



QualityMetric Abstract

Using Item Response Theory (IRT) for Developing and Evaluating the Pain Impact Questionnaire (PIQ-6™)

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Objectives. To describe the development and evaluation of the Pain Impact Questionnaire (PIQ-6™), a six-item measure of pain severity and impact on health-related quality of life (HRQOL) domains. **Participants.** Two general US population samples (N = 829 and N = 7,025) and one chronic pain patient sample (N = 350) were included. **Methods.** The PIQ-6™ was developed using conventional and item response theory (IRT) methods in four steps: 1) initial selection and development of items based on results from a previously developed Bodily Pain item bank; 2) final item selection based on new data and investigations of unidimensionality, differential item functioning (DIF), and IRT modeling; 3) development of scoring algorithms, population norms, and cross-calibrations; and 4) psychometric evaluation. **Results.** Six items on pain intensity and impact satisfied requirements of unidimensionality and lack of DIF and could be scored using IRT methods. The PIQ-6 showed good internal consistency reliability (coefficient alpha = 0.94) and good construct validity. Convergent validity was supported by strong correlations with pain severity scales (visual analog and numerical rating scales; $r = 0.81-0.84$); discriminant validity was suggested by correlations with the SF-8™ Health Survey Physical and Mental Component Summary measures ($r = -0.77$; $r = -0.32$, respectively), significant mean score differences between chronic pain patients and the general population, and between patients differing in self-reported medical conditions ($P < 0.001$). **Conclusion.** The PIQ-6 is a brief, precise questionnaire available in a paper-and-pencil version and a computerized version that includes scoring and feedback software. It may facilitate large scale, inexpensive, precise, and norm-based pain assessment and monitoring in a wide variety of settings (e.g., homes, clinics, offices).