



ORIGINAL ARTICLE

A higher number of school meals is associated with a less-processed diet^{☆,☆☆}

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KEYWORDS

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Abstract

Objective: To compare the participation of food groups – fresh and minimally processed, processed, and ultra-processed – in the diet of students ($n = 1357$) from Belo Horizonte, MG, Brazil, in accordance with the number of school meals consumed daily.

Methods: Four groups were defined: children that did not consume school meals and children that consumed one, two, or three school meals daily. Food groups participation, in g/1000 kcal, was obtained using two 24-hour recalls. Three linear regression models were analyzed, in which the consumption of each of the food groups was the dependent variable, the number of school meals was the independent variable, and sociodemographic data (gender, age, health vulnerability) and overweight condition were the control variables.

Results: Children that consumed 2 or 3 school meals daily showed, respectively, 7.3% and 10.5% higher ingestion of *in natura* and minimally processed food in comparison to children that did not consume school meals. Moreover, ultra-processed food participation was 18.0% lower among students that consumed two school meals and 26.0% lower among children that consumed three meals daily, in comparison to students that did not consume school meals.

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^{☆☆} Study carried out at Universidade Federal de Minas Gerais, Escola de Enfermagem, Departamento de Nutrição, Belo Horizonte, MG, Brazil.

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Conclusion: The study showed a possible dose-response effect in children's daily diets with two or three school meals and highlighted the relevance of the prolonged stay at school for healthy eating promotion in children.

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PALAVRAS-CHAVE

Criança;
Alimentos;
Escola;
Fatores
epidemiológicos

Maior número de refeições nas escolas está associado a uma alimentação menos processada

Resumo

Objetivo: Comparar a participação dos alimentos *in natura* e minimamente processados, processados e ultraprocessados na alimentação de 1.357 escolares de Belo Horizonte (MG) de acordo com o número de refeições escolares consumidas diariamente.

Métodos: Foram definidos quatro grupos de estudo: crianças que não consumiam a alimentação escolar e crianças que consumiam 1, 2 ou 3 refeições escolares diariamente. A participação na dieta dos grupos de alimentos, em g/1.000 kcal, foi obtida a partir de dois recordatórios alimentares de 24 horas. Foram analisados três modelos de regressão linear, nos quais o consumo de cada um dos três grupos de alimentos constituiu a variável dependente, o número de refeições escolares consumidas diariamente constituiu a variável independente e os dados sociodemográficos (sexo, idade, índice de vulnerabilidade à saúde) e de excesso de peso, por sua vez, constituíram-se as variáveis de ajuste.

Resultados: Verificou-se que as crianças que consumiam 2 e 3 refeições escolares diariamente apresentaram, respectivamente, 7,3% e 10,5% maior ingestão de alimentos *in natura* e minimamente processados quando comparadas às crianças que não consumiam a alimentação escolar. Além disso, a participação de ultraprocessados foi 18,0% menor na alimentação das crianças que consumiam 2 refeições escolares e 26,0% menor entre as que consumiam 3 refeições escolares diariamente, em comparação àquelas que não consumiam a alimentação escolar.

Conclusão: O estudo apontou possível efeito dose-resposta na proteção da alimentação dos estudantes a partir do consumo de 2 refeições escolares diárias, destacando a relevância da permanência da criança em período integral na escola para a promoção da alimentação saudável.

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Introduction

Obesity is a serious public health problem in Brazil, with alarming rates observed in children and adolescents.^{1,2} In less than 30 years, the prevalence rates of obesity have increased by more than six-fold in children between 5 and 10 years of age; and the condition currently affects 16.8% and 11.8% of male and female schoolchildren, respectively.³ Among adolescents aged 12–17 years, the obesity rate is 8.4%.⁴

Obesity is an important risk factor for cardiovascular diseases and the main cause of mortality in the country, being associated with lower quality of life and life expectancy, as well as higher costs in the health sector.⁵ Intervening on this problem is one of the current challenges of the Brazilian Ministry of Health, which in 2014 launched the Intersectoral Strategy for the Prevention and Control of Obesity⁶ and signed the Action Plan for the Prevention of Obesity in Children and Adolescents (2015–2019).⁷ The publication of the Food Guide for the Brazilian Population that year was also the result of an effort to encourage healthy eating and to control obesity in the country.⁸

The golden rule proposed by the Brazilian food guide recommends prioritizing the consumption of fresh and minimally processed food instead of ultraprocessed products.⁸ However, in a country that has experienced an increase in the consumption of ultraprocessed food from 18.7% to 29.6% in 20 years, while the intake of fresh and processed foods decreased from 44.0% to 38.9%,⁹ complying with this rule is a great challenge.

In the school environment, aiming at health promotion and childhood obesity prevention, priority is given to a greater offer of fresh and minimally processed foods.^{1,10} The National School Feeding Program (Programa Nacional de Alimentação Escolar [PNAE])^{1,11} and the Integrated School Program (Programa Escola Integrada [PEI])¹² in Belo Horizonte, state of Minas Gerais (MG), Brazil, are examples of strategies for childhood obesity prevention in the country and in Belo Horizonte, respectively. In this second program, children and adolescents between 6 and 15 years of age can stay at school full-time, having access to three daily school meals and several extracurricular activities on sports, leisure, environment, citizenship, arts, and feeding.¹²

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