



ORIGINAL ARTICLE

Effectiveness of a school-based programme to prevent obesity[☆]



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KEYWORDS

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Schools

Abstract

Introduction: Intervention for childhood obesity is a public health priority. The purpose of this study was to evaluate the effectiveness of an elementary school-based intervention against obesity in children.

Materials and methods: Non-randomised controlled trial was conducted on children from first to fifth grade from two public schools of Avilés (Spain). The intervention lasted for 2 school years comprising healthy diet workshops, educational chats, educational meetings, informative written material, and promotion of physical activities. Primary outcome measure was body mass index z-score. Secondary outcomes included obesity and overweight prevalence, waist circumference, dietary habits, and physical activity.

Results: A total of 382 (177 girls, 205 boys) out of 526 pupils of both schools were included in the study. Complete anthropometric data were obtained in 340 of the 382 individuals. Compared to children in the control group, those in the intervention group decreased body mass index z-score from 1.14 to 1.02 ($P=0.017$), and improved KIDMED score from 7.33 to 7.71 points ($P=0.045$). The percentage of students who carried on an optimal diet increased from 42.6% to 52.3% ($P=0.021$). There were no statistical differences in the prevalence of obesity and overweight, or in waist circumference between the intervention and control groups.

Conclusions: This school-based programme resulted in modest beneficial changes in body mass index and diet quality.

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PALABRAS CLAVE

Índice de masa corporal;
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Sobrepeso;
Dieta;
Educación y entrenamiento físico;
Escuelas

Efectividad de una intervención escolar contra la obesidad**Resumen**

Introducción: Las intervenciones sobre la obesidad infantil son una prioridad para la salud pública. El objetivo de este estudio fue evaluar la efectividad de un programa de intervención contra la obesidad en un colegio de Educación Primaria.

Material y métodos: Estudio de intervención controlado no aleatorizado en alumnos de primero a quinto cursos de Educación Primaria en 2 colegios públicos de Avilés (España). La intervención se desarrolló durante 2 cursos escolares, incluyendo talleres sobre alimentación saludable, charlas educativas, material informativo escrito y promoción de la actividad física. La variable de resultado principal fue la puntuación z del índice de masa corporal (IMC). Como variables de resultado secundarias se consideraron: prevalencia de obesidad y sobrepeso, perímetro abdominal, hábitos de dieta y actividad física.

Resultados: Fueron incluidos en el estudio 382 (177 niñas, 205 niños) de 526 alumnos de ambos colegios. En 340 individuos se obtuvieron datos antropométricos completos. A diferencia del grupo control, los pertenecientes al grupo de intervención disminuyeron la puntuación z del IMC desde 1,14 a 1,02 ($p = 0,017$), mejoraron el índice KIDMED de adhesión a la dieta mediterránea de 7,33 a 7,71 puntos ($p = 0,045$) y aumentaron la proporción de estudiantes con una dieta óptima del 42,6% al 52,3% ($p = 0,021$). No se encontraron diferencias estadísticamente significativas en la prevalencia de obesidad y sobrepeso, ni en el perímetro abdominal, entre los grupos de intervención y control.

Conclusiones: Este programa escolar consiguió pequeñas mejoras en el IMC y la calidad de la dieta.

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Introduction

The prevalence of childhood overweight and obesity has increased considerably worldwide since the 1990s,^{1,2} although recent studies show that it is stabilising in some developed countries.³ The high prevalence of overweight and obesity in the young population has been attributed partly to a decrease in physical activity and an increase in sedentary behaviours. There is also a clear trend for individuals to have a combination of several cardiovascular risk factors that is more marked in obese children and adolescents. Nearly half of the children with severe obesity meet the criteria for metabolic syndrome.⁴ The cardiovascular and metabolic consequences of obesity, such as hypertension, insulin resistance and dyslipidaemia, which may already be present in childhood, are particularly worrisome.

Childhood overweight and obesity carry an increased risk of becoming an overweight or obese adult.⁵ It is also known that treating obesity with lifestyle changes is extremely difficult in adults.⁶ Thus, interventions should focus on treatment and prevention in the paediatric population.

Public health strategies have been advocated to improve cardiovascular health in children, as research shows that they are more effective and easier to implement than other, more selective strategies based on risk factors.⁷ The school setting offers ample opportunity for intervention programmes. For all of the above, school-based programmes have been developed that aim at reducing childhood obesity

and other cardiovascular risk factors, usually by attempting to improve diet and physical activity.

The early literature reviews on school-based interventions for the prevention of childhood obesity have shown inconsistent results.⁸⁻¹⁴ However, studies on this subject published in recent years and new literature reviews and meta-analyses have found strong evidence that integral school-based interventions can be effective in reducing body mass index (BMI).¹⁵⁻¹⁷

The aim of our study was to assess the effect of an integral school-based intervention on BMI, as well as on the prevalence of overweight and obesity and lifestyle habits such as diet and physical activity.

Materials and methods**Type of study**

We carried out a school-based programme for preventing obesity designed as a non-randomised controlled trial. We selected two public elementary schools in the town of Avilés (Asturias, Spain). The intervention group consisted of the first- to fifth-year students of the Villalegre public school. This school was chosen for the intervention because the previous year its teaching staff had expressed an interest in implementing a programme to fight obesity in collaboration with the Hospital San Agustín of Avilés. The control group included the students enrolled in the same years at the El Quirinal public school, located in another Avilés

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