What strategies are effective for exercise adherence in heart failure? A systematic review of controlled studies

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CRD summary

This review concluded that motivational strategies, such as goal setting, feedback and problem solving, might increase exercise adherence in patients with heart failure, in the short-term, but strategies to maintain this physical activity remain unclear. The conclusions of this review should be reliable.

Authors' objectives

To assess the effectiveness of strategies to promote exercise adherence in patients with heart failure.

Searching

The following databases were searched for articles from January 1980 to December 2010: British Nursing Index, CINAHL, The Cochrane Library, EMBASE, MEDLINE and PsycINFO. A range of sources was searched for dissertations and grey literature. Search terms were reported for the grey literature search. References of identified papers were examined to locate further studies.

Study selection

Eligible studies were those describing a strategy or intervention to promote or improve exercise adherence, in adults aged 18 years or older, with heart failure. Studies needed to compare adherence to exercise, or rates of exercise, between an intervention and a control group. Studies assessing the effect of exercise on physical functioning or clinical outcomes, without measuring adherence, were excluded.

In the included studies, the average age ranged from 59 to 79 years. The percentage of females ranged from two to 67.5, where stated. Most of the participants in the studies were older men, with mild-to-moderate heart failure according to New York Heart Association criteria. Most studies compared usual care with an exercise intervention that included strategies to promote adherence. One study compared an exercise group with an exercise plus adherence group. A variety of theoretical frameworks underpinned the studies. Common strategies to promote adherence were: supervised exercise sessions; ongoing support from professionals; exercise prescriptions or goal setting; feedback or positive reinforcement; and problem solving. Adherence was assessed in a number of ways, most of which were self reported.

Two reviewers were involved in study selection and any disagreements were discussed with a third reviewer.

Assessment of study quality

Study quality was assessed using the Joanna Briggs Institute checklist, which assigns a score from zero to 10 based on randomisation, blinding, measurement of outcomes, and appropriateness of statistical analyses.

Two reviewers independently rated studies, with disagreements resolved through discussion. Studies that scored less than five were excluded from the review.

Data extraction

Comparative data, for the outcome of exercise adherence, were extracted by two reviewers independently and any differences were discussed.

Methods of synthesis

Studies were combined in a narrative synthesis.

Results of the review

Nine randomised controlled trials were included in the review, with 3,231 participants. Sample size ranged from 16 to 2,331. Three trials did not provide a power calculation to justify their sample size. Quality scores ranged from five to

nine, out of 10, with a mean of 6.3. Common problems across the trials were a lack of blinding of outcome assessors and inadequate procedures for randomisation and allocation concealment. Follow-up ranged from two to 30 months.

Completion rates ranged from 65% to 95%; most patients who did not complete had died. All trials with a follow-up of up to six months found some improvements in exercise adherence with the intervention. These short-term benefits were found with strategies including goal setting, feedback, and problem solving, as well as with interventions underpinned by recognised theoretical frameworks. Three out of the four trials with a follow-up at one year, did not find significant differences in exercise adherence between groups.

Authors' conclusions
Motivational strategies, such as goal setting, feedback, and problem solving, might be effective in increasing exercise adherence, in patients with heart failure, in the short-term, but the strategies to maintain this physical activity remain unclear.

CRD commentary
This review was based on defined inclusion criteria and an extensive search of the published and unpublished literature. Study quality was assessed and the results were used to exclude poor-quality studies. Two reviewers were involved in the selection, data extraction and quality assessment of studies, for the review, which should minimise bias and errors in these processes. A narrative synthesis appears to have been appropriate for the diversity of interventions and outcome measures.

The conclusions of this review should be reliable.

Implications of the review for practice and research
Practice: The authors stated that strategies to address motivation, including graphs and regular feedback, might be effective in the short term. The interventions should be based on theories that produce behaviour change, particularly those that include self-efficacy.

Research: More research was required on which theories promote physical activity in those with heart failure. Large long-term trials should assess modes of activity that were preferred by those with heart failure, such as gardening, dancing or bowling. They should describe the frequency, duration and intensity of exercise achieved and use objective measures, such as the metabolic equivalent measure of energy expenditure (MET).

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