International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

Evaluation of Physical Activities and Sedentary Lifestyle of Elementary School Students of a Northern State School in Brazil

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Abstract: ***Objective: To evaluate the physical activities and the sedentarism in elementary school students of the Lauro de Carvalho Chaves School in the Capital of Macapá, state of Amapá, Brazil. Methods: Sixty-five schoolchildren (30 boys and 35 girls) aged between 12 to 16 years answer a questionnaire adapted by Silva (2009) for Brazil to classify them as inactive, inadequately active and active. Results: Twenty-one girls and seven boys were considered inactive (43.7 %), and 5 girls and 2 boys inappropriately active (10 %). The actives correspond to 46% being twenty-one boys and nine girls. Regarding their leisure activities the sedentary boys stay, on average, eight hours and the girls fifteen hours watching TV, video, DVD, or playing games on the computer, video game or talking on the phone. Conclusions: Overall, 54% of school children in Macapá, a capital from the state of Amapá located in the norther region of Brazil are sedentary or possess an inadequate lifestyle for their age. Additionally, the school policy are not contemplating the subject since it is recommended, by the world Health Organization, that school children should have, at least, 60 minutes of exercise per day. Policies are needed to encourage the practice of physical activities on a regular basis to improve the quality of life of schoolchildren and prevent future illness that will became a burden in the public health system.***

Keywords: exercise, sedentary lifestyle, school, adolescent

1. Introduction

The World Health Organization (WHO) mentioned that the rate of overweight and obesity increased 30% more in the developing countries when compared with the developed countries. If nothing is done, there will be 70 million young children and infants around the world suffering from overweight or obesity by the year 2025 (1). Indeed, without an intervention, they will became obese adolescent and adults with a wide range of serious health complications and an increased risk of premature onset of illnesses, including diabetes and heart disease.

The increasingly urbanized and digitized world offers fewer opportunities for physical activity, and overweight or obesity further reduces opportunities for children and adolescents to engage in group physical activity, whether at school or not. This vicious circle causes children and adolescents to become even less physically active, increasing their susceptibility to becoming overweight, or obese in adulthood (2).

More than 50% of the Brazilian and Argentine population are obese individuals. Currently, in Brazil, childhood obesity has become a major concern, since one in three children, aged 5 to 9 years, are overweight and those in the age group between 9 and 16 years old have increased six times (out of 3, 7% to 21%) in the last 37 years (3). The social and economic impact of this disease is easily perceived by overburdening government and private health care costs.

Kain et al. (2003) conducted a review of available data on scientific literature to assess obesity and overweight in South American adults and children, and their risk factors such as low birth weight, education, socioeconomic status, and diet. Although this review was published in 2003 and included data since 1975, its findings could still be applied today. The authors pointed to the need for an integrated effort aimed at increasing income and education of the less developed populations and promoting a balanced diet associated with physical activity. Also, the economic burden due to the increase in chronic diseases, among them, the obesity, will only be mitigated if public strategies aimed to improve the income and education (4).

Considering the size and great disparity between the different Brazilian regions, we investigated the degree of physical activity in children attending a state school in the capital of the state of Amapá, northern Brazil.

2. Subjects and methods

The research is of an exploratory nature with a quantitative approach, duly authorized by the direction of the State School Lauro Chaves. As field data collection instrument, a questionnaire based on the data population of the CEPSCenter for Educational Research Secretary of State of Amapa for the year 2015 shown an universe of 543 (five hundred and forty-three) students enrolled in that school.

The sample calculation was performed through the online page http://www.publicacoesdeturismo.com.br/calculoamostral/w here it was found a simple random sample of 61 (sixty one) students, however, 65 (sixty-five) students were enrolled, of which 30 were male and 35 were female, and the research was developed with a reliability level of 90% and a sampling error of
10%.

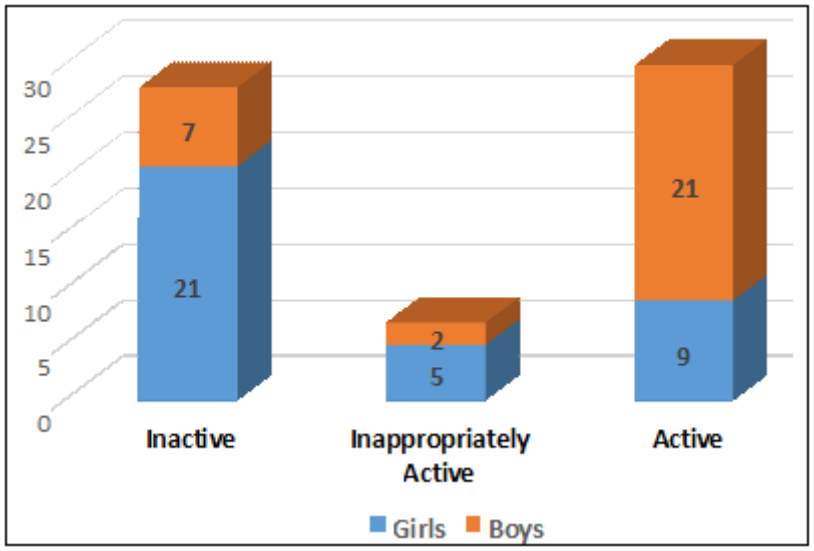
Physical Activity and Sedentary Assessment Questionnaire in Children and Adolescents (Silva, 2009) which recommends the model adapted for Brazil, taking into account the means of travel to school, activities carried out

in the school, out-of-school activities and sedentary time, described as time watching television, playing on the computer, video game and talking on the phone. This tool is used to accompany students in relation to their habits and lifestyle, to evaluate the components of physical activity, form, intensity and duration of the trip to school, sports activity and free time, in a period of thirty days until one year. In addition to the activities outside the school and the time of sedentarism. With this information, we can classify the respondent according to the frequency and intensity of the exercises performed and can reach results as inactive, inadequately active and active.

Additional information on the questionnaire was collected as neighborhood residing, and availability of public areas for sports in the respective neighborhoods, to contextualize the information obtained in the standardized questionnaire.

3. Results

The research was carried out on October 26th and 27th 2016 in the 7th and 8th grade classes of Elementary School II on the morning and afternoon shifts. As can be observed in the methodology, the sample was based on the stratified sample calculation of 61 students, and four (4) more questionnaires were applied at the request of students who wanted to participate in the study, which result in 65 questionnaires. As shown in the Graph 1, from a universe of 543 students that were attending that school, 12% with only 65 respondents.



Graph 1
Source: field research, 2016.

Regarding the gender, 35 girls were interviewed, which corresponds to 54% and 30 boys, equivalent to 46%, aged between 12 and 16 years old, being 48 students of the 7th grade and 17 students of the 8th grade.

The time spent on commuting back and forth the school, was between 20 minutes to two hours. Regarding the mode of transportation, 57 (fifty-seven) usually walk, 7 go by car and only one goes by bicycle.

The students participate in the physical education class, but 50 minutes are of theoretical class and 50 minutes of practical classes, therefore the interviewees practice physical activity only for 50 minutes and once a week.

The data presented in Table 1 show the time without physical activity spent by the boys, watching TV, playing and talking to the cell phone and dividing by the number of surveyed, means that the sedentarism corresponds to 8 hours. On the other hand, the time of sedentarism spend by the girls is more than 15 hours.

Table 1

Hour/Day	Activities	Boys	Girls	Σ/h
12:30 a.m.	Watching TV	03:30	06:30	03h
04:00 a.m.				
12:30 a.m.	Eletronic Games	05:30	04:30	01h
06:00 a.m.				
12:20 a.m.	Talking on the Phone	03:40	08:40	05h
04:00 a.m.				
	Result	12:40	19:40	

4. Discussion

A large majority of overweight and obese children live in developing countries where the rate of increase has exceeded 30% compared to developed countries. If current trends continue, the number of overweight and obese children and young people worldwide will increase to 70 million by 2025 and will likely continue to be obese during childhood, adolescence and adulthood. Obesity in childhood is associated with a wide range of serious health complications and an increased risk of early onset of diseases including diabetes and heart disease.

The increasingly urbanized and digitized world offers fewer opportunities for physical activity and being overweight or obese further reduces opportunities for children and adolescents to engage in physical activity in groups, whether

at school or out of school. This vicious circle causes children and adolescents to become even less physically active, increasing their susceptibility to being overweight, or obese in adulthood.

More than 50% of the Brazilian and Argentine population are obese individuals. Currently, in Brazil, childhood obesity has become a major concern, since one in three children, aged 5 to 9 years, are overweight and those in the age group between 9 and 16 years old have increased six times (out of 3 , 7% to 21%) in the last 37 years (1). The social and economic impact of this disease is easily perceived by overburdening government and private health care costs When we look at legal systems and health policies, apparently in Argentina, strategies to combat obesity have been more successful than in Brazil, partially due to the fact that in that country, the Obesity Law (Argentine Federal Law No. 26,396, of 3 of September 2008), aims at the prevention of obesity through national policy strategies

This legislation has ensured the establishment of specific health care systems in public health institutions to combat obesity and also limits the advertising of foods that contain excess fat by forcing the presence of nutritional information on the labels of industrialized products and the right to healthy eating at Schools. On the other hand, in Brazil, Article 196 of the Constitution determined that health issues are the responsibility of municipal governments. Despite the Obesity Law in Agentina, in both countries obesity is treated as a secondary issue. It is likely that only specialized health care will not be able to solve the problem of obesity in these two countries, but it should be associated with an intense interdisciplinary debate that goes beyond the health system alone and can encompass a broad social, political and legal response.

Kain et al. (2003) conducted a review of available data on scientific literacy to assess obesity and overweight in South American adults and children, and their risk factors such as low birth weight, education, socioeconomic status, diet. Although this review was published in 2003 and included data since 1975, its findings could still be applied today. The authors pointed to the need for an integrated effort aimed at increasing income and education of the less developed populations and promoting a balanced diet associated with physical activity. Also, the economic burden due to the increase in chronic diseases, among them obesity, will only be mitigated if policy strategies aimed at improving income and education are implemented.

Gonzales-Casanova et al. (2014) evaluated demographic and health surveys of children and adolescents (between 5 and 16 years of age) performed in 2005 (n = 9,119) and in 2010 (n = 21,520) in Colombia and compared the body mass index with the family structure, socioeconomic degree, location of residence (urban or rural), mother's schooling and the number of leisure areas in the community. They observed important similarities and differences between children and adolescents in Colombia with the data described in the literature for high income countries. They suggest that these factors should be considered when designing and implementing interventions aimed at preventing obesity in children and adolescents. Moreover, these results may be useful in designing and directing interventions for Latin American and other low- and middle-income populations. Similar conclusions were found in a study involving a systematic review by Mistry and Puthussery (2015) in South Asian populations.

Nutritional status and physical activity status, disparities between and within Latin American countries, and the potential challenges to ensure adequate diet and physical activity were investigated by Corvalán et al. (2017). The data obtained showed that children face a double burden of malnutrition and overweight. While the fight against malnutrition has allowed for marked improvements, childhood obesity is on the rise as a result of diets that include foods with high energy and nutrient rates associated with adopting a sedentary lifestyle. In the last decade, changes in socioeconomic conditions, urbanization, retail and public transportation have contributed to childhood obesity. Similar results had already been obtained by other authors (Vilchis Gil et al., 2015).

The study conducted by Nagle et al. (2013) presented a systematic review of the researches that evaluated the strategies of obesity prevention in children and adolescents in Latin America. All five included studies showed that it is possible to reduce BMI significantly by implementing the emphasizing physical activity and healthy eating.

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