHODS

The sample consisted of 40 patients with CP, aged over 18 years old and with pain for at least 3 months, accompanied by the Pain Outpatient Clinic of the University Hospital of Juiz de Fora. All agreed to participate in the study by signing the Free and Informed Consent Term (FICT). Factors for exclusion were: being illiterate or not speaking the Brazilian Portuguese language.

After the consent of the original questionnaire's author[18], the study followed the cross-cultural translation and adaptation protocol[22] divided into six stages: initial translation, synthesis of the translations, back-translation, experts committee, pre-test and analysis of content and appearance.

The initial translation was performed by two bilingual independent translators from the original language, English, to the target language, Brazilian Portuguese. One of the translators was from the health field and each one reproduced an independent version named T1 and T2.

The T1 and T2 versions were submitted to the evaluation and comparison of the translators with the authors of the present study. Together they produced a consensual version in Portuguese, named T3.

The T3 synthesis version was back-translated from Portuguese to the original language, English, by two other bilingual independent translators who did not know the original instrument and did not participate in the previous phase. Each back-translator produced a new version, named RT1 and RT2, giving rise to a new consensual back-translated version, named RT3, which had the purpose of evaluating whether the content of the synthesis version was similar to the original instrument.

After the RT3 back-translation, a committee of experts, formed by a psychologist and four physiotherapists with knowledge about CP met in order to produce the pre-final version of the questions, also evaluating the semantic, idiomatic, experimental and conceptual equivalence of the translated version.

In case any item was identified as unsuitable by one of the committee specialists, that item was reviewed and discussed until a culturally adapted version for the Brazilian population, named T4 or final version, was reached and applied to the 40 patients, who were encouraged to suggest improvements and report any difficulty in understanding.

Finally, an audit of the entire process was carried out, analyzing all phases step by step, certifying that proper translation and adaptation were performed. An assessment was also made on the readability of the instrument using the Flesch–Kincaid readability index (F–K) which, besides the reading level, evaluates whether the instrument is suitable for the target population, with a score index ranging from zero to 100. The lower the score, the more difficult is the text[20]. The reading level was calculated by the equation 206.835 - [(1.015 x average length of sentence) + 84.6 x (average number of syllables)]. A score of 60 or higher is considered appropriate for the adult population. Table 1 shows the interpretation of the F–K index.

Table 1. Interpretation of the Flesch–Kincaid readability Index

F–K Index	Readability level
0 – 29	Very difficult
30 – 49	Difficult
50 – 59	Fairly difficult
60 – 69	Normal
70 – 79	Fairly easy
80 – 89	Easy
90 – 100	Very easy

Patients were selected while waiting for their routine appointment at the pain outpatient clinic during 2019's second semester. Before the questions were applied, the patients answered an initial evaluation sheet, providing data for the sample characterization. The study's questions comprised 5 domains: anxiety, fear of movement, stress, catastrophization and depression. The scores ranged from zero to 10, the closer to 10, the higher the probability of some alteration in the evaluation field of the question.

This study was approved by the HU UFJF/EBSERH Ethics and Research Committee, opinion No. 13525619.0.0000.5133.

RESULTS

Forty patients with CP participated in the study, 87.5% women, 42.5% married, 37.5% with incomplete elementary education. The majority were either dismissed from work (25%) or retired due to disability (27.5%). Tables 2 and 3 characterize the sample.

Table 2. Clinic characteristics of the sample

Variables	Results (mean±SD)
Age (year)	57.95 ± 10
N° of comorbidities	3.22 ± 2.21
Self-evaluation of health status	5.62 ± 2.09
Intensity of pain (VNS)	8.25 ± 1.95
Duration of pain (years)	7.77 ± 7.58

VNS = visual numeric scale; SD = standard deviation.

The average pain level on the numerical pain scale[19] was 8.25 ± 1.95, being the spine (55%) and lower limbs (42.5%) the most affected areas. Regarding the time the patients had CP, the lowest was 1 year and the highest 38 years.

Table 3. Characteristics of the sample

Variables	Categories	n°	%
Education	Complete elementary	5	12.50
	Incomplete elementary	15	37.50
	Complete middle	14	35
	Incomplete middle	2	5
		3	7.50
		1	2.50
Work	Active	6	15
	Dismissed	10	25
	Retired	24	60
SAH	Yes	31	77.50
	No	9	22.50
Tobacco	Yes	3	7.50
	No	37	92.50
Physical activity	Yes	21	52.50
	No	19	47.50
Location of pain	Head and neck	4	10
	Superior limbs	9	22.50
	Trunk	1	2.50
	Hip	3	7.50
	Lower limbs	17	42.50
	Spinal column	22	55
	"Generalized pain"	10	25

SAH = systemic arterial hypertension.

The average income of 77.5% of the sample was 1 to 3 minimum wages, 55% were white, 7.5% were tobacco smokers, 52.5% practiced physical activities and 77.5% were hypertensive (Table3).

The original version and the final version of the translated short questions are in table 4. The resulting versions of the translation (T1 and T2) and the back-translation (RT1 and RT2) presented identical or very similar results, showing good agreement between the versions, and only small grammatical adjustments for better understanding and applicability of the questions were necessary. The necessary changes were made by the committee of experts.

In order to evaluate anxiety and stress, the following questions were chosen respectively "Do you feel anxious?" with the answer ranging from "zero: not at all" to "10: Quite anxious" and "Do you feel stressed?" with the answer from "zero: Not at all stressed" to "10: Very stressed". No chantes were necessary, since the translations were identical and there was no alteration in meaning after the back-translation.

As for fear of movement, the chosen question was "Physical activity might damage me" which was translated by the second translator (T2), because it was concluded that this version would contribute more to a better understanding of the patient compared to the version translated by T1 "Physical activities can cause me injury" due to the term "injury". The answer to the question did not require any changes, being "zero: Completely disagree" to "10: Completely agree". Moreover, for the title of the question's domain, the T2 translation was chosen, since the term used "Fear of movement" is closer to the term used in the original question than "Kinesophobia" used by T1, it's also a term that can be better understood by the population that presents different educational levels.

The question chosen to evaluate catastrophization was "When I feel pain, it is terrible and I feel that it will never get better" with the answers: "zero: Never do that" to "10: Always do that", with identical translations and no change in meaning after the back-translation. The only change made was to the title of the question's domain, opting for the T1 translation, because the T2 translation brings the title "Catatrosphize" and T1 brings "Catastrophization", a term closer to that used in other studies when evaluating the same domain, as well as closer to the title given by the original author.

For the evaluation of depression, two questions were used: "During the past month, have you often felt sad, depressed or had a sense of hopelessness"? and "During the past month, have you felt bothered by little interest or pleasure in to do something"? both with answers ranging from "Zero: never" to "10: All the time". Each question evaluates a dimension of depression, the first one is related to the depressed mood and the second one to the lack of interest or anhedonia. Regarding the changes made, in the T1 version the words "despair" in the first question and "bothered" in the second distanced the translated versions from the original version. Therefore, the option was to use the T2 version in both questions, because the experts decided that the terms were more related to the evaluated dimensions.

The time spent on the FICT presentation, filling out of the initial evaluation sheet and the six screening questions was 4 to 5 minutes. The degree of reading facility was 100, highlighting the facility of the instrument.

Table 4. Comparison of original and final versions

Original version	Synthesis version
Anxiety "Do you feel anxious?' Not at all: zero Quite anxious: 10	*Ansiedade* *"Você se sente ansioso?"* *De modo algum: zero* *Muito ansioso: 10*
Fear of movement "Physical activity might damage me' Completely Disagree: zero Completely agree: 10	*Medo do movimento* *"Atividades físicas podem me machucar"* *Discordo completamente: zero* *Concordo completamente: 10*
Stress "Do you feel stressed?' Not at all stressed: zero Very stressed: 10	*Estresse* *"Você se sente estressado?"* *Nenhum estresse: zero* *Muito estressado: 10*
Catastrophization "When I feel the pain, it is terrible, and I feel that it will never get better' Never do that: zero Always do that: 10	*Catastrofização* *"Quando sinto dor, é terrível e sinto que nunca vai melhorar"* *Nunca acontece: zero* *Sempre acontece: 10*
Depression "During the past month, have you often felt sad, depressed or had a sense of hopelessness?' Never: zero All the time: 10	*Depressão* *"Durante o último mês com que frequência você se sentiu triste, deprimido ou teve uma sensação de desesperança?"* *Nunca: zero* *O tempo todo: 10*
Depression "During the past month, have you felt bothered by little interest or pleasure in to do something?' Never: zero All the time: 10	*Depressão* *"Durante o último mês, você se sentiu incomodado por estar tendo pouco interesse ou prazer em fazer alguma coisa?"* *Nunca: zero* *O tempo todo: 10*

DISCUSSION

According to data from the IASP, the annual prevalence estimates that between 15 and 45% of the general population has CP[1,2]. In Brazil, although there are not many epidemiological studies, some studies show that CP is the main demand in outpatient care[25,26].

Aspects such as mood, beliefs, expectations, previous experiences, attitudes, knowledge and the symbolic meaning attributed to pain can modulate the painful sensation. Thus, comorbidities or psychological symptoms are highly prevalent in patients with CP[27], being those associated with increased pain and greater disability, with an important role in the consequence of pain[1,2]. Due to the need for a more complete and practical evaluation, as well as the lack of adequate tools, the translation and cross-cultural adaptation of the six short screening questions on the biopsychosocial aspects of CP emerges as an option for implementing a simple and fast evaluation in clinical practice.

However, before applying an instrument for evaluation in a different culture, it must be submitted to the process of translation and cross-cultural adaptation, which is not just a literal translation, but also the maintenance of semantic, conceptual, operational and measurement equivalence of the items that compose it[28]. The objective is to maintain the similarity of concepts in the translated and adapted version despite the cultural differences.

The process of translation and cross-cultural adaptation was done by two translations and two back-translators. The use of two independent translators in each of the phases was of utmost importance, as the versions produced by them could be compared and discussed extensively when discrepancies were identified, so that a final version with the best possible resolution could be reached. Although the translators had no previous knowledge of the questions and worked independently, their language experience was essential for determining the semantic equivalence of the terms. Often some problems can be found in the translation of instruments due to lack of familiarity with the research area. In order to solve these problems, the committee formed by specialists analyzed the questions with the authors of the study, who contributed with some suggestions and modifications in order to ensure clarity and conceptual equivalence.

The recommendations for the transcultural translation and adaptation process[22] were followed, in which the focus should be on semantic equivalence and not literal translation, with the objective of expressing the original content in a way that makes sense to the new target population. Therefore, whenever possible, the central meaning was kept as close as possible to the original version, without jeopardizing the comprehension of the questions.

The sample included 40 patients with CP in different areas and intensities, with different ages, sex, education level and income in order to encompass as much personal characteristics as possible that would reflect a wide variation of answers.

The prevalence of CP increases steadily with age[1,3], a fact confirmed in this study. In the elderly population, the control of CP is more difficult due to the presence of pain in multiple locations, the higher number of comorbidities and the limitation in pharmacological management[3,4]. Over 85% of the study's population was composed of women, which is in accordance with most studies on the subject[1,2,15]. In addition to the higher prevalence in women, there is also a higher prevalence in married adults[15,26], corresponding to the findings of the present study.

Regarding the level of education and income, the study showed that CP affected more those who had incomplete elementary education and income between R$ 998.00 and R$ 2,994.00, which corroborates with the study[2]. Indicators of socioeconomic level, such as poverty, education and health services coverage are associated with the general state of health[2]. The reason is that people with low income and less education have less knowledge about evaluation and treatment adequate for CP, often self-medicate and have less access to health services[6,25]. It's also important to highlight that a large part of the sample is away from work or already retired due to disability, in addition to having higher intensity of pain measured by the VNS.

Studies show that pain affects work productivity, social life and leads to disability[29]. A systematic review and meta-analysis conducted in the United Kingdom showed that CP is still associated with higher levels of pain and is quite disabling in many cases[1].

One study showed that CP was more prevalent in low back pain (21.1%), followed by lower limb pain (15.8%), with many patients reporting generalized pain[25], and another article[30] also showed a higher prevalence of CP in women, with low back pain and lower limb pain being the most frequent, results also found in this study.

Research[12] involving 4.859 participants found that CP is usually associated with comorbidities, sleep disorders and psychological disorders. The present study also showed a higher prevalence regarding the number of comorbidities, with hypertension being the most frequent, similarly to the study[15].

In order to achieve a balance between the original version and the one adapted by this study, not many modifications were necessary aiming at the better comprehension by the Brazilian population. The fact that the questions were short, straightforward and showed a good level of readability did not present difficulties of comprehension by the patients, who in their majority had incomplete elementary education. Thus, high level of education is not necessary for a good comprehension of the issues, evidencing the viability of the instrument for the Brazilian population, which is composed by an enormous diversity of educational levels.

The instrument allowed for a faster and accurate evaluation of patients with CP with the early detection of changes related to psychosocial factors involved in CP, influencing the therapy and favoring a treatment that is more directed to the patient's needs. After the instrument helped to identify the psychosocial aspects, more complex and specific instruments can be used to assess the characteristics more accurately, such as the TAMPA scale for kinesophobia[31], the Self-efficacy Scale for CP[32], the Catastrophizing Scale[33] and the Hospital Anxiety and Depression Scale[34].

One of the study's limitations was the composition of the sample, in its majority females, since the care for females involves specificities[26]. Another limitation was the fact that the sample did not include young and/or very old individuals, although the mean age is in accordance to the global literature.

Although being an important step in the process of validating an instrument, the translation, cross-cultural adaptation and semantic equivalence are only the beginning. After this phase, the instrument needs to go through the validation process. The questions need to be sensitive and specific enough to be useful in the screening process and in identifying biopsychosocial changes that may be related to CP, and from there be used in research and clinical practice. Therefore, this study was the first phase to determine the Portuguese version of the six short questions and their applicability in the Brazilian population.

CONCLUSION

The Brazilian Portuguese version of the six short screening questions on the biopsychosocial aspects of CP was made after a careful process of translation and cross-cultural adaptation, resulting in an instrument that's easy to understand and fast to apply. This was the first stage of the cross-cultural translation and adaptation, the evaluation of the reliability, validity and responsiveness of the questions to the Brazilian reality is still necessary.

AUTHORS' CONTRIBUTIONS

Gabriela Valentim Cardoso
Data Collection, Resource Management, Project Management, Writing – Preparation of the original

Anna Paula Campos Sarchis
Resource Management, Project Management, Methodology, Writing – Review and Editing, Supervision
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Statistical Analysis, Project Management, Methodology, Writing – Review and Editing, Supervision

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