Validation of the French-Canadian Pelvic Girdle Questionnaire

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Abstract

Objective: Pain in the pelvic girdle area is commonly reported during pregnancy and the postpartum period, and its impact on quality of life is considerable. The Pelvic Girdle Questionnaire (PGQ), developed in 2011 in Norway, is the only condition-specific tool assessing pelvic girdle pain–related symptoms and disability. The questionnaire was recently translated and adapted for the French-Canadian population. The objective of this study was to assess the measurement properties of the previously translated French-Canadian PGQ.

Methods: Eighty-two women with pelvic girdle pain were included in this validation study. The French-Canadian PGQ, pain intensity Numeric Rating Scale, and Oswestry Disability Index were completed by participants at baseline, 48 hours later, and 3 to 6 months later to assess test-retest reliability, construct validity, responsiveness, floor and ceiling effects, and internal consistency.

Results: Reliability analyses indicated an intraclass correlation coefficient of 0.841 (95% confidence interval [CI] 0.750-0.901) for the global score. Construct validity analyses indicated a Spearman rank correlation coefficient of 0.696 with the Oswestry Disability Index. Responsiveness analyses identified an effect size of 0.908 (95% CI 0.434-1.644) and an area under the receiver operating characteristics curve of 0.823 (95% CI 0.692-0.953). There was no floor or ceiling effect, and internal consistency analyses indicated a Cronbach α of .933 for the activity subscale and .673 for the symptom subscale.

Conclusion: Overall, the French-Canadian version of the PGQ is reliable, valid, and responsive, suggesting that it can be implemented in both research and clinical settings to assess functional limitations in pregnant and postpartum women. (J Manipulative Physiol Ther 2018;xx:1-8)

Key Indexing Terms: *Disability Evaluation; Pelvic Girdle Pain; Postpartum Period; Pregnancy; Surveys and Questionnaires; Validation Studies*

Introduction

Pain in the pelvic girdle area is commonly reported during pregnancy and the postpartum period. Indeed, the prevalence of pelvic girdle pain (PGP) has been estimated to be 20% during pregnancy,[1] and the condition is believed to spontaneously resolve within 3 months after birth in 93% of women.[2] Pelvic girdle pain is localized between the posterior iliac crest and the gluteal fold, particularly near the sacroiliac joint. The pain may radiate in the posterior thigh and can also occur in conjunction with or separately in the symphysis.[1] The impact of PGP on quality of life and activities of daily living is considerable.[3] Pelvic girdle pain also affects women's ability to work, with a prevalence of sick leave as a result of PGP of 27% between the 28th and 38th weeks of pregnancy[4] and 8% 6 to 12 months postpartum.[5] To ensure proper clinical management of PGP, reliable and valid tools are needed.

The Pelvic Girdle Questionnaire (PGQ), developed in 2011 in Norway, is the only condition-specific tool assessing PGP-related symptoms and disability in pregnant and postpartum women.[6] The questionnaire comprises 25 items rated with a 4-level Likert scale, separated into 2 subscales: a 20-item activity subscale and a 5-item symptom subscale.[6] The original version of the PGQ was validated in 2012 and had

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Paper submitted December 1, 2017; in revised form January 2, 2018; accepted January 3, 2018.
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0161-4754
https://doi.org/10.1016/j.jmpt.2018.01.001

good internal consistency, test-retest reliability, and construct validity.[7] In 2016, the PGQ was translated and adapted for the French-Canadian population.[8] The methodology was based on Beaton's guidelines[9] and subsequent recommendation updates[10] involving 4 different stages: forward translation, synthesis, expert committee review and testing of the questionnaire final draft. The study yielded a satisfactory French-Canadian translation of the PGQ. Items were well understood by most participants. Only 2 minor changes were made compared with the original PGQ; an illustration of PGP localization was added and a short explanation of the term *given way* was provided directly on the questionnaire.[8] Once a questionnaire is culturally adapted, it is highly recommended to proceed to its validation[9] to ensure that the translated questionnaire has the measurement properties needed for the intended application. The translated questionnaire should retain the same level of reliability, construct validity, and responsiveness as the original questionnaire.[9]

Pelvic girdle pain is a worldwide issue,[11-14] and the validation process is therefore essential to ensure that translated questionnaires are equivalent across countries, allowing comparison between clinical trials in different languages. So far, the original PGQ has been cross-culturally adapted and validated into Spanish,[15] and we have previously published the translation and adaptation of the PGQ for the French-Canadian population.[8] However, as recommended by Beaton et al,[9] any cross-culturally adapted questionnaire should be validated. Thus, the objective of this study was to assess the measurement properties of the previously translated French-Canadian PGQ.

Methods

Participants

The sample size was determined according to recommendations that suggest at least 50 participants for reliability and floor or ceiling effects analysis.[16] Participants were recruited through advertisement published in local newspapers, posted on social media, and posted at local resources for pregnant and postpartum women. Women who volunteered were scheduled for an appointment at the Université du Québec à Trois-Rivières chiropractic outpatient clinic to confirm eligibility and complete baseline assessment. Pregnant or postpartum women (<12 months postpartum) aged older than 18 years and presenting PGP were recruited for this study. Women were excluded if they were unable to read and understand French or presented with inflammatory arthritis, severe degenerative changes, collagenosis, severe osteoporosis, radiculopathy, progressive neurologic deficit, myelopathy, lumbar disc herniation, history of vertebral surgery, malignant tumor, infection, or any other non-musculoskeletal pain. This study was approved by the Université du Québec à Trois-Rivières research ethics committee (CER-15-213-07.09), and all participants provided their informed written consent.

Outcomes Assessment

Test-Retest Reliability. Test-retest reliability is commonly used to assess the degree to which repeated measurements in stable individuals can provide similar results.[16] Test-retest reliability was evaluated by asking participants to complete the French-Canadian PGQ during baseline assessment and a second time 48 to 72 hours later. The delay between the repeated administrations was determined to ensure that no significant clinical changes occurred between the 2 assessments. To confirm that women's PGP condition had not changed over the 48- to 72-hour period, participants presenting changes of more than 20 points on the 0 to 100 Pain Intensity Numeric Rating Scale (PI-NRS) were excluded from the reliability analysis. Test-retest reliability was analyzed with the intraclass correlation coefficient (ICC) using a 2-way mixed model to compare PGQ total score obtained at baseline and 48 to 72 hours later, whereas the weighted Cohen κ coefficient was used to compare each item individually. Reliability coefficients range from 0 to 1, where a coefficient of 0.01 to 0.20 is referred as no to slight agreement, 0.21 to 0.40 as fair, 0.41 to 0.60 as moderate, 0.61 to 0.80 as substantial, and 0.81 to 1.00 as almost perfect agreement.[17] In this study, a coefficient $\geq$0.7 was considered satisfactory.[16]

Construct Validity. *Construct validity* refers to the extent to which scores of a given questionnaire relate to other measures in ways that are theoretically consistent.[16] Convergent validity is therefore used when the compared measures are assumed to be correlated. In this study, the first hypothesis was that the French-Canadian PGQ and the French version of the Oswestry Disability Index (ODI) scores[18] would be highly correlated, as reported in the course of the original Norwegian PGQ validation.[7] The second hypothesis was that the French-Canadian PGQ and the PI-NRS would be highly correlated. Thus, participants were asked to complete the ODI and the PI-NRS at the baseline assessment. Construct validity was tested using Spearman rank correlation coefficients among the French-Canadian PGQ scores, ODI, and PI-NRS scores at baseline. Coefficients <0.30, 0.30 to 0.60 and >0.60 were considered to indicate low, moderate, and high correlations, respectively.[19]

Responsiveness. Internal responsiveness is defined as the capacity of an assessment tool to give different scores over a predetermined time frame.[20] External responsiveness, on the other hand, is defined as the capacity of an instrument to detect change over time in the construct of interest.[20,21] In this study, responsiveness was evaluated by asking participants to complete the French-Canadian PGQ and the ODI (external criterion) 3 to 6 months after the baseline assessment. Internal responsiveness was assessed using the standardized effect size, which provides direct information on the magnitude of the change in scores at 3- to 6-month follow-up. A value $\leq$0.2, 0.5, and $\geq$0.8 represents a small, moderate, or large change, respectively.[20] External responsiveness was assessed

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