

RISK FACTORS FOR NON-COMMUNICABLE DISEASES AND SOCIODEMOGRAPHIC VARIABLES OF CIVIL SERVANTS

Fatores de risco para doenças crônicas não transmissíveis e variáveis sociodemográficas de servidores públicos

Factores de riesgo para enfermedades crónicas no trasmisibles y las variables sociodemográficas de funcionarios

Original Article

ABSTRACT

Objective: To associate risk factors for chronic noncommunicable diseases (NCDs) with sociodemographic variables of public servants of a higher education institution. **Methods:** Cross-sectional study conducted from 2012 to 2013. It was used a questionnaire with socio-demographic variables, risk factors for NCDs and weight and height measurement of respondents. Nutritional status was classified according to the body mass index. Data were analyzed by Epi-Info 3.2.1 and Bioestat 5.0 softwares. Associations were checked by Yates' chi-squared test, trend test and Fisher's exact test ($p \leq 0.05$). **Results:** A total of 225 servants participated in the study, most being women (64.4%), aged between 45-54 years (37.3%), and with more than 12 years of education (85.8%). The gender was associated with excess weight ($p=0.034$), daily consumption of whole milk ($p=0.023$), insufficient intake of fruits and vegetables ($p=0.020$) and insufficient intake of beans ($p=0.000$), being more frequent among women. As to men, the excessive consumption of alcoholic beverages ($p=0.000$) was more frequent. Excess weight was associated with age ($p=0.008$). Smoking ($p=0.004$) and daily consumption of whole milk ($p=0.016$) were associated with education. **Conclusion:** There was high prevalence of risk factors for chronic noncommunicable diseases in the study sample, being associated with gender, age and education. Excess weight presented greater occurrence among women and in individuals aged over 45 years, women's inadequate eating habits, higher consumption of alcohol among men and smoking habit in individuals with higher education levels.

Descriptors: Risk Factors; Chronic Diseases; Lifestyle.

RESUMO

Objetivo: Associar fatores de risco para doenças crônicas não transmissíveis (DCNT) com variáveis sociodemográficas de servidores de uma instituição pública de ensino superior. **Métodos:** Estudo transversal, realizado no período de 2012 a 2013. Utilizou-se um questionário com variáveis sociodemográficas, fatores de risco para DCNT e aferição de peso e estatura. Classificou-se o estado nutricional de acordo com o índice de massa corporal. Analisaram-se os dados pelos programas Epi-Info 3.2.1 e Bioestat 5.0. As associações foram verificadas pelos testes qui-quadrado de Yates, de tendência e exato de Fisher ($p \leq 0,05$). **Resultados:** Participaram 225 servidores, maioria de mulheres (64,4%), na faixa etária entre 45-54 anos (37,3%) e escolaridade superior a 12 anos de estudo (85,8%). O sexo associou-se ao excesso de peso ($p=0,034$), consumo diário de leite integral ($p=0,023$), consumo insuficiente de frutas, legumes e verduras - FLV ($p=0,020$) e consumo insuficiente de feijão ($p=0,000$), sendo mais frequentes entre mulheres. Entre os homens, foi mais frequente o consumo excessivo de bebida alcoólica ($p=0,000$). O excesso de peso associou-se à faixa etária ($p=0,008$). O hábito de fumar ($p=0,004$) e o consumo diário de leite integral ($p=0,016$) apresentaram associação com a escolaridade. **Conclusão:** Encontrou-se elevada prevalência de fatores de risco para doenças crônicas não transmissíveis na amostra estudada, com associação para sexo, faixa etária e escolaridade. O excesso de peso apresentou maior ocorrência nas mulheres e nas idades acima de 45 anos, hábitos alimentares inadequados no sexo feminino, maior ingestão de bebida alcoólica no masculino e hábito de fumar nos indivíduos com maior escolaridade.

Descritores: Fatores de Risco; Doenças Crônicas; Estilo de Vida.

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RESUMEN

Objetivo: Asociar los factores de riesgo para enfermedades crónicas no transmisibles (ECNT) y las variables sociodemográficas de los funcionarios de una institución pública de enseñanza superior. **Métodos:** Estudio transversal realizado entre el período de 2012 y 2013. Se utilizó un cuestionario con las variables sociodemográficas, los factores de riesgo para las ECNT y la evaluación del peso y la estatura de los entrevistados. Se clasificó el estado nutricional según el índice de masa corporal. Los datos fueron analizados con los Programas Epi-Info 3.2.1 y el Bioestat 5.0. Las asociaciones fueron verificadas a través de las pruebas de Chi-cuadrado de Yates, de tendencia y el test exacto de Fisher ($p \leq 0,05$). **Resultados:** Participaron 225 funcionarios en su mayoría mujeres (64,4%) en la franja de edad entre 45-54 años (37,3%) y más de 12 años de estudio (85,8%). El sexo se asoció con el exceso de peso ($p=0,034$), el consumo diario de la leche integral ($p=0,023$), el consumo insuficiente de frutas, legumbres y verduras – FLV ($p=0,020$) y el consumo insuficiente de frijoles ($p=0,000$), más frecuentes en las mujeres. El consumo excesivo de bebida alcohólica fue más frecuente entre los hombres ($p=0,000$). El exceso de peso se asoció con la franja de edad ($p=0,008$). La costumbre de fumar ($p=0,004$) y el consumo diario de la leche integral ($p=0,016$) se asociaron con la escolaridad. **Conclusión:** Se encontró elevada prevalencia de los factores de riesgo para las enfermedades crónicas no transmisibles en la muestra investigada y su asociación con el peso, la franja de edad y la escolaridad. El exceso de peso se dio más en las mujeres de más de 45 años, con hábitos alimentarios inadecuados para el sexo femenino, mayor ingestión de bebida alcohólica en los hombres y la costumbre de fumar en los individuos con más escolaridad.

Descriptor: Factores de Riesgo; Enfermedad Crónica; Estilo de Vida.

INTRODUCTION

In the last decades, Brazil has gone through several sociodemographic and economic changes that led to significant changes in people's lifestyle and converged on a diet high in fats, sugars, refined foods, low in complex carbohydrates and fiber, as well as a progressive decline in physical activity and increased alcoholism and smoking. These factors combined have contributed to significant changes in the nutritional and epidemiological profile and in the morbidity and mortality pattern of the population, with increased prevalence of chronic noncommunicable diseases (NCDs)⁽¹⁻³⁾.

NCDs are responsible for the highest morbidity and mortality rates in the country and the largest proportion of expenditure on outpatient and hospital care⁽⁴⁾.

According to the World Health Organization (WHO)⁽⁵⁾, one of the main risk factors for the onset of NCDs is excess weight, which can result from unhealthy lifestyle habits such as inadequate nutrition and insufficient physical activity.

According to estimates of the *Pesquisa de Orçamentos Familiares* (Consumer Expenditure Survey) (2008-2009)⁽⁶⁾, the prevalence of overweight and obesity in adults in Brazil has been on the rise: circa 49% of the adult population is overweight and 15% is obese.

The increased prevalence of individuals with excess weight also increases the frequency of people with one or more comorbid conditions such as hypertension, type 2 diabetes, cardiovascular disease, and other chronic diseases, which are debilitating and have high social costs that end up, therefore, raising mortality rates⁽⁷⁾.

Health promotion enables the individual and society to work on the improvement of quality of life and health, including greater participation in controlling the process to obtain a complete state of physical, mental and social well-being to identify the aspirations and needs, and thus be able to favorably modify lifestyle and environment⁽⁸⁾.

Analyzing health-related lifestyle habits of different populations can bring valuable contributions to the understanding of the prevalence of lifestyle-related diseases, especially the NCDs (9). Thus, knowledge of the distribution of risk and protective factors is essential to work on the health-disease process in order to develop specific policies for the improvement of the population's quality of life, allowing also the monitoring of these actions⁽¹⁰⁾.

In public higher education institutions, there are various kinds of occupations, such as teaching and administrative functions, which are little studied, especially regarding the nutritional status and lifestyle habits of these servants. In this context, the present study aimed to associate risk factors for chronic noncommunicable diseases (NCDs) with sociodemographic variables of public servants of a higher education institution.

METHODS

This is an analytical descriptive cross-sectional study conducted from March 2012 to November 2013. It used a convenience sample of technical administrators and teachers, regardless of gender, allocated in the various institutes of the Federal University of Pará, Belém Campus, Brazil.

The study included servants who were exercising their functions without physical limitations that would prevent

them from taking anthropometric measurements and filling in the research form. Pregnant women and people with special needs were excluded from the research.

Data were collected through interviews using an author-developed form based on the study variables.

Anthropometric measurements – weight and height – were collected in accordance with procedures described in the Anthropometric Standardization Reference Manual⁽¹¹⁾ and the guidelines of the Ministry of Health⁽¹²⁾. Weight was measured twice using a Seca® digital scale with a capacity of 180 kg and accuracy of 100g. Height was measured twice using a Altarexata® stadiometer with 1 mm accuracy. Weight and height measures were used to calculate the body mass index (BMI), in which the weight in kilograms was divided by the square of height in meters.

Sociodemographic variables (gender, age, education, marital status, self-reported color/race and function) were collected. The variables related to the risk factors were: 1) excess weight (BMI, considered risky from ≥ 25 kg/m²)⁽¹³⁾, including the diagnosis of pre-obesity and obesity; 2) smoking; 3) alcohol consumption, considered abusive from the consumption of more than four drinks for women and five drinks for men on the same occasion at least once in the last thirty days, with one alcoholic drink being either one distilled spirit, one can of beer, or a glass of wine^(2,14); 4) physical activity, assessed according to the categorization recommended by the WHO⁽¹⁵⁾, considering insufficiently active during leisure those that met the following criteria: mild or moderate intensity physical activity for less than 150 minutes per week or vigorous intensity physical activity for less than 75 weekly minutes during leisure time; and 5) food consumption, considered as a risk factor in the following situations: intake of fruits and vegetables (FV) \leq five times a week, bean consumption \leq five times a week, soft drink consumption \geq five days a week, consumption of meat with apparent fat and intake of whole milk daily^(2,14).

The previous diagnosis of the following self-reported morbidities were also considered risk factors: hypertension, diabetes, dyslipidemia and cardiovascular disease^(2,14).

Descriptive and inferential analysis was performed using Epi Info⁽¹⁶⁾ version 3.2.1 and Bioestat⁽¹⁷⁾ version 5.0. Associations between sociodemographic variables and variables considered as risk factors were checked using the Yates' chi-squared test, Fisher's exact test and the chi-squared test for trend with a significance level of 5% ($p < 0.05$).

The study complied with Resolution 466/12 and was approved by the *Comitê de Ética em Pesquisa em Seres Humanos do Instituto de Ciências da Saúde da Universidade Federal do Pará – CEP-ICS/UFPA* (Human Research Ethics Committee of the Institute of Health Sciences of the Federal University of Pará) under Opinion No. 262/11.

RESULTS

A total of 225 servants participated in the research: 162 (72%) technical administrators and 63 (28%) teachers. They were mostly women (64.4%; $n=145$), aged 45-54 years (37.3%; $n=84$), with a mean age of 47 years (± 11.3 years), self-reported color *parda* (63.6%; $n=143$), and with more than 12 years of education (85.8%; $n=193$). The majority of servants interviewed reported being married or living in a common-law marriage (54.7%; $n=123$) (Table I).

In the overall sample of servants, the most frequent risk factors were the insufficient intake of FV (65.8%; $n=148$), excess weight (64.0%; $n=144$), daily consumption of whole milk (61.3%; $n=138$), insufficient physical activity and insufficient bean consumption, both with (55.1%; $n=124$). Excessive alcohol use was reported by 29.8% ($n = 67$). Among the morbidities reported by respondents, the most frequent one was dyslipidemia (29.8%, $n=67$), followed by hypertension (25.9%, $n=58$).

Risk factors were associated with gender (Table II). Risk factors associated with gender were excess weight, with 59.0% ($p=0.034$), daily consumption of whole milk 59.4% ($p=0.023$), insufficient intake of FV, 58.8% ($p=0.020$), and consumption of beans less than five days a week, 76.8% ($p=0.000$), with higher prevalence among women. Excessive alcohol use was also associated with gender, being more frequent among men, 59.7% ($p=0.000$).

Table III shows the association between risk factors for NCDs and age group. In this aspect, it was observed that risk factors were most frequent among servants in the age group 45-54 years, except the self-reported morbidities diabetes and cardiovascular disease, which were most frequent in the age group 55-64 years (54.5% and 42.9%, respectively). Excess weight presented an increasing trend up to the age of 54, declining in the following age groups ($p=0.008$).

Table IV describes the results of the association between education and risk factors. Only smoking ($p=0.004$) and daily consumption of whole milk ($p=0.016$) were associated with higher levels of education (in years).

Table I – Distribution of servants by gender according to sociodemographic variables. Belém, PA, 2012-2013.

Sociodemographic variables	Sample		Gender			
			Men (n=80)		Women (n=145)	
	n	%	n	%	n	%
Age group						
18-24	09	4.0	03	3.8	06	4.1
25-34	33	14.7	14	17.5	19	13.1
35-44	34	15.1	13	16.3	21	14.5
45-54	84	37.3	27	33.8	57	39.3
55-64	61	27.1	21	26.3	40	27.6
≥65	04	1.8	02	2.5	02	1.4
Marital status						
Married/common-law marriage	123	54.7	52	65.0	71	49.0
Single	63	28.0	17	21.3	46	31.7
Widowed/divorced	39	17.3	11	13.8	28	19.3
Education years						
9-11	32	14.2	12	15.0	20	13.8
12 or more	193	85.8	68	85.0	125	86.2
Self-reported color/race						
Yellow	05	2.2	01	1.3	04	2.8
White	59	26.2	20	25.0	39	26.9
Black	18	8.0	08	10.0	10	6.9
Parada	143	63.6	51	63.4	92	63.8
Function						
Teacher	63	28.0	21	26.3	42	29.0
Technical administrator	162	72.0	59	73.8	103	71.0

Table II – Distribution of servants according to gender associated with risk factors for Chronic Noncommunicable Diseases (NCDs). Belém, PA, 2012- 2013.

Risk factors for NCDs	Sample		Gender		p
	n	%	Men (%)	Women (%)	
Excess weight	144	64.0	41.0	59.0	0.034 ^a
Smoking	13	5.8	46.2	53.8	0.294 ^b
Alcohol consumption	67	29.8	59.7	40.3	0.000 ^a
Insufficient physical activity*	124	55.1	30.6	69.4	0.117 ^a
Insufficient intake of FV (≤ 5 x/ week)	148	65.8	41.2	58.8	0.020 ^a
Daily consumption of whole milk	138	61.3	40.6	59.4	0.023 ^b
Consumption of meat with fat	55	24.6	41.8	58.2	0.313 ^a
Intake of beans (≤ 5x/week)	124	55.1	23.2	76.8	0.000 ^a
Consumption of soft drinks (≥ 5x /week)	22	9.8	50.0	50.0	0.209 ^a
Hypertension**	58	25.9	36.2	63.8	0.945 ^a
Diabetes**	11	4.9	18.2	81.8	0.362 ^b
Dyslipidemias**	67	29.8	28.4	71.6	0.188 ^a
Cardiovascular diseases**	14	6.2	50.0	50.0	0.188 ^b

^a Yates' chi-squared test; ^b Fisher's Exact Test

BMI – Body mass index; FV – Fruit and vegetables > four drinks for women and five drinks for men on the same occasion at least once in the last thirty days; * < 150 minutes/week in moderate intensity or < 75 minutes/week in vigorous intensity during leisure; **Self-reported morbidities

Table III – Distribution of servants according to age group associated with risk factors for chronic Noncommunicable Diseases (NCDs). Belém, PA, 2012-2013.

Risk factors for NCDs	Sample		Age group						p
	n	%	18-24 (%)	25-34 (%)	35-44 (%)	45-54 (%)	55-64 (%)	>65 (%)	
Excess weight (BMI \geq 25kg/m ²)	144	64.0	0.7	13.9	14.6	38.9	29.9	2.1	0.008 ^a
Smoking	13	5.8	-	-	-	61.5	38.5	-	-
Alcohol consumption	67	29.8	7.5	11.9	11.9	40.3	26.9	1.5	0.829 ^a
Insufficient physical activity*	124	55.1	4.0	13.7	12.1	41.9	27.4	0.8	0.650 ^a
Insufficient intake of FV (\leq 5 x/ week)	148	65.8	4.1	15.1	11.5	37.8	29.7	1.4	0.536 ^a
Daily consumption of whole milk	138	61.3	3.2	14.4	12.0	38.4	28.8	3.2	0.385 ^a
Consumption of meat with fat	55	24.6	5.5	12.7	14.5	36.4	27.3	3.6	0.791 ^a
Intake of beans (\leq 5x/week)	124	55.1	1.6	14.4	16.8	43.2	24.0	-	-
Consumption of soft drinks (\geq 5x /week)	22	9.8	4.3	26.1	13.0	26.1	30.4	-	-
Hypertension**	58	25.8	-	8.6	6.9	43.1	37.9	3.4	-
Diabetes**	11	4.9	-	-	18.2	18.2	54.5	9.1	-
Dyslipidemias**	67	29.8	-	7.5	14.9	43.3	32.8	1.5	-
Cardiovascular diseases**	14	6.2	-	14.3	7.1	28.6	42.9	7.1	-

^a Chi-squared test for trend

BMI – Body mass index; FV – Fruit and vegetables > four drinks for women and five drinks for men on the same occasion at least once in the last thirty days; * < 150 minutes/week in moderate intensity or < 75 minutes/week in vigorous intensity during leisure; **Self-reported morbidities

Table IV – Distribution of servants according to education years associated with risk factors for chronic Noncommunicable Diseases. Belém, PA, 2012-2013.

Risk factors for NCDs	Sample		Education years		p
	n	%	9-11 years (%)	\geq 12 years (%)	
Excess weight (BMI \geq 25kg/m ²)	144	64.0	17.4	82.6	0.143 ^a
Smoking	13	5.8	46.2	53.8	0.004 ^a
Alcohol consumption	67	29.8	19.4	80.6	0.214 ^a
Insufficient physical activity*	124	55.1	16.1	83.9	0.474 ^a
Insufficient intake of FV (\leq 5 x/ week)	148	65.8	16.9	83.1	0.165 ^a
Daily consumption of whole milk	138	61.9	19.2	80.8	0.016 ^a
Consumption of meat with fat	55	24.6	16.4	83.6	0.775 ^a
Intake of beans (\leq 5x/week)	124	55.1	16.0	84.0	0.508 ^a
Consumption of soft drinks (\geq 5x /week)	22	9.8	21.7	78.3	0.212 ^a
Hypertension**	58	25.8	10.3	89.7	0.445 ^a
Diabetes**	11	4.9	18.2	81.8	0.481 ^a
Dyslipidemias**	67	29.8	14.9	85.1	0.990 ^a
Cardiovascular diseases**	14	6.2	7.1	92.9	0.379 ^a

^a Yates' chi-squared test.

BMI – Body mass index; FV – Fruit and vegetables > four drinks for women and five drinks for men on the same occasion at least once in the last thirty days; * < 150 minutes/week in moderate intensity or < 75 minutes/week in vigorous intensity during leisure; **Self-reported morbidities

DISCUSSION

In the present study, we observed high frequencies of risk factors like excess weight, insufficient physical activity, alcohol consumption and inadequate food consumption, showing that the studied servants follow national trends found in research on risk factors for NCDs^(6,10,14).

The negative effects of the globalization, rapid urbanization, sedentary lifestyle, high calorie foods and marketing that encourage the use of tobacco and alcohol are the factors that have an influence on the increasing burden of NCDs in Brazil⁽¹⁸⁾.

Excess weight is the fifth leading risk factor for NCD that is linked to more deaths worldwide. Each year, about 2.8 million adults die due to factors linked to excess weight⁽⁴⁾. Moreover, 44% of the total diabetes cases, 23% of ischemic heart disease and 7-41% of some types of cancer are attributed to excess weight⁽¹⁹⁾.

In the present study, the frequency of excess weight covered more than half of the sample and tended to increase with age up to 54 years, and with increasing education, being proportionally higher among women. This group was also most frequently exposed to risk factors that trigger such condition, like the insufficient physical activity and inadequate nutrition.

This result is similar to those found in research with adults in the city of Salvador, Bahia⁽²⁰⁾ and in the city of Rio Branco, AC⁽²¹⁾, where the prevalence of excess weight was higher among women. However, it differs from the Brazilian trend of excess weight prevalence⁽¹⁴⁾ and from the results found among servants of other educational and research institutions, where the frequency of excess weight was higher among women and among individuals with less education^(7,19). Nonetheless, it corroborates the results of a national research on excess weight associated with age, which also showed a rising trend of excess weight up to the age of 54⁽¹⁴⁾.

Abusive alcohol consumption is another risk factor that brings numerous consequences for health and quality of life, increasing the frequency of comorbidities that lead to death or functional limitations⁽²²⁾. In the present study, the frequency of alcohol consumption was 29.8%. The results of this study indicate that men constitute the group with higher frequency of alcohol abuse; therefore, they are most susceptible to its adverse effects.

These results agree with the data from the first national survey on alcohol consumption in Brazil, which shows that the percentage of Brazilians who report regular alcohol consumption ranges from 32.4% to 58.6%, with the highest rates among men⁽²²⁾.

A national research showed that there is a positive relationship between higher levels of education and higher consumption of alcohol, which is similar to the findings in the present study, in which the highest frequency of alcohol consumption was among servants with 12 or more years of education⁽¹⁴⁾.

Estimates show that the high intake of alcohol accounts for 4% of all mortality and morbidity worldwide, and this value tends to be increasing⁽²³⁾.

Tobacco use also stands out as one of the main risk factors for NCDs, and estimates of the World Health Organization (WHO)⁽⁵⁾ point to circa six million deaths annually resulting from the direct use of tobacco or by secondhand smoke. In Brazil, a recent study on the burden of diseases related to tobacco pointed out that approximately 13% of deaths, especially those related to NCDs, are attributed to tobacco, generating an annual cost of circa R\$ 21 billion to the *Sistema Único de Saúde - SUS* (Brazil's National Health System)⁽²⁴⁾.

The prevalence of smoking in Brazil reaches about 12.1%, with more men being tobacco users than women⁽¹⁴⁾. A fact that was contrary to that found in the present study, in which smoking accounted for 5.8% of the sample and was more frequent among women.

These results are similar to those found among servants at UNICAMP (6.8%)⁽²⁵⁾, but are much lower than those found among servants at the *Universidade de Brasília - UNB* (University of Brasília) (19.7%)⁽²⁶⁾.

In both genders, the rate of smokers tended to be lower before age 25 or after age 65. The decrease in the frequency of smokers is expected in older age groups, as the cessation of smoking increases due to health concerns or the presence of diseases⁽²⁷⁾.

The frequency of smoking was higher among servants with 12 or more years of education, which differs from the national research conducted in 2012, in which the majority of adult smokers had up to eight years of education⁽¹⁴⁾.

Along with alcohol consumption and smoking, insufficient physical activity is also considered an important risk factor for the emergence of NCDs, given that sedentary lifestyle is linked to the increase in excess weight rates and may lead to other comorbidities⁽⁴⁾.

In the present study, most servants reported insufficient physical activity (55.1%), with the highest prevalence rates among women. This insufficient practice tended to increase with age up to 54 years, similar to the trend observed in a national research⁽¹⁴⁾.

Regular physical activity is a key component for the development of positive aspects related to health, as in the prevention and treatment of metabolic syndrome and

cardiovascular diseases, due to the consequent reduction in body weight and blood pressure and insulin resistance levels. However, it is still observed that few adults in Brazil are physically active⁽²⁸⁾.

In a study with adults in the city of Pelotas, RS⁽²⁹⁾, the rate of insufficient physical activity among respondents was of 75.6%, being more common among women. This result is similar to a study conducted in the city of Duque de Caxias, RJ⁽³⁰⁾, where this risk factor reached a rate of 70.8%, being also prevalent among women.

When studying the eating habits of servants in the present study, we found a high frequency of intake of saturated fats, and a low intake of fruits, vegetables and beans in both genders, which is in accordance with 2008-2009 data from the *Pesquisa de Orçamentos Familiares* (Consumer Expenditure Survey), which shows negative aspects of the dietary pattern of Brazilians, including high intake of unhealthy fats (saturated and trans fats), low intake of fruits and vegetables and high intake of foods with high sugar content⁽³¹⁾.

Several studies have shown an association between inadequate dietary choices, such as the intake of saturated fats and the low intake of vegetables, and the incidence of excess weight and NCDs⁽³⁰⁻³²⁾.

According to WHO data, insufficient fruit and vegetable intake is responsible, annually, for 2.7 million deaths, 31% of ischemic heart diseases, 11% of cerebrovascular diseases and 19% of gastrointestinal cancers worldwide⁽⁵⁾.

Insufficient fruit and vegetable intake in the present study was more frequent among women, differing from the findings of a population-based study on the prevalence of consumption of dietary items in Brazil⁽²⁹⁾, which found that the consumption of FV more than five days a week among adults was less frequent among men (12.9%) than among women (26.9%). However, it is similar to the results found in a study with hotel staff in the Bahia coast, where women had less healthy eating habits, consuming less FV than men⁽³²⁾. A study with adults in the city of Belém, PA⁽³³⁾, found that men consume more meat with visible fat than women; however, the consumption of whole milk was higher among women. In the present study, both the frequency of consumption of meat with visible fat and whole milk were higher among women. The servants in the age group 18-24 and over 65 years old consumed less milk with full fat. These data differ from those found in the POF (2008-2009)⁽³¹⁾, in which the highest consumption of whole milk was among the young and the elderly.

Foods like candies and soft drinks are considered less healthy because their intake causes a high caloric intake^(34,35). Some studies try to find evidence that excessive consumption of sugars can cause adverse health effects;

however, the most consistent association found has been between a high intake of sugar or sweetened beverages and obesity^(36,37).

In this study, the consumption of soft drinks more than five days a week was similar between genders, a result that is different from that of a study on the consumption of soft drinks conducted with adults in Pelotas, RS, which found that soft drink consumption was higher among men⁽³⁰⁾.

The insufficient consumption of beans was prevalent among women, confirming the results of national research⁽¹⁴⁾. The consumption tended to decrease with increasing levels of education and age.

Diseases such as hypertension, diabetes, obesity and dyslipidemia, concomitant or not, are risk factors for cardiovascular disease and are among the leading causes of death among Brazilians⁽³⁸⁾.

Research conducted with public servants in the Northeast, Southeast and South regions of Brazil⁽¹⁹⁾ found that 36.1% of the respondents reported previous diagnosis of hypertension. In the present study, the percentage of previous diagnosis of this disease was 25.8%, with the highest rates among women. Similarly, another study conducted in 2009⁽²⁰⁾ found a higher frequency of hypertension among women.

Dyslipidemias were present in 29.8% of the sample, a result lower than that found among servants in Fortaleza, CE⁽³⁹⁾, where an average of 41.8% of the respondents had dyslipidemia, with the highest prevalence among men – which differs from the servants in the present study, given that the highest prevalence of dyslipidemia was among women aged 45-54 years. It is important to emphasize that serum lipids percentages may increase with age in women due to menopause. This leads to decreased estrogen levels, a hormone considered protective of the cardiovascular system given its lipid profile balancing action, which contributes to the prevention of atherosclerosis⁽⁴⁰⁾.

The results of this study are in agreement with other studies that have shown a direct association between chronic diseases and advancing age^(19,38,39).

Most servants, for holding a higher education degree, portray a subgroup of the population that should, in principle, have a better understanding of the risks of inadequate nutrition, insufficient physical activity and other risk factors, as they should have greater access to information and, therefore, be less exposed to these factors^(10,19,39), i.e., considering that education is an indicator of socioeconomic status of the population, and that high levels of education contribute to better living conditions and health status of groups. However, there were high frequencies of exposure to risk factors among the servants, differing from other studies that have shown that there is a greater association of

some of these factors with lower education levels, especially among women^(3,7,18).

These findings suggest the need to conduct research on health and nutrition periodically, as well as the development and structuring of intervention programs aimed at the implementation of strategies for the prevention of NCDs and improvement in quality of life of the servants assessed.

Despite having some limitations due to the cross-sectional design and the convenience sample, which make it difficult to confirm certain association trends between the variables investigated, the present study is important to clarify aspects related to lifestyle and risk factors for NCDs among the servants of this public higher education institution in Northern Brazil, where research is still limited with regard to issues related to food, nutrition, quality of life and health of this population.

CONCLUSION

It was found a high prevalence of risk factors for chronic noncommunicable diseases in the studied sample, being associated with gender, age and education. Excess weight was more frequent in women and in the age over 45 years, inadequate eating habits among women, higher intake of alcohol among men and smoking in individuals with higher education levels.

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