Centre for Reviews and Dissemination

THE UNIVERSITY of York

The use and reporting of WOMAC for the assessment of treatment benefit for the pain of osteoarthritis of the knee

N F Woolacott, MS Corbett, SJC Rice

Centre for Reviews and Dissemination, University of York, York, YO10 5DD, United Kingdom (nerys.woolacott@york.ac.uk)

Background

For the purposes of meta-analysis and network meta-analysis the use of standard outcome measures is ideal. In the field of osteoarthritis research The Western Ontario and McMaster University Osteoarthris Index (WOMAC) was developed as an osteoarthritis specific measure of disability.[1] It comprises three components: pain, stiffness, physical function, which can be reported separately or as an overall index. In 1994 a consensus meeting recommended the use of WOMAC as a primary measure of efficacy in osteoarthritis trials.[2]

Table 1: The expected range of scores for WOMAC pain subscale and the WOMAC index

Form of WOMAC used	WOMAC Pain score range	WOMAC index range
VAS 0-10	0 to 50	0 to 240
VAS 0-100	0 to 500	0 to 2400
NRS 0-10	0 to 50	0 to 240
Likert scale (0-4)	0 to 20	0 to 96

Objectives

Within the context of investigating the efficacy of physical interventions for the relief of the pain of osteoarthritis of the knee, we investigated both the extent to which WOMAC had been adopted and, in those trials in which it had been used, the clarity with which it had been reported.

Methods

We conducted a systematic review of physical therapies for pain relief in osteoarthritis of the knee.[3] A range of sources were systematically searched in December 2009/January 2010. Trials that used the WOMAC outcome were examined for correct use and clear reporting of the WOMAC pain subscale and the WOMAC index. The proportion of trials, for which assumptions had to be made in order to reach a conclusion regarding the type of scale and the score range used, was calculated.

Results

A total of 134 original trials formed the basis of the review. Pain was measured using a variety of scales, with WOMAC pain scores making up 45% of the studies. Reporting of the exact method used in administering the WOMAC pain subscale scoring was poor in many cases and assumptions had to be made: in many cases based just on the baseline score reported. In 52% of trials the reporting of the WOMAC scale used was inadequate and the score range was reported ambiguously in 38% of trials, whilst in a further 10% it was completely unclear. Reporting of the WOMAC index was also less than optimal in a large proportion of studies. In 74% of trials the reporting of the scale used was inadequate. The number of different score ranges was high and only 39% of trials used the standard 0-96, or 0-2400 or 0-240 ranges. In a small number of cases the score range specified was not interpretable.

This project was funded as part of a NIHR Programme Grant for Applied Research. The views expressed in this poster are those of the authors and do not necessarily reflect those of the NIHR, NHS or the Department of Health.

Table 2: Summary of basic reporting of WOMAC pain sub-scale and WOMAC index

	WOMAC pain subscale		WOMAC Index	
	All studies	Satisfactory or better quality studies only	All studies	Satisfactory or better quality studies only
n	60	24	31	10
Clearly stated scale used	28 (47%)	10 (42%)	8 (26%)	3 (30%)
Reported score range?	30* (50%)	14* (58%)	13** (42%)	5* (50%)
Gives baseline score?	54 (90%)	22 (92%)	29 (94%)	10 (100%)

*includes one stated score range that was not interpretable;
**includes 2 stated score ranges that were not interpretable

Table 3: Sources of information regarding score ranges for WOMAC pain subscale and WOMAC index in the sample of trials

	WOMAC pain subscale	WOMAC index
	N=60	N=31
Stated score range	31* (52%)	13** (42%)
Not interpretable score range	2 (3%)	2 (10%)
Unclear score range (insufficient information to permit assumptions)		
Assumption about score range made based on:	6 *(10%)	1 (3%)
Baseline value and scale used	9 (15%)	9 (29%)
Baseline value and other information (other than scale used)	3 (5%)	3 (10%)
Baseline value alone	11 (18%)	2 (6%)

Conclusions

Poor reporting of both the WOMAC pain subscale and the WOMAC index results in significant uncertainty in the interpretation of the results of trials and imposes limitations on the synthesis of the data across trials. Improved adherence to the standard use of the WOMAC scoring system, coupled with clear reporting of it in trials of osteoarthritis of the knee should be encouraged.

References

1. Bellamy N, Buchanan WW, Goldsmith CH, Campbell J, Stitt LW. Validation study of WOMAC: a health status instrument for measuring clinically important patient relevant outcomes to antirheumatic drug therapy in patients with osteoarthritis of the hip or knee. *J Rheumatol* 1988;15:1833-40.
2. Dieppe PA. Recommended methodology for assessing the progression of osteoarthritis of the hip and knee joints. *Osteoarthritis Cartilage* 1995;3:73-77.
3. Corbett M, Rice S, Slack R, Harden M, Madurasinghe V, Sutton A, McPherson H, Woolacott N. *Acupuncture and other physical treatments for the relief of chronic pain due to osteoarthritis of the knee: a systematic review and network meta-analysis*; In Press.