

RISK FACTORS ASSOCIATED WITH THE EXPOSURE OF SEDENTARY BEHAVIOR IN SCHOOL STUDENTS

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Abstract: In adolescence, patterns of behavior are acquired, which are often not considered adequate. In this sense, risk behaviors appear among the main causes of morbidities and early mortality. Objective to identify risk factors associated with sedentary behavior in schoolchildren. With a sample of 1,170 students. An adapted questionnaire from COMPAC was used, age group in full years (< 16 years” and “≥ 16 years). We identified that the prevalence of sedentary behavior was 77.9%. Majority <16 years old, female, with family income less than two minimum wages. The significant associations for sedentary behavior were tobacco consumption and occupation, which are the factors that can lead to greater risks. Thus, we conclude that health strategies aimed at reducing sedentary behavior are necessary, together with the institutions where the study population is inserted.

Keywords: Screen time; Teenagers; risk behavior.

INTRODUCTION

Adolescence can be characterized as a phase in which biological, psychological, social and cognitive transformations are evident. It is also a phase of need for individual and social affirmation, as well as a transition to adult life. It is precisely at this stage that the adolescent begins to acquire behavioral patterns, which are often not considered appropriate. (ARAÚJO et al., 2018; LUND et al., 2021)

In this sense, among other risk behaviors, physical inactivity, inadequate eating habits, excessive consumption of alcohol and tobacco, appear among the main causes of morbidities and early mortality in both developed and developing countries, which can be modified even in childhood, avoiding involvement in adult life. (PELEGRINI et al., 2021; TORNQUIST et al., 2022), sedentary behavior (SC) is also included, which has

been well investigated in recent years and has come to the attention of researchers, where there is scientific evidence that indicate that adolescents with this type of high behavior maintained it, also in adult life (WORLD HEALTH ORGANIZATION [WHO], 2011).

CS can be defined as a set of activities with energy expenditure close to resting values, usually performed in a sitting position, including activities such as watching television, using the computer, playing video games, talking on the phone, hanging out with friends (PITANGA et al., 2019).

This behavior has been widely studied and discussed in the scientific community due to its associations with risk for cardiovascular diseases, mortality, obesity and diabetes, in addition to increased functional disability, mainly due to its relationship with decreased muscle strength (MENDES et al., 2013; RADDI et al., 2014), its elevation is something that has already been growing in the young Brazilian population.

A systematic review study, an update of the systematic review of Report Card Brasil (SILVA et al., 2021), indicated that among the 159 selected studies on sedentary behavior in children and adolescents in Brazil, most research is carried out in the south of the country and whereas studies on sedentary behavior involving children under seven years old are still scarce, the first studies on sedentary behavior mainly investigated the use of TV (BIDDLE et al., 2010; HANCOX; MILNE; POULTON, 2004).

However, the use of devices with a screen has changed in recent years, especially among the younger population. Evidence highlights the replacement of TV time by other screen devices, such as video games and smartphones (BORDON et al., 2019).

The accumulation of evidence in the scientific literature suggests that CS appears to be a predictive factor for several metabolic

and cardiovascular pathologies, justifying a greater engagement of adolescents in all forms of PA (TREMBLAY et al., 2016)

The study is justified by the need to carry out an epidemiological survey, to identify the prevalence of these behaviors, as well as the associated factors, with the purpose of serving as a basis for the creation of future interventions to modify such behaviors.

Therefore, we aimed to identify the risk factors associated with sedentary behavior in schoolchildren.

METHODS

This is a school-based analytical descriptive study, resulting from the monitoring of health risk behaviors in schoolchildren in the city of Jequié, Bahia, Brazil. The sample was chosen randomly, proportionally and by the two-stage clustering method (BARBOSA FILHO; CAMPOS; LOPES, 2012).

Initially, 3,040 students were selected, from 98 classes, from all state public schools in the municipality, duly enrolled in regular secondary education. Next, stratified classes were selected, with probability proportional to the size of the schools, that is, 48 classes were selected by lot among the 98 existing ones, reaching a number of 1,363 students to compose the sample, considering an average of 31 students per class. Data collection took place in July and August, in 2015.

For this study, we chose to use all schools that offered regular secondary education in the morning and afternoon shifts and in the urban area of the municipality ($n = 12$), where there was no refusal to participate on the part of the managers. Schools in rural areas, urban schools that only offered teaching at night and the Military Police College, whose Physical Education teaching model differs from other regular schools, were excluded.

The parameter for determining the sample size was the estimated prevalence of the

phenomenon which, due to the large number of variables to be studied, was 50%. The confidence interval adopted was 95% and a maximum error of three percentage points was used. However, as the sample was made up of conglomerates, for design purposes, this value was multiplied by 1.5, still 15% for cases of losses or refusals.

An adapted questionnaire was used (self-reported health risk behaviors in schoolchildren), based on a validated instrument (COMPAC) (SILVA et al., 2013) and, previously tested, being applied in the classroom by previously trained researchers, lasting average of 28 minutes. Being: sedentary behavior, questions related to screen time were used: "How many hours a day do you watch TV during the week and/or on weekends?" and "How many hours a day do you use the computer during the week and/or on weekends?", with the answer option less than or equal to 2 hours and greater than two hours, the values of the answers were added and dichotomized into (< 8 hours/day and ≥ 8 hours/day).

The sociodemographic variables used were: gender (male and female); age range in complete years, later dichotomized into " < 16 years" and " ≥ 16 years"; occupation (work and not work); marital status (single or married); mother's education (< 8 years of study and ≥ 8 years of study) and monthly family income (< 2 minimum wages and ≥ 2 minimum wages). During the data collection period, a minimum wage corresponded to R\$ 788.00.

To identify the level of physical activity, a variable related to lifestyle, a question about the frequency and a question about the duration of physical activity were used (BARBOSA FILHO; CAMPOS; LOPES, 2012), where those who did not accumulate the minimum recommended at least five days a week and 60 minutes a day of moderate to vigorous activity were considered insufficiently active.

For the consumption of fruits and vegetables, the consumption of a daily portion (fruits or vegetables) was used as a criterion (BARBOSA FILHO; CAMPOS; LOPES, 2012), categorized as inadequate consumption “< 5 days/week” and adequate “≥ 5 days/week”.

The consumption of snacks (coxinha, pastry, fries...); Sweets (cakes, pies, donuts, ice cream...) and soft drinks were answered about the frequency of consumption on days of a typical week and categorized into “yes and “no”. The consumption of alcoholic beverages was determined, regardless of the number of doses, and categorized into “yes” and “no”. Finally, for tobacco consumption, it was used as a criterion, regardless of the number of cigarettes⁶ and categorized into “yes” and “no”.

For the statistical analysis of the data, the statistical package SPSS version 21.0[®] for Windows will be used. A 95% confidence interval ($p < 0.05$) will be adopted for data analysis and interpretation.

The descriptive analysis of the data served to characterize the sample, with frequency distribution, measure of central tendency (mean) and dispersion (range of variation, standard deviation and confidence interval), as well as to determine the prevalence of excessive sedentary behavior, inadequate eating habits, tobacco consumption, alcohol, insufficient levels of PA, and sleep rhythm.

The inferential statistics will be defined from the prevalence values of excessive sedentary behavior (HIRAKATA; DANILUK, 2009), where all variables will be initially included in the model and will be maintained in the next stages, those with p value < 0.20 . The analysis method will be Stepwise Backward.

Dependent Variable: Excessive Sedentary Behavior (screen time)

Independent variables: Demographics (gender + age group);

Socioeconomic (mother’s education +

marital status + monthly family income);

Risk behaviors: (TV time + computer/ game/ time + sitting time + sleep rhythm + eating habits + alcohol consumption + tobacco consumption).

The study followed the ethical standards for research with human beings (Resolution nº 466/2012 of the National Health Council) and was approved by an Ethics Committee in Research with Human Beings of “` Universidade Estadual do Sudoeste da Bahia`”, with opinion number 83,957 /14. The students delivered the Terms of Consent and Assent duly signed for the authorization of data collection. In cases of minors under 18, parents or guardians signed the term.

RESULTS

1,170 students were analyzed, with parental authorization. According to the exclusion criteria, 12 students left the sample due to refusals and incomplete data. The descriptive characteristics of the participants are shown in Table 1. The percentage of SC prevalence was 77.9%. The highest proportions identified were: <16 years old (52.1%), female (57.9%) and single (88.5%), in addition, 71.3% reported having a family income of less than two minimum wages -minimum. Regarding lifestyle, we observed that 54.8% were those who mentioned having an inadequate intake of fruit, on the other hand, 83.9% claimed to consume at least 1 glass of soft drinks during a typical week. In addition, 23.8% reported drinking at least one glass of alcohol and 5.9% reported having a smoking habit, regardless of the number of cigarettes smoked per day (Table 1).

After crude analysis (Table 2), CS was significantly associated with age (PR= 1.05; CI95%; 0.98 - 1.11), occupation (PR= 1.18; CI95%; 1.07 - 1.30), mother’s education (RP= 0.93; 95%CI; 0.87 - 0.99) family income (RP= 0.89; 95%CI 0.84 - 0.95), fruit consumption

Variables	n	%
Dependents		
Sedentary Behavior		
< 8 hours/day	256	22,1
≥8 hours/ day	902	77,9
Independent		
Sociodemographic		
Gender		
Male	491	42,1
Female	678	57,9
Age (years)		
<16	609	52,1
≥ 16	561	47,9
Occupation		
The person does not work	952	81,4
The person works	218	18,6
Marital status		
Single	1035	88,5
Married	135	11,5
Mother's education (years of study)		
<8 years	445	38,0
>8 years	725	62,0
Monthly Family Income (minimum)		
< 02 Salaries	834	71,3
> 02 Salaries	336	28,7
Way of life		
Level of Physical Activity		
Not enough	953	81,5
Enough	217	18,5
Overweight		
No	975	87,4
Yes	140	12,6
Sleep rhythm		
<6h	1.078	92,5
>6h	88	7,5
Fruit Consumption		
Inadequate	634	54,8
Adequate	522	45,2
Consumption of Vegetables		
Inadequate	693	60,8
Adequate	446	39,2
Salty Products Consumption		
No	137	12

Yes	1002	88
Sweet Products consumption		
No	88	7,7
Yes	1051	92,3
Soft drink consumption		
No	183	16,1
Yes	956	83,9
Alcohol consumption		
No	887	76,2
Yes	277	23,8
Tobacco consumption		
No	1101	94,1
Yes	69	5,9

Table 1. Descriptive characteristics of the sample. Jequié, Bahia, Brazil, 2015.

Variables	Gross PR IC95%	p	Adjusted PR IC95%	p
Age (years)				
< 16	1,05 (0,98-1,11)	0,14	1,02 (0,95-1,09)	0,48
≥ 16	1		1	
Occupation				
The person does not work	1,18(1,07-1,30)	0,001	1,19(1,07-1,31)	0,001
The person works	1			
Mother's education				
< 08 years of study	0,93(0,87-0,99)	0,04	0,95(0,89-1,02)	0,23
≥ 08 years of study	1		1	
Monthly family income				
< 02 Salaries	0,89(0,840,95)	0,001	0,93(0,87-0,99)	0,03
≥ 02 Salaries	1		1	
Fruit consumption				
Inadequate	0,94(0,89-1,0)	0,08	0,95(0,89-1,01)	0,12
Adequate	1		1	
Alcohol consumption				
No	1,06(0,99-1,13)	0,09	1,03(0,96-1,11)	0,35
Yes	1		1	
Tobacco consumption				
No	1,13(1,03-1,25)	0,008	1,13(1,01-1,25)	0,02
Yes	1		1	
Soda consumption				
No	0,91(0,93-1,0)	0,06	0,92(0,83-1,01)	0,10
Yes	1		1	

Table 2. Crude and adjusted analysis of variables after association with CS

RP: Prevalence ratio; CI: confidence interval.

inadequate (PR= 0.94; CI95%; 0.89 - 1.0), tobacco consumption (PR= 1.13 CI95%; 1.03-1.25) and consumption of soft drinks (PR= 0, 91; 95%CI; 0.93 - 1.0). When adjusted, occupation (PR= 1.19; 95%CI; 1.07 - 1.31), family income (RP= 0.93; 95%CI 0.87 - 0.99) and tobacco consumption (PR= 1.13 95% CI; 1.01-1.25) remained statistically significant ($p < 0.03$). It was found that family income < 2 minimum wages was a protective factor for exposure to sedentary behavior, on the other hand, occupation and tobacco consumption proved to be a risk factor for the outcome (Table 2).

DISCUSSION

A school-based cross-sectional study, carried out in the northern region of Brazil, aimed to investigate the prevalence and factors associated with screen time in children and adolescents, and had a representative sample of 1471 schoolchildren aged 9 to 18 years. of age, identified a general prevalence of exposure to CS of 65.9%, where the students most exposed to this outcome had the following characteristics: male, age less than or equal to 14 years, students in the fifth, sixth and seventh grade of elementary school, participation in physical education classes less than or equal to two hours a week, eating more than three meals a day and having excess body fat (DOS SANTOS FARIAS et al., 2021)

In a similar study, family income was also an important factor for the increase in SC in relation to other variables (BARNETT et al., 2021), we observed that the possible causes may be related to family members spending more time away from home, thus the sample population tends to carry out tasks for a longer time in CS, relating these findings to the fact that the majority are adolescents < 16 years old, who do not leave their homes without the accompaniment of a responsible person. Data from a survey of students in the interior

of São Paulo with a very high HDI (0.811), with the participation of 703 elementary school students between 9 and 10 years old, demonstrated a positive correlation between the Body Mass Index (BMI) and the screen time, especially TV time in children of higher social status, the authors draw attention to the need for interventions to be carried out in this regard (BORDON et al., 2019).

Another risk behavior that deserves attention is tobacco consumption. Although consumption has decreased among young Brazilians from a prevalence of 32.7% in 1997 to 14.8% in 2011 (SILVA et al., 2014). Socio-environmental and family facilities can encourage adolescents to start the habit of smoking (ARAÚJO, 2010). Usually, the first initiation experiences are driven, in favorable environments, such as at home or at school, by living in groups, whose leaders, teachers, idols or youth icons smoke (GONÇALVES et al., 2008). Our findings corroborate the trend towards a decrease in this consumption, although consumption has increased in recent years among adolescents in the school environment (WHO, 2011). According to another study (ARUMI-PRAT et al., 2022), after adolescence, the consumption of alcohol, tobacco and inadequate fruit intake are predominant factors for the probability of an increase in CS, since their habits change in relation to their lifestyle. of new life, such as starting a job or entering college.

A possible limitation of the study is that information on the analysis variables was obtained through self-reported questionnaires, which can lead to memory bias. of small size.

FINAL CONSIDERATIONS

School Physical Education can play a key role in healthy behavior outside the school environment, for example: the decrease in CS, non-drug consumption and

greater engagement in physical activities, so monitoring from childhood to early adulthood is of paramount importance for preventing inappropriate habits and reducing possible health risk factors. The discussions related to

the subject up to the present moment focus on the main historical differences that influence the SC of the students, information that enables the development of actions that stimulate the active behavior of these individuals.

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