

The Shoulder Pain and Disability Index demonstrate factor, construct and longitudinal validity.

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Introduction

This study was carried out to assess the validity of the SPADI, (Shoulder pain and Disability Index), a self assessment of shoulder pain and disability in community based patients. The authors gave a fair introduction on the development of the SPADI and briefly critiqued the 2 studies that initially supported the validity of the subjective outcome measure. I note only moderate test-retest reliability was reported in the initial study (ICC = 0.65) which is inadequate for even group comparison. This was not discussed.

Aim

This article aims to further support the validity of the SPADI, a self-assessment of symptoms and function of the shoulder, in clinical evaluation of shoulder pain and disability in a community based sample (n=129). It also sought to validate the SPADI as a tool to discriminate between levels of pain and disability.

Methodology

Volunteers (129) responded to ads calling for patients with shoulder pain to participate in a study examining behavioural measures of pain. All subjects were screened by a physiotherapist to confirm to ensure the shoulder pain was musculoskeletal in origin. Pain with active and passive range of motion was reported on a visual analogue scale (VAS) at baseline. Patients completed the SPADI, the Coping Strategies Questionnaire (CSQ) and the Sickness Impact Profile (SIP) at baseline and at 3 and 6 months later. The test procedure was clear and reproducible. Evidence for use of specific data analysis was clear.

Results

Specific P values for Pearson's correlations were not given for data at baseline.

1. Internal consistency

Factor analysis and Cronbach's alpha were applied to examine the homogeneity of the 2 subscales of the SPADI, pain and disability, i.e. the extent to which items in each subscale are inter-correlated and measuring the same construct.

Internal consistency of the subscales were high; pain subscale $\alpha > 0.92$, disability subscale $\alpha > 0.95$, total SPADI $\alpha > 0.95$. Factor analysis indicated that the majority of items fell into 2 factors that represent pain and disability.

The authors noted that 'some specific functional items might be difficult to separate from pain in musculoskeletal pathologies affecting the shoulder, and that items that include a reference to both pain and function may load in either factor.' They conclude, however, that their findings support the existing subscales of pain and disability in clinical or research reporting.

2. Construct validity

The authors presented 2 hypotheses to investigate construct validity. They proposed that patients with a specific diagnosis or on pain medication would demonstrate higher SPADI scores. The construct validity hypotheses were both supported, both patients who has a diagnosis and those on pain medication reported higher pain and disability scores on the SPADI at all time- points ($p < 0.001$).

Pearson's correlations were used to examine the extent to which subscales of the SPADI relate to joint irritability and CSQ and SIP scores at baseline.

Moderately strong correlation ($p < 0.05$, $r > 0.6$) was found for joint irritability, providing evidence that joint irritability is related to subjective reports of pain and disability.

Pain catastrophising and praying / hoping strategies as measured using the CSQ were associated with medium sized effects on self- reported pain and disability ($p < 0.05$, $r > 0.3$). The authors concluded that this research illustrated that negative coping strategies were associated with higher disability and the importance of pain catastrophising as a determinant of self-reported pain or disability in patients with shoulder pain.

There was a poor correlation between the SPADI and subscales of the SIP. Changes detected with the SPADI over time correlated poorly with changes on the SIP. The authors suggested that this reflects a lack of responsiveness on the SIP to changes in health emanating from changes in shoulder status.

3. Longitudinal validity

The SPADI demonstrated significant changes over time, suggesting it is sensitive to change over time, but correlations between changes in scores on SPADI subscales and changes on the SIP or CSQ were low and non-significant except for pain and catastrophising.

Considerations

I was confused why the authors chose to correlate the SPADI with CSQ and not another shoulder instrument. And while this proved to be very interesting when reviewing the results and discussion, I felt this warranted further discussion in the introduction. Similarly I wish the authors would have explained why they chose the 2 hypothesis to test the construct validity of the measure. One could argue that a patient who is on pain medication

may have less and disability than someone who is not on pain relief and that there are many patients who have severe shoulder pain to whom we cannot give an accurate diagnosis.

The authors compared their results with other relevant research and drew valid and interesting conclusions. They recognised that they did not compare the SPADI with another competing shoulder instrument.

This study was limited in that it did not correlate with another self reported scale such as DASH or ASES .The study did not determine specific diagnosis and also did not take into account those on pain medication may have less pain and disability than someone who is not on pain relief.

Conclusion

This study supports the validity of the SPADI to measure and assess pain and disability in community based patients with musculoskeletal shoulder pain.

It is sensitive to change and correlates with shoulder joint irritability. The 2 subscales of pain and disability are valid. Patients with a diagnosis and those on pain medication have higher pain and disability scores. And most interestingly, negative or passive pain coping strategies are associated with greater self- reported disability and pain and changes in pain catastrophising were associated with changes in SPADI scores.