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Content validity of the Dutch version of the Neck Bournemouth Questionnaire

Maarten A. Schmitt [a,*], Carin D. Schröder [a], Martijn S. Stenneberg [a], Nico L.U. van Meeteren [b,c], Paul J.M. Helders [d], Beth Pollard [e], Diane Dixon [f]

[a] SOMT, Institute for Master Education in Manual Therapy, Softwareweg 5, 3821 BN Amersfoort, The Netherlands
[b] Innovation Area Healthy for Life, TNO, The Netherlands
[c] Center for Care Technology Research, Maastricht, The Netherlands
[d] Department of Pediatric Physical Therapy and Clinical Exercise Physiology, Wilhelmina Children's Hospital, Utrecht University, The Netherlands
[e] University of Aberdeen, Aberdeen, UK
[f] University of Strathclyde, School of Psychological Sciences and Health, Glasgow, UK

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ABSTRACT

Objective: Mechanical neck pain is a common human phenomenon. In most cases, no patho-anatomical lesion can be identified with the limitations of current radiological imaging. Therefore it is preferable to assess patients with neck pain with a focus on functioning and health, within a biopsychosocial model. The Neck Bournemouth Questionnaire aims to assess biopsychosocial aspects of neck pain. However, the content validity of the Neck Bournemouth Questionnaire Dutch language version (NBQ-NL) in relation to the International Classification of Functioning, Disability and Health (ICF) is unknown.
The purpose of the study was to examine the content validity of the NBQ-NL in relation to the health components of the ICF.
Method: Content validity was assessed in relation to the ICF, by means of Discriminant Content Validity (DCV).
Results: The results indicate that the NBQ-NL measures four components of the five ICF (impairment, activity, participation and personal factors).
Conclusion: The NBQ is a multidimensional questionnaire, representing four of the five components of the ICF.

1. Introduction

Mechanical neck pain is a fairly common phenomenon. Within the general population, up to 30–50% of all adults will experience mechanical neck pain in any given year (Hogg-Johnson et al., 2008). Due to the limitations of current radiological imaging no patho-anatomical lesion can be identified in most cases. Patients with neck pain are therefore preferably assessed within a biopsychosocial model, with a focus on functioning and health. The International Classification of Functioning, Disability and Health (ICF), reflects an underlying biopsychosocial model of functioning and health (WHO, 2001). The ICF aims to provide a standard framework for the comparison and understanding of health outcomes. The ICF describes three central health outcomes: Impairments to body structure and function, limitations in the ability to perform specific activities, and restrictions in the ability to engage in meaningful social activities or roles. All three components and the relationship between them are influenced by both environmental contextual factors as well as personal factors.

An "ideal" questionnaire for the use in daily practice should be brief while at the same time minimizing both the response burden as well as the costs of data collection and management (Deyo et al., 1998). A brief questionnaire would also provide a structure to which more comprehensive measures can be added, if required (Deyo et al., 1998). As such, a complete assessment of the outcome for any health condition or intervention requires an evaluation of each health component of a functioning and health framework, i.e. impairment, activity limitation and participation restriction. The ability to measure each outcome separately allows for a comprehensive evaluation of the impact of a health condition and the effectiveness of interventions.

* Corresponding author. Tel.: +31 (0) 33 4560737; fax: +31 (0) 33 4511769.
E-mail address: m.schmitt@somt.nl (M.A. Schmitt).

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The Neck Bournemouth Questionnaire (NBQ) seems to reflect the multi-dimensionality of neck pain, within a model of functioning and health (Bolton and Humphreys, 2002). It is short and practical for repeated use in both clinic- and research based settings (Schmitt et al., 2009). The NBQ contains seven items that measure affective and cognitive aspects of neck pain, in addition to pain and disability and aims to assess pain intensity, disability in activities of daily living, disability in social activities, anxiety and depression, the cognitive aspects of fear avoidance, and pain locus of control (Bolton and Breen, 1999; Bolton, 2004).

Existing measures have been examined for their ability to operationalize the ICF (Cieza et al., 2002; Weigl et al., 2003; Brockow et al., 2004). This work revealed that many existing instruments measure more than one outcome. Conflation of the measures of each component is especially important for clinical reasoning and decision making because causal inferences are made about the relationships between the components of the ICF. A measure of an ICF component therefore needs to assess only the component of interest and should avoid simultaneously measuring other components. If the measure is not 'pure' the empirical evidence for relationships between components may be misleading. In addition to that, pure measures are needed to assess the separate effects of an intervention on each of the three health outcomes described by the ICF.

Thus, in order, to use the NBQ-NL to facilitate clinical decision making, the items within it need to be able to assess each component of the ICF framework: function, activity, participation, personal factors, and environmental factors.

The Dutch Language version of the Neck Bournemouth Questionnaire (NBQ-NL), used in this study, was formally validated for patients with sub-acute and chronic Whiplash-associated Disorders (WAD). The NBQ-NL was able to assess functioning and health in patients with WAD (Schmitt et al., 2009). The content validity of the NBQ and the NBQ-NL in relation to the ICF, however, is unknown (Schmitt et al., 2009). Discriminant Content Validation (DCV) is a method used to establish the discriminant validity of measurement items (Pollard and Johnston, 2006). DCV examines the relationship between individual measurement items and all constructs within a theoretical model. As such, the DCV assesses the content validity of a measurement item against all constructs within a given theory. The DCV method establishes whether a measure is able to assess each theoretical construct discriminately (Pollard and Johnston, 2006). The DCV establishes which specific theoretical construct or constructs are measured by each item within a given instrument. The DCV method preserves the standard method of scoring an instrument while enabling an alternative method of scoring that can distinguish between the three different outcomes.

In this study the content validity of the NBQ-NL was assessed using the DCV method to identify ICF components measured by the NBQ-DLV.

2. Methods

2.1. Design

A DCV questionnaire study was performed. The questionnaire asked expert judges to match the 7 items of the NBQ-NL to the definitions of the components of the ICF (impairment, activity limitations, participation restrictions, personal factors and environmental factors) or to a category labelled 'other'.

2.2. Participants

All participants were physiotherapists attending a half day workshop on the use of ICF and measurement. Twenty two participants attended the workshop and completed the DCV questionnaire. The 22 participants (mean age = 35 years, range 24–63 years; 8 were men) were lecturers (2), internship supervisors (2) and students (18) of the Masters level Training in Manual Therapy. All participants held a bachelor degree in physiotherapy and were practicing physiotherapists; all indicated that they were familiar with the ICF and based their thinking and reasoning on the ICF. The participants completed the questionnaires independently and anonymously.

2.3. Workshop

Judges for the study were recruited via an announcement on the internal website of the Department of Manual Therapy at a Musculoskeletal Therapies Education Centre in The Netherlands. In the announcement, information was given about the purpose of the workshop and the subsequent DCV study. The 4 h workshop included presentations and discussion about the ICF and on how the ICF can be used as tool for clinical reasoning. Workshop attendance was voluntarily and no study points or other benefits were offered in return for attendance.

2.4. Materials

A DCV questionnaire has two components; theoretical definitions, and measurement items. The theoretical definition of each component of the ICF was taken from the Dutch language version of the ICF (WHO-FIC Collaborating Centre, 2001) and is shown in Table 1. The items were the seven items of the NBQ-NL (Schmitt et al., 2009) (see Table 2).

2.5. Procedure

The questionnaire was delivered electronically (Survey Console software package®). After explaining the purpose of the study and the procedure, judges were given the NBQ-NL, and the Dutch published ICF definitions of the constructs Impairment (I), Activity Limitation (A) and Participation Restriction (P), Personal Factors (PF), Environmental Factors (EF) (WHO-FIC Collaborating Centre, 2001).

Judges were then asked to consider whether each item matched the definition of each theoretical definition. Judges, therefore, made five yes/no judgements for each item: impairment, activity limitation, participation restriction, personal factors and environmental factors. Items judged not to match any definition were allocated to a category labelled 'other'. Judges then rated their confidence in each of their five judgements for each item, using an 11–point scale, ranging from 0 (not at all confident) to 10 (extremely confident).

Table 1
Definitions of the six constructs of the ICF model.

Variable	Definition
Body functions and structures	Body functions are physiological functions of body systems (including psychological functions). Body structures are anatomical parts of the body such as organs, limbs and their components.
Activity	Is the execution of a task or action by an individual.
Participation	Is involvement in life situation.
Personal factors	Are the particular background of an individual's life and living, and comprise features of the individual that are not part of a health condition or health states.
Environmental factors	Make-up of the physical, social and attitudinal environment in which people live and conduct their lives.