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Systematic review of school-based studies for the prevention and management of childhood obesity

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Overweight and obesity rates have reached epidemic proportions and are still escalating. In the domain of childhood obesity prevention and management the school plays a vital role, due to its pedagogical position and exposure⁽¹⁾. The aim of this study was to conduct a systematic review examining the effectiveness, barriers and facilitators in school-based prevention and management interventions on childhood overweight and obesity.

The search criteria were, overweight and obese, 2-19 years old, school-based RCTs, no intervention, and change in overweight and obesity parameters (e.g., prevalence, BMI, waist circumference). Additional eligibility criteria were peer-reviewed articles published in the last 10 years, conducted in Europe, Canada, USA, or Oceania. The selection and data collection process were carried out by two reviewers and disagreements settled by a third. The clinical and statistical heterogeneity of studies lead to an analysis based on themes of recurring methods. The heterogeneity also resulted in that only the direction of the result could be analysed, with results reported as having a positive, negative, or inconclusive effect on the population based on the statistical tests performed. If a secondary obesity parameter showed a different effect direction it was noted as a contradicting result.

Of 8725 unique articles identified, 76 fulfilled the selection criteria. Two dimensions (nutrition and physical activity) with three intended mediators (knowledge, behaviour training, and environment) of interventions were identified.

Thirty-eight studies were conducted in Europe, 32 in North America, and 6 in Oceania. The median age of participants was 10.8 years. The median sex distribution of participants was 50.5%. Seventytwo percent of studies were cluster randomised at school level, and the rest on class or region. Only 22% of studies were blinded and the mean retention rate was 83.1%.

In nutrition, the most common interventions included a teaching component (n = 29), or both a teaching and behaviour component (n = 24). In physical activity, the most common intervention included a behavioural component (n = 33), followed by knowledge only (n = 22) and knowledge and behaviour (n = 18). From the summative analyses performed on the main outcome variable of each intervention, 61% of all intervention arms had a positive effect, ranging from 54% to 70%. Five percent had a negative effect, ranging from 0% to 10%. Of the interventions that had a positive effect 50% displayed contradicting results from other obesity markers, ranging from 6% to 44%. Of single components, environment was most effective for nutrition and least effective for physical activity. Too few studies had negative findings to warrant an analysis. Contradicting results were most frequent for the environmental component of the nutrition dimension.

Interventions targeting physical activity and nutrition can be effective in preventing and managing overweight and obesity. Depending on the intended mediator and number of mediators results may vary.

Reference

1. Pyle SA, Sharkey J, Yetter G *et al.* (2006) *Psychology in the Schools* **43**, 361–376.