
Systematic review of multicomponent interventions with overweight middle adolescents: implications for clinical practice and research

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CRD summary

This review assessed multicomponent interventions for the treatment of obesity in middle adolescents. The authors concluded that structured programmes addressing nutrition, physical activity and behavioural skills appeared to be effective in reducing weight and cardiovascular risk factors. The synthesis and reporting of the review process were limited and this conclusion may not be justified or reliable.

Authors' objectives

To assess treatments for obesity in middle adolescence.

Searching

MEDLINE, CINAHL, PsycINFO, and The Cochrane Library were searched from 1980 to December 2007. Search terms were reported. References of identified studies and published reviews and meta-analyses were checked and two obesity journals were handsearched between 2006 and 2007. Only studies published in English were eligible for inclusion.

Study selection

Randomised controlled trials (RCTs) that assessed a multicomponent intervention including physical activity, nutrition and behaviour modification for the treatment of obesity in middle adolescents aged 13 to 17 years were eligible for inclusion. Studies of medication or obesity related to medication side effects were excluded from the review.

The great majority of studies were conducted in North America and most were considered to be clinic-based. The intensity of the interventions varied widely from six times per week to intermittent sessions. The mean age of participants in the included studies was 14.5 years (range 12 to 20 years). A range of socioeconomic participants were included, although some studies exclusively recruited African-Americans or Caucasians. A number of studies included only females. A majority of all participants were female. A range of weight and other criteria for enrollment were reported. All studies assessed short-term outcomes that included those related to weight, cardiovascular risk factors and behavioural measures. It appeared that one reviewer selected the studies and a second reviewer reviewed the decisions.

Assessment of study quality

The studies were assessed for validity using two previously developed instruments that assessed 12 measures of validity with a maximum score of 3 points on each measure. It appeared that one reviewer assessed the studies for validity and a second reviewer reviewed the decisions.

Data extraction

Data were extracted using a modified form of a previously developed template. It appeared that one reviewer extracted the data using an iterative process; a second reviewer may have reviewed the data extraction. Effect sizes were calculated using Cohen's D formula.

Methods of synthesis

The studies were combined in a brief narrative synthesis supported by evidence tables.

Results of the review

Seventeen RCTs were included in the review, but only 16 were included in the study tables (sample sizes were not reported). Validity scores ranged from 10 to 27 (mean 18.6) out of a possible 36 points.

Seven RCTs reported significant differences between the groups on outcomes that included measures of weight, blood-pressure, cholesterol, body composition, BMI, nutrition and behavioural skill use. When long-term outcomes were measured most participants returned to pre-intervention weight.

Authors' conclusions

Structured programmes addressing nutrition, physical activity and behavioural skills appeared to be effective in reducing weight and cardiovascular risk factors.

CRD commentary

The review question and the inclusion criteria were clear with the exception of outcome criteria. The authors searched a number of relevant databases and other sources. However, the decision to limit the review to studies published in English may have led to the introduction of publication or language bias as well as the exclusion of some relevant studies. The authors may have used methods designed to reduce bias and error at each stage of the review process. An appropriate assessment of validity was conducted. The decision to adopt a narrative synthesis appeared appropriate given the clinical heterogeneity between the included studies. However, the synthesis of outcomes presented was so brief that it was difficult to assess the evidence basis for the conclusions. Given this, and the unclear reporting of review methodology, it was difficult to determine the reliability of the authors' conclusions, which may not be justified on the basis of the evidence presented.

Implications of the review for practice and research

Practice: the authors stated that clinicians should implement multicomponent interventions that involve nutrition education, physical activity with monitored experience and behaviour modification. Levels of anxiety and depressive symptoms should be assessed in addition to self-esteem in overweight teens.

Research: the authors stated that more research on obesity treatment was needed with culturally diverse

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samples of adolescents. A number of implications for further research designs were also stated. These included the identification of specific components of interventions that are particularly effective, the assessment of moderating variables and the addition of a cognitive behavioural skill building or mental health component to interventions. They also proposed research focused on multiple levels of the ecological model for obesity.

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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.