

PRESENCE OF RISK FACTORS FOR CARDIOVASCULAR DISEASE IN ADOLESCENTS

PRESENÇA DE FATORES DE RISCO PARA DOENÇAS CARDIOVASCULARES EM ADOLESCENTES

PRESENCIA DE FACTORES DE RIESGO DE ENFERMEDADES CARDIOVASCULARES EN ADOLESCENTES

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ABSTRACT

Cardiovascular diseases are the main reasons for morbidity and mortality in world. Some risk factors adopted in adolescence may be present until adulthood, increasing the population's predisposition to the development of these diseases. Identify risk factors for the development of cardiovascular disease in adolescents. A descriptive, transversal and exploratory research, consisting of a sample of 208 students. Eating habits, lifestyle, sociodemographic profile and physical profile were evaluated through a structured questionnaire. 208 adolescents were evaluated, where the male sex was predominant 55%, the average age was 16.37 ± 0.85 years. The most evident factors were sedentary lifestyle 51%, followed by excessive consumption of foods rich in sodium and fat (79%). Risk factors for cardiovascular disease were identified, such as sedentary lifestyle, excessive consumption of sodium (82%) and fat (85%) and both (79%).

Keywords: *Cardiovascular Diseases; Adolescent Health; Risk Factors.*

RESUMO

As doenças cardiovasculares são os principais motivos de morbimortalidade no mundo. Alguns fatores de risco adotados na fase da adolescência podem estar presentes até a vida adulta, aumentando a predisposição ao desenvolvimento dessas doenças na população. Identificar os fatores de risco para o desenvolvimento das doenças cardiovasculares em adolescentes. Uma pesquisa de caráter descritivo, transversal e exploratório, composto por uma amostra de 208 alunos. Foram avaliados os hábitos alimentares, estilo de vida, perfil sociodemográfico e perfil físico, por meio de questionário estruturado. Foram avaliados 208 adolescentes, sendo que o sexo masculino foi predominante (55%); a média de idade foi de $16,37 \pm 0,85$ anos. Os fatores mais evidentes foram o sedentarismo (51%), seguido do consumo excessivo de alimentos ricos em sódio e gordura (79%). Foram identificados fatores de risco para doenças cardiovasculares, como o sedentarismo, consumo excessivo de sódio (82%), consumo de gordura (85%) e ambos (79%).

Palavras-Chave: *Doenças Cardiovasculares; Saúde do Adolescente; Fatores de Risco.*

RESUMEN

Las enfermedades cardiovasculares son las principales causas de morbilidad y mortalidad en mundo. Algunos factores de riesgo adoptados en la adolescencia pueden estar presentes hasta la edad adulta, aumentando la predisposición de la población al desarrollo de estas enfermedades. Identificar factores de riesgo para el desarrollo de enfermedad cardiovascular en adolescentes. Investigación descriptiva, transversal y exploratoria, conformada por una muestra de 208 estudiantes. Se evaluaron hábitos alimentarios, estilo de vida, perfil sociodemográfico y físico mediante un cuestionario estructurado. Se evaluaron 208 adolescentes, donde predominó el sexo masculino 55%, la edad promedio fue de $16,37 \pm 0,85$ años. Los factores más evidentes fueron el sedentarismo 51%, seguido del consumo excesivo de alimentos ricos en sodio y grasas (79%). Se identificaron factores de riesgo de enfermedad cardiovascular, como el sedentarismo, el consumo excesivo de sodio (82%) y grasas (85%) y ambos (79%).

Palabras Clave *Enfermedades Cardiovasculares; Salud Adolescente; Factores de Riesgo.*

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INTRODUCTION

Diseases of the cardiovascular system are considered one of the main reasons for morbidity and mortality on the planet and its incidence is increasing in countries in the process of development. Borges et al.¹ draw attention to an intense shock caused by these problems in less benefited social classes, referring to them as the main cause of death in Brazil, with an average of 30% in some specific age groups.

Data from the Pan American Health Organization (PAHO)² showed that, in the year of 2015, an estimated 17.7 million people died from the diseases cardiovascular diseases (CVD's), reaching a percentage of 31% worldwide. about ¾ of population deaths reached low-income and middle-income countries.

The Brazilian Society of Cardiology (SBC)³, through the Cardiometer, an instrument online that indicates the number of deaths caused by CVD's in Brazil, calculated an estimate of 345,111 thousand deaths in the year of 2015. In the year of 2016, the estimate reached 349,938,000, proving the high incidence that these diseases have been causing in our population.

According to Eyken et al.⁴, 80% of deaths caused by these diseases are associated with risk factors already present in our environment. According to Ribeiro et al.⁵, the main modifiable risk factors for heart disease are: incorrect eating habits, obesity, sedentary lifestyle, lifestyle and smoking.

In the study led by Junior et al⁶., carried out with young people aged 14 to 17 years old who were attending high school, it was found that 51.4% of the assessed adolescents had more than two risk factors for such diseases, in agreement with data from the study by Brito et al.⁷, in which 64.3% of male and female adolescents 50.6% of females presented weight above recommended.

Ribas and Silva⁸ evaluated 571 individuals, with overweight, dyslipidemia, sedentary lifestyle and family members who had a cardiovascular

disease were the factors of most identified risks. About 39% of the children who were evaluated in this study had three or more risk factors.

From this, international bodies have been recommending programs that offer health promotion in educational institutions, as the period of adolescence is the appropriate time to formulate combat-oriented intervention strategies of heart disease. There is ample evidence that these illnesses originate in this period of life. It should also be remembered that some risk factors adopted in adolescence may be present until adulthood, increasing the population's predisposition to the development of these diseases⁹.

Although there are several studies and several investments aimed at controlling these diseases, the numbers of deaths and disabilities have changed little. Programs aimed at promoting health and changes in lifestyle that harm health are the ones that most bring satisfactory results¹.

The services offered by Primary Health Care (PHC) are important for systems that integrate health, as the high prevalence of heart disease in our society is recurrent. Without these services, patients suffering from diseases of the circulatory system are more likely to be hospitalized, leading to a weakness in their bodily functions and, through this, acquiring comorbidities¹⁰.

Linked to this context, the Ministry of Education (MEC) implemented the Program Health in Schools (PSE)¹¹, which seeks a permanent relationship between institutions of education and health, offering a better quality of life to our population. The purpose of The program is to provide reinforcement for the full training of students, through actions that offer promotion, prevention and health care, facing the problems that affect the development of students in the public school system.

To achieve positive effectiveness in these actions, the school shows itself as a place appropriate for this practice, aiming at advancing the quality of health and nutritional status. it is a favorable environment for the consolidation

of health promotion initiatives, offering support to human development and harmonious relationships that contribute to its growth¹².

Given the above, this study aimed to verify in a school public state, in the city of Fortaleza, what is the frequency of adolescents aged 14 to 19 years who present risk factors for CVD's. Once such factors are identified in adolescence, it is possible to implement health promotion and prevention actions, reversing this scenario before it causes more complex compromises to the health of these individuals.

METHODS

It was an exploratory, transversal, descriptive research of quantitative approach, consisting of high school teenagers, being held in a Full Time High School (EEMTI), located in the city of Fortaleza-CE, from March to June 2019.

The population consisted of 440 students, with a sample equal to 208 students, based on infinite sample calculation. The inclusion criteria applied were: students regularly enrolled at the school, who had the Informed Consent Form (TCLE) and the Assent Term (TA) signed by parents and students; be between 14 and 19 years old; of both sexes. Students who had a pre-existing cardiovascular disease, diabetes mellitus and who did not receive parental permission to participate in the study were excluded from the study.

The study data were collected from an evaluation through physical examination and interview, carried out in a private room of the school institution. The interview was applied through a questionnaire prepared by the authors themselves, containing information sociodemographic (name, age, sex), life habits (level of physical activity), eating habits (consumption of foods rich in sodium and fat), pre-existing diseases in the family (Diabetes, Systemic Arterial Hypertension, Stroke, Acute Myocardial Infarction) and information regarding the physical characteristics of individuals, such as height, weight, waist circumference and Body Mass Index,

which followed the Brazilian Guidelines for the Diagnosis and Treatment of Metabolic Syndrome¹⁹. Blood glucose and blood pressure were also measured. The measurements of the mentioned variables were all obtained by the researchers.

To quantify the students' blood pressure, a sphygmomanometer and Premium® brand stethoscope, and the measurement steps followed the recommendations of the 6th Ambulatory Blood Pressure Monitoring Guideline²⁰. To quantify the weight of students, we used a Livstar® brand digital scale. Blood glucose was obtained from a glucometer manufactured by Accu-Chek®, following the guidelines of the Brazilian Society of Diabetes Guidelines²¹. For greater convenience and preservation of students regarding their information interviews took place individually, in a closed room. not to have divergences in measurements, blood pressure, blood glucose, weight and obtaining the measurements waist circumference and height were performed by the same researcher.

To quantify weight and height, students were asked to remove their shoes, if positioned in the center of the scale and held their heads up, looking at a point marked on the wall. Regarding the abdominal circumference, we ask that they lift the blouse to the upper region of the umbilical scar, so that there is no false measurement.

The variables obtained from the data collection were worked from the analysis descriptive, through means and standard deviation and frequencies through percentage. The statistical treatment was performed using the Microsoft Office Excel version 2016.

The present study was approved by the Ethics and Research Committee (CEP) of the Center Estácio do Ceará University, under Protocol CEP No. 2,801,273, being according to guidelines for research involving human beings, supported by the resolution No. 510/2016, of the National Health Council (CNS).

RESULTS

A total of 208 adolescents were evaluated, 114 (55%) male and 94 (45%) female; the mean age was 16.37±0.85 years and the median equal to 16 years. Family income is described from the average, being 1.79±0.93 salaries. In Table 1 are Demographic characterization data of the individuals participating in the study were described.

Table 1 - Demographic characteristics of individuals: sex and ethnicity.

Demographic characteristics	Number of Participants	Total (%)
Sex		
M	114	55%
F	94	45%
Ethnicity		
N	23	11%
B	30	14%
A	32	15%
P	123	59%

Source – Research Data (2021).

The profile of the studied sample was characterized by a young population, with male predominance. In addition, we evidenced that a large part of the studied sample lived exclusively with the mother, the most prevalent level of education of mothers being high school (30%) and they had not completed elementary school (24%)

Table 2 - Prevalence distribution: alcoholism, smoking, physical inactivity, excessive sodium consumption and excessive consumption of fatty foods.

Variáveis	n (%)
Alcoholism	52 (25%)
Smoking	10 (5%)
Sedentary Lifestyle	107 (51%)
Excessive consumption of foods with sodium	170 (82%)
Excessive consumption of fatty foods	176 (85%)

Source – Research Data (2021).

Table 2 describes the data regarding the prevalence of sedentary lifestyle, alcohol consumption, smoking, excessive sodium intake and excessive consumption of fatty foods. Data from this study showed that 107 individuals (51%) were sedentary. Then, in Table 3, the anthropometric profiles of the students are displayed, referring to the average height, weight,

waist circumference (AC) and the Body Mass Index (BMI).

Considering the associated use of alcohol and tobacco, we identified that 9 students (4.37%) associated these two factors. Although there is a low percentage, as it is an educational institution, this can lead to negative impacts on others. students.

Table 3 - Anthropometric data of the students, referring to BMI, waist circumference, height and weight.

Variables	m ± dp
BMI	21,98±4,81
Waist Circumference	80,90±11,14
Height	1,65±0,09
Weight	60,96±13,26

* BMI: body mass index;

Source – Research Data (2021).

From the crossing of data excessive consumption of foods rich in sodium and fat, we found that 163 (79%) students evaluated ingested foods rich in sodium as in fat. When asked if they felt chest pain or tiredness after the performing physical activity, 103 (49.51%) said yes.

We did not identify the prevalence of SAH in the studied sample. The values of the pressure levels expressed from the mean were Systolic Blood Pressure (SBP) 116.9±6.3 and Diastolic Blood Pressure (DBP) 90±7.6.

Table 4 - Anthropometric data of the students, referring to BMI, AC, height and weight.

Variables	Number of Participants (%)
HAS	99 (48%)
IAM	42 (20%)
DM	105 (50%)
AVE	53 (25%)

*values described as a percentage.

Source – Research Data (2021).

Table 5 - Anthropometric data of the students, referring to BMI, AC, height and weight.

BMI	m±dp	%
Females		
>16 – 24,9 kg/m ²	20,2±2,4	32%
25 – 39,9 kg/m ²	29,2±3,6	13,6%
Males		
>16 – 24,9 kg/m ²	19,5±2,3	45,6%
25 – 39,9 kg/m ²	30,4±2,4	8,8%

* values described from mean ± and standard deviation.

Source – Research Data (2021).

Table 4 describes the data related to the family history of SAH, DM, AMI and AVE. In Table 5 we describe in more detail the data obtained from the BMI, addressing the female and male sex separately. Values are described from the mean. The use of contraceptives was another variable studied, given its relationship with development of cardiovascular diseases. From this, 14 individuals (14.9%) of the sample reported using contraceptives. We also crossed the use of contraceptives and tobacco use, as the association of these two factors increases the likelihood of developing cardiovascular risk. However, 3 students (3.19%) of the female population evaluated used tobacco and used contraceptives..

DISCUSSION

This research experienced some limitations regarding data collection. THE measuring blood pressure at a single moment does not provide us with a basis for obtaining reliable values, taking into account SAH, the main risk factor for cardiovascular diseases. Another limiting factor was the students' knowledge about family information, such as salary and comorbidities.

In this study, we can identify a high prevalence of some risk factors cardiovascular diseases among adolescent students, such as sedentary lifestyles. In addition to these factors, we also identified irregular eating habits, such as excessive consumption of foods rich in sodium and fat.

Some studies show that the relationship between the mother and the adolescent is the most influential factor in the formation of eating habits, as within the family life, mother and child share the same socioeconomic conditions, lifestyle and eating habits, interfering with their diet and in food availability¹. This fact is in line with what we identified in our research, in which a large part of the sample reported living only with the mother.

Another important finding is related to the low income and low educational level of the mothers of the evaluated students. The value of

family income is directly related to the level of schooling, directly interfering with employment opportunities and wages. Therefore, low wages have negative impacts on eating habits and the lifestyle that the family leads, as it limits the quality and quantity of food obtained from low incomes¹³.

The brown color was the most identified in our study, followed by individuals who referred to the color yellow. This finding corroborates Amorim et al.¹⁴, who, studying factors of risk in adolescents, identified that individuals with brown color constituted 54.9% of the sample. For Silva¹⁵, individuals with black color/race apparently have a potential hereditary factor related to the uptake of sodium and calcium in the cell, where the cell undergoes a greater influx of sodium and greater efflux of calcium, favoring the development of SAH. However, the black population was the least found in our study.

Sedentary lifestyle was one of the most prevalent factors in the studied population. Junior et al¹⁶. found similar results, in which the level of sedentary lifestyle among adolescents was 59.5%. The level of physical activity has direct impacts on cardiac muscle conditioning and is directly related to chronic diseases.

Incorrect eating habits were the most evident factors in our study, such as excessive consumption of foods rich in sodium and fat. These data confirm the results by Beck et al.¹⁷, in which 95.4% of the individuals consumed rich foods in saturated fatty acids and 59.4% rich in sodium.

Finally, the data pertaining to the weight of students did not express high values, positively reflecting on the BMI of these individuals. Rodrigues et al¹⁸., at the end of their study, obtained data similar to those found in this research, in which the mean weight was 50.75 ± 14.95 .

Based on these data, it is necessary to carry out health education actions, as well as regulation of canteens in schools, adapting their menu to a more nutritious and healthier diet. Another positive alternative would be to implement student health assessment protocols, disease prevention

programs, as well as workshops that address relevant topics, raising awareness of health problems that can develop from such irregular habits.

FINAL CONSIDERATIONS

The presence of risk factors for cardiovascular diseases in the adolescent population is evident. A large part of the sample in this study experiences at least two cardiovascular risk factors and more than half have three factors. Sedentary lifestyle and incorrect eating habits were the most prevalent. There are several factors that impact these factors, negatively influencing the healthy lifestyle.

Therefore, a thorough assessment of these factors and their agents is essential, etiological in this population, attributing to this evaluation practices of promotion and prevention in health, seeking to rescue the decrease in the indices of these factors. have healthy habits at this stage of life it is essential for good cardiovascular health in the future.



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