



ORIGINAL ARTICLE

Trends of underweight, overweight, and obesity in Brazilian children and adolescents[☆]

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Received 17 December 2012; accepted 27 February 2013

Available online 10 July 2013

KEYWORDS

BMI;
Malnutrition;
Overweight;
Obesity;
Children and
adolescents

Abstract

Objective: To describe and analyze the trends of occurrence of underweight, overweight, and obesity in schoolchildren.

Methods: This was a longitudinal study of trends conducted in a voluntary sample of Brazilian children and adolescents. The sample was grouped by year of collection (period I: 2005 and 2006; period II: 2007 and 2008, and period III: 2009-2011), age category (children: 7 to 10 years, and adolescents: 11 to 14 years), and stratified by gender. The body mass index was used to classify the nutritional profile. Trend analysis was verified using multinomial logistic regression ($p < 0.05$).

Results: Mean occurrences were 2.11% for underweight, 22.27% for overweight, and 6.8% for obesity. There was a decrease of underweight in male adolescents from period I to II, as well as an increase in female children from period II to III. Regarding overweight, there was an increase followed by a decrease in male children. Regarding obesity, there was an increase from period I to II in all age groups and for both genders.

Conclusion: The prevalence of underweight was less than 5% in all categories of age and gender. However, the categories of overweight and obesity showed higher values, and together comprised almost 30% of the young Brazilian population; moreover, a trend toward increase in prevalence of obesity was observed up to the year 2008, followed by the maintenance of these high prevalence rates.

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[☆] Please cite this article as: Flores LS, Gaya AR, Petersen RD, Gaya AC. Trends of underweight, overweight, and obesity in Brazilian children and adolescents. J Pediatr (Rio J). 2013;89:456–61.

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PALAVRAS-CHAVE

IMC;
Desnutrição;
Sobrepeso;
Obesidade;
Crianças e
adolescentes

Tendência do baixo peso, sobrepeso e obesidade de crianças e adolescentes brasileiros**Resumo**

Objetivo: Descrever e analisar a tendência da ocorrência do baixo peso, sobrepeso e obesidade de escolares.

Métodos: Estudo longitudinal de tendência realizado em uma amostra voluntária de crianças e adolescentes brasileiros. A amostra foi agrupada em ano de coleta (Período I: 2005 e 2006; Período II: 2007 e 2008; e Período III: 2009 a 2011), categoria de idade (crianças: sete a 10 anos, e adolescentes: 11 a 14 anos), e estratificada por sexo. O índice de massa corporal foi utilizado para classificar o perfil nutricional. A análise da tendência foi verificada através da Regressão Logística Multinomial ($p < 0,05$).

Resultados: As médias de ocorrências foram de 2,11% no baixo peso, 22,27% no sobrepeso e 6,8% na obesidade. Identificou-se chance do baixo peso diminuir do período I para o II nos adolescentes do sexo masculino, e de aumentar nas crianças do sexo feminino do período II para o III. No sobrepeso, encontramos chance de aumento seguida de diminuição nas crianças do sexo masculino. Na obesidade, em todas as categorias de idade e em ambos os sexos, houve chance de aumento do período I para o II.

Conclusão: A prevalência do baixo peso apresenta valores menores que 5% em todas as categorias de idade e sexo. No entanto, na categoria do sobrepeso e da obesidade, encontramos ocorrências mais elevadas, atingindo, juntas, quase 30% da população infanto-juvenil brasileira; além disso, evidenciamos uma chance de aumento na prevalência da obesidade até o ano de 2008 e, após, uma manutenção destas altas prevalências.

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Introduction

The study of the nutritional profile of children and young individuals has been justified by its usefulness in the context of public health, human development, and also due to its contribution to different areas of science.¹ Studies that analyze representative population samples allow for the mapping and assessment of the magnitude of nutritional disorders and, additionally, when evaluated over systematic periods, the identification of trends of nutritional disorders.

The Brazilian population is undergoing a nutritional transition, characterized by a decrease in malnutrition and increase in childhood overweight and obesity.²⁻⁵ Malnutrition, considered a severe problem in the last century, has shown a decrease of over 60% from 1996 to 2007,⁴ differently from overweight and obesity, which have increased at an alarming rate among young individuals in recent decades.^{6,7} Studies have shown an increased risk of children and adolescents with overweight and obesity to become obese adults.⁸ Obesity is also a risk factor for the development of other diseases, such as metabolic syndrome⁹ and cardiovascular disease,¹⁰ which makes it extremely important to develop strategies to fight this nutritional disorder. Oliveira et al.¹¹ suggested that interventions should be performed in children younger than ten years or in adolescence, rather than in adulthood, as it would further reduce the severity of diseases associated with obesity.

The understanding of the nutritional profile throughout time seems to be the main basis for the development of effective public health actions. In population studies, monitoring the body mass index (BMI) has been established as an important diagnostic method for nutritional profile

assessment,¹² whose use is justified by its simplicity. Its efficiency and importance have been recognized by the main global health organizations, such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC).^{13,14}

Thus, this study aimed to describe and analyze the trend of occurrence of underweight, overweight, and obesity in Brazilian children and adolescents during the period of 2005-2011.

Methods**Population and Sample**

The data of the present study were obtained from the Brazil Sports Project database (Projeto Esporte Brasil - PROESP-Br),¹⁵ a permanent recording of indicators of growth, and body and motor development, as well as of the nutritional status of Brazilian children and adolescents aged 6 to 17 years. Assessments are carried out by schoolteachers who voluntarily contact the project through the website (www.proesp.ufrgs.br).¹⁶ There, teachers can seek information on the tests applied by the project, interpretation of results, and procedures used to send the collected data, which is performed at the teacher's discretion.

The sample consisted of all students from the different Brazilian regions enrolled in the PROESP-Br database from 2005 to 2011, aged 7 to 14 years, who had undergone the body mass and height tests, and who were mostly from the Southern region (50% from the South, 30% from the Southeast, 10% from the Midwest, and 10% from the North and

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