## ORIGINAL ARTICLE

# Prevalence and factors associated with the co-occurrence of health risk behaviors in adolescents 

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## KEYWORDS

Risk behaviors;
Adolescent;
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#### Abstract

Objective: To analyze the prevalence and factors associated with the co-occurrence of health risk behaviors in adolescents. Methods: A cross-sectional study was performed with a sample of high school students from state public schools in Pernambuco, Brazil ( $n=4207,14-19$ years old). Data were obtained using a questionnaire. The co-occurrence of health risk behaviors was established based on the sum of five behavioral risk factors (low physical activity, sedentary behavior, low consumption of fruits/vegetables, alcohol consumption and tobacco use). The independent variables were gender, age group, time of day attending school, school size, maternal education, occupational status, skin color, geographic region and place of residence. Data were analyzed by ordinal logistic regression with proportional odds model. Results: Approximately $10 \%$ of adolescents were not exposed to health risk behaviors, while $58.5 \%$ reported being exposed to at least two health risk behaviors simultaneously. There was a higher likelihood of co-occurrence of health risk behaviors among adolescents in the older age group, with intermediate maternal education ( $9-11$ years of schooling), and who reported living in the driest (semi-arid) region of the state of Pernambuco. Adolescents who reported having a job and living in rural areas had a lower likelihood of co-occurrence of risk behaviors. Conclusions: The findings suggest a high prevalence of co-occurrence of health risk behaviors in this group of adolescents, with a higher chance in five subgroups (older age, intermediate maternal education, the ones that reported not working, those living in urban areas and in the driest region of the state).


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## PALAVRAS-CHAVE

Comportamentos de
risco;
Adolescente;
Epidemiologia

Prevalência e fatores associados à simultaneidade de comportamentos de risco à saúde em adolescentes

Resumo
Objetivo: Analisar a prevalência e os fatores associados à simultaneidade de comportamentos de risco à saúde em adolescentes.
Métodos: Estudo transversal feito com amostra representativa de estudantes do ensino médio da rede pública estadual de Pernambuco ( $n=4.207,14-19$ anos). Os dados foram obtidos mediante questionário. A simultaneidade de comportamentos de risco à saúde foi determinada pelo somatório da exposição dos adolescentes a cinco comportamentos de risco (baixo nível de atividade física, comportamento sedentário, consumo ocasional de frutas/hortaliças, consumo de bebidas alcoólicas e tabagismo). As variáveis independentes foram sexo, faixa etária, turno, porte da escola, escolaridade materna, situação ocupacional, cor da pele, região geográfica e local de residência. Os dados foram analisados por meio de regressão logística ordinal com modelo de odds proporcionais.
Resultados: Aproximadamente 10\% dos adolescentes não estavam expostos a comportamentos de risco, enquanto $58,5 \%$ apresentaram dois ou mais comportamentos de forma simultânea. Verificou-se elevação da simultaneidade de comportamentos de risco com aumento da faixa etária, com escolaridade materna intermediária ( $9-11$ anos de estudo) e residência na Região Semiárido. Adolescentes que referiram trabalhar e aqueles que residiam em área rural apresentaram menor chance de simultaneidade de comportamentos de risco.
Conclusões: Os achados indicam uma alta prevalência de exposição simultânea a comportamentos de risco à saúde nesse grupo de adolescentes. Identificaram-se cinco subgrupos de maior chance de exposição (faixa etária mais alta, escolaridade materna intermediária, aqueles que referiram não trabalhar, residir em área urbana e na Região Semiárido).
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## Introduction

Over the past decades, exposure to health risk behaviors has become one of the most widely investigated subjects in studies with young populations. ${ }^{1,2}$ The interest in investigations focusing on this subject can be explained, at least in part, by the fact that such behaviors can be established and incorporated into the lifestyle at an early age, ${ }^{3,4}$ and due to their connection with biological risk factors ${ }^{5}$ and the presence of established metabolic or cardiovascular disease (CVD). ${ }^{6}$

The prevalence of co-occurrence of health risk behaviors in adolescents has been described in several studies. ${ }^{7-17}$ However, it was observed that the studies developed in Brazil, except for the survey performed by Farias Júnior et al., ${ }^{15}$ relied on very specific samples: laboratory school students ${ }^{17}$ and day-shift students from public schools in a city from southern Brazil. ${ }^{16}$ Therefore, the results of these studies cannot be extrapolated to other regions of the country due to socioeconomic and cultural contrasts, which are known to differentiate the exposure to health risk behaviors, as reported by Nahas et al. ${ }^{18}$

Epidemiological surveys on the co-occurrence of health risk behaviors in adolescents and their associated factors can help to identify risk groups and to monitor the health levels of this population, which can support the development of public policies to promote health, using earlier intervention strategies to prevent these habits. Thus, the aim of this
study was to analyze the prevalence and factors associated with co-occurrence of health risk behaviors in adolescents.

## Method

This is a secondary analysis of data from a cross-sectional epidemiological survey, school-based and statewide (state of Pernambuco, Brazil), called "Lifestyle and health risk behaviors in adolescents: from prevalence study to intervention'". The research protocol was approved by the Institutional Review Board of Hospital Agamenon Magalhães, in compliance with the standards established in Resolutions 196 and 251 by the National Health Council.

The target population, estimated at 352,829 individuals, according to data from the Education and Culture Secretariat of the State of Pernambuco, consisted of high-school students enrolled in public schools, aged 14-19 years. The following parameters were used to calculate sample size: $95 \%$ confidence interval; sampling error of $3 \%$ points; prevalence estimated at 50\% (this option was chosen based on the multiple factors analyzed in the study), and the effect of sample design, established at four times the minimum sample size. Based on these parameters, the calculated sample size was 4217 students.

Considering the sampling process, we tried to ensure that the selected students represented the target population regarding the geographic regions (metropolitan area, forest

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