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Prevalencia de sedentarismo en universitarios brasileños: asociación con variables sociodemográficas

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ABSTRACT

Objective The prevalence of physical inactivity amongst adults has been increasing worldwide; however, few studies have been conducted on university freshmen. The present investigation was aimed at determining the prevalence of physical inactivity amongst Brazilian university freshmen and its association with sociodemographic variables.

Methods The database for the research project entitled, "Evaluating health-related physical fitness of students from the Federal University of Santa Catarina, Brazil," was used for this study. A total of 762 students (445 males) having 20.2 (4.7) mean age were studied. The participants' level of physical activity was measured by IPAQ; sociodemographic variables were self-reported and then recorded. The chi-square test and binary logistic regression were used for statistical analysis (significance level was set at $p < 0.05$).

Results The prevalence of physical inactivity was 13.8 % amongst the students studied. Female and night-course students presented a 1.69 (CI 95 %: 1.10-2.57) and 1.70 (CI95 %: 1.09-2.66) times greater chance of presenting physical inactivity than male students and those on day-courses, respectively.

Conclusion The main risk groups for physical inactivity were female and night-course students.

Key Words: physical activity, student, sociodemographic, sedentary, genera and health (*source: MeSH, NLM*).

RESUMEN

Objetivo La prevalencia de sedentarismo en adultos está incrementándose en todo el mundo. Sin embargo, pocos estudios se han llevado a cabo con universitarios que acaban de ingresar. El objetivo de este estudio fue identificar la prevalencia de

sedentarismo entre universitarios que acaban de ingresar y su asociación com variables sociodemográficas.

Métodos El estudio fue realizado teniendo en cuenta la base de datos del proyecto de investigación "Evaluación de la aptitud física relacionada con la salud de estudiantes de la Universidad Federal de Santa Catarina, Brasil". Fueron investigados 762 universitários (445 del sexo masculino), con una media de 20,2 (4,7) años de edad. Se obtuvo información sobre el nivel de actividad física y las variables sociodemográficas. Para el análisis estadístico se utilizaron las pruebas de Chicuadrado y regresión logística binaria. El nível de significancia fue establecido en p<0,05.

Resultados La prevalencia de sedentarismo en los universitarios investigados fue de 8,1 %. Estudiantes del sexo femenino y estudiantes del turno nocturno presentaron 1,7 veces mayores probabilidad de sedentarismo con respecto al sexo masculino y turno diurno, respectivamente.

Conclusión Los principales grupos de riesgo para presentar sedentarismo fueron los estudiantes del sexo femenino y del turno nocturno.

Palabras clave: Actividad física, estudiantes, indicadores económicos, género y salud (*fuente: DeCS, BIREME*).

RESUMO

Prevalência de sedentarismo em universitários brasileiros: associação com variáveis sociodemográficas

Objetivo A prevalência de sedentarismo em adultos vem aumentando em todo o mundo, contudo, poucos estudos têm sido realizados em universitários recém ingressos. O objetivo deste estudo foi identificar a prevalência de sedentarismo entre universitários recém ingressos e sua associação com variáveis sociodemográficas

Métodos Este estudo foi realizado com base no banco de dados do projeto de pesquisa "Avaliação da aptidão física relacionada à saúde de universitários da Universidade Federal de Santa Catarina, Brasil". Foram investigados 762 universitários (445 do sexo masculino), com média de 20,2 (4,7) anos de idade. Foram coletadas informações referentes ao nível de atividade física e variáveis sociodemográficas. Para análise estatística foram empregados os testes do qui-quadrado e regressão logística binária. O nível de significância foi estabelecido em p<0,05.

Resultados A prevalência de sedentarismo dos universitários investigados foi de 13,8 %. Universitários do sexo feminino e estudantes do turno noturno apresentaram 1,7 vezes mais chance para sedentarismo em relação ao sexo masculino e turno diurno, respectivamente.

Conclusão: Os principais grupos de risco para apresentar sedentarismo foram compostos por estudantes do sexo feminino e do turno noturno.

Palavras-Chave: Atividade física, indicadores econômicos, estudantes, gênero e saúde (*fonte: DeCS, BIREME*).

A growing trend towards physical inactivity among adults has been observed worldwide over the last few decades; a study conducted in 15 European Union countries has reported 43.3 % to 87.8 % physical inactivity (1). Physical inactivity already affects more than 55 % of the population in the USA (2). Recent data from the Chronic Disease Surveillance System in Brazil (covering several of the country's capital cities) and the Distrito Federal has indicated that around 30 % of the adult population is inactive (3).

Recent studies have indicated that physical inactivity is directly related to different disorders and non-transmissible diseases (4) such as diabetes (5), hypertension (6), some types of cancer (7) osteoporosis (8) and obesity (9). The factors determining a sedentary lifestyle must thus be identified. Studies have indicated that an individual's sociodemographic variables, such as gender (10), age (11), socioeconomic conditions (3), marital status (12) and occupation (13), are associated with physical inactivity.

Around 112,000 students enter federal universities every year in Brazil after passing an entrance exam. Studies have indicated that these individuals' level of education is directly related to their level of physical activity (12). However, specific data regarding the prevalence of physical inactivity amongst university freshmen is scarce. Identifying university students' level of physical activity would be of help for planning physical activity and leisure programmes and making them availability on campus. The present study was thus aimed at determining the prevalence of physical inactivity amongst university freshmen and its association with sociodemographic variables.

METHODS

Population and sample

Data was taken from the "Evaluating the health-related physical fitness of students from the Federal University of Santa Catarina (UFSC)" research project database for this study. The study protocol was approved by the UFSC Ethics Committee (096/2007).

The study population consisted of 2,290 freshmen who enrolled at UFSC during the first semester 2008. The method recommended by Thomas et al., (14) was used for calculating the size of the sample representing the population. A 95 % confidence level and a permitted 3.0 percent point maximum error were adopted. Sampling was stratified according to teaching centre and study period. A randomised

procedure was used for drawing lots for the groups within each teaching centre. Based on the sample calculation, 728 university students were estimated to be necessary. A minimum number of individuals in each class were selected to participate in the survey to ensure sample representativeness. However, all those belonging to the university classes selected who were interested in participating in the study were evaluated (921 individuals). Incomplete data for students meant that they were excluded (n =159). The final study sample thus consisted of 762 students (445 males and 317 females), 20.2 (4.7) mean age.

Instruments and procedures

Data regarding physical activity level (PAL) and sociodemographic variables, including socioeconomic condition, gender, age, marital status, occupation, study period and parents' educational level, were collected.

PAL was measured using the International Physical Activity Questionnaire (IPAQ; version 8, short form, last 7 days) validated for the Brazilian population (15). Physical activity was classified using the criterion developed by the IPAQ Research Committee (16). According to this committee, activity frequency and duration are used for classifying subjects as being inactive, moderately active and very active.

The participants' socioeconomic conditions were evaluated using Brazilian Economic Classification Criteria (17) classifying economic classes into A1, A2, B1, B2, C1, C2, D and E based on the accumulation of material possessions, living conditions, number of domestic workers and the head of the family's level of schooling. The father and mother's socioeconomic conditions, age and educational level were classified as follows: high (A1+A2), medium (B1+B2) and low (C1+C2+D+E), <20 and ≥20 years and ≤4 years of schooling, 5-8 years and ≥9 years, respectively.

Statistical analysis

The chi-square test was used for analysing percent differences between sociodemographic variables according to the students' PAL. Associations between sociodemographic variables (independent variables) and PAL (dependent variable) were determined by binary logistic regression (crude and adjusted analysis). PAL was dichotomised into active and inactive for analysis. All sociodemographic variables studied (whose association with PAL presented a

<0.25 p value by chi-square test) were entered into the regression model one by one according to their increasing statistical significance and/or according to their relevance as reported in the literature. Significance level was set at p<0.05.

RESULTS

The prevalence of physical inactivity was 13.8 % among the university freshmen being studied, a higher percentage of female students being inactive than male students (p=0.016) as well as night-course students compared to day-course students (p=0.020). No differences in the percentage of inactive and active students were observed for the other variables studied (Table 1).

Table 1. The prevalence of physical inactivity for the university students obtained for the sample as a whole and stratified according to sociodemographic variables

Sociodemographic variables	Inactive		Active		p
	n	%	n	%	
Socioeconomic condition					
High	20	10.8	166	89.2	
Medium	63	15.0	356	85.0	0.368
Low	22	14.0	135	86.0	
Gender					
Male	50	11.2	395	88.8	0.016
Female	55	17.4	262	82.6	
Age (years)					
<20	65	13.2	426	86.8	0.560
≥20	40	14.8	231	85.2	
Marital status					
Single	100	13.8	627	86.2	0.929
Married/other	5	14.3	30	85.7	
Having a job					
Yes	26	13.7	164	86.3	0.965
No	79	13.8	493	86.2	
Study period					
Day	66	12.0	485	88.0	0.020
Night	39	18.5	172	81.5	
Paternal educational level (years)					
0-4	11	18.6	48	81.4	
5-8	16	18.4	71	81.6	0.185
≥9	78	12.7	538	87.3	
Maternal educational level (years)					
0-4	11	19.0	47	81.0	
5-8	15	18.1	68	81.9	0.203
≥9	79	12.7	542	87.3	
Total sample	105	13.8	657	86.2	-

Table 2 gives the results of analysing the association between the university students' physical activity and their sociodemographic variables. Crude analysis showed that female students presented a 1.7 times higher chance of lapsing into physical inactivity than male students; night-course students presented a higher chance of physical inactivity than those on day-courses.

The results of adjusted analysis showed that, even after adjustment for parental educational level and socioeconomic condition, gender and study period were still associated with a higher risk of physical inactivity amongst female and night-course students.

Table 2. Association between physical inactivity and sociodemographic variables in the university students studied

Sociodemographic variables	Inactive (%)	Crude analysis OR (95%CI)	Adjusted analysis OR (95%CI)
Gender		p=0.017	p=0.015
Male	11.2	1	1
Female	17.4	1.66 (1.10-2.51)	1.69 (1.10-2.57)
Study period		p=0.021	p=0.020
Day	12.0	1	1
Night	18.5	1.67 (1.08-2.57)	1.70 (1.09-2.66)
Paternal educational level (years)		p=0.188	p=0.701
0-4	18.6	1.58 (0.79-3.17)	1.23 (0.53-2.87)
5-8	18.4	1.55 (0.86-2.81)	1.55 (0.86-2.81)
≥9	12.7	1	1
Maternal educational level (years)		p=0.207	p=0.774
0-4	19.0	1.61 (0.78-3.23)	1.23 (0.52-2.87)
5-8	18.1	1.51 (0.83-2.78)	1.24 (0.64-2.40)
≥9	12.7	1	1
Socioeconomic condition		p=0.371	p=0.567
High	10.8	1	1
Medium	15.0	1.47 (0.86-2.51)	1.32 (0.75-2.29)
Low	14.0	1.35 (0.71-2.58)	1.10 (0.54-2.25)

DISCUSSION

The prevalence of physical inactivity observed in the present study was lower than that commonly reported in the literature (11,18-20). However, in view of the growing trend regarding sedentary behaviour amongst university students during their academic years (20,21), the prevalence found here is a matter of concern, especially when considering the young age of the subjects (20.2 mean age).

Brazilian and international studies have reported 22 % to 62 % physical inactivity amongst university students. However, as different instruments have been used for evaluating PAL, it makes it difficult to understand sedentary behaviour in this population (18-20).

The aspects associated with sedentary behaviour during this phase of life are still inconclusive, but factors such as lack of time (20), lack of motivation (22) distance from the site for having time to engage in exercise (23) and social support (24) have been reported as determining time spent on physical inactivity. Studies regarding barriers to physical activity conducted on Brazilian university students are scarce, a fact impairing further conclusions being drawn on this subject.

Adjusted regression analysis showed that female and night-course students were the main groups at risk of not engaging in physical inactivity. Female students presented a 1.7 times higher chance of physical inactivity than male students, a finding consistent with data reported in the literature (19,20). A review of adults' physical activity pattern evaluated using the short version of IPAQ has shown that women were more inactive than men in 44 of the 51 countries analysed, the difference in physical inactivity between genders exceeding 10 % in some countries (25).

A recent study conducted by the Brazilian Ministry of Health (3) (representative of the Brazilian adult population residing in the country's capital cities and Distrito Federal) indicated that the frequency of physical inactivity tended to be similar in the two genders. However, the prevalence of physical inactivity amongst young adults (aged 18-24) was higher among females (34.3 % cf 29 %), a finding supporting the notion that young women represent a risk group for sedentarism. These findings are a matter of concern since evidence indicates that reduced physical activity, especially moderate intensity activity, is a predictor of weight changes in recently enrolled female university students, a fact contributing towards the global obesity epidemic (26,27).

Regarding study period, night-course students presented a 1.7 times higher rate of physical inactivity than those on day-courses. This finding agrees with another Brazilian study also involving students from a public university (21). The authors observed significantly higher rates of physical inactivity in night-course students compared to those attending day-courses (OR=1.73; 95 % IC 1.16-2.57). This panorama suggested that health programmes run on university campuses should be directed at increasing students' awareness of the need for continuous physical activity throughout life, as well as encouraging and permitting night-course students to engage in physical activity.

An association between sedentary lifestyle and parental educational level and socioeconomic condition was expected, according to previous studies (11,28); such fact was not observed in the present study. However, the regression model was improved by including these variables, suggesting that these sociodemographic factors should be considered in future investigations.

Physical activity was evaluated in the present study by using a questionnaire instead of direct measurement such as accelerometers. PAL might thus have been under- or over-estimated in the students studied. However, questionnaires are attractive tools when large samples are investigated due to their low cost and the possibility of rapid data collection. The IPAQ is used internationally to evaluate physical activity (29) and has advantages over other instruments, especially regarding the possibility for comparison with other studies (30).

The present study's main contributions lay in providing support for compiling data regarding the prevalence of physical inactivity amongst freshmen enrolled in a public university in southern Brazil and identifying sociodemographic variables determining sedentary behaviour which may help in planning primary and secondary intervention policies amongst risk groups.

The prevalence of physical inactivity observed was thus lower than that reported in the literature. The main risk groups for physical inactivity were female and night-course students. Follow-up studies should be conducted to determine changes in PAL amongst university students to confirm the present study's findings ♣

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