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## Original article

# Translation and validation of Neck Bournemouth Questionnaire to Brazilian Portuguese



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### ABSTRACT

**Objective:** To translate the Neck Bournemouth Questionnaire to Brazilian Portuguese, cross-culturally adapt, and to verify its validity and its reliability.

**Methods:** The development of the Brazilian version of Neck Bournemouth Questionnaire (Brazil-NBQ) was based on the guideline proposed by Guillemin. The applied process consisted of translation, back-translation, committee review and pre-test. Sixty-one volunteers presenting neck pain participated in this study. Thirty-five of them participated during pre-testing phase to verify the instrument comprehension, and the remaining 26 took part during psychometric analysis. Psychometric evaluation included interrater and intrarater reliability and construct validity (correlation among Brazil-NBQ, SF-36, Numerical rating score and Neck Disability Index).

**Results:** Some terms and expressions were changed to obtain cultural equivalence for Brazil-NBQ during the translation phase. The NBQ showed an intrarater ICC of 0.96 and interrater ICC of 0.87. Construct validity analysis showed moderate correlations with SF-36 and strong correlation with Numerical rating score and Neck Disability Index.

**Conclusion:** Neck Bournemouth Questionnaire was translated and culturally adapted to Portuguese language, and it demonstrated to be valid and reliable to evaluate patients' neck pain.

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### Tradução e validação do Neck Bournemouth Questionnaire para o português do Brasil

### RESUMO

**Objetivo:** Traduzir o Neck Bournemouth Questionnaire para o português do Brasil, adaptá-lo culturalmente e verificar a sua validade e confiabilidade.

**Métodos:** O desenvolvimento da versão brasileira do Neck Bournemouth Questionnaire (NBQ-Brasil) foi baseado nas diretrizes propostas por Guillemin. O processo aplicado consistiu em tradução, retrotradução, revisão por um comitê e pré-teste. Participaram deste estudo 61

#### Palavras-chave:

Tradução

Questionário

Cervical

Avaliação de desfecho

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voluntários que apresentavam dor cervical; 35 deles participaram durante a fase de pré-teste para verificar a compreensão do instrumento e os 26 restantes durante a análise psicométrica. A avaliação psicométrica incluiu a análise da confiabilidade interavaliadores e intra-avaliador e da validade do construto (correlação entre o NBQ-Brasil, o SF-36, a Escala Numérica de Dor e o Neck Disability Index).

**Resultados:** Alguns termos e algumas expressões foram alterados para se obter equivalência cultural com o NBQ-Brasil durante a fase de tradução. O NBQ mostrou uma CCI intra-avaliador de 0,96 e CCI interavaliadores de 0,87. A análise da validade do construto mostrou correlações moderadas com o SF-36 e correlação forte com a Escala Numérica de dor e o Neck Disability Index.

**Conclusão:** O Neck Bournemouth Questionnaire foi traduzido e adaptado culturalmente para o idioma português e demonstrou ser válido e confiável para avaliar a dor cervical dos pacientes.

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## Introduction

Pathologies that cause neck pain are frequently treated by health professionals and they are found in 22–70% of the population showing higher predominance in older people. Around 30% of the patients presenting chronic symptoms, which means symptoms lasting longer than six months, and about 5% of the symptomatic patients become incapable of working leading to work faults and higher treatment costs.<sup>1-3</sup>

A wide analysis of the disease requires standardized tools that measure patient conditions with precision and quality to follow the clinic progression and to verify treatment efficacy and quality of life related to self-perspective of health. Among measurement tools, questionnaires and functional scales are important for clinical practice and scientific research due to their subjective information that measure in an efficient and trustful manner with low cost.<sup>4-6</sup>

questionnaire  
s created in other languages must be translated and culturally adapted to the environment in which they will be used. Later, psychometric properties of the questionnaire must be evaluated to ensure this tool possesses exactly the same characteristics, validity and reliability of the original version.<sup>7</sup>

Complex and subjective nature of neck pain comprises more than just a response to a nociceptive stimulus to a tissue lesion, but also a multidimensional experience described by the biopsychosocial model that includes pain, disability, cognitive and affective domains.<sup>4,8</sup>

Neck Bournemouth questionnaire (NBQ) was created by Bolton and Humphreys<sup>4</sup> due to the necessity of an evaluation measure to various health domains, such as pain, function, incapacity and psychological and social aspects of patients with neck pathologies. This tool is easily applied, reproducible and responsive to clinical alterations, which makes it adequate to be used for scientific research and clinical practice to monitor the pathology progression and to assist treatment planning.<sup>9-11</sup> Original version of this tool is written in English, however, it has been translated, culturally adapted and largely used as an evaluation tool in several studies and in different countries such as Germany, Denmark, Netherlands and France.<sup>8,12-14</sup> However, this questionnaire had not been

translated to Portuguese and, in order to be used in Brazil, it is necessary to be translated and culturally adapted.

In this context, the aim of the present study is to translate and culturally adapt Neck Bournemouth questionnaire to Brazilian Portuguese, and to evaluate its reliability and validity to be applied in neck pain Brazilians' patients.

## Materials and methods

### Participants

Sixty-one volunteers with neck pain participated in this study. Thirty-five of them participated during pre-testing phase and the remaining 26 took part during psychometric properties analysis. Participants were eligible to participate in the study if they had neck pain and aged 18–60 years. Volunteers using immobilization on upper limb or presenting any cognitive and neurological disorders that would impair on questionnaire appliance were excluded from the study.

questionnaire  
original version author authorized this study and confirmed the originality by electronic correspondence. This study received approval from the Human Research Ethics Committee of the Universidade Paulista (CAAE: 31477314.0.0000.5512) and written consent clarifying the experimental protocol was obtained from each volunteer.

### Procedures

The procedures followed translation, cultural adaptation and validation processes according to Guillemin and Bombardier<sup>15</sup> and Beaton and Bombardier<sup>7</sup> which consisted of translation, back-translation (the translation back to its original language), committee analyses and pre-test (Fig. 1).

Neck Bournemouth questionnaire was translated to Portuguese by two independent, Brazilians and English fluent translators. Only one translator was aware of the concepts being examined by NBQ and the questionnaires new versions were elaborated in an independent manner (T1 and T2). These versions were compared and discussed by the committee, which was composed of: four specialized physical therapists

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