

Translation, Adaptation and Validation of the “Cultural and Psychosocial Influences on Disability (CUPID) Questionnaire” for Use in Brazil

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The paper describes the adaptation and testing of the Cultural and Psychosocial Influences on Disability Questionnaire for use in Portuguese. The cross-cultural adaptation followed the steps of translation, back-translation, evaluation of the translations by a committee of judges, and then piloting of the pre-final version. This was performed in a sample of 40 nursing staff from the Hospital at the University of São Paulo. Adjustments were made after review of the translations by the committee of judges (CVI \leq 80%). The pilot study was used to test whether questions could be satisfactorily understood and completed (\geq 85% of subjects). The Brazilian version of the Questionnaire is an adequate instrument for the ascertainment of occupational activities, psychosocial aspects of work, musculoskeletal symptoms and associated disabilities in nursing staff.

Descriptors: Translations; Validation Studies; Occupational Health; Cumulative Trauma Disorders.

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Tradução, adaptação e validação do Cultural and Psychosocial Influences on Disability (CUPID) Questionnaire para uso no Brasil

O objetivo deste estudo foi descrever a adaptação e validação do Questionário Pesquisa Internacional sobre as Influências Físicas, Culturais e Psicossociais nos Sintomas Musculoesqueléticos e Incapacidades Associadas, para a língua portuguesa. O processo de adaptação transcultural seguiu as etapas de tradução, retrotradução, avaliação das traduções por um comitê de juízes e, em seguida, teste da versão pré-final. Utilizou-se amostra de 40 trabalhadores de enfermagem do Hospital da Universidade de São Paulo. Adaptações foram feitas após a submissão ao comitê de juízes ($IVC \leq 80\%$). O teste piloto testou a compreensão das questões pelo seu preenchimento ($\geq 85\%$ dos sujeitos). A versão brasileira do Questionário mostrou ser instrumento adequado para a verificação das atividades profissionais, aspectos psicossociais do trabalho e sintomas osteomusculares, associados à incapacidade entre os trabalhadores de enfermagem.

Descritores: Tradução (produto); Estudos de Validação; Saúde do Trabalhador; Transtornos Traumáticos Cumulativos.

Traducción, adaptación y validación del cuestionario Cultural and Psychosocial Influences on Disability (CUPID) para uso en Brasil

El objetivo de este estudio fue describir la adaptación y validación del cuestionario Investigación Internacional sobre las Influencias Físicas, Culturales y Psicossociales en los Síntomas Musculares Esqueléticos e Incapacidades Asociadas, para la lengua portuguesa. El proceso de adaptación transcultural siguió las etapas de traducción, retrotraducción, evaluación de las traducciones por un comité de jueces y, en seguida, la realización de una prueba de la versión prefinal. Se utilizó una muestra de 40 trabajadores de enfermería del Hospital de la Universidad de Sao Paulo. Las adaptaciones fueron hechas después de someterlo al comité de jueces ($IVC \leq 80\%$). La prueba piloto comprobó la comprensión de las preguntas a través del llenado ($\geq 85\%$ de los sujetos). La versión brasileña del cuestionario mostró ser un instrumento adecuado para la verificación de las actividades profesionales, aspectos psicossociales del trabajo y síntomas osteomusculares, asociados a incapacidad entre los trabajadores de enfermería.

Descriptores: Traducción (producto); Estudios de Validación; Salud Laboral; Trastornos de Traumas Acumulados.

Background

Work-Related Musculoskeletal Disorders (WRMD) are an important cause of morbidity and disability in industrialized countries, with major economic impact⁽¹⁻⁴⁾. Their management and prevention requires careful evaluation of workers' occupational activities and work conditions, including both technical and organizational aspects of work⁽⁵⁻⁶⁾.

Accordingly, Brazilian researchers have adapted various established instruments for the assessment of musculoskeletal problems in workers, including the Nordic Questionnaire⁽⁷⁾, the Disabilities of the Arm, Shoulder and Hand (DASH) Questionnaire⁽⁸⁾ and the Oswestry Disability Index⁽⁹⁾. However, most of these questionnaires focus on specific anatomical regions, and

do not cover the nature of work and the work conditions that might be associated with symptoms. The "Cultural and Psychosocial Influences on Disability (CUPID) questionnaire"⁽¹⁰⁾ is a wider ranging instrument, which ascertains demographic characteristics, a range of occupational physical activities, psychosocial aspects of work, musculoskeletal symptoms at multiple anatomical sites, associated disability for common everyday tasks, mental health, tendency to worry about common (non-musculoskeletal) somatic symptoms, and also beliefs about the nature and severity of WRMD⁽¹¹⁾.

The theoretical approach of the conception of the Questionnaire is based on the hypothesis that work-related musculoskeletal symptoms and resultant disability are influenced by cultural beliefs and expectations, as well as by physical activities and mental health"⁽¹⁰⁻¹¹⁾.

The CUPID questionnaire⁽¹⁰⁾ is in two parts: a baseline questionnaire, which can be used to collect data about workers in cross-sectional surveys, and a shorter follow-up questionnaire, which assesses the course and impact of symptoms at later follow-up.

The CUPID questionnaire is currently being used in an international multi-center study – "Cross-cultural Study of Musculoskeletal and Other Somatic Symptoms and Associated Disability", with financial support from the Colt Foundation, aimed at comparing the prevalence of musculoskeletal symptoms and disability in workers carrying out similar physical activities in a variety of cultural settings. Brazil is taking part in this CUPID project with 21 other countries. As a prelude to data collection, it was necessary to translate the CUPID questionnaire into Brazilian Portuguese, and then check its validity and applicability by independent back-translation to English, and by piloting in a sample of Brazilian workers.

The importance of adapting the questionnaire for the Brazilian culture is guided by comprehensive and accurate diagnoses, which permit appropriate and effective proposals of preventive strategies to avoid work-related musculoskeletal symptoms and their resultant disability. Also, international data comparison highlights the influences of different cultures on the manifestation of the work-related musculoskeletal symptoms and disabilities. Therefore, England, Australia, Italy, England, New Zealand, Greece, South Africa and Brazil⁽¹²⁻¹³⁾ are conducting studies with nursing workers in this project. So, with a view to testing the capacity of the instrument to identify musculoskeletal

symptoms and its relationships in different countries and cultures, a multi-center international was proposed, and Brazil is taking part in the CUPID Project with other 21 countries.

The cultural adaptation of the CUPID differs from other studies of the same type which propose to investigate the psychometric properties of the questionnaires, because they were designed as a Likert scale⁽¹⁴⁻¹⁷⁾. CUPID is an instrument whose answers mostly offer a qualitative perspective. On the other hand, the questionnaire is very extensive, which makes it difficult to immediately apply other possible techniques for content validation. Therefore, this publication intends to contribute to the understanding of the cultural adaptation of this type of instrument on workers' health, showing the steps followed for this purpose in detail.

Purpose

The purpose was to evaluate a translation of the CUPID questionnaire into the Portuguese language spoken in Brazil, checking the accuracy of the translation, its content validity, and whether it could be clearly understood when piloted in a sample of nursing staff.

Method

The study is characterized as methodological⁽¹⁸⁾. The title of the CUPID Questionnaire in Portuguese is "*Pesquisa Internacional sobre as Influências Físicas, Culturais e Psicossociais nos Sintomas Musculoesqueléticos e Incapacidades Associadas*".

Procedures for adaptation

An adaptation of the CUPID questionnaire was performed, following the steps that are internationally recommended for translation, back-translation, evaluation of the translations by a judging committee, and then pilot testing of the pre-final version⁽¹⁸⁻²⁰⁾.

Forward translation

The CUPID questionnaire was translated from the original language – English – into the Portuguese language spoken in Brazil, by a bilingual native translator. After the translation, the translator and the lead researcher made a summary of the adjustments in this phase. The translated questionnaire was sent to the general coordinator of the project and its author, who did not indicate any further adjustments.

Back-translation

Independent back-translation to English was carried out by an American bilingual translator, whose mother tongue was English as spoken in the United States. This version was evaluated and compared to the original in English to identify discrepancies. The questionnaire was then re-submitted to the general coordinator of the project, who suggested adjustments that would maintain the same meaning as the original idiom – English spoken in the United Kingdom.

Judging committee

The translated and back-translated versions of the questionnaire were submitted to a judging committee of specialists in its subject matter. This judging committee comprised orthopedists, medical doctors, physiotherapists, nurses and occupational therapists. They evaluated the translations and amendments were made to produce a pre-final version of the questionnaire. As part of this process, the content validity of questions was checked. A content validity index (CVI) was derived for each item of the questionnaire, indicating the percentage of agreement between the specialists, with an 0.80 CVI pre-set as the level that would be regarded acceptable. After the necessary adjustments, the pre-final version of the questionnaire was re-submitted to the general coordinator of the project, who made further adjustments⁽²⁰⁾.

The pre-final version of the *CUPID* questionnaire was then tested in a pilot study.

Pilot testing

The objective of the pilot study was to establish whether the questionnaire could be satisfactorily understood and completed by people from the target population. The possibility of adjustments was considered if 15% or more of participants had difficulty in comprehending or answering an instrument item⁽²¹⁾.

Setting and subjects

The study took place at the University Hospital of the University of São Paulo (HU-USP) - Nursing Department. Subjects were forty (40) nursing staff, including nurses, nursing technicians and nursing auxiliaries. The inclusion criteria were: age between 20 and 59 years, and employment in the Department for at least 12 months at the time of data collection. Workers

who were absent or on vacation were excluded, as were nurses who were engaged in administrative activities only. The study sample comprised 11 nurses (26%), 16 nursing technicians (41%), and 13 nursing auxiliaries (33%) from several units and shifts.

Data collection

Data collection was carried out during July and August 2008. The study sample was identified from a list of all nursing workers in the Nursing Department, with the names of the forty (40) subjects being randomly selected. The lead researcher contacted these individuals when they were at work; and explained the project and its objectives. After consent had been obtained, the researcher gave participants a copy of the pre-final version of the *CUPID* questionnaire to complete, and asked that it be returned at the end of their work shift. Participants were instructed that, if they experienced difficulty in understanding or answering a question, they should leave it blank, thus permitting a check on the need to adjust the instrument.

Analysis

The data collected were entered into an electronic spreadsheet (Excel®, version 2007), and analyzed using simple descriptive statistics. The main focus was on questionnaire items that had not been satisfactorily answered. The study received the approval from the National Council for Research Ethics (CONEP/MS), and from the Ethics and Research Committee of HU-USP. All participants signed the Free and Informed Consent Term.

Results

Adaptation of the *CUPID* Questionnaire

As already described, the adaptation of the *CUPID Questionnaire* was carried out in a series of stages, comprising translation, back-translation, evaluation by a judging committee, and piloting of the pre-final version.

Translation

During the translation, it was a necessary to adapt some terms in order to maintain the same meaning as the original (Figure 1).

Questionnaire and question	Original Version (English)	Translated Version (Portuguese)	Adjustments to Portuguese	Reasons (Brazilian context)
BQ-Question 4	White British, Bangladeshi, Indian, Pakistani, Black African/ Caribbean, Chinese	Branca Britânica, Paquistanesa, Bengalesa, Negra Africana/Caribenha, Indiana, Chinesa	Branco, Preto, Amarelo, Indígena, Pardo	Classification used for races
BQ-Question 5	Full time education	Educação de tempo integral	Educação fundamental	Equivalent term to the level of education
BQ-Question 6	Centimeters or feet	Centímetros ou pés	Centímetros	Unit of height measure
BQ-Question 11	30 flights of stairs a day	30 lances de escada por dia	30 degraus de escada por dia	Appropriateness to the context
BQ-Questions 17, 18, 19, 20, 21, 42, 47, 51	Low back pain	Dor na baixa lombar	Lombalgia	Normal; usage
BQ-Question 48	RSI (repetitive strain injury), WRULD (work related upper limb disorder, CTS (cumulative trauma syndrome)		LER (lesão por esforços repetitivos), DORT (distúrbio osteomuscular relacionado ao trabalho)	Normal usage
FQ-Questions 4, 5, 6, 7, 25	Low back pain	Dor na baixa lombar	Lombalgia	Normal usage

Figure 1 - Summary of adjustments made during translation in the Baseline Questionnaire (BQ) and in the Follow-up Questionnaire (FQ)

Back-translation

During back-translation of the *CUPID* questionnaire, no items were encountered that required alteration. The questions maintained the meaning of the original version. The lead researcher checked for words and phrases that might imply a divergence of meaning, comparing the back-translated version to the original and, where there was doubt, discussed the problem with the translator.

Judging Committee

After the Judging Committee's evaluation, the

CUPID questionnaire underwent further adjustments, according to the specialists' guidance, where the Content Validity Index (CVI) was lower than 0.80⁽¹⁸⁾. It was deemed unnecessary to return the responses to the judges, as the CVI was lower than 0.80 for only 3 items, with satisfactory agreement for the other 73 questions. The problems the specialists identified that led to alterations are described in Figure 2.

The further adjustments that were then made by the general coordinator are set out in Figure 3.

Questionnaire and item	Back-translated version	Adjustment to Portuguese	Reasons	CVI
BQ-Question 11c	Esticamento	Extensão	Proper definition of the movement made	0.66
BQ-Question 11 e	Somente	Exclusão do termo	unnecessary word to say the same, understanding	0.66
BQ-Questions 17, 18, 19, 20, 21, 42, 47, 51	Lombalgia	Dor lombar	technical term	0.50
FQ-Questions 4, 5, 6, 7, 25	Lombalgia	Dor lombar	technical term	0.50

Figure 2 - Summary of adjustments made during the judging committee stage in the Baseline Questionnaire (BQ) and in the Follow-up Questionnaire (FQ)

Questionnaire and Item	Translated Version (Portuguese)	Back-translation	Adjustments	Final Portuguese version	Reasons
BQ-Question 7a	"... ao menos uma vez por dia"	"...less than one time per day"	"...at least one time per day"	"... ao menos uma vez por dia"	Adequacy of the verb tense
BQ-Question 11f	"...30 degraus de escada por dia"	"...30 rungs of stairs a day"	"...30 flights of stairs a day"	"...30 lances de escada por dia"	Conceptual adequacy
BQ-Question 39	"... dor no joelho..."	"... wrist pain..."	"... knee pain..."	"... dor no joelho..."	Adequacy of word
BQ-Questions 46, 47	"... e no que o médico..."	"... and not on what the doctor..."	"... and on what the doctor..."	"... e no que o médico..."	Adequacy of meaning
BQ-Question 50c	Nervoso	Irritable	Anxiety	Ansioso	Conceptual adequacy
FQ-Question 24 c	Nervoso	Irritable	Anxiety	Ansioso	Conceptual adequacy

Figure 3 - Summary of adjustments made after further evaluation by the general coordinator in the Baseline Questionnaire (BQ) and in the Follow-up Questionnaire (FQ)

The pre-final version of the *CUPID* questionnaire that was obtained in this stage was then tested in the pilot study.

Pilot study results

Nursing workers' profile

All 40 nursing workers who were selected for the pilot study agreed to take part. In this group, 40% were between 40 and 49 years of age, 25% between 50 and 59 years, 22.5% between 30 and 39 years, and 10% between 20 and 29 years. Most (90%) were women. Although there has been a substantial increase in the numbers of men entering the nursing profession, women still make up the large majority of nursing workers in Brazil.

As already described, 40% were nursing technicians, 32.5% nursing auxiliaries, and 27.5% nurses. Among nursing staff in the State of São Paulo as a whole, 20% are nurses, 17% nursing technicians, and 62% nursing auxiliaries⁽²²⁾. Data show that the study Hospital has a more highly trained nursing staff than other hospitals in the City of São Paulo and than in Brazil more widely.

With regard to other personal characteristics, 92% of participants were right-handed; 55% were white and 20% black; 72% had finished full time education by 16 years of age; 80% were between 151 and 170 centimeters tall; and 47% were smokers. Most of the nursing workers (95%) had been working at the hospital for more than five years. In other words, they were experienced professionals who are likely to have been well adapted to the work process.

Current occupational activities

Some 72% of the nursing workers reported that, on a typical working day, they carried out repetitive movements of the wrists and fingers for more than four hours; 80% that their work involved repeated bending and straightening of the elbow for more than one hour in total; 50% that they lifted weights of 25 Kg or more by hand; 37% that they knelt or squatted for more than an hour; and 60% that they worked under pressure to finish tasks. Most participants (80%) reported that they made decisions, frequently or sometimes, about how to do their work and 50% about what to do in their

work; 57% reported that they seldom or never made decisions about their timetable and breaks; the majority received help in their work when necessary, and reported satisfaction and feeling secure in their work.

Symptoms

Low back pain during the past 12 months was reported by 65% of participants. This compared with 9% for the neck, 50% for one or both shoulders, 25% for one or both elbows, 47% for one or both wrists, and 47% for one or both knees. In most cases, subjects reported that the pain persisted from one to four weeks, and needed consultation with a health professional. Despite the frequency of reported pain, absence from work was uncommon.

Other people's pain

Most participants reported that they knew others at work or outside work with back or arm pain.

Completeness of answers

The proportion of subjects who failed to answer a question satisfactorily ranged from 2% to 12%. It was considered that this did not indicate a need to adjust the questionnaire.

Conclusion

The translated *CUPID* questionnaire is thus considered a satisfactory instrument for the ascertainment of occupational activities, psychosocial aspects of work, musculoskeletal symptoms and associated disability in Brazilian nursing workers.

As health professionals with at least intermediate levels of education, nursing workers are more familiar with the terminology used in the questionnaire than many other occupational groups, and this may facilitate their understanding of its content. Difficulties may arise with application of the instrument in other groups of workers, in which case it may better be administered through an interview than completed by self-administration. Also, the previous validity test of the questionnaire showed satisfactory results; however, other studies will be conducted, including other tests on the validity of this Brazilian version.

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