

The integration of a family systems approach for understanding youth obesity, physical activity, and dietary programs

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CRD summary

This review evaluated family systems-based interventions to improve weight loss, physical activity and diet in young people. The authors concluded that authoritative parenting styles, child management and family functioning can positively affect weight loss. Family system-based interventions can improve physical activity and dietary behaviours. Due to potential methodological limitations and limited reporting of results, the conclusions may not be reliable.

Authors' objectives

To evaluate the effectiveness of interventions based on the family systems approach to promote weight loss, physical activity and dietary modification in the youth population.

Searching

PubMed and PsycINFO databases and Google Academic Search were accessed to find articles of interest. Search dates were not reported. Search terms were listed. Reference lists of relevant articles were scanned to identify further studies.

Study selection

Studies that evaluated interventions with a family systems approach to promote weight loss and improved behaviours for physical activity and diet in youths (elementary age to late adolescence) were eligible for inclusion. Studies had to focus on parent training, parenting styles or child-management principles (authoritative parenting, boundary setting and positive behaviour reinforcement), parental behaviours (behaviour modification, reinforcement of child behaviours and problem-solving with the child), family functioning or therapy (cohesion, warmth, healthy communication and family conflict resolutions) or innovative family involvement (such as incorporation of family input to school-based interventions). Eligible studies had to have a comparison group.

Studies that evaluated weight-loss interventions were conducted largely with overweight Caucasian participants in clinical or university settings. The outcomes measured were primarily body mass index (BMI) and percentage overweight. Studies that targeted physical activity and dietary behaviour were largely conducted in normal weight participants in the school setting. A variety of outcome measures included dietary and physical activity recall methods, attitude and knowledge questionnaires and a selection of anthropometric assessments. The intervention and (where reported) control group content varied widely, as did the inclusion of family system components. Most included studies did not evaluate the family component specifically.

The authors did not state how many reviewers carried out the study selection.

Assessment of study quality

The authors did not report any quality assessment.

Data extraction

Data were extracted on change in percentage overweight or BMI and/or difference in outcome measures between groups. Where possible, Cohen's *d* effect sizes were calculated.

The authors did not state how many reviewers carried out data extraction.

Methods of synthesis

A narrative synthesis was presented.

Results of the review

Forty-six studies were included in the review. Twenty-one studies (which included 18 randomised controlled trials and one clinical controlled study) evaluated weight-loss interventions. Twenty-five studies (which included 19 randomised controlled trials) evaluated interventions that targeted physical activity and diet. Sample sizes ranged from 23 to 5,106 participants.

Weight loss: Twelve studies reported a range of effect sizes from 0.05 to 0.84. Effect sizes were moderate to large (0.43 to 0.84; three RCTs, *n*=104) in favour of interventions that included the promotion of authoritative parenting style and child management strategies (including boundary setting in the home environment, positive reinforcement of child behaviours and parent-child communication). The effects were maintained over one year. Two RCTs (*n*=92) showed moderate effect sizes (0.43 and 0.65) that favoured the promotion of authoritative parenting alone. One RCT (*n*=43) reported a moderate effect (0.49) in decreasing BMI that resulted from a brief parenting-skills intervention. Studies of family functioning or therapies targeting weight loss were limited and inconclusive.

Physical activity and dietary behaviour: Positive results were reported in studies conducted in school settings (16 RCTs). Effect sizes ranged from 0.03 to 2.31. The largest effect sizes were reported for one RCT (*n*=238) with an effect size of 2.31 for reduced dietary fat intake and one quasi-experiment with an effect size of 2.15 for increased knowledge about physical activity and nutrition. Both studies focused on the same intervention to improve quality of interaction between home and school environments. Two RCTs (34 mothers and 60 daughters) conducted in the community setting reported large effect sizes for increased fruit and vegetable consumption in African-American youths (effect size 2.66) and a reduction in the consumption of sweetened beverages (effect size 1.07). Both interventions focused on enhancing the community and home relationship.

Authors' conclusions

Family-based programmes that incorporated training for authoritative parenting styles, parenting skills,

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child management and family functioning had positive effects on youth weight loss. Programmes to improve physical activity and diet that targeted the family system also demonstrated improvements in youth health behaviours, but the direct effect of parent-targeted programming was not clear.

CRD commentary

The review question and inclusion criteria were broad and the extent to which these would be reproducible was unclear. The search strategy included a limited number of relevant data sources, but the absence of search dates meant that the search findings could not be contextualized in time and made the strategy of limited use to others who might wish to update the review. There was no reported assessment of study quality, which made it difficult to interpret the reliability of the included studies. It was not clear how many reviewers were involved in study selection and data extraction, so potential for errors and bias could not be ruled out. The extensive study details presented indicated wide variation that justified a narrative synthesis.

The substantial number of potential methodological limitations and limited reporting of results made the reliability of the conclusions uncertain.

Implications of the review for practice and research

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

Research: The authors stated a need for larger studies to explore the impact of parenting styles and the home environment in weight loss interventions and evaluate the impact of components to improve parenting styles, skills, and family functioning in physical activity and dietary programmes. Future studies should assess culturally-tailored programmes in prevention and treatment of obesity.

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