

ASSOCIATION BETWEEN INDICATORS PHYSICAL ACTIVITIES PRACTICES IN ADOLESCENCE WITH CURRENT LEVEL OF LEISURE-TIME PHYSICAL ACTIVITIES PRACTICES IN STUDENTS OF COURSE OF PHYSICAL EDUCATION IN NORTHEAST OF BRAZIL

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Abstract

The purpose was identified the frequency of leisure-time inactive current and association with indicators of physical activity in adolescence, context school and no, in students of course Physical Education. It was carried out cross-sectional study in 105 students of course. The frequency of leisure-time inactive current was 23.1% and identified associations for gender ($p=0.003$), with higher values for woman (38.6%). Statistical associations were found in inactive students today when they were asked about the practice in adolescents in non-school context ($p=0.047$). The Physical Education Teacher should encourage the practice of physical activities since the early ages, contributing for practice of lifelong.

Keywords: Leisure. Adolescent. Students.

Introduction

Physical inactivity is a problem on public health (WHO, 2002), considering its relation to increased chances of cardiovascular mortality (Paffenbarger et al. 1986; PAFFENBARGER et al. 1993; YUSUF et al. 2004), as well as other morbidities (WHO, 2002).

Adopting an active lifestyle is very important for a long lasting life with good quality, especially for the potential benefits widely reported in the literature, from routine practice (UNITED STATES

DEPARTMENT OF HEALTH AND HUMAN SERVICES - USDHHS, 1996). Thus, disseminating and expanding the scope of the minimum recommendations for physical activity in the adult population is essential for adoption and maintaining healthy behaviors (UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES - USDHHS, 2008).

In studies of population subgroups such as students, there is an approach guided by different characteristics of the lifestyle (Giroto et al., 1996, Rabelo et al., 1999, Oliveira et al. 2007; ABOLFOTOUH et al. 2007; FRANCA, NECKLACES, 2008), especially on physical activity, encompassing the four areas (Guedes, Santos, Lopes, 2006, Silva et al., 2007) or only leisure (STOCK et al. 2001; ABOLFOTOUH et al., 2007). However, information from the level of previous physical activity, or physical activities at earlier ages to adulthood (children and young people) are not well documented (ALVES et al., 2005), especially in specific populations of the Northeast Region of Brazil.

The literature shows that there is positive relationship between level of physical activity in adolescence and physical activity in adulthood (Tammelin et al. 2003; TELAM et al., 2005). Given these observations, is there a relationship between physical activity during leisure time and the current practice of physical activity performed as a teenager in a school environment and not in school students?

The objective of this study was to identify the frequency of the inactive during current leisure time and its association with physical activity during adolescence, the school and non-school context, in academic course of Physical Education of a public institution in the Northeast of Brazil.

Methods

This research is derived from the study of cross-sectional characteristic Perfil dos Indicadores da Aptidão Física e Saúde dos Estudantes de Educação Física da Universidade Estadual de Santa Cruz (PAFIS - UESC / BAHIA), held in a public university in the state of Bahia, Northeast Brazil. Information about the PAFIS - UESC/BAHIA study was presented previously (Sousa, 2009).

Data were collected in May 2007 and all students of the Bachelor's Degree in Physical Education were invited to participate in

the study, being eligible only students who were enrolled and pursuing its activities often (N = 143). Collection Data happened in classrooms of the course for three weeks, so students who were present at the meeting were informed about the objectives and how to participate.

For the study, training was done prior to the researchers responsible for the implementation of physical fitness tests and questionnaires. The instrument was completed by students at free will, but doubts have been clarified by the researchers responsible for the collection attended by students during the filling.

The instrument was constructed based on questionnaires previously validated in population studies (Barros, 1999, BRAZIL, 2004) and consisted of the following sections: sociodemographic information, health indicator and quality of life, lifestyle (physical activity, diet, stress control, preventive behaviors and relationships), satisfaction and control of body weight.

For this study, the variables were categorized as shown in Table 1

Variable	Categorization criteria
<u>Sociodemographic</u>	Age group: up to 22 years and 23 years or over; Class: for the year of enrolling in the course (2004, 2005, 2006 and 2007); Gross family income: multiples of the minimum wage, which at the time was R\$ 350.00 (up to R\$ 1,750.00 and R\$ 1,751.00 or more).
School physical activity	Inactive – saying they have <i>rarely or never</i> attended the classes of Physical Education, even taking the opportunity to participate; Active – saying they have participated in Physical Education classes in Elementary and/or High School
Non-school physical activity	Inactive – saying they have <i>never</i> attended clubs or sports teams, dances or fights; Active - they have participated in clubs or sports teams, dances or fights in the form of competition and/or presentation.
Current physical activity	Inactive – saying they have not practiced physical activity during leisure time in two weeks prior to the data collection, such as physical exercise (<i>gym, hiking, running</i>), sports, dance or martial arts; Active - saying they practice physical activity at least once a week.

Table 1 - Variables and categorization criteria.

Participants of the PAFIS - UESC/BAHIA study were informed about the anonymity and voluntary participation in research as well as the possibility of withdrawing consent at any time. This information was provided prior to the application of this instrument that occurred in the rooms of the course. The application conditions were similar for the four classes and data collection only started after the signing of the consent form (ICF) as one of the procedures set out in Resolution 196/96.

Data were analyzed using version 16.0 of the SPSS statistic pack, aimed at implementation descriptive statistics procedures as average and frequency. Later we used the chi-square (X^2) and chi-square (X^2) for trend (when appropriate) and Fisher's Exact test, considering $p < 0.05$.

Results

Information about the sociodemographic characteristics of the students are presented in Table 1. Of the 143 students enrolled in the course 105 students participated in the present research, which equates to a loss of about 27.0%. This loss occurred due to the absence of students in the classroom during the collection period, and no subject refused to participate. The average age of participants was 23.2 years (± 4.9 , 17 to 42) and the average age of men was 23.5 years (± 5.4 , 17 to 42) and 22.7 for women (± 4.2 , 18 to 35). The highest frequency of individuals involved was male (57.1%) and of the class of year 2004 (28.6%). The loss of data for the gross family income was found and the information refers to only 94 students from the course.

Table 1. Sociodemographic information of students, by gender.				
Variables	Men	Women	Total	
	% (N)	% (N)	% (N)	p
Age group				0.923 [#]
Up to 22 years	53.6 (30)	54.5 (24)	54.0 (54)	
23 years or over	43.4 (26)	45.5 (20)	46.0 (46)	
Class				0.052 ^{###}
2004	23.3 (14)	35.6 (16)	28.6 (30)	
2005	21.7 (13)	26.7 (12)	23.8 (25)	
2006	28.3 (17)	24.4 (11)	26.7 (28)	
2007	26.7 (16)	13.3 (06)	21.0 (22)	
Income				0.162 [#]
Up to R\$ 1,750.00	59.3 (32)	42.5 (17)	52.1 (49)	
R\$ 1,751.00 or over	40.7 (22)	57.5 (23)	47.9 (45)	
[#] Chi-square (χ^2); ^{##} Chi-square (χ^2) for trend; ^{###} Fisher's Exact Test				

The frequency of physical education students who said they had not engaged in physical activities for a single day two weeks prior to data collection was 23.1%. Women reported not to have physical activity at leisure in a higher proportion than men, 38.6% and 11.7% respectively, and this difference was statistically significant (Table 2).

Table 2. Frequency of Physical Inactivity in Sport (IFL) for sociodemographic variables.		
Variables	% IFL (N)	p
Gender		0.003[#]
Male	11.7 (07)	
Female	38.6 (17)	
Age group		0.222 [#]
Up to 22 years	18.5 (10)	
23 years or over	31.1 (14)	
Class		0.164 ^{###}
2004	30.0 (09)	
2005	25.0 (06)	

Despite the association between physical inactivity and gender has been found in the analysis considering all the subjects involved in the research, such evidence was not found in the analysis stratified by gender (Table 3). However, higher frequencies of physical inactivity have been demonstrated for females especially for women aged less than 23 years (47.4%), class starting in 2006 (45.5%) and gross family income over R\$ 1.751,00 (47.8%).

Table 3. Frequency of Physical Inactivity in Sport (IFL) for sociodemographic variables, by gender.

Variables	Men		Women	
	% IFL (N)	p	% IFL (N)	p
Age group		0.231 ^{###}		0.535 [#]
Up to 22 years	6.7 (02)		33.3 (08)	
23 years or over	19.2 (05)		47.4 (09)	
Class		0.698 ^{###}		0.437 ^{###}
2004	14.3 (02)		43.8 (07)	
2005	15.4 (02)		36.4 (04)	
2006	5. (01)		45.5 (05)	
2007	12.5 (02)		16.7 (01)	
Income		0.606 ^{###}		0.755 [#]
Up to R\$ 1,750.00	12.5 (04)		37.5 (06)	
R\$ 1,751.00 or over	13.6 (03)		47.8 (11)	

[#] Chi-square (χ^2); ^{##} Chi-square (χ^2) for trend; ^{###} Fisher's Exact Test

As for physical activity during adolescence, considering the whole group of undergraduate students, the analysis showed the following frequencies for non-school context: active = 80.8% and inactive = 19.2%. For the school context, there were: active = 92.3% and inactive = 7.7%. Significant associations were identified only between the physical activity performed during leisure time and practice currently carried out in non-school context ($p = 0.047$, $X^2 = 3.948$) when analyzed considering undergraduate students in general. The frequency of physical inactivity during leisure time was higher (42.1%) for students who reported physical inactivity in non-school context (Table 4).

Table 4. Frequency of Physical Inactivity in Sport (IFL) for Physical Activity in School and Non-School Context in students of the course of Physical Education.		
Variables	IFL	p
	% (N)	
School Physical Activity		0.382 ^{###}
Active	21.9 (21)	
Inactive	37.5 (03)	
Non-School Physical Activity		0.047[#]
Active	17.9 (15)	
Inactive	42.1 (08)	
[#] Chi-square (χ^2); ^{##} Chi-square (χ^2) for trend; ^{###} Fisher's Exact Test		

Depending on gender (Table 5), the statistical difference was observed only for females (p = 0.030) between the same variables that were associated in the analysis all subjects. The proportion of inactive women was actually higher for the category for physical inactivity in the non-school context (70.0%) when compared to women who claimed to have practiced (29.4%).

Table 5. Frequency of Physical Inactivity in Sport (IFL) for Physical Activity in School and Non-School Context and in School Physical Education students, by gender.				
Variables	Men		Women	
	% IFL (N)	p	% IFL (N)	p
School Physical Activity		0.601 ^{###}		0.282 ^{###}
Active	12.5 (07)		35.0 (14)	
Inactive	0 (0)		75.0 (03)	
Non-School Physical Activity		0.647 ^{###}		0.030^{###}
Active	10.0 (05)		29.4 (10)	
Inactive	11.1 (01)		70.0 (07)	
[#] Chi-square (χ^2); ^{##} Chi-square (χ^2) for trend; ^{###} Fisher's Exact Test				

Discussion

This study sought to identify the association between the current physical activity and past physical activity, in two contexts, school and non-school. In order to carry out a cross-sectional study, we

highlight the impossibility of causality between the observed information.

Moreover, despite the existing limitations on the small number of subjects in this study ($N = 105$), which prevent analysis controlling for confounding variables, the percentage of participants (73.0%) is representative of the academic course of Physical Education UESC. The non-participation was mainly due to the lack of undergraduate students during the collection period (three weeks).

The frequency of current physical inactivity found (23.1%) proved to be lower than the prevalence of physical inactivity evident for the population of Brazil (29.2%) and for the population of the capital of Bahia, Salvador (28.0 %). It is noteworthy that the prevalence quoted refers to the four domains of physical activity (Moura et al., 2008), unlike the present study that only identified information from current physical activity in the context of leisure.

When compared to available information on students, it appears that, for the academic study of Physical Education at the University of Pelotas (BIELEMANN et al., 2007), the prevalence of physical inactivity during leisure time (overall prevalence: 25.8%, score less than 150 minutes/week) was higher in women (35.3%) than in men (15.2%), which was also evidenced in the Physical Education undergraduate students of UESC, and these associations were statistically significant in both studies ($p = 0.003$). Other studies with university students also demonstrated a trend evidenced in this study, when analyzed according to the level of overall physical activity (Guedes, Santos, Lopes, 2006, Silva et al., 2007) and only to the context of leisure (STOCK et al., 2001; ABOLFOTOUH et al., 2007). Studies of population reach converge with information about the level of leisure physical activity considering the gender observed in this study (Barros; NAHAS, 2001; PITANGA; LESSA, 2008, Moura et al., 2008).

Unlike the prevalence of current physical inactivity identified, other studies of university students found higher values for physical inactivity, as the study which involved undergraduate students from the health department of the University of Brasília (Medicine, Nutrition, Pharmacy, Nursing, Dentistry and Physical Education) (MARCONDELLI et al., 2008). The prevalence of insufficiently active undergraduate students (energy expenditure on physical

activities performed on the day prior to data collection) was 65.5% in relation to all the courses, however, the students of Physical Education showed a prevalence of only 6.5% compared to other courses.

In a recent study of university students (n = 871) of Tocantins, Northern Brazil (Rodrigues et al., 2008), it was through the implementation of the International Physical Activity Questionnaire (IPAQ) - short version, the prevalence of students considered sedentary of only 7.6%, with a greater proportion of sedentary individuals aged 25 years or over, in relation to a lower age (<25 years), 38.3% and 26.2% respectively. In this research, it was not identified a statistical association between physical activity and age, but men and women had higher physical inactivity in the age group above, which is a characteristic demonstrated in several studies with university students (Guedes, Santos, Lopes, 2006; BIELEMANN et al., 2007) and populations (BARROS; NAHAS, 2001; HALLAL et al., 2003).

Furthermore, in a study conducted by university students in the health department of two public universities in the state of Pernambuco, Northeast Brazil, found that 65.1% and 57.2% of students from first and last term, respectively, showed percentage values for physical inactivity in the week preceding data collection (FRANCE, NECKLACES, 2008) higher than those of UESC undergraduate students. Information about the progress of the students in the course of UESC showed a growth rate of physical inactivity with the advancing years of the course, especially for females, although the evidence did not present a linear association. The growth rate of physical inactivity during leisure time in undergraduate students can be linked to a greater demand for jobs related to the course, or may be related to their transition the job market through internships or paid work in the area.

However, further comparisons between studies are limited mainly by the use of different measures to assess the level of physical activity in university students, considering that every instrument employed include one or more areas of physical activity, whether in leisure, displacement, occupational or household activities. However, the trends identified for studies in education (Guedes, Santos, Lopes, 2006, Silva et al. 2007; STOCK et al. 2001; ABOLFOTOUH et al.,

2007) are similar of the population reach (HALLAL et al., 2003, Moura et al., 2008).

Regarding indicators of physical activity employed in previous tests, in school and non-school context, it identifies possible limitations on the recall of the physical activities, because the measures represent only indicators of regular practice, and may have been overestimated, considering they represent healthy behaviors accepted by society. In addition, they do not allow discrimination on the intensity of activities performed in since they are important information to characterize the level of physical activity. In general, by examining these two indicators of past physical activity, there were frequencies of physical inactivity lower than physical inactivity during leisure time currently (School Physical Inactivity: 7.7%; Non-School Physical Inactivity: 19.2%).

There was a statistical association between physical activity during leisure time and the practice of non-school physical activity ($p = 0.047$), representing an indicator of the relationship between these two variables. Such conditions have been reported in other studies indicating higher levels of physical activity in adults who practiced physical activity as children and/or adolescents in a non-school context (TELAM et al. 2005; Tammelin et al., 2003, Alves et al., 2005), and refuted the existence of such relation (Gordon-Larsen et al., 2004). However, Conroy et al. (2005) demonstrated a relation between physical activity both in the school and non-school environment and the practice of physical activity at recommended levels in adulthood.

Although there is a difference among the studies, it is considered low to moderate the relation between physical activity during adolescence and adulthood in practice, as identified in a study conducted by means of monitoring individuals over the years (longitudinal) (TELAM et al., 2005). Despite this link from low to moderate, the studies support the existence of a positive relation between physical activity during adolescence and subsequent achievement in adult life, but how much would be needed for the individual to remain active throughout life is not clear (HALLAL et al., 2006), as well as the type of specific physical activity to produce more chances of practice in adulthood (TAMMELIN et al., 2003).

Conclusions

It was found that 23.1% of the students of the course of Bachelor's Degree in Physical Education of UESC were considered inactive during leisure time. Women had a higher frequency of current physical inactivity than men and, similarly, the frequency in relation to other socio-demographic indicators was higher for women. It is noteworthy that the demands of curricular activities, as well as the possibility of entering the job market, can contribute to physical activity at leisure to levels considered undesirable, as noted by the higher frequency of physical activity in students who attended the past university terms (2004).

Regarding the association between indicators of (school and non-school) past physical activity and current physical activity during leisure time, there was no statistical difference for the non-school context, which included participation in structured activities such as team games and/or sports clubs, dances and fights in the form of competition and/or presentation. Analysis showed the frequency of leisure-time physical inactivity from 42.1% in physically inactive Physical Education undergraduate students in non-school context, depending on the gender, these observations were identified for women.

Information about the practice of regular physical activity in adolescence showed they are indicative of activities that can contribute to physical activity in adulthood. As the habits of physical activity, obtained during childhood and adolescence, converge in a lifetime, it seems important that the sports activities are encouraged and developed in these younger age groups. However, it is worth highlighting the important role of Physical Education professional to stimulate the practice since the early ages and hence to carry it throughout life. On the other hand, it is suggested that studies with longitudinal design are carried out in order to characterize the importance of physical activity in school environment for an active lifestyle in adulthood.

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