

The clinical effectiveness and cost-effectiveness of long-term weight management schemes for adults: a systematic review

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Executive summary

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Executive summary

Background

The number of people who are overweight or obese in the UK is increasing and overweight and obesity is a significant public health problem. The impact to the individual and on health-care resources can be considerable because overweight and obesity are associated with a range of comorbidities, such as cardiovascular disease, Type 2 diabetes and many cancers. Weight loss can reduce the risk factors for these conditions. Weight management schemes consisting of diet, exercise and behaviour therapy have been developed to help people lose weight; however, after initial weight loss, many people regain weight in the long term. Recently, over-the-counter (OTC) weight loss medications have become available and these treatments may be used in some weight management schemes.

Objectives

The aim of this systematic review is to assess the clinical effectiveness and cost-effectiveness of multicomponent weight management programmes in overweight and obese adults. Multicomponent weight management programmes include diet, exercise and behaviour therapy elements.

Methods

Data sources

A sensitive search strategy was designed and applied to 10 electronic bibliographic databases (including MEDLINE, EMBASE and the Cochrane Library) from inception to December 2009. Bibliographies of related papers were screened, key conferences and symposia were searched and experts were contacted to identify additional published and unpublished references.

Study selection

Independently, two reviewers screened titles and abstracts for eligibility. Inclusion criteria were defined a priori and applied to the full text of retrieved papers by two reviewers using a standard form. Clinical effectiveness studies were included if participants were adults with a body mass index $> 25 \text{ kg/m}^2$; if the interventions were well-described multicomponent (diet, exercise and behaviour therapy) weight management approaches with a weight loss outcome; and if the studies were randomised controlled trials (RCTs) with at least 18 months' follow-up. Studies were required to be cost-effectiveness analyses in the systematic review of cost-effectiveness.

Data extraction and quality assessment

Data extraction and assessment of methodological quality was undertaken by one reviewer and checked by a second. Differences in opinion were resolved through discussion or recourse to a third reviewer at each stage.

Data synthesis

The trials were reviewed in a narrative synthesis with full tabulation of the results of all included studies. Meta-analysis was not undertaken due to clinical heterogeneity in the participant groups and comparator treatments.

Results

A total of 3358 references were identified for the review of clinical effectiveness. Following screening, 22 publications describing 12 RCTs were included.

Five RCTs compared multicomponent interventions with non-active comparator groups. In general weight change appeared to be greater in the intervention groups than the comparator groups. In those studies that measured it, most groups began to regain weight at further follow-up, although a statistically significant difference in weight loss in favour of the intervention group was maintained in some studies at up to 36 months' follow-up. Two RCTs compared multicomponent interventions that focused on the diet component. In these studies there were no statistically significant differences in weight loss between interventions and again participants regained weight over time. Four RCTs compared multicomponent interventions that focused on the physical activity component. The first study, a high physical activity intervention, led to more weight loss than a standard behavioural therapy approach at 18 months, but by 30 months the difference was not statistically significant. The second study described a standard behavioural therapy intervention that led to greater weight loss when compared with the same intervention plus supervised exercise. In the third study a diet and physical activity intervention led to similar weight losses as a diet alone intervention or an exercise alone intervention. Data were only presented for a subgroup of those participating in the remaining study, and not by study arm. One RCT compared a multicomponent intervention that focused on the goal-setting interval and it appeared that weight loss was greatest in those given daily dietary and exercise goals compared with those given weekly goals. However, there were no statistical analyses presented to support this observation and the study suffered from additional methodological limitations. No studies were identified which included the use of OTC weight loss medications.

In these 12 included studies any weight lost was generally small and may not reflect a clinically significant reduction in weight. Despite attempts to ensure the data included were as meaningful as possible there were few similarities between the studies, their interventions, or their lengths of follow-up and, as a result, conclusions are difficult to make.

For the review of cost-effectiveness, 419 references were identified. No studies met the full inclusion criteria. Two economic evaluations met many of the core criteria and a pragmatic decision was taken to describe these studies. However, caution is required in their interpretation as one study used prescription antiobesity drugs in some participants, and the other had a follow-up of less than 18 months. Each study used a lifetime chronic disease model to evaluate the effect of changes in an individual's weight. The models included the costs and benefits from avoiding chronic illnesses such as coronary heart disease and diabetes. Both studies found the interventions to be cost-effective, with estimates varying between -£473 and £7200 (US\$12,640) per quality-adjusted life-year gained. Omissions in reporting details of the modelling methodology and data inputs reduced transparency making it difficult to draw conclusions about the results; however, the results and methodology of the studies seemed reasonable. There were limitations to each study. One study was conducted in North America, and one in the UK. In the North American study, the costs were much higher than for the UK and non-medical costs have been included. In the UK study, the intervention effect is not based upon an RCT, and the costs are likely to be underestimated.

Conclusions

Long-term multicomponent weight management interventions were generally shown to promote weight loss in overweight or obese adults. However, weight changes were small and weight regain was common in those studies that measured it. There were few similarities between the included studies; consequently interpretation of the results was difficult to make overall. In addition, it is not clear what degree of weight loss is deemed to be clinically meaningful. The cost-effectiveness studies offer some evidence that weight management interventions are likely to be cost-effective, although caution is required as there were a number of limitations to the two cost evaluation studies described. There were no UK-based RCTs included in the review and as such there is a research need to evaluate the effects of long-term multicomponent weight management interventions in a UK setting.

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First is the commissioned route. Suggestions for research are actively sought from people working in the NHS, from the public and consumer groups and from professional bodies such as royal colleges and NHS trusts. These suggestions are carefully prioritised by panels of independent experts (including NHS service users). The HTA programme then commissions the research by competitive tender.

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