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ORIGINAL ARTICLE

Prevalence of abdominal obesity in adolescents: association between sociodemographic factors and lifestyle

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KEYWORDS
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Abstract
Objective: To estimate the prevalence of abdominal obesity and verify the association with sociodemographic factors (gender, school shift, ethnicity, age, maternal education and economic status) and lifestyle (alcohol consumption, sleep, soft drink consumption, level of physical activity and sedentary behavior) in adolescents in Southern Brazil.
Methods: This was a cross-sectional epidemiological study of 930 adolescents (490 girls) aged 14–19 years, living in the city of São José, SC, Brazil. A self-administered questionnaire was used to collect sociodemographic and lifestyle data. Abdominal obesity was measured through the waist circumference and analyzed according to gender and age. Descriptive statistics (absolute and relative frequency, mean and standard deviation) and binary logistic regression, expressed as *Odds Ratios* (OR) and 95% confidence interval (95%CI) were employed, with $p<0.05$ being considered statistically significant; the SPSS 17.0 software was used for the statistical analyses.
Results: The prevalence of abdominal obesity was 10.6% for the total sample (10.5% male, 10.8% female). Adolescents that watched television daily for two or more hours (OR=2.11, 95%CI 1.08–4.13) had a higher chance of having abdominal obesity and adolescents whose mothers had fewer than eight years of schooling (OR=0.56; 95%CI from 0.35 to 0.91) had a lower chance of having abdominal obesity.
Conclusions: Approximately one in 10 adolescents had abdominal obesity; the associated factors were maternal schooling (≥8 years) and television screen time (≥2h/day).

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PALAVRAS-CHAVE
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Prevalência de obesidade abdominal em adolescentes: associação entre fatores sociodemográficos e estilo de vida

Resumo

Objetivo: Estimar a prevalência de obesidade abdominal e verificar a associação com fatores sociodemográficos (sexo, turno de estudo, cor da pele, idade, escolaridade materna e nível econômico) e o estilo de vida (consumo de álcool, sono, consumo de refrigerante, nível de atividade física e comportamento sedentário) em adolescentes do Sul do Brasil.

Métodos: Estudo epidemiológico descritivo transversal, feito com 930 adolescentes (490 do sexo feminino) de 14–19 anos de São José, SC, Brasil. Usou-se questionário autoadministrado para coletar dados sociodemográficos e do estilo de vida. A obesidade abdominal foi avaliada pelo perímetro da cintura e analisada de acordo com sexo e idade. Empregou-se estatística descritiva (frequência absoluta e relativa, média e desvio padrão) e regressão logística binária, expressa em *Odds Ratio* (OR) e intervalo de confiança de 95% (IC95%), foi significativo $p<0,05$ e usou-se o *software SPSS* 17.0.

Resultados: A prevalência de obesidade abdominal foi de 10,6% para mostra total (10,5% masculino; 10,8% feminino). Adolescentes que assistiam à televisão diariamente por duas ou mais horas (OR=2,11; IC95% 1,08–4,13) apresentaram maiores chances de obesidade abdominal e os adolescentes cujas mães tinham escolaridade inferior a oito anos (OR=0,56; IC95% 0,35–0,91) tiveram menor chance de obesidade abdominal.

Conclusões: Aproximadamente um a cada 10 adolescentes apresentou obesidade abdominal, os fatores associados foram a escolaridade materna (≥8 anos) e o tempo de tela de televisão (≥2 horas/dia).

Introduction

Abdominal fat accumulation in adolescents is an independent risk factor for chronic disease, such as hypertension, fatty liver, insulin resistance, and type II diabetes,[1,2] as well association with metabolic syndrome in adolescence and adulthood.[2] Waist circumference (WC) is one way to assess abdominal obesity (AO), described as an anthropometric indicator of easy applicability and accuracy.[3]

The literature reports different prevalence of AO, which shows differences and/or cultural and social similarities.[4] Park et al.[1] found difference in prevalence of AO when comparing adolescents aged 12–19 years in the United States and South Korea (34.7% and 8.4%, respectively). Schröder et al.[5] described AO prevalence of 11.6% when investigating Spanish adolescents aged 12–17 years. These differences in AO prevalence are also seen in Brazil. A study conducted with adolescents from Maranhão (Northeast region) showed a prevalence of 22.7%.[6] Silva et al.[7] in a study with 1065 adolescents (aged 14–17 years) found 2.1% of AO prevalence in the Southeast region (Minas Gerais) and 6.3% in the South region (Santa Catarina). Also in the South region, studies performed in Curitiba[8] and Saudades[9] found AO prevalence of 12.2% and 13.3% in adolescents, respectively.

Evidence of AO association with sociodemographic factors and lifestyle are still unclear. Although it is seen that female adolescents have higher percentages of body fat,[10] there is a tendency in the literature to describe higher prevalence of AO in males,[5,7,8] but there is no consensus on the relationship between AO and sex in adolescents.[4] There are also discrepancies in the findings regarding the economic level, with studies showing a higher prevalence of AO in countries with higher economic levels,[4] at the same time that investigations in regions with lower economic levels also showed a high prevalence of AO.[7,8] Researches that found excessive consumption of soft drinks in adolescents found no association with AO,[11,12] even knowing that inadequate diets and high sugar intake are associated with higher prevalence of AO.

Taking into account that AO entails risks to the health of adolescents and implications throughout life and that the possible combinations of AO with sociodemographic factors and lifestyle are not yet clear, the prevalence of AO in adolescents and possible associated factors should be investigated. The aim of this study was to estimate AO prevalence and its association with sociodemographic factors and lifestyle among adolescents in a city in the South region of Brazil.

Method

The population of this epidemiological, cross-sectional study was composed of adolescents, aged 14–19 years, enrolled in high school in São José, Santa Catarina, Brazil. This study was approved by the Institutional Review Board of the Federal University of Santa Catarina (CAAE: 33210414.3.0000.0121).

The sample was determined in two stages: stratified by state public high schools (according to the number of students per school) and conglomerate classes, considering school shift and school grade. To determine the sample size, we followed the procedures suggested by Luiz and Magnanini,[13] from the finite population. A population of 5182