

# FAMILY HISTORY OF CHRONIC DISEASES, PHYSICAL ACTIVITY AND FOOD HABITS IN HEALTHCARE STUDENTS

*História familiar de doenças crônicas, atividade física e hábitos alimentares em estudantes da área da saúde*

*Historia familiar de enfermedades crónicas, actividad física y hábitos alimentarios de estudiantes del área de la salud*

Original Article

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## ABSTRACT

**Objective:** To investigate the family history of chronic noncommunicable diseases, physical activity and food habits in healthcare students from a private institution in Fortaleza, Ceará. **Methods:** This cross-sectional and descriptive study assessed 383 undergraduates. Data collection was performed by means of a previously elaborated and self-filled questionnaire. **Results:** The evaluated had a mean age of 23.8±5.2 years, and 230 (60.1%) of them had family members with hypertension. Regarding physical activity, the higher prevalence of sedentariness was among the nutrition undergraduate students (n=90; 40.9%), while the highest frequency of activity was observed in physical education students. Daily, 223 (58.2%), 218 (56.9%), 191 (49.9%), and 296 (77.3%) of the students consumed fruits, juices, legumes and vegetables, milk and dairy products, respectively. **Conclusion:** A substantial part of the students showed regular consumption of healthy foods. It was also observed a considerable level of sedentary lifestyle among the college students.

**Descriptors:** Food habits; Chronic Disease; Motor Activity; Students.

## RESUMO

**Objetivo:** Investigar a história familiar de doenças crônicas não transmissíveis, prática de atividade física e hábitos alimentares em estudantes da área da saúde de uma instituição particular em Fortaleza-CE. **Métodos:** Tratou-se de um estudo transversal e descritivo, no qual foram avaliados 383 acadêmicos. A obtenção de dados foi realizada por meio de questionário previamente elaborado e autoaplicável. **Resultados:** Os avaliados apresentaram idade média de 23,8±5,2 anos, e 230 (60,1%) deles tinham familiares com hipertensão arterial. Com relação à atividade física, a maior prevalência de sedentarismo esteve entre os estudantes de Nutrição (n=90; 40,9%), enquanto a maior frequência de atividade foi verificada nos estudantes de Educação Física. Diariamente, 223 (58,2%), 218 (56,9%), 191 (49,9%) e 296 (77,3%) dos estudantes consumiam frutas, sucos, legumes e verduras e leite e derivados, respectivamente. **Conclusão:** Uma parcela substancial de alunos apresentou consumo regular de alimentos saudáveis. Observou-se, ainda, um nível considerável de sedentarismo entre os universitários.

**Descritores:** Hábitos Alimentares; Enfermedad Crónica; Atividade Física; Estudantes.

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## RESUMEN

**Objetivo:** Investigar la historia familiar de enfermedades crónicas no transmisibles, la práctica de actividad física y hábitos alimentarios de estudiantes del área de la salud en una institución privada de Fortaleza-CE. **Métodos:** Se trató de un estudio transversal y descriptivo en el cual fueron evaluados 383 académicos. La obtención de datos fue realizada a través de un cuestionario anteriormente elaborado y auto rellenado. **Resultados:** Los evaluados presentaron edad media de 23,8±5,2 años, y 230 (60,1%) de ellos tenían familiares con hipertensión arterial. Respecto la actividad física, la mayor prevalencia de sedentarismo fue en los estudiantes de Nutrición (n=90; 40,9%) mientras la mayor frecuencia de actividad fue verificada en los estudiantes de Educación Física. Doscientos veinte y tres (58,2%), 218 (56,9%), 191 (49,9%) y 296 (77,3%) de los estudiantes consumían frutas, zumos, legumbres y verduras y leche y derivados a diario, respectivamente. **Conclusión:** Una parte sustancial de alumnos presento consumo regular de alimentos saludables. Se observó, todavía, un nivel considerable de sedentarismo en los universitarios.

**Descriptor:** *Hábitos Alimenticios; Doenças Crônicas; Actividad Motora; Estudiantes.*

## INTRODUCTION

The relationship between the practice of physical activity and nutrition in health promotion has been widely discussed in recent years. This is due to studies indicating that the adoption of a physically active lifestyle, combined with a balanced diet, may decrease the risk of developing several chronic noncommunicable diseases (NCDs)<sup>(1)</sup>.

In Brazil, NCDs also constitute a serious public health problem, accounting for 72% of the causes of death, especially cardiovascular diseases (31.3%), cancer (16.3%), chronic respiratory disease (5.8%), and diabetes (5.2%), reaching individuals of all socioeconomic levels<sup>(2,3)</sup>. In developing countries, such as Cuba, Chile, Argentina, Colombia, Ecuador and Peru, the NCDs accounted for 86%, 84%, 81%, 71%, 67%, and 66%, respectively. Worldwide, in 2008, according to the World Health Organization, the NCDs accounted for 63% of deaths, 80% of them occurring in developing countries<sup>(4,5)</sup>.

The genetic component represents a risk factor in the development of NCDs, especially for obesity, diabetes mellitus and hypertension. Several studies associate genetic predisposition with the development of such diseases in individuals with family history of those illnesses, being observed strong correlation between systemic hypertension and the family history of the same disease in 95.6% of the

subjects, and increase by 2.5 times in the prevalence of obesity in individuals who reported having obese father and mother<sup>(6,7)</sup>.

With the disposal of the benefits brought by physical activity and healthy nutrition, the increase in the use of food supplements, especially by young adults, has also emerged. However, the lack of information about proper eating habits, the influence of media, and restricted access to qualified professionals are factors that lead to abusive self-prescription and the adoption of eating behaviours not always able to provide the goals expected for consumers of these products<sup>(8,9)</sup>.

In the academic environment, Physical Education students seem to adopt a moderate consumption of dietary supplements, mainly indicated by training instructors and sports coaches<sup>(10)</sup>. Researches with other students in the health area, particularly of Medicine, Pharmacy and Nursing, have also revealed the significant consumption of supplements as routine practice, especially supplements of vitamins and minerals<sup>(11,12,13)</sup>.

In this context, among the changes in lifestyle related to the beginning of the academic life, are the decrease in practice of physical activity and changes in the undergraduates' eating habits<sup>(14,15)</sup>. These changes can affect the students' nutritional status, making them vulnerable to circumstances that could endanger their health, and facilitate the development of NCDs, considered this an important theme for study and combat in the public health field.

Given the above, and considering that these students will be future professionals responsible for disseminating information on health and quality of life for the population, this study aimed to investigate the family history of chronic noncommunicable diseases, practice of physical activity, and food habits in healthcare students from a private institution in Fortaleza, Ceará.

## METHODS

This was an observational, cross-sectional and analytical study, developed in a private higher education institution in Fortaleza, Ceará. The inclusion criterion for participation in the research was to be regularly enrolled in Nutrition, Physical Therapy or Physical Education courses, specifically between the 3rd and the 6th semester, in 2011.

Of 1,254 students enrolled, 523 were not present for the delivery of the term and questionnaire and 348 did not complete properly the questionnaires or did not return it. Thus, 383 healthcare students of both sexes were evaluated – Nutrition (n=220), Physical Therapy (n=96) and Physical Education (n=67) – featuring a nonprobabilistic convenience sample.

Data collection was performed by means of a previously designed self-applied questionnaire, which investigated socioeconomic variables (age, gender, semester, travel, family income and marital status), family history of NCDs (hypertension, diabetes mellitus and obesity), frequency of physical activity, use of nutritional supplements (amount and indication), and eating habits (frequency of consumption of fruits, juices, vegetables, milk and dairy products).

The approach to the volunteers occurred in the beginning or at the end of classes, based on the information about schedules and classrooms provided by the Teacher General Secretariat of the institution, with prior knowledge of the discipline professor. The researcher introduced himself and explained the purpose and importance of the research. After that, the volunteer students received the questionnaires, along with the free and informed consent.

Data analysis was performed with the aid of SPSS for Windows, version 13.0 (Chicago, IL, USA). The chi-square test was used to evaluate the significant difference between categorical variables. Mean and standard deviation were used for the presentation of the continuous variables and the ANOVA test to compare these variables. The significant statistical level was established at  $p < 0.05$ .

The study was approved by the Ethics Committee of Estácio do Ceará University Centre (Opinion n.º 076/10), as

determined by the National Health Council by Resolution 466/12.

## RESULTS

The 383 students evaluated had a mean age of  $23.8 \pm 5.2$  years and represented 30.5% of all the students enrolled. Of these, 69 (18%) were male, 381 (81%) were single and 220 (57.4%) were enrolled in the Nutrition course.

There was a significant difference between the frequency of male and female according to the course, being the female gender less observed in the Physical Education course. As regards the family income, the majority of students ( $n=171$ ; 44.7%) had income of 3-5 minimum wages, with higher prevalence of Physical Education students ( $n=107$ ; 44.7%), being observed significant difference between the evaluated courses ( $p=0.031$ ) (Table I).

Regarding the family history of NCD, 230 (60.1%) students were familiar with hypertension; 177 (46.2%) with diabetes mellitus; and 128 (33.4%) with obesity (Table II).

Data on physical activity and use of supplements are presented in Table III, being evidenced a higher prevalence of physical inactivity among students of Nutrition ( $n=90$ ; 40.9%), while the highest frequency of

Table I - Description of the students according to age and socioeconomic aspects. Fortaleza, CE, 2012.

Variables	Nutrition n (%)	Physical Therapy n (%)	Physical Education n (%)	Total n (%)	<i>p</i>
<b>Age (mean±SD)</b>	23.90 ± 4.95	23.49 ± 5.43	23.67 ± 5.44	23.76 ± 5.15	0.796
<b>(Min – Max)</b>	(18 - 45)	(18 - 47)	(18 - 45)	(18 - 47)	
<b>Sex</b>					0.000*
Male	23 (10.5)	18 (18.8)	28 (41.8)	69 (18.0)	
Female	197 (89.5)	78 (81.2)	39 (58.2)	314 (82.0)	
<b>Marital status</b>					0.318
Single	169 (76.8)	83 (86.5)	58 (86.6)	310 (81.0)	
Married	47 (21.4)	11 (11.5)	8 (11.9)	66 (17.2)	
Living common law	2 (0.9)	1 (1.0)	1 (1.5)	4 (1.0)	
Separated or divorced	2 (0.9)	1 (1.0)	0 (0.0)	3 (0.8)	
<b>Family income</b>					0.031*
1-2 MW	29 (13.2)	9 (9.4)	2 (3.0)	40 (10.4)	
3-5 MW	88 (40.0)	41 (42.7)	42 (62.7)	171 (44.7)	
6-10 MW	74 (33.6)	31 (32.3)	15 (22.4)	120 (31.3)	
Above 10 MW	29 (13.2)	15 (15.6)	8 (11.9)	52 (13.6)	

\* $p < 0.05$

activity was observed in Physical Education students, 14 of which (20.9%) frequently practice it, and 29 (43.4%) always do it. Among the students who use supplements, those who consume more are also the Physical Education undergraduates (n=20; 29.9%).

On dietary habits, it was found that 223 (58.2%), 218 (56.9%), 191 (49.9%), and 296 (77.3%) students make daily consume of fruits, juices and vegetables, milk and dairy products, respectively. However, there was no difference in food consumption of food groups between each of the courses (Table IV).

Table II - Description of the students according to family history of chronic noncommunicable disease (NCD). Fortaleza, CE, 2012.

Family history of chronic diseases	Nutrition n (%)	Physical Therapy n (%)	Physical Education n (%)	Total n (%)	<i>P</i>
Hypertension					
Yes	137 (62.3)	58 (60.4)	35 (52.2)	230 (60.1)	0.339
No	83 (37.7)	38 (39.6)	32 (47.8)	153 (39.9)	
Diabetes Mellitus					
Yes	97 (44.1)	46 (47.9)	34 (50.7)	177 (46.2)	0.587
No	123 (55.9)	50 (52.1)	33 (49.3)	206 (53.8)	
Obesity					
Yes	79 (35.9)	24 (25.0)	25 (37.3)	128 (33.4)	0.127
No	141 (64.1)	72 (75.0)	42 (62.7)	255 (66.6)	

Table III - Description of the students according to the practice of physical activity and the use of dietary supplements. Fortaleza, CE, 2012.

Variables	Nutrition n (%)	Physical Therapy n (%)	Physical Education n (%)	Total n (%)	<i>P</i>
<b>Frequency of physical activity</b>					
Rarely/Never	90 (40.9)	29 (30.2)	10 (14.9)	129 (33.7)	0.00*
Sometimes	54 (24.5)	29 (30.2)	14 (20.9)	97 (25.3)	
Frequently	36 (16.4)	21 (21.9)	14 (20.9)	71 (18.5)	
Always	40 (18.2)	17 (17.7)	29 (43.3)	86 (22.5)	
<b>Use of supplement</b>					
Yes	46 (20.9)	20 (20.8)	20 (29.9)	86 (22.5)	0.279
No	174 (79.1)	76 (79.2)	47 (70.1)	297 (77.5)	
<b>Number of types of supplements used</b>					
One supplement	34 (15.5)	12 (12.5)	8 (11.9)	54 (14.1)	0.042*
Two or more supplements	12 (5.4)	8 (8.3)	12 (18.0)	32 (8.4)	
None	174 (79.1)	76 (79.2)	47 (70.1)	297 (77.5)	
<b>Indication for the supplement</b>					
Instructor, coach or physical education professor	10 (4.5)	7 (7.3)	2 (3.0)	19 (5.0)	0.297
Friends	6 (2.7)	2 (2.1)	2 (3.0)	10 (2.6)	
Your own	17 (7.7)	5 (5.2)	8 (11.9)	30 (7.8)	
Nutritionist	5 (2.3)	4 (4.2)	6 (9.0)	15 (3.9)	
Doctor	1 (0.5)	0 (0.0)	1 (1.5)	2 (0.5)	
Supplements store salesperson	5 (2.3)	0 (0.0)	1 (1.5)	6 (1.6)	
Others	2 (0.9)	2 (2.1)	0 (0.0)	4 (1.1)	

\*p<0.05

Table IV - Description of the students according to the dietary habits. Fortaleza, CE, 2012.

Dietary habits	Nutrition n (%)	Physical Therapy n (%)	Physical Education n (%)	Total n (%)	<i>p</i>
<b>Food consumption Fruits</b>					
Everyday	125 (56.8)	56 (58.3)	42 (62.7)	223 (58.2)	0.824
Every week	78 (35.5)	34 (35.4)	19 (28.3)	131 (34.2)	
Rarely/Never	17 (7.7)	6 (6.3)	6 (9.0)	29 (7.6)	
<b>Juices</b>					
Everyday	116 (52.7)	64 (66.7)	38 (56.7)	218 (56.9)	0.247
Every week	96 (43.6)	29 (30.2)	27 (40.3)	152 (39.7)	
Rarely/Never	8 (3.7)	3 (3.1)	2 (3.0)	13 (3.4)	
<b>Legumes and vegetables</b>					
Everyday	111 (50.5)	46 (47.9)	34 (50.7)	191 (49.9)	0.988
Every week	92 (41.8)	42 (43.8)	27 (40.3)	161 (42.0)	
Rarely/Never	17 (7.7)	8 (8.3)	6 (9.0)	31 (8.1)	
<b>Milk and dairy products</b>					
Everyday	169 (76.8)	75 (78.1)	52 (77.6)	296 (77.3)	0.981
Every week	46 (20.9)	18 (18.8)	13 (19.4)	77 (20.1)	
Rarely/Never	5 (2.3)	3 (3.1)	2 (3.0)	10 (2.6)	

## DISCUSSION

By analysing the socioeconomic data of the sample, it was observed that most of the students were female (82%), single (81%) and had wage income in the range of 3 to 5 minimum wages, as observed in other studies with students of health courses<sup>(15,16,17,18)</sup>.

In the present study, a significant percentage of students were found with a family history of NCDs, a result similar to that observed in a study with healthcare students of a public university in Recife, which observed family history of hypertension, obesity and diabetes in 35.2%, 20% and 11.2% of students, respectively<sup>(16)</sup>. This high rate is worrisome, given that NCDs are strongly associated with genetic factors. Furthermore, they are the main causes of death in the world and have generated high premature mortality; loss of quality of life, with high degree of limitation in work and leisure activities; in addition to economic impacts on families, communities and society in general<sup>(19)</sup>.

A considerable level of physical inactivity was found in the study population: 33.7%. Similar results were observed in the evaluation of health area university students in the University of Brasília, where sedentary lifestyle was found in 65.5% of them<sup>(15)</sup>, and in a public university of Recife,

where the presence of inactivity was observed in 41.7% of those assessed<sup>(16)</sup>.

With students from two different public universities, located in Santa Catarina and Brasília, a low frequency in the practice of physical activity was observed in 30.8% and 31.2% of the evaluated students, respectively<sup>(14,20)</sup>. These findings indicate that a sedentary lifestyle characterizes a significant proportion of young people in the academic environment, who also have a family history of NCD.

The absence of physical activity among students in the health area seems to be constant, despite having knowledge about its importance and necessity. It is possible that physical inactivity in this population may be due to the overburden with classroom hours and the need to spend free time in further activities related to university<sup>(21)</sup>. In addition, the university students are continually subject to work, delivery times, long hours of study and both physical and mental exhaustion, contributing to the low level of activity seen in most studies of this group<sup>(17)</sup>. Added to this the fact that students also have conventional work obligations, which demand time and reduce the availability for the practice of physical exercise.

On the use of supplements, 22.5% of the total sample reported consuming them - 18% of Physical Education undergraduates consume two or more types of supplements,

and 11.9% of them consume one type of supplement, representing the students who most reported consuming supplements in this study.

Nevertheless, a study with healthcare students found that 9% of them were taking dietary supplements, mainly some vitamins and minerals complex<sup>(15)</sup>. Corroborating this finding, an evaluation of the consumption of vitamin products by university students in São Paulo found that 13.5% of the sample made daily use of these supplements and 23.1% used them at least once a week<sup>(22)</sup>.

A result evidenced in this study was the use of food supplements, showing that most of the students assessed use these products without the guidance of a specialist (7.8%). Nutritionists and doctors are the only professionals legally qualified for food supplements prescription<sup>(9)</sup>. Its indiscriminate use can bring harm to health, such as dehydration, hypercalciuria, weight gain, kidney and liver overload, or even irreversible adverse effects, particularly in women, possibly affecting the reproductive system, besides causing mental disorders<sup>(23)</sup>.

With regard to the investigation of eating habits, 58.2%, 56.9%, 44.9%, and 77.3% of the assessed students report daily consumption of fruits, juices, vegetables, milk, and dairy products, respectively; however, the consumed amounts of each food group were not evaluated. A study involving 253 healthcare students in the University of Pernambuco found that 71.5%, 50.2%, and 79.1% of the undergraduates had adequate consumption of fruits and fruit juices, vegetables, milk and/or dairy products, respectively<sup>(18)</sup>.

However, in other studies, a low consumption of the food groups investigated in this work has been verified. A study conducted in 2010<sup>(24)</sup> to investigate the dietary habits of students at a public university in the Northeast, regardless of gender, verified low intake of fruits, vegetables and legumes, representing an inadequacy of 67.7% for fruit and 84.5% for vegetables and legumes. Similarly, in 2008<sup>(15)</sup>, by evaluating 281 college students in the area of health at the University of Brasília, between the 3rd and the 5th semester, it was found that 76.9% and 75.1% of the students had an inadequate intake of milk and dairy products, fruits and vegetables, respectively.

One hypothesis for this eating behaviour among undergraduates is that, in the context of university life, a great part of the students is committed to having a good academic performance, and willing to participate in the cultural and social life provided by the university, whereas for many, providing and taking care of food is not seen as a priority or something of importance<sup>(14)</sup>. Other factors are comprised in

this issue, such as the absence of family control over food, financial constraints, and their failure in providing for their own food without the family's aid.

The healthcare behaviours among college students has been the subject of various studies that show a worrisome picture: healthy eating habits and physical exercise showed no significant differences between students at the beginning and end of the course, despite the knowledge acquired during the undergraduate course<sup>(25)</sup>. Additionally, some habits that are harmful to health were in higher percentages among the graduates. As a result, many health professionals, even holding enough knowledge to acquire healthy habits, remain with inadequate health behaviours.

These findings are reinforced by the results of a survey conducted in seven states in the South and Northeast of Brazil, with health professionals, where 27% of the individuals presented themselves sedentary. In addition, in the Northeast, schooling was associated with physical inactivity, and professionals with post-graduation degree were the most sedentary. It was also evidenced that, the higher the socioeconomic status of health professionals, the higher is the sedentariness<sup>(26)</sup>.

In view of the results observed in this and other studies that show unhealthy behaviours on the part of the students, which may extend to post-academic life, it is necessary to encourage healthcare undergraduates to adopt healthy practices, given that they should become multipliers of health information and promoters of strategies for disease prevention.

It is noteworthy that the main limitation of the study refers to the sample of students evaluated by course, for having used the convenience method, which may influence the results regarding dietary habits or the practice of activity associated with supplement use. Furthermore, the amount of food consumed by the students during the day has not been evaluated, what could lead to under- or overestimation of the consumption frequency.

## CONCLUSION

A substantial portion of students has a regular consumption of healthy foods such as fruits, juices, vegetables, milk and dairy products, although a large part of them consume dietary supplements on their own, posing a risk to health.

In addition, the evaluated students showed a considerable level of inactivity. It stands out that most of them have a family history of NCDs.

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