

The Western Ontario Rotator Cuff Index (WORC) in Rotator Cuff (RC) Disease Patients

de Witte PB, Henseler JF, Nagels J, Vliet Vlieland TP, Nelissen RG (2012) *Am J Sports Med* 40(7):1611-9

Introduction

In 2003, Kirkley et al introduced the WORC. It is a condition-specific, self-reported instrument to assess QOL in patients with shoulder complaints as a consequence of rotator RC disease. It contains 21, 100mm visual analogue scales which relate to 5 domains of shoulder dysfunction: physical symptoms, sports/recreation, work, lifestyle and emotions. Each question is scored 0-100 and the total score as a percentage.

Aims & Objectives

The aim of the study was to evaluate the psychometric properties of the WORC.

Methodology

The study used 92 patients involved in 3 other trials (35 RC tears, 35 calcific tendonitis, 22 impingement). The WORC, Constant Score(CS) and DASH were administered initially 2 weeks before OPD visit and secondly at OPD visit. The calcific tendinitis group completed them a 3rd time, 6 weeks after treatment (needling and lavage or subacromial injection). The paper did a comprehensive analysis of the results.

92 is probably a fair group size but the distribution may not be representative of the majority of RC pathology seen with only 22 impingement and 35 calcific tendinitis. The inclusion and exclusion criteria were well described but difficult to follow. Patients had either diagnostic MRI arthrogram or x-ray and US.

Results & Discussion

Mean baseline WORC was 46.8 ± 20.4 ; CS was 63.9 ± 15.4 and DASH 40.9 ± 18.6 . In RC tear patients with severe symptoms the WORC did not demonstrate a difference with other patients, however, the CS and DASH had significant differences. This suggests the WORC is less discriminative than the DASH and CS in cases of severe symptoms.

There were no floor or ceiling effects of the WORC.

In terms of reliability the ICC was 0.89 with a standard error of 6.9 suggesting high reliability.

In terms of (construct) validity when compared to CS and DASH, the Person correlation of WORC were 0.56 and -0.65 respectively (both $P < 0.001$). This corresponds to a moderate to good construct validity. It is a bit weaker with CS than the DASH, as the CS takes in objective measures and the WORC accounts for more emotional or lifestyle factors. They suggest that the WORC is a good addition to the CS.

In the calcific group a measure of responsiveness was taken. Correlation of the WORC change score with CS and DASH changes were 0.61 and -0.84 respectively (both $P < 0.001$). The effect size is 0.96 with a standardised response mean of 0.91 indicating good responsiveness. They suggest that the WORC may be more responsive when a larger change score is expected eg patients with severe symptoms at outset that would expect a large response post treatment.

Limitations/Considerations

A strength of the WORC is it takes account not only physical findings but ADLs, mental health and QOL dimensions. Limitations include using the Dutch WORC translation, a lack of blinding of the researcher, the possibly that the responsiveness demonstrated in a calcific tendonitis group may not be applicable across other RC groups and reproducibility results may be effected by a less than 2 week interval taking the measurements. The study's primary care setting may mean that results are not applicable across RC groups treated in other settings.

Conclusions

The study concludes that their results suggest the WORC is applicable in research and clinical practice as a self-reported, disease specific health related QOL outcome measure for RC patients. However, they do suggest it should be used in conjunction with a regional and general health outcome measure.