

Western Ontario Rotator Cuff Index

Description

The Western Ontario Rotator Cuff Index (WORC) is a condition-specific self-reported instrument to assess 'quality of life' (QoL) (Kirkley et al 2003). It consists of 21 visual analog scale (VAS) items organised in 5 subscales: physical symptoms, sports/recreation, work, lifestyle, and emotions. It was developed by a clinimetric process. The origins of the subscale structure were not established by a factor analysis; and are similar to those contained on instruments developed by the same author for other shoulder conditions (osteoarthritis and instability) (Lo et al 2001). The WORC has been translated and validated in several languages.

Instructions to client and scoring: Patients are asked to indicate on a 100-mm line, anchored at the beginning and at the end, the extent to which the symptom or disability is experienced over the past week referring to the problematic shoulder. Phrases like 'no pain' and 'extreme pain', 'no weakness' and 'extreme weakness', 'no difficulty' and 'extreme difficulty' which explained the extremes of a particular item measured, were used as anchors.

Each item in WORC has a possible score from 0–100 (100 mm VAS). Scores can be computed for individual subscales and summated for a total score, which can range from 0–2100, with a higher score representing lower quality of life. To present this in a more clinically meaningful format, the distance from the left side of the line is measured and recorded to the nearest 0.5 mm, calculated for a score of out of 100, and summed for each subscale (physical symptoms/600, sports and recreation/400, work/400, lifestyle/400, and emotions/400). The subscale scores are summed and reported as a percentage of normal by subtracting the total from 2100, dividing by 2100, and multiplying by 100 (Kirkley et al 2003).

Commentary

Shoulder problems, rotator cuff conditions in particular, are common musculoskeletal disorders with a high socioeconomic effect. The incidence of shoulder complaints in general practice is 22 per 1000 patients per year (Sobel et al 1996). Rotator cuff conditions comprise 44% to 65% of these shoulder complaints (Koester et al 2005). Young athletic people and active members of society are often affected (Cohen et al 2007).

The 21 item WORC questionnaire covers the physical symptoms due to rotator cuff pathology and its effect on different domains of life—sports/recreation, work, lifestyle, and emotions. There is a small pool of studies addressing its clinical measurement properties which have generally been supportive indicating that WORC is a reasonably valid and reliable tool to measure the health related quality of life in patients with rotator cuff pathology. Head-to-head comparisons are needed to establish whether it is preferable to other shoulder questionnaires which are generally shorter; and whether a disease-specific QoL tool is needed as an alternative to shoulder-specific scales that are currently used across a number of conditions.

Reliability, validity and responsiveness: The WORC has demonstrated good test-retest reliability across several studies (ICCs 0.84 to 0.96) (Kirkley et al 2003, Ekeberg et al 2008, de Witte et al 2012). The construct validity of WORC as determined by comparison to other disability instruments has been supported (Longo et al 2011). The WORC correlates with the American Shoulder and Elbow Surgeons score (ASES) ($r = 0.68$) and the Disabilities of the arm, shoulder and hand (DASH) ($r = 0.63$) (Kirkley et al 2003).

Factor validity of the 5-domain structure of WORC has been questioned. In one study 3 factors (symptoms and emotional items, strength items, daily activities) were identified representing 57% of variance (Wessel et al 2005).

Studies on responsiveness support the use of WORC questionnaire in clinical trials or patient evaluation to measure changes in pain and related disability after rotator cuff repair. The WORC was able to detect change in functional status of surgical patients (regardless of type of surgery) with rotator cuff pathology in two studies (Holtby et al 2005, de Witte et al 2012). The WORC was more responsive than other measures like SST (Simple Shoulder test), DASH, and SF-36 (The Short Form (36) Health Survey). A recent study comparing the responsiveness of WORC with other shoulder specific measures like SPADI (Shoulder Pain and Disability Index) and OSS (Oxford Shoulder Scale) reported that WORC had higher point estimates of responsiveness, but did not identify significant differences in responsiveness between the disease-specific WORC index and the region specific SPADI and the OSS (Ekeberg et al 2010).

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Brief Illness Perception Questionnaire (Brief IPQ)

Description

The Brief Illness Perception Questionnaire (Brief IPQ) is a 9-item questionnaire designed to rapidly assess cognitive and emotional representations of illness (Broadbent et al 2006). The Brief IPQ uses a single-item scale approach to assess perception on a 0–10 response scale. It is developed by forming one question that best summarises the items contained in each subscale of the Illness Perception Questionnaire-Revised which has over 80 items. The Brief IPQ comprises 5 items on cognitive representation of illness perception: consequences, timeline, personal control, treatment control, and identity. There are 2 items on emotional representation: concern and emotions. One item is on illness comprehensibility. The last item is on perceived cause of illness, in which respondents list the three most important causal factors in their illness. For this questionnaire, the general word 'illness' can be replaced by the name of a particular illness such as asthma. The word 'treatment' in the treatment control item can be replaced by a particular treatment such as 'surgery' or 'physiotherapy'

Commentary

Individuals diagnosed with an illness, health threat, or who suffer an injury develop an organised pattern of beliefs about their condition (Petrie and Wienman 2006). The cognitive and emotional representations of the illness, or illness perceptions, determine the individual's coping behaviour (Leventhal et al 1984). Five dimensions within the cognitive representation of illness are identified: *identity* – the label the individual uses to describe the illness and the symptoms they view as part of the disease; *consequences* – the expected effects and outcome of the illness; *cause* – personal ideas about the cause of the illness; *timeline* – how long the individual believes the illness will last; and *cure or control* – the extent to which the individual believes that they can recover from or control the illness. The emotional representation incorporates negative reactions such as fear, anger, and distress (Broadbent et al 2006).

Negative illness perceptions are associated with poorer recovery and increased healthcare use independent of objective measures of illness severity (Petrie and Weinman 2006). On the other hand, positive illness perceptions are associated with an earlier return to work (Giri et al 2009). Interventions to change illness perceptions can reduce disability and improve functioning (Petrie and Weinman 2006). Assessment of clients' illness perceptions, as part of psychosocial assessment, is important in all fields of physiotherapy. Awareness of our clients' illness perceptions can improve treatment outcomes as well as communication with our clients.

The Brief IPQ is a useful tool for assessing illness perceptions. It has the advantages of being brief and easy to understand. It only takes a few minutes to complete. It has been used in a wide range of adult patient groups (eg, palliative care, brain injury, diabetes, arthritis, bipolar disorder) as well as in children (Chong et al 2010) and

(Broadbent et al 2006).

Reliability and validity: Good test-retest reliability (Pearson correlations 0.24–0.73) had been demonstrated (Broadbent et al 2006). Equivalent scales of the brief IPQ and IPQ-R had moderate to good correlations when tested for concurrent validity (Pearson correlations 0.32–0.63) (Broadbent et al 2006). The Brief IPQ predicted a number of key outcomes following myocardial infarct. Slower return to work was significantly associated with higher concern ($r = 0.43, p = 0.03$) and higher treatment control beliefs ($r = 0.44, p = 0.03$). The subscales of consequences, identity, concern, and emotional response were significantly associated with cardiac anxiety ($r = 0.33–0.47$) (Broadbent et al 2006). The discriminant validity of the questionnaire was supported by its ability to distinguish between different illnesses, namely asthma, diabetes, colds, myocardial infarct prior to discharge, and prediagnosis chest pain patients waiting stress exercise testing.

adolescents (McLafferty et al 2011, Yi et al 2011). It is particularly useful in patient groups where there is limited time available for assessment, such as the very ill or elderly or when repeated measures are taken on a frequent basis (Broadbent et al 2006). Cross-cultural adaptation of this questionnaire has been completed in Dutch and Spanish (Raaij et al 2012, Pacheco-Heurgo et al 2012).

Although the original English version of Brief IPQ has been shown to have good reliability and validity, the content validity (such as misinterpretation of some items) of the Dutch version of the questionnaire has been questioned when participants reported difficulties (van Oort et al 2011). The validity of adaptations of the questionnaire in other languages must be tested before using the adapted questionnaire.

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