The impact of extended care on the long-term maintenance of weight loss: a systematic review and meta-analysis

Middleton KM, Patidar SM, Perri MG

CRD summary
This review evaluated the impact of extended care on long-term maintenance of weight loss and concluded that extended care was a viable and efficacious solution to addressing long-term maintenance of lost weight. The conclusion was unlikely to be reliable due to poor quality primary studies, variation between interventions, a lack of ethnic diversity and potential for other biases.

Authors' objectives
To evaluate the impact of extended care on long-term maintenance of weight loss.

Searching
PubMed, PsycINFO and Cochrane Database of Systematic Reviews were searched from 1980 to June 2011; search terms were reported. Reference lists of related book chapters and journal articles were handsearched for further studies.

Study selection
Eligible studies were randomised controlled trials (RCTs) that assessed the impact of extended care on weight regain following initial weight loss in overweight and obese adults (aged 18 years and over). Studies had to include a randomised extended care component that focused on providing continued support for behaviours associated with weight management. Extended care was defined as two or more sessions delivered in-person or via telephone by a trained interventionist. Online interventions were excluded.

All of the extended care components of interventions were modelled on cognitive behavioural principles for weight loss; most trials used a problem-solving component and some included relapse prevention training. Interventions ranged from 1.5 to 30 months. In half of the trials the control arms received no further intervention. Control arms from the other half of trials received nominal extended care as: booster sessions, weekly self-monitoring forms, quarterly/biweekly mailed newsletters, printed guidelines for diet and physical activity recommendations and a brief meeting with an interventionist.

The first author screened titles and abstracts of potentially eligible studies; two authors independently screened the resulting full papers for inclusion.

Assessment of study quality
Study quality was assessed using the Physiotherapy Evidence Database (PEDro) scale. Criteria included attrition rate, blinding of outcome assessors and use of intention-to-treat analysis.

Two authors independently performed the quality assessment.

Data extraction
Relevant data were extracted to calculate Hedge's g effect sizes for individual studies, estimated with 95% confidence intervals. Mean weight changes and F-statistics were recorded where there were missing pre- and post-mean values. Where more than one intervention arm met inclusion criteria, data were combined to create pooled estimates.

The authors did not state how many reviewers extracted data.

Methods of synthesis
Hedge's g effect sizes and 95% confidence intervals were pooled using a random-effects model. Statistical heterogeneity was assessed using the Q-statistic. A funnel plot was constructed to investigate publication bias. Trials excluded from the meta-analysis (reasons reported in paper) were described.
Results of the review

Thirteen RCTs were included in the review: 11 were included in the meta-analysis (1,591 participants, range 32 to 684) and two in the qualitative synthesis (participant totals not reported). Length of follow-up ranged from 6 to 30 months (where reported). PEDro scores (maximum possible score of 10) ranged from 5 to 8. Four trials had post-test data with less than 15% attrition, three performed intention-to-treat analysis and two reported blinding of outcome assessors.

Extended care led to a significantly greater maintenance of weight loss than controls ($g=0.385$, 95% CI 0.28 to 0.49); this equated to the maintenance of an additional 3.2kg of weight loss for extended care participants over 17.6 months post-intervention. No significant heterogeneity was indicated ($Q=5.63$, $p=0.845$) and no evidence for publication bias was found.

Among the trials not included in the meta-analysis one was conducted among African-American participants and reported no effect of extended care post-intervention. The other trial reported that their extended care group did not regain significant amounts of weight during the maintenance period but the no-contact control group did.

Authors’ conclusions

The findings suggested that extended care was a viable and efficacious solution to addressing long-term maintenance of lost weight. Given the chronic disease nature of obesity, extended care may be necessary for long-term health benefits.

CRD commentary

The review question was clear and supported by appropriate inclusion criteria. Relevant data sources were accessed but the lack of a search in the EMBASE database meant that some European literature may have been missed. It appeared that no language restrictions were applied during the search and screening stages, which reduced the likelihood of language bias.

Efforts to avoid reviewer error and bias were reported for study selection and quality assessment. The quality assessment criteria seemed appropriate and indicated that limitations existed in relation to attrition, blinding and use of intention-to-treat analyses. Further bias was possible due to participants’ self-completion of weight records (such as using weekly postcards) in some of the trials included.

Study characteristics were presented and revealed methodological differences between the trials, particularly among extended care components. Methods of synthesis seemed appropriate given the demonstrated lack of statistical heterogeneity. Publication bias was not evident although the small number of included studies meant that its presence should not be ruled out. The authors acknowledged that some of the included trials were published prior to 1990 and that trial populations mostly contained Caucasian participants and the one trial that focused on a different ethnic population (African-American) showed different results to all of the other trials.

Limited study quality, potential for further bias and the lack of ethnic diversity in the trial populations mean that the authors’ conclusions are not likely to be reliable.

Implications of the review for practice and research

Practice: The authors did not state any implications for practice.

Research: The authors stated that further research should focus on ways of standardising extended care programmes and tailoring them to assist non-Caucasian participants, including investigation of factors that may interact with the effect of ethnicity and response to such programmes.

Funding

None stated.

Bibliographic details


PubMedID
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.