The Pain Disability Questionnaire

A New Psychometrically Sound Measure for Chronic Musculoskeletal Disorders

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Study Design. The Pain Disability Questionnaire (PDQ) is a psychometric evaluation study of a new measure of functional status.

Objective. To evaluate the psychometric properties of the PDQ and compare its validity and responsiveness to traditional measures of functional status, such as the Oswestry, Million (MVAS), and SF-36 instruments.

Summary of Background Data. Measuring clinical outcomes is an essential element of any musculoskeletal treatment. The PDQ was developed for this purpose. It yields a total functional disability score ranging from 0 to 150. The focus, much like other health inventories, is primarily on disability and function. However, unlike most other measures, this instrument is designed for the full array of chronic disabling musculoskeletal disorders (CDMDs), rather than low back pain alone. Further, psychosocial variables, which recent studies have shown to play an integral role in the development and maintenance of chronic pain disability, formed an important core of the PDQ.

Methods. Four groups were used in this psychometric evaluation: an asymptomatic normative population (NP; n = 50), an acute musculoskeletal disorder population (AMD; n = 52), a chronic disabled musculoskeletal disorder population (CDMD; n = 230), and a heterogeneous pain population (HP; n = 114). The NP and AMD groups served as comparison samples for the CDMD and HP groups. Analyses of PDQ reliability, validity, and responsiveness were conducted.

Results. Test-retest reliability coefficients (ranging from 0.94 to 0.98) and a Cronbach’s alpha coefficient of 0.96 for the PDQ were found to be of excellent quality. The responsiveness of the PDQ, as measured by Cohen’s effect size statistic, ranged from 0.88 to 1.07, better than the Oswestry, MVAS, and SF-36. A high level of face validity was observed for the PDQ, as the CDMD population exhibited significantly higher pretreatment PDQ scores than a group of patients suffering from acute injuries. The construct-related validity of the PDQ was also found to be of excellent quality, as it correlated well to both the MVAS (0.65–0.81) and Oswestry (0.55–0.80). The PDQ consistently demonstrated stronger correlation coefficients to a wide variety of physical and psychosocial measures of human function, such as the SF-36, Beck Depression Inventory, Hamilton-D, State-Trait Anxiety Scale, and Pain Intensity VAS, than either the Oswestry or MVAS. A factor analysis of the PDQ revealed two factors: a Functional Status Component (FSC) and a Psychosocial Component (PC). Analyses proved each of these two components to be valid in assessing their theorized constructs.

Conclusions. The present study represents a comprehensive psychometric evaluation of a new functional status measure for musculoskeletal conditions in general, and a CDMD population in particular. The psychometric properties of the PDQ are excellent, demonstrating strong reliability, responsiveness, and validity, relative to many other existing measures of functional status. The many weaknesses cited for some of the existing measures were taken into account in designing this instrument. Consequently, the characteristics commonly noted as weaknesses for these other measures (such as a restriction to only the low back pain population, and inconsistent responsiveness) can be cited as strengths of the PDQ. Its generalizability and utility for assessing orthopedic treatment progress and functional outcomes must now be evaluated in broader settings.

Key words: functional status, disability questionnaire, chronic musculoskeletal pain, orthopedic rating scale.

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The economic impact of chronic disabling musculoskeletal disorders (CDMDs), in particular, chronic low back pain, is disturbingly high, and has been well established over the years.1–3 In the United States, the combined costs of medical expenses, compensation, lost earnings, and lost productivity for low back pain is approximately $100 billion a year.4,5 While only 5% to 10% of all individuals who experience an episode of back pain ultimately develop chronic pain, this small percentage of patients is responsible for approximately 80% of medical costs for all back treatment.6,7 These costs are also increasing for other musculoskeletal disorders,4 primarily because of the substantial rise seen in the incidence of upper extremity trauma disorders.8 A great deal of this expense is incurred because CDMDs are particularly refractory to traditional medical and surgical interventions. Because of these costs, there has been renewed interest in identifying demographic, psychological, and socioeconomic variables that may contribute to CDMD chronicity and to treatment outcome.9–16

Measuring clinical outcomes, either through objective means or self-report instruments, is an essential element of any musculoskeletal treatment. Whereas traditional disease processes, such as viral and bacterial infections,