Prevention and early treatment of overweight and obesity in young children: a critical review and appraisal of the evidence

Small L, Anderson D, Melnyk B M

CRD summary
The authors’ conclusion appears to be that there is a paucity of good-quality research evaluating interventions for overweight or at-risk young children; further research is required. There were limitations to this review, such as the poor reporting of review methods and lack of precision in the inclusion criteria, but, overall, the conclusion seems to reflect the limited evidence.

Authors' objectives
To identify effective early treatment or prevention programmes for use in primary care for young children who are overweight or obese, or who are at risk of obesity.

Searching
MEDLINE, PsycINFO and CINAHL were searched; the search terms were reported, but the search dates were not.

Study selection

Study designs of evaluations included in the review
It appears from the search strategy that completed randomised controlled trials (RCTs), systematic reviews and meta-analyses were eligible for inclusion in the review. However, not all of the included studies were RCTs.

Specific interventions included in the review
Studies that compared prevention or early treatment programmes with a control or comparison programme were eligible for inclusion. Most of the included prevention studies were school-based; other studies were based in the community or an out-patient department. All treatment intervention studies were clinic-based. The studies compared a variety of interventions (e.g. information, types of dietary advice, physical activity, cognitive therapy, behaviour therapy, problem-solving skills, parental management and parenting skills) with each other or usual care. Some programmes involved parents. The duration of the interventions ranged from 2 weeks to 12 months for prevention studies and from 4 weeks to 12 months for treatment intervention studies. The studies were conducted in a variety of countries including Italy, Thailand, Britain, Germany, Israel, Austria, Australia and the USA.

Participants included in the review
Studies that included young children (aged 4 to 7 years) who were overweight, obese, or at risk of obesity, were eligible for inclusion. The included studies were in children aged from 3 to 18.8 years. Treatment intervention studies recruited children through the media, schools or through referral.

Outcomes assessed in the review
Studies that assessed healthy weight maintenance or weight loss were eligible for inclusion in the review.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not explicitly state in the ‘Methods’ section that validity was formally assessed. However, aspects of study quality including the following were assessed and reported in tables: sample size; attrition; randomisation; theoretical framework; reporting of effect size; methods used to assess the outcomes; reproducibility of the intervention; duration of follow-up; sample size estimation; and use of relevant control group. The authors did not state how the validity assessment was performed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were grouped by intervention type (prevention or treatment) and combined in a narrative, with the focus on describing study characteristics. The results were reported as text only in tables and were not summarised in the review; no results data were reported. The authors stated it was not possible to compare the results across interventions because of differences between the studies.

How were differences between studies investigated?
Differences between the studies were described in the text and other differences were apparent from the tables.

Results of the review
Twelve studies were included: six evaluated prevention programmes (n=3,982) and six evaluated treatment programmes (n=221). All studies were classified as RCTs in the tables, but in one study the data were randomly selected from a longitudinal cohort study and the quality assessment of a second study suggested it might not have been an RCT.

None of the prevention studies reported a theoretical basis to the intervention. In only one study was the duration of follow-up greater than 3 months. The studies relied upon self-reported measures of nutrition and activity. Other methodological problems include a lack of generalisability. None of the studies were set in primary care.

Methodological flaws in the intervention studies included lack of reproducibility of the interventions, small sample sizes, lack of sample size calculations, lack of treatment effect size calculations and wide age range in samples.

Authors’ conclusions
The authors’ conclusion appears to be that there is a paucity of good-quality research evaluating interventions for overweight or at-risk young children; further research is required.

CRD commentary
The review question was defined in terms of the participants, intervention and outcomes. The inclusion criterion for study design appeared to be RCT, but not all of the included studies were RCTs. In addition, it appeared that the review wished to focus on studies set in the USA although this was not explicitly stated in the inclusion criteria. Several relevant sources were searched, but there were no attempts to minimise publication bias and it was unclear whether any language restrictions had been applied. Validity was assessed using specified criteria, although these were not explicitly described in the ‘Methods’ section of the review, and the results of this assessment tabulated. Since the methods used to select studies, assess validity and extract the data were not described, it is not known whether any efforts were made to reduce reviewer error and bias. The information about the included studies was adequate. The narrative synthesis was appropriate given the differences between the studies. There were limitations to this review, including lack of reporting of review methods and lack of precision about the inclusion criteria, but, overall, the conclusion appears to reflect the limited evidence.

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

Research: The authors stated that further good-quality research (such as RCTs) is required to evaluate theory-based reproducible primary care interventions for overweight or at-risk young children and their parents.

Funding
Not stated.

Bibliographic details
Small L, Anderson D, Melnyk B M. Prevention and early treatment of overweight and obesity in young children: a
critical review and appraisal of the evidence. Pediatric Nursing 2007; 33(2): 149-152, 155-161, 127

**PubMedID**
17542238

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adolescent; Ambulatory Care Facilities; Child; Child Health Services; Child Welfare; Child, Preschool; Early Diagnosis; Evidence-Based Medicine /organization & administration; Forecasting; Health Behavior; Health Education; Humans; Longevity; Obesity /diagnosis /epidemiology /therapy; Outcome Assessment (Health Care); Pediatric Nursing; Pediatrics; Practice Guidelines as Topic; Prevalence; Primary Prevention /organization & administration; Research Design; School Health Services; United States /epidemiology

**AccessionNumber**
12007005584

**Date bibliographic record published**
10/03/2008

**Date abstract record published**
30/09/2008

**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.