**Arthritis self-management education programs: a meta-analysis of the effect on pain and disability**

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**CRD summary**

This review concluded that self-management education programmes may have a small effect in reducing pain and disability. The included studies were at risk of bias because of high drop-out rates. The meta-analysis showed significant heterogeneity for pain but reasons for these were not explored. Because of these limitations, the review findings may not be reliable.

**Authors' objectives**

To assess the effect of arthritis self-management education programmes on pain and disability.

**Searching**

MEDLINE and HealthSTAR were searched from 1964 to October 1998 for studies published in the English language; the MeSH terms were stated. In addition, the reference lists of identified studies were checked.

**Study selection**

**Study designs of evaluations included in the review**

Studies with a concurrent control group were eligible for inclusion. The included studies were randomised controlled trials (RCTs) or non-randomised controlled trials.

**Specific interventions included in the review**

Studies that compared interventions with an arthritis self-management education component with a concurrent control were eligible for inclusion. Studies of self-management education that used only physical or psychosocial therapies were excluded. Studies that incorporated therapies into an education programme were also eligible.

The programmes in the included studies consisted of 1 to 15 weekly sessions, ranging in duration from 1 to 52 weeks, and were delivered by group and/or individual sessions. The programme modalities varied from face-to-face sessions to videotapes or audiocassettes, and most used multiple methods of programme delivery. There were a variety of programme facilitators, including lay educators, trained health educators, physicians, mental health workers, physical or occupational therapists, nurses and dieticians.

**Participants included in the review**

The inclusion criteria were not specified in terms of participants, but the objective of the review implied that people with arthritis were eligible for inclusion. The included studies were of predominantly female (69%) patients with osteoarthritis or rheumatoid arthritis. The mean age of the patients was 61 years. Most of the studies recruited patients from primary care or arthritis clinics.

**Outcomes assessed in the review**

Studies that assessed pain or disability were eligible for inclusion. The primary outcome was pain and disability as the end point for each study. The review also assessed the drop-out rates.

**How were decisions on the relevance of primary studies made?**

Two reviewers independently selected studies for inclusion.

**Assessment of study quality**

Validity was assessed on the basis of whether randomisation occurred, the method used for randomisation and the methods used to recruit patients. The authors discussed other aspects of validity in the text, including adequacy of
reporting and the validity of methods used to assess the outcomes. Two reviewers independently assessed validity using a standarised form.

Data extraction
Two reviewers independently extracted the data using a standarised form. In studies that used more than one active treatment arm, all self-education treatment programmes were combined. The extracted data included details of the intervention and whether or not the education intervention was based on a behavioural science model. The review authors calculated the drop-out rate for each study. Where studies did not present values for standard deviations or standard errors, these were estimated (details given). The effect size (ES) and 95% confidence interval (CI) were calculated for pain and disability for each study.

Methods of synthesis
How were the studies combined?
The characteristics of the included studies were summarised in the text of the review. The studies were combined using a meta-analysis. The pooled ES and 95% CI were calculated for pain and disability using a random-effects model. The possibility of publication bias was explored using funnel plots for pain and disability.

How were differences between studies investigated?
Statistical heterogeneity was tested using the Q statistic. The review also assessed pain and disability at interim time points before the end of the study, but after completion of the intervention. The subgroup of studies that used interventions similar to the Arthritis Self-Help Course were analysed separately (see Other Publications of Related Interest).

Results of the review
Seventeen controlled trials (4,114 patients) were included: 14 RCTs (3,532 patients) and 3 non-randomised controlled studies (582 patients).

Thirteen studies described a formal syllabus for the education programme. Most of the interventions (76%) were based on a referenced behaviour theory.

Pain (16 studies): the meta-analysis showed that the education intervention had a small effect on pain. The pooled ES was 0.12 (95% CI: 0.00, 0.24). Significant heterogeneity was detected (P=0.004). The ES in individual studies ranged from 0.32 to 0.55. Four individual studies showed a significant effect. Disability (12 studies): the meta-analysis showed that the education intervention had a smaller effect on disability. The pooled ES was 0.07 (95% CI: 0.00, 0.15). No significant heterogeneity was detected (P=0.4). The ES in individual studies ranged from 0.27 to 0.39. One individual study showed a significant effect.

When using data from interim time periods, the ES for pain was increased while that for disability was unchanged. The ES for pain was 0.19 (95% CI: 0.11, 0.27).

The overall drop-out rate was 19% (range: 0 to 53).

A meta-analysis of the 3 studies that used interventions similar to the Arthritis Self-Care Course showed no significant effect on pain or disability. The ES was 0.04 (95% CI: -0.19, 0.27) for pain and 0.10 (95% CI: -0.05, 0.24) for disability.

The funnel plots were symmetrical, thus showing no evidence of publication bias.

Authors’ conclusions
The studies suggested that arthritis self-management education programmes may have a small effect on pain and disability. However, methodological limitations of the included studies prohibit definitive conclusions.
The review question was clear in terms of the study design, intervention, participants and outcomes, although only the inclusion criteria for the intervention and outcomes were stated explicitly. Only two databases were searched for studies published in English and this may have resulted in the omission of other relevant studies. No attempt was made to locate unpublished studies, thus raising the possibility of publication bias. However, the review found no evidence of publication bias. Two reviewers independently selected the studies and extracted the data, which reduces the potential for bias and errors. The validity assessment was limited to the consideration of randomisation and drop-outs, and validity was not taken into account in the analyses.

The data from RCTs and non-randomised trials were combined in a meta-analysis and statistical heterogeneity was assessed. Having found significant heterogeneity in the meta-analysis for pain, the authors did not explore potential reasons for it. The authors discussed some of the limitations of the review, e.g. potential bias resulting from high drop-out rates. It may have been helpful to have explored the influence on the results of different assumptions for missing data. These concerns indicate that the review findings may not be reliable and should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that well-conducted controlled trials are urgently required to assess the benefits and cost-effectiveness of arthritis self-management education programmes. They also stated that standards for the methodology, conduct, analysis and reporting of trials on arthritis self-management education programmes should be developed.

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Other publications of related interest

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.