



ORIGINAL ARTICLE

Identification of dietary patterns of adolescents attending public schools^{☆,☆☆}

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KEYWORDS

Adolescents;
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Abstract

Objective: to identify the dietary patterns of adolescents attending public municipal schools in Northern Minas Gerais, Brazil, and to test the association between these patterns and socio-economic variables and nutritional status of the adolescents.

Methods: this was an analytical, cross-sectional study with randomized sample of 474 adolescents of both genders, between 11 and 17 years of age, attending municipal public schools in the urban area of Montes Claros, MG, Brazil. The parents provided demographic and economic data. The nutritional status (body mass index - BMI) of the adolescents was determined at school, and their dietary habits were assessed through the administration of the Food Frequency Questionnaire for Adolescents (FFQA). Based on 26 categories extracted from FFQA, dietary patterns were determined using principal component analysis (PCA) and associated to anthropometric and socioeconomic factors using multiple regression analysis.

Results: the three dietary patterns identified, "junk food," "healthy," and "traditional", explained 23.26%, 6.90%, and 5.24% of data variability, respectively. Adolescents with *per capita* family income exceeding half a minimum wage were more likely to consume the "junk food" pattern (OR = 1.66; 95% CI = 1.07-2.56), and overweight adolescents had lower chances of eating the "healthy" food pattern (OR = 0.56, 95% CI = 0.35-0.91).

Conclusions: deviations from the "healthy" patterns were not associated to low income, but rather to bad eating habits in the studied population. Overweight adolescents did not adhere to the "healthy" dietary pattern, emphasizing the need for nutritional education among them.

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PALAVRAS-CHAVE

Adolescentes;
Padrões Alimentares;
Análise de
Componentes
Principais

Identificação de padrões alimentares de adolescentes de escolas públicas**Resumo**

Objetivos: identificar os padrões de consumo alimentar de adolescentes de escolas públicas do norte de Minas Gerais e testar a associação desses padrões com variáveis socioeconômicas e estado nutricional.

Métodos: estudo analítico e transversal com amostra aleatória de 474 adolescentes de ambos os sexos, 11 a 17 anos de idade, matriculados do 6º ao 9º ano de escolas públicas municipais da zona urbana de Montes Claros, MG. Os pais forneceram informações demográficas e econômicas. Nas escolas, avaliou-se o estado nutricional dos adolescentes (índice de massa corporal - IMC) e investigou-se seus hábitos alimentares aplicando-se um Questionário de Frequência Alimentar para Adolescentes (QFAA). Com base em 26 categorias de alimentos extraídas do QFAA, aplicou-se uma análise fatorial de componentes principais (ACP) para identificar os padrões alimentares, que foram associados a fatores antropométricos e socioeconômicos por análise de regressão múltipla.

Resultados: os três padrões alimentares identificados, "junk food", "saudável" e "tradicional", explicaram 23,26%, 6,90% e 5,24% da variabilidade dos dados, respectivamente. Adolescentes com renda familiar *per capita* superior a 1/2 salário mínimo apresentaram maior chance de aderir ao padrão "junk food" (OR = 1,66; IC 95% = 1,07-2,56), enquanto aqueles com excesso de peso possuíram menor chance de aderir ao padrão "saudável" (OR = 0,56; IC 95% = 0,35-0,91).

Conclusões: desvios do padrão alimentar "saudável" não estão relacionados à baixa renda, mas sim aos maus hábitos alimentares da população estudada. Adolescentes com sobrepeso não aderiram ao padrão "saudável", reforçando a necessidade da implementação de educação nutricional junto aos mesmos.

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Introduction

The eating habits of adolescents are of concern for public health, as there is a direct association between inadequate diet during this phase and the occurrence of obesity and other chronic diseases in adulthood.¹ Exacerbating this scenario, the prevalence of obesity and related diseases has significantly increased worldwide.^{2,3}

It is common for adolescents to substitute main meals with high-calorie snacks or to skip important meals such as breakfast. In addition, they consume many foods with a high content of sugar, refined carbohydrates and saturated fats, and do not consume enough fruit and vegetables; they are also prone to adopting monotonous diets or food fads.⁴

Following a trend shown in studies in the nutrition area, the association between adolescents' diet and health should not consider the presence or absence of a particular nutrient, but the group of consumed foods, considering the type, amount, and proportions. In fact, the evaluation of food groups better reflects the dietary habits of a given population,⁵ and expresses the actual situation of food availability and the differentiated conditions of inclusion of the populations in varying social scenarios.⁶ In addition, food consumption patterns can be used as a prognostic factor in the association between diet and chronic disease risk, especially when they are associated with dietary characteristics.⁵

Dietary patterns can be determined by principal component analysis (PCA), which is a statistical method for reducing and/or aggregating elements to identify factors that may influence eating habits.⁷

However, although the identification of these factors is necessary to support dietary interventions, there have been few studies with these characteristics aimed at adolescents.⁸ To fill this gap, and considering the importance of knowing the dietary pattern of specific communities, the aim of this study was to apply PCA to identify food consumption patterns of adolescents from public schools in Northern Minas Gerais, Brazil, and to test their association with socioeconomic and nutritional status variables. It should be noted that the study is regionally relevant, as obesity problems have been detected in this population.⁹

Methods

The analytical cross-sectional study was performed in the second half of 2011 with adolescents of both genders, aged between 11 and 17 years, and enrolled in 6th to 9th grade in public schools of the urban area of the city of Montes Claros, state of Minas Gerais, Brazil. The rural area was not considered due to logistic reasons and because it encompasses less than 3% of students in the public school network.

Participants were selected by random cluster sampling. The sample size of 474 individuals was performed using Epi Info, release 3.5.1 statistical analysis software and based on the total number of students in the population studied. Obesity prevalence of 20% (based on studies with Brazilian adolescents),¹⁰ a confidence level of 95%, a 5% sampling error, and a correction factor for the sampling design ("deff") of 2 were also considered for the sample calculation.

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