
Community-based interventions to reduce overweight and obesity in China: a systematic review of the Chinese and English literature

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CRD summary

This review concluded that interventions that combined physical activity, dietary intervention and health education may be effective in reducing obesity among mainland Chinese children. Evidence for the effectiveness of interventions among adults was limited. The conclusions reflected the results of the review, but were acknowledged to rest on an evidence base which may have been affected by publication bias.

Authors' objectives

To assess non-pharmacological interventions for the reduction of obesity and overweight in mainland Chinese society.

Searching

Chinese Medical Current Contents, Chinese Biomedical Literature Database, Chinese Journal Full-text Database, MEDLINE, EMBASE, AMED, CINAHL, PsycINFO, ACP Journal Club, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews and DARE databases were searched from at least 1994 to June 2006. Search terms were reported. References of included studies were checked. National and local government websites, the Center for Disease Control and Prevention website and published conference reports were searched. Only studies reported in full were eligible for inclusion in the review.

Study selection

Controlled studies that evaluated public health programmes with a duration of at least three months in China that aimed to prevent, control or reduce obesity or obesity-related risk factors were eligible for inclusion. Studies were required to report anthropometric outcomes such as body mass index (BMI) or weight. Studies of clinic-based programmes were excluded from the review.

Included studies focused on either children and adolescents or adults. Approximately half of the studies that targeted children were population-wide studies and half focused on obese and overweight children. Most studies included physical activity, dietary intervention, family involvement and health education components. Some also used behaviour modification. All studies that focused on adults were community- rather than work-based. Most were designed for prevention and control of cardiovascular disease. The duration of interventions ranged from three to 96 months.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality

Studies were assessed for validity using the criteria of the Cochrane Effective Practice and Organization of Care Group and the Quality Assessment Tool for Quantitative Studies. The authors did not state how many reviewers performed the assessment.

Data extraction

The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis

The studies were combined in a narrative synthesis grouped by whether children and adolescents or adults were the focus of the study; additional differences between the studies were apparent from the text and the accompanying evidence tables.

Results of the review

Twenty studies were included in the review, only one of which was published in an international journal.

Children and adolescents (14 studies): Five of the six studies of population-based interventions assessed comprehensive interventions (which incorporated the promotion of physical activity and a healthy diet as well as behaviour modification for at least one to two years) found significant benefits of the intervention. Four found universal benefits, with reductions in obesity prevalence of between 4.2% and 12.2%; the fifth reported a decrease of 17.3% in girls only. A study of health education only in pre-schoolers found no effect of intervention. Six of the eight studies that focused on obese or overweight children assessed comprehensive interventions and found significant benefits of the intervention. Three found that the mean percentage over the World Health Organisation Standard Weight-for-Height decreased by between 7.7% and 10.6%. Two studies reported reductions in body mass index of 2.9 and 2.5kg/m² and one found a weight loss of 2.34kg. The remaining two studies were of short duration (three to four months). They concentrated solely on physical activity and found no significant effect.

Adults (six studies): One study of a comprehensive intervention in the general population found no significant effect. Another in overweight adults found a statistically significant decrease in body mass index of 1.16kg/m² after 10 months. Four studies implemented various interventions aimed at prevention and control of cardiovascular disease. Two of these were focused on individuals with hypertension and both found significant evidence of effectiveness: the intervention groups showed a reduction in percentage of overweight individuals; control groups showed an increase in this figure. The final two studies reported a decreased obesity prevalence (4.8%) and a decreased body mass index (by 1.03kg/m²) over durations of eight and five years.

Authors' conclusions

Interventions that combined physical activity, dietary intervention and health education may be effective in reducing obesity among Chinese children. Evidence for the effectiveness of interventions among adults was limited.

CRD commentary

The review question and the inclusion criteria were clear if broad. The authors searched a wide range of databases and some additional sources of unpublished studies, which reduced the possibility of publication bias and the exclusion of relevant studies. However, the authors acknowledged the probable operation of publication bias within their sources and within studies. The authors did not report using methods designed to reduce reviewer bias and error at any stage of the review process. A validity assessment using appropriate criteria was undertaken, but the results of the assessment were not reported. The decision to adopt a narrative synthesis appeared appropriate given the clinical heterogeneity among the included studies. The authors' relatively cautious conclusions reflected the results of the review, but their own caution about the potential over-estimation of effectiveness of the interventions assessed should be borne in mind.

Implications of the review for practice and research

Practice: The authors stated that healthy traditional foods such as vegetables should be promoted, while further community-based interventions for the prevention and treatment of obesity should be modified to address local circumstances within China. The authors further stated that the role of grandparents as carers of children in Chinese society should be acknowledged within such interventions. Safe exercise environments for children should be promoted.

Research: The authors stated that well-planned community-based interventions for the prevention and treatment of obesity were ongoing but had not yet been evaluated.

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