Original article

Cross-cultural adaptation, reliability and validity of the Turkish version of the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire

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ABSTRACT

Background: Low back pain is among the most common musculoskeletal system disorders. Outcome measures are needed for the measurement of function, to establish a treatment program, and for monitoring the improvement in low back pain. There exist several questionnaires enquiring about function in low back pain. One of these is Japanese Orthopaedic Association Back Pain Evaluation Questionnaire, whose reliability and validity were previously established. Other than the original version of the questionnaire, only its Persian version exists. The present study aims to investigate the cross-cultural adaptation, reliability and validity of the Turkish version of the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire.

Methods: The study included 103 patients with low back pain. For reliability assessment of the questionnaire, test—retest and internal consistency analyses were performed. The results of test—retest analysis were assessed by Intraclass Correlation Coefficient method. For internal consistency, Cronbach Alpha value was used. Validity analyses of the questionnaire were performed by construct validity. For construct validity, convergent validity was tested. Convergent validity of the questionnaire was calculated via its correlation with suitable subscales of the Short Form-36 and the total score of the Oswestry Disability Index by using Pearson's correlation coefficient.

Results: Intraclass Correlation Coefficient values for test—retest reliability were found to be in the range of 0.765—0.924, which indicate a sufficient level of test—retest reliability. Cronbach's Alpha value was found to be 0.804 indicating a high internal consistency. Pearson's correlation coefficient between Japanese Orthopaedic Association Back Pain Evaluation Questionnaire to Short Form-36 and Oswestry Disability Index values were ranged between 0.424 and −0.810, indicating a good correlation.

Conclusions: Considering all these data, it was concluded that the Turkish version of the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire is valid and reliable.

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1. Introduction

Low back pain is amongst the most common musculoskeletal disorders [1] and it is quite cumbersome for both individuals and the healthcare system [2,3]. Low back pain, which is a serious health problem in both developed and developing countries [4,5], is observed more frequently in women and in an age range of 40—80.

Monthly prevalence of low back pain was estimated to be about 23% [6].

The primary aim of physical therapy in low back pain problems is the restoration of normal functions. Therefore, measurement tools are needed to assess function and to monitor the changes [7]. In low back pain, while the losses in movement, such as decreased range of motion or straight leg raise can be measured objectively [8—11], an objective evaluation of activity limitation may not always be possible [12]. Outcome measurements fill in this gap by providing objective answers regarding the current status and function to clinicians, surgeons, and researchers [7,13]. In this

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regard, outcome measurements are a crucial part of evaluation and treatment [14,15].

Recommended parameters that may be used in scales for the comprehensive assessment of low back pain are listed as follows: pain, low-back function, general health condition, work disability, and patient satisfaction [16]. However, no questionnaires inquiring about low back pain has been defined as the gold standard. Therefore, increasing the number of questionnaires focussing on low back pain would increase the parameters in both low back pain assessment and patient monitoring, thereby provides a larger perspective for clinicians and researchers. Japanese Orthopaedic Association (JOA) Score was developed in 1986 by a few members of the JOA to assess low back pain [17]. In 2008, JOA revised the JOA Score and created the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ) [18–20]. JOABPEQ comprises 25 items in 5 subscales, namely social function, mental health, walking ability, lumbar function, and low back pain. Each subscale score ranges from 0 to 100, where low score indicates worse condition [20]. Most components of JOABPEQ (90.5%) were found to be correlated with the International Classification of Functioning, Disability and Health (ICFDH). JOABPEQ allows a comprehensive evaluation in patients with low back pain and has been in use in many countries [21]. The questionnaire was found to be valid and reliable in patients with low back pain [19,20], and there exists only the Persian version of the questionnaire, other than the original version [22]. The JOABPEQ with its parameters is a comprehensive questionnaire, but it does not have a Turkish version. The aim of the present study was to investigate the reliability and validity of the Turkish version of the JOABPEQ.

2. Materials and methods

The permission to conduct the reliability and validity studies of the Turkish version of the JOABPEQ was obtained from the JOA before the study was commenced. For translation and cultural adaptation, the procedure set out by Beaton et al. was followed [23]. First, the questionnaire was translated from English to Turkish by two Turkish speakers with a very good command of English. Later, both versions of the Turkish translations were combined and the Turkish version was translated back to English by 2 English speakers with a very good command of Turkish. The research team evaluated the translated version in terms of linguistic compatibility and cultural adaptation. The face validity of the questionnaire was tested in a group of 30 patients, and then the Turkish version of the JOABPEQ was finalized.

2.1. Patient population

The study included 103 patients seeking treatment at the Physiotherapy and Rehabilitation Clinic (Faculty of Health Sciences, Gazi University, Turkey), who were diagnosed with low back pain by a specialist and volunteered to be included in the study. Thirty of 103 patients were included in the test–retest reliability study and 2 days' time interval was selected for this analyses. Also no treatment was administered for these 30 patients for 2 days. The study was approved by Gazi University Ethics Committee on May 22, 2015 (#77082166-604.01.02).

2.2. Japanese Orthopaedic Association Back Pain Evaluation Questionnaire

JOABPEQ is a self-assessment, disease-specific questionnaire for back pain. It contains 25 items (social function: 4, mental health: 7, lumbar function: 6, walking ability: 5 and low back pain: 4) with five subscales. Each subscale score ranges from 0 to 100. Higher

scores indicate better conditions [20]. JOABPEQ was found valid and reliable in low back pain patients [19,20].

2.3. Short Form-36 (SF-36)

SF-36 is a self-assessment questionnaire consists of 36 items with 8 subscales (physical functioning, social functioning, role limitations due to physical problems, bodily pain, general health perception, vitality, role limitations due to emotional problems and mental health). Each subscale score ranges from 0 to 100 and higher scores indicates better condition. Turkish version of SF-36 was found valid and reliable [24].

2.4. Oswestry Disability Index (ODI)

ODI consists of 10 items addressing different aspects of function. Each item scored from 0 to 5. In the ODI, higher scores indicate a worse condition [25]. Turkish version of ODI was found valid and reliable by Yakut et al. [12].

2.5. Statistical analyses

All statistical analyses were performed using SPSS version 22. For the assessment of the reliability of the JOABPEQ, test–retest and internal consistency analyses, and for the validity assessment of the questionnaire, construct validity analysis were performed. For the test–retest reliability and internal consistency analyses, Intraclass Correlation Coefficient (ICC) and Cronbach's Alpha value were used, respectively. Pearson's correlation coefficient was used for convergent validity analysis, which was performed for construct validity assessment. In present study SF-36 and ODI were preferred for convergent validity analyses of JOABPEQ. In this analysis the correlation between the 'social function', 'mental health', 'low back pain', 'lumbar function' and 'walking ability' subscales of JOABPEQ were analysed with 'social function', 'mental health', 'bodily pain', 'physical function' and 'physical function' subscales of the SF-36 respectively. Also correlation between the total scores of JOABPEQ and ODI were examined. For ICC analysis 0.75 and over [26] and Cronbach Alpha value 0.80 and over [27,28] were assumed to be sufficient, respectively. For the Pearson's correlation coefficient, 0.81–1.00, 0.61–0.80, 0.41–0.60, 0.21–0.40, and 0–0.20 were assumed to be indicating excellent, very good, good, fair, and poor, respectively [29].

3. Results

Of the 103 patients, 53 were female (51.46%) and 50 were male (48.54%). The patients' demographic data are presented in Table 1. Based on the internal consistency analysis of the questionnaire, Cronbach's Alpha was found to be 0.804 (Table 2). This value indicates that the questionnaire has a high internal consistency. The ICC score was found to be 0.779, 0.765, 0.780, 0.848, and 0.924 for 'low back pain', 'lumbar function', 'walking ability', 'social life function', and 'mental health' subscales, respectively (Table 3). As a result of these ICC values JOABPEQ has sufficient test–retest results.

Pearson's correlation coefficient values of JOABPEQ subscales with SF-36 subscales as shown in the following. 'Social function' subscale of JOABPEQ observed a good correlation (0.424) with 'social function' subscale of SF-36. 'Mental health' subscale of JOABPEQ showed good correlation (0.466) with 'mental health' subscale of SF-36. 'Low back pain' subscale of JOABPEQ indicated good correlation (0.440) with 'bodily pain' subscale of SF-36. 'Lumbar function' subscale of JOABPEQ found good correlation (0.594) with 'physical function' subscale of SF-36. 'Walking ability' subscale of JOABPEQ showed very good correlation (0.786) with