INTRODUCTION

From 1980 to 2012, the percentage of obese youth increased from 7% to 17.5% in children (6-11 years) and 5% to 20.5% in adolescents (12-19 years). Obesity in children are more likely to have health risks linked with heart disease and type 2 diabetes, and are more likely to become obese adults. 1,2

Schools can plan an important role in preventing childhood obesity since schools reach virtually all youth within a community. Schools face increasing pressure to improve students standardized test scores thereby limiting nutrition education time and opportunities during the school day.3

After-school settings have emerged as an alternative occasion for nutrition interventions. In 2014, it was estimated that 1 in 4 families had a child enrolled in an after-school program.4 Even with growing enrollment, after-school programs can face barriers (e.g. funding, staffing, educational resources) to implement nutrition interventions. The effectiveness of nutrition interventions conducted solely in school-based, after-school programs warrants further investigation.

OBJECTIVES

The purpose of the study was to evaluate the effectiveness of school-based, after-school nutrition intervention programs in reducing Body Mass Index (BMI) in children and adolescents.

METHODS

Data Source: Studies were identified by searching online databases such as PubMed, PsycINFO, Web of Science, EBSCO, CINAHL, ERIC, Google Scholar and ProQuest from the first available year to September 2016. The following keywords were used: “Diet,” “Nutrition,” “BMI,” “Body Mass Index,” “After School” and “After School Program.” Reference lists of the retrieved studies and review articles were examined to identify additional eligible studies. Studies identified through the search were imported into RefWorksTM and duplicate records were removed. Titles and abstracts of all identified articles were screened and relevant full-text articles were retrieved.

Study Selection: Studies were included if they met all of the following criteria: 1) written in English, 2) include both after-school and school-based locations 3) include a nutrition intervention, and 4) include BMI reported as an outcome. Studies were excluded if they dealt with eating disorders, disease states, or if students were taken off school grounds to other locations (e.g. clinics, community gardens, community centers) during the after-school program.

Data Extraction: After studies were identified, the following variables were extracted: age, sex, and population of participants, intervention strategy, parental involvement, and pre- and post-intervention BMI. Effect sizes (ES) were computed as d indices and expressed the standardized difference in means of pre- and post-intervention BMI. When a study did not provide sufficient information to calculate an ES, the author of the study was contacted to obtain means and standard deviations to enable calculation of an ES.

RESULTS

The searches yielded 1,702 articles. After the initial screening of titles and abstracts, 111 potentially relevant studies were reviewed in full, 17 studies involving 1,716 participants were included, and 18 ESs were calculated in this meta-analysis (Figure 1). Overall mean ES was small, but significant (ES = -0.156, 95% CI = -0.29, -0.02). This indicated that school-based, after-school nutrition intervention programs were effective in reducing BMI among youth (Figure 2). Moderator analyses indicated that the mean ES was influenced by the type of intervention (Q.metric: Q(1) = 16.26, df = 2, p = .001) and parental involvement Q.d = 4.56, df = 1, p = .033. The “nutrition only” intervention had a significant effect on reduction in BMI (ES = -0.37, 95% CI = -0.72, -0.02). The other two intervention groups were not effective significantly. In addition, when parents were involved in the intervention, the intervention was effective in reducing BMI (ES = -0.23, 95% CI = -0.44, -0.02). Lastly, the Egger’s test was not significant (p = 0.445) indicating no evidence of publication bias in the meta-analysis.

CONCLUSIONS

Results from our meta-analysis indicate that nutrition interventions in school-based, after-school settings are effective in reducing BMI among youth.

REFERENCES & FUNDING


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