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Physical activity and nutritional habits among Physical Education undergraduates: a cross-sectional study in Brasília

Atividade física e hábitos nutricionais entre estudantes de Educação Física: um estudo transversal em Brasília

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Abstract – Studies carried out in Brazil have demonstrated that the lifestyle profile of university students presents worrying deficiencies in respect to physical activity and eating habits. The aim was to evaluate the dietary habit and physical activity profile of physical education students and investigate the association between nutritional status, physical activity and eating habits. A cross-sectional design with 903 Physical Education students. All the questions were extracted from the Surveillance of Risk and Protective Factors for Chronic Diseases (Vigitel). The women were found to be more sedentary (p<0.01) and showed a higher prevalence of obesity. Those who did not practice physical activity had a high prevalence of having a chronic disease. The men had a more adequate diet and physical activity profile. Studies that focus on promoting healthy habits should be inserted early in the universities.

Key words: Students; Feeding behavior; Exercise; Universities

Resumo – *Estudos realizados no Brasil demonstraram que o perfil de estilo de vida de universitários apresentam deficiências preocupantes em relação à atividade física e hábitos alimentares. O objetivo do estudo foi avaliar os hábitos alimentares e o perfil de atividade física dos estudantes de Educação Física e investigar a associação entre o estado nutricional, atividade física e hábitos alimentares. Estudo transversal com 903 estudantes de Educação Física. Todas as questões foram retiradas do Sistema de Vigilância de Fatores de Risco e Proteção para as Doenças Crônicas (Vigitel). As mulheres eram mais sedentárias (p<0,01) e apresentaram maior prevalência de obesidade. Aqueles que não praticavam atividade física tinham alta prevalência de sofrer uma doença crônica. Os homens tinham uma dieta e um perfil de atividade física mais adequado Estudos voltados à promoção de hábitos saudáveis devem ser inseridos nas universidades.*

Palavras-chave: *Estudantes; Comportamento alimentar; exercício; Universidades*

INTRODUCTION

One of the fundamental health problems afflicting the contemporary world are cardiovascular disease (CVD), diabetes and obesity; these being prime examples of non-communicable disease (NCD)[1].

Acquiring appropriate dietary habits and a sufficient level of physical exercise are well recognised to be the best ways of reducing the risk of CVD[1]. The Mediterranean diet is considered as being one of the best dietary models and consists of cereal products, vegetables, fruit, small quantities of animal derived foods and low amounts of unsaturated fatty acids (especially the trans types), cholesterol, sugar, sweets and salt[2].

Studies carried out in Brazil have demonstrated that the lifestyle profile of university students presents worrying deficiencies in respect to physical activity and eating habits[3]. Lifestyle has a significant impact on the health of individuals. In a study carried out with university students, it was found that risk behaviors adopted by the students were unhealthy eating habits, having excess weight and consuming alcoholic beverages[4].

Having the proper dietary habits, undertaking sufficient physical activity and tackling overweight and obesity are fundamental aspects of the prophylactic ways of ensuring health, which includes the prevention of CVD[5].

Monitoring such subjects about a healthy lifestyle, nutrition and physical activity is vital, because in the future these students will themselves be responsible for ensuring public health care and its promotion[6].

The aim of this cross-sectional study was to evaluate of a dietary habits profile and physical activity of Physical Education students and investigate the association between nutritional status, physical activity and eating habits.

METHOD

This cross-sectional study was conducted with undergraduate students Physical Education of a private institution in Brasilia, Brazil.

The study population was composed of first to eighth-semester students who were in their classrooms on the day of data collection. A convenience sample consisted of 903 undergraduate students older than 18 years.

The number of participants was defined based on the guidelines on simple random sampling provided by Luiz and Magnanini[7]. The number of students per course was taken into consideration for sample size calculation. The maximum tolerable error rate was 5% and the 95% confidence levels were indicated. We assumed a 50% prevalence for the outcome. Thus, the final sample consisted of 903 undergraduate Physical Education students.

Measures

Data collection was performed between October 2016 and May 2017 by trained researchers. The instrument was administered during the break between lessons, in a classroom with a seating capacity for 60 students.

The completed questionnaire was placed in an envelope containing the group name and the course session (morning and evening), and handed back to the researchers.

Before distributing the instrument for self-completion and the informed consent form for signing, the researchers briefly introduced themselves and explained the aims and methods of the study to the professor in charge of that particular class. Next, the researchers introduced themselves and the study project to the students and invited them to participate. The informed consent of each participant, as well as the authorization and the required ethical approval of the Centro Universitário do Distrito Federal, Brasil, were obtained (CAAE: 59713316.0.0000.5650).

We used a self-administered questionnaire on health-related life habits. All questions were obtained from the Surveillance of Risk and Protection Factors for Chronic Diseases through Telephone Interviews.[8] The questionnaire monitored the main risk and protective factors for non-communicable chronic diseases (NCCD) among adults older than age 18 and is applied on an annual and continuous basis in all Brazilian states and the Federal District.[8]

Sociodemographic characteristics

The following demographic variables were included in the analysis: gender (male or female); age; socioeconomic level (based on the questionnaire of the ABEP – Brazilian Association of Research Companies)[9]; alcohol consumption (heavy drinking was defined as the consumption of five or more drinks in one sitting for men and four or more drinks in one sitting for women); smoking (yes/no); and health self-perception (excellent, very good, good, fair or poor).

Assessment of dietary habits

Specific questions were asked about the regularity and frequency of consumption of the following food items: fruit, greens/vegetables, and raw salad (on five or more days in a week – the recommended consumption frequency is five times a day or more, on five days a week or more); beans (on five or more days in a week); soft drinks (on five or more days in a week); full fat milk (on five or more days in a week); meat with excess fat (red meat with visible fat and/or chicken with skin)[8].

Assessment of nutritional status

Nutritional status was assessed by calculating body mass index (BMI) [weight in kilograms divided by the square of height in meters]. Self-reported weight and height, as well as cut-off points were used in the calculation. Participants were classified as: underweight (<18.5), normal weight (18.5-24.9), overweight (25-29.9) and obese (≥30)[10].

Physical Activity

Level of physical activity was classified as inactive (less than 150 minutes

of moderate-intensity physical activity a week or less than 75 minutes of vigorous-intensity physical activity a week accumulated across work, home, transport or discretionary domains) or active (150 or more minutes of moderate-intensity physical activity a week). WHO[11] has recommended that adults aged 18–64 years should do at least 150 min of moderate-intensity physical activity per week.

Statistical Analysis

Data are presented as absolute and relative frequencies, and displayed with their respective 95% confidence intervals. Gender differences and the association between physical activity and nutritional status and eating habits were analyzed using chi-square tests. The association between nutritional status and the remaining variables was analyzed using chi-square tests.

A multiple correspondence analysis was conducted to test the joint relationship between nutritional status, gender, physical activity and eating habits. All statistical analyses were performed using the SAS Software, version 9.2, while correspondence analysis was conducted using SPSS, version 2.1. The level of significance was set at 5%.

RESULTS

A total of 903 students (who were 18 or older) out of the total of 1.208 students enrolled in the program during the academic year of 2016-2017 were included in the study. The loss of 305 students representing 25% of the population is because students did not attend to the university in the day of data collection. A second attempt to include the students that missed the first day of data collection was made during another day. If the student missed both opportunities, he/she was not included in the study.

Table 1 shows participants' sociodemographic characteristics and health-related lifestyle behaviors. Most participants were women (57.4%), 67.6% were aged 20-29 years, 68.7% used alcohol, and 28.5% did not achieve 150 minutes or more of physical activity per week.

Table 2 shows gender differences in eating habits, smoking, alcohol consumption, physical activity, and nutritional status (overweight and obesity). Although prevalence of alcohol use was higher among men (71.9%), there was no difference in alcohol consumption between the two groups. Women were found to be more sedentary (34.3% / p<0.01) and showed a higher prevalence of obesity (4.2%) than men.

Table 3 shows the association between physical activity and health-related life habits. Physically active participants consumed more fruit (p<0.01), salad (p=0.01) and whereas physically inactive participants consumed more soft drinks (p<0.01). Those who did not perform physical activity had a high prevalence of having a chronic disease, such as hypertension (p=0.01), diabetes (p<0.01) and high cholesterol (p <0.01).

These findings demonstrate that physically active individuals tend to have healthier lifestyles than their physically inactive peers.

Table 1. Description of the sample according to students's characteristics. Brasília, FD, Brazil, 2017.

Variable	N	%
Sex		
Female	518	57.4
Male	385	42.6
Age (years)		
≤ 19	143	15.8
20-29	610	67.6
≥ 30	150	16.6
Socioeconomic level		
A	23	2.6
B	230	25.5
C	515	57.0
D	135	15.0
Self-perception of health		
Excellent	153	16.9
Very good	262	29.0
Good	357	39.5
Fair	109	12.1
Poor	22	2.4
Smoking		
Yes	263	29.1
No	640	70.9
Use of alcohol		
Yes	621	68.7
No	282	31.2
Nutritional status		
Underweight	40	4.4
Normal weight	531	58.8
Overweight	300	33.2
Obese	32	3.5
PA >150 min/week		
Yes	646	71.5
No	257	28.5
Total	903	100

There was a positive association between nutritional status and salad consumption (p=0.04) (Table 4).

Figure 1 shows the joint relationship between eating habits, nutritional status and physical activity, as assessed by multiple correspondence analyses.

The graph indicates that obese participants did not consume full fat milk, meat with visible fat, beans and soft drinks. This is probably due to dietary reeducation. Physically active individuals (150min or more/week) tended to regularly consume vegetables/greens, fruit and salad, whereas their physically inactive counterparts did not consume these foods regularly.

Table 2. Prevalence of risk factors for NCDs among university, overall and according to sex. Brasília, FD, Brazil, 2017.

Variables	Total			Female			Male			p-value
	N	%	95% CI	N	%	95% CI	N	%	95% CI	
Protective factors										
Consumption on five or more days per week										
Fruit consumption (≥ 5 times/week)	467	51.7	48.4 - 54.9	273	52.7	48.4 - 57.0	194	50.3	45.4 - 55.3	0.49
Raw salad consumption (≥ 5 times/week)	379	41.9	38.7 - 45.1	203	39.1	34.9 - 43.3	176	45.7	40.7 - 50.6	0.04*
Greens or vegetables consumption (≥ 5 times/week)	459	50.8	47.5 - 54.0	261	50.3	46.0 - 54.7	198	51.4	46.4 - 56.4	0.76
Beans consumption (≥ 5 times/week)	658	72.8	69.9 - 75.7	368	71.0	67.1 - 74.9	290	75.3	71.0 - 79.6	0.15
Risk factors										
Soft drinks consumption (≥ 5 times/week)	151	16.7	14.2 - 19.1	52	10.0	7.4 - 12.6	99	25.7	21.3 - 30.0	< 0.01*
Habitual intake of full-fat milk	334	36.9	33.8 - 40.1	213	41.1	36.8 - 45.3	121	31.4	26.7 - 36.0	< 0.01*
Habitual intake of meat with visible fat	281	31.1	28.1 - 34.1	165	31.8	27.8 - 35.8	116	30.1	25.5 - 34.7	0.58
Physically inactive (< 150 min of PA per week)	257	28.4	25.5 - 31.4	178	34.3	30.2 - 38.4	79	20.5	16.4 - 24.5	< 0.01*
Smoking	263	29.1	26.1 - 32.0	129	24.9	21.1 - 28.6	134	34.8	30.0 - 39.5	< 0.01*
Use of alcohol	621	68.7	65.7 - 71.7	344	66.4	62.3 - 70.4	277	71.9	67.4 - 76.4	0.08
Overweight (BMI ≥25 and < 30 kg/m²)	300	33.2	30.1 - 36.2	162	31.2	27.2 - 35.2	138	35.8	31.0 - 40.6	0.19
Obesity (BMI ≥30 kg/m²)	32	3.5	2.3 - 4.7	22	4.2	2.5 - 5.9	10	2.6	1.0 - 4.1	0.45
Self-reported diseases										
Arterial hypertension	28	3.1	1.9 - 4.2	17	3.2	1.7 - 4.8	11	2.8	1.2 - 4.5	0.72
Diabetes mellitus	43	4.7	3.3 - 6.1	29	5.6	3.6 - 7.5	14	3.6	1.7 - 5.5	0.17
High cholesterol levels	136	15.0	12.7 - 17.3	90	17.3	14.1 - 20.6	46	11.9	8.7 - 15.1	0.02*
Dyslipidemia	20	2.2	1.2 - 3.1	12	2.3	1.0 - 3.6	8	2.0	0.6 - 3.5	0.81
Health life score										
Low	174	19.2	16.7 - 21.8	103	19.8	16.4 - 23.3	71	18.4	14.5 - 22.3	0.59
Moderate/High	729	80.7	78.1 - 83.3	415	80.1	76.6 - 83.5	314	81.5	77.6 - 85.4	

Note. *Chi-square test

Table 3. Association between healthy life habits and physical activity in undergraduate students.

Variables	PA >150 min/weeks						p-value
	No (n=257)			Yes (n=646)			
	N	%	95% CI	N	%	95% CI	
Nutritional status							0.57
Underweight	14	5.4	2.6 - 8.2	26	4.0	2.5 - 5.5	
Normal weight	144	56.0	49.9 - 62.1	387	59.9	56.1 - 63.6	
Overweight	91	35.4	29.5 - 41.2	209	32.3	28.7 - 35.9	
Obese	8	3.1	0.9 - 5.2	24	3.7	2.2 - 5.1	
Alcohol consumption							
No	84	32.6	26.9 - 38.4	198	30.6	27.0 - 34.2	0.55
Yes	173	67.3	61.5 - 73.0	448	69.3	65.7 - 72.9	
Smoking							
No	180	70.0	64.4 - 75.6	460	71.2	67.7 - 74.7	0.73
Yes	77	29.9	24.3 - 35.5	186	28.7	25.3 - 32.2	
Consumption of fruit (≥ 5 times/week)							

Variables	PA >150 min/weeks						p-value
	No (n=257)			Yes (n=646)			
	N	%	95% CI	N	%	95% CI	
No	152	59.1	53.1 - 65.1	284	43.9	40.1 - 47.7	<0.01*
Yes	105	40.8	34.8 - 46.8	362	56.0	52.2 - 59.8	
Consumption of salad (≥ 5 times/week)							
No	166	64.5	58.7 - 70.4	358	55.4	51.5 - 59.2	0.01*
Yes	91	35.4	29.5 - 41.2	288	44.5	40.7 - 48.4	
Consumption of greens (≥ 5 times/week)							
No	138	53.7	47.6 - 59.8	306	47.3	43.5 - 51.2	0.09
Yes	119	46.3	40.2 - 52.4	340	52.6	48.7 - 56.4	
Consumption of beans (≥ 5 times/week)							
No	74	28.7	23.2 - 34.3	171	26.4	23.0 - 29.8	0.48
Yes	183	71.2	65.6 - 76.7	475	73.5	70.1 - 76.9	
Consumption of soft drinks (≥ 5 times/week)							
No	237	92.2	88.9 - 95.4	515	79.7	76.6 - 82.8	<0.01*
Yes	20	7.7	4.5 - 11.0	131	20.2	17.1 - 23.3	
Consumption of full fat milk							
No	162	63.0	57.1 - 68.9	407	63	59.2 - 66.7	0.99
Yes	95	36.9	31.0 - 42.8	239	37	33.2 - 40.7	
Consumption of meat with visible fat							
No	169	65.7	59.9 - 71.5	453	70.1	66.5 - 73.6	0.20
Yes	88	34.2	28.4 - 40.0	193	29.8	26.3 - 33.4	
Arterial hypertension							
No	243	94.5	91.7 - 97.3	632	97.8	96.7 - 98.9	0.01*
Yes	14	5.4	2.6 - 8.2	14	2.1	1.0 - 3.2	
Diabetes mellitus							
No	233	90.6	87.1 - 94.2	627	97.0	95.7 - 98.3	<0.01*
Yes	24	9.3	5.7 - 12.9	19	2.9	1.6 - 4.2	
High cholesterol levels							
No	197	76.6	71.4 - 81.8	570	88.2	85.7 - 90.7	<0.01*
Yes	60	23.3	18.1 - 28.5	76	11.7	9.2 - 14.2	
Dyslipidemia							
No	253	98.4	96.9 - 99.9	630	97.5	96.3 - 98.7	0.40
Yes	4	1.5	0.0 - 3.0	16	2.4	1.2 - 3.6	

Note. *Chi-square test.

Table 4. Association between nutritional status and health-related life habits. Brasília, FD, Brazil, 2017.

Variable	Nutritional status												p-value
	Underweight (n = 40)			Normal weight (n = 531)			Overweight (n = 300)			Obese (n = 32)			
	N	%	95% CI	N	%	95% CI	N	%	95% CI	N	%	95% CI	
Alcohol consumption													
No	12	30.0	15.8 - 44.2	169	31.8	27.8 - 35.7	89	29.6	24.5 - 34.8	12	37.5	20.7 - 54.2	0.79
Yes	28	70.0	55.8 - 84.2	362	68.1	64.2 - 72.1	211	70.3	65.1 - 75.5	20	62.5	45.7 - 79.2	
Smoking													
No	32	80.0	67.6 - 92.4	368	69.3	65.3 - 73.2	214	71.3	66.2 - 76.4	26	81.2	67.7 - 94.7	0.27
Yes	8	20.0	7.6 - 32.4	163	30.7	26.7 - 34.6	86	28.6	23.5 - 33.7	6	18.7	5.2 - 32.2	
Consumption of fruit (≥ 5 times/week)													
No	18	45.0	29.5 - 60.4	257	48.4	44.1 - 52.6	148	49.3	43.6 - 54.9	13	40.6	23.6 - 57.6	0.79
Yes	22	55.0	39.5 - 70.4	274	51.6	47.3 - 55.8	152	50.6	45.0 - 56.3	19	59.3	42.3 - 76.4	

| Variable	Nutritional status												p-value
	Underweight (n = 40)			Normal weight (n = 531)			Overweight (n = 300)			Obese (n = 32)			
	N	%	95% CI	N	%	95% CI	N	%	95% CI	N	%	95% CI	
Consumption of salad (≥ 5 times/week)													
No	26	65.0	50.2 - 79.7	315	59.3	55.1 - 63.5	172	57.3	51.7 - 62.9	11	34.3	17.9 - 50.8	0.04*
Yes	14	35.0	20.2 - 49.7	216	40.6	36.5 - 44.6	128	42.6	37.0 - 48.2	21	65.6	49.1 - 82.0	
Consumption of greens (≥ 5 times/week)													
No	25	62.5	47.5 - 77.5	265	49.9	45.6 - 54.1	143	47.7	42.0 - 53.3	11	34.3	17.9 - 50.8	0.11
Yes	15	37.5	22.5 - 52.5	266	50.0	45.8 - 54.3	157	52.3	46.6 - 57.9	21	65.6	49.1 - 82.0	
Consumption of beans (≥ 5 times/week)													
No	8	20.0	7.6 - 32.4	146	27.5	23.7 - 31.3	77	25.6	20.7 - 30.6	14	43.7	26.5 - 60.9	0.12
Yes	32	80.0	67.6 - 92.4	385	72.5	68.7 - 76.3	223	74.3	69.3 - 79.2	18	56.2	39.0 - 73.4	
Consumption of soft drinks (≥ 5 times/week)													
No	36	90.0	80.7 - 99.3	444	83.6	80.4 - 86.7	246	82.0	77.6 - 86.3	26	81.2	67.7 - 94.7	0.62
Yes	4	10.0	0.7 - 19.3	87	16.3	13.2 - 19.5	54	18.0	13.6 - 22.3	6	18.7	5.2 - 32.2	
Consumption of full fat milk													
No	28	70.0	55.8 - 8.,2	328	61.7	57.6 - 65.9	192	64.0	58.5 - 69.4	21	65.6	49.1 - 82.0	0.70
Yes	12	30.0	15.8 - 44.2	203	38.2	34.1 - 42.3	108	36.0	30.5 - 41.4	11	34.3	17.9 - 50.8	
Consumption of meat with visible fat													
No	23	57.5	42.1 - 72.8	373	70.2	66.3 - 74.1	200	66.6	61.3 - 70.0	26	81.2	67.7 - 94.7	0.12
Yes	17	42.5	27.1 - 57.8	158	29.7	25.8 - 33.6	100	33.3	28.0 - 38.6	6	18.7	5.2 - 32.2	
PA >150 min/week													
No	14	35.0	20.2 - 49.7	144	27.1	23.3 - 30.9	91	30.3	25.1 - 35.5	8	25.0	10.0 - 40.0	0.57
Yes	26	65.0	50.2 - 79.7	387	72.8	69.1 - 76.6	209	69.6	64.4 - 74.8	24	75.0	60.0 - 90.0	

Note. *Chi-square test.
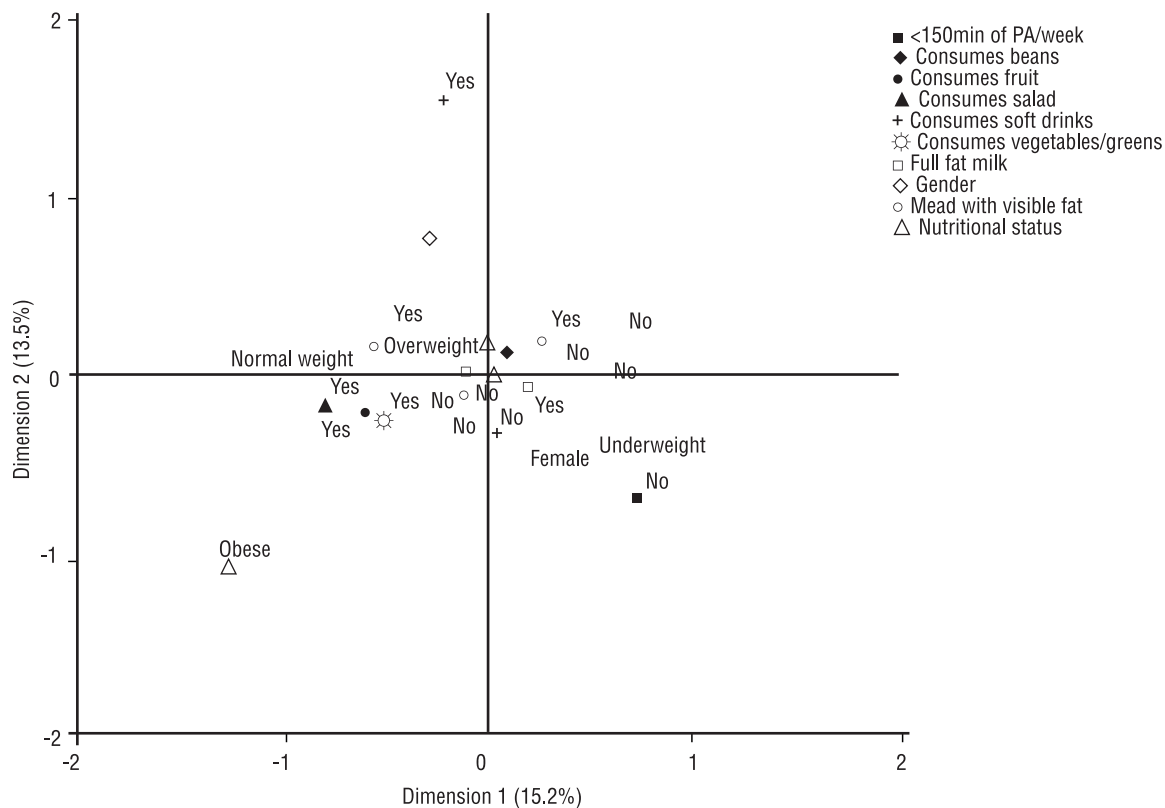
Figure 1. Joint relationship between eating habits, nutritional status and physical activity of university students.

DISCUSSION

Modern times have caused shifts in the lifestyle of the population, and quality of life has been compromised by poor eating habits, lack of physical activity and drug abuse, making people more vulnerable to the risks of non-communicable diseases[3].

Starting university is one of the factors that often exposes students to health-hazardous behavior and increases their likelihood of engaging in activities that were previously prohibited, such as alcohol and drug use[6]. Without parental supervision, most university students manage to adapt to these experiences; for those do not, however, the change in routine causes anxiety, depression and difficulties in the new academic setting[6].

When students start university, they move out of their parent´s homes and change their eating habits, often preferring a quicker and more practical diet of processed foods with low vitamin and nutritional content[12]. A poor diet is associated with meals away from home since these meals tend to have more calories and fat and fewer vitamins and nutrients, linked to low fruit and vegetable consumption, thus causing unhealthy eating habits and nutritional imbalance[11].

In this study, the students consumed a low amount of foods that protect them against NCD (salads, vegetables and fruit) and high amounts of sodas, full-fat milk and alcohol, in addition to being physically inactive, especially the women.

Poor eating habits, with low consumption of fruit, salad and greens were found, corroborating the results of a previous study conducted in Santa Catarina[13].

Frequency of fruit and vegetable consumption among university students has been widely investigated in Brazil and internationally[14]. Recent studies show that regular intake of fruit and greens/vegetables increased between 2008 (33.0%) and 2016 (35.2%)[15].

A study conducted with medical students found that 73.4% of their daily diet consisted of foods rich in fats, while 13.1% were *fast food*s[16]. These findings confirm that university students have poor dietary habits and corroborate the concern about this transition phase from adolescence to adulthood, when healthy dietary habits are established[16].

A study in Jeddah reported that 73.4% of the students were eating food rich in fat and 13.1% were eating fast food daily, while the majority of the students (76.6%) eats fruits and 38.3% eat vegetables weekly[17].

Although this study was conducted with students of the physical education course, who are expected to represent health and wellness, 28.5% did not practice physical activity and 33.2% were overweight and presented some risk factors for NCD.

Higher percentages have been identified in studies conducted in other countries, such as a study in the United States in which the authors reported a prevalence of 36% being overweight among men and 10% among women, besides a prevalence of 5% for obesity among the male population and 2%

in the female population[18,19].

Kiadaliri et al[20], in a population-based study conducted in Tehran, Iran, found a high prevalence of obesity and excess weight among adults.

Peltzer and Pengpid[21] assessed nutritional status and associated factors in 15,068 university students from 21 underdeveloped and developing countries and found a prevalence of overweight and obesity of 61.1% (41% in men and 25.1% in women) and 27%, respectively.

Gasparotto el at[22] found that about 55% of undergraduate students in the fields of Biological and Exact sciences and Humanities undertook less than 150 minutes of physical activity per week. This evidences that only a little less than half of the sample meets the recommended levels of physical activity. In this study, a between-sex comparison demonstrated that women (58.5%) were more sedentary than men.

Another study[23] found that 52.6% of a sample of 234 undergraduate medical, physical therapy, and nursing students at the University of Campina Grande were sedentary. This percentage is much higher than the one reported in the Surveillance of Risk and Protection Factors for Chronic Diseases through Telephone Interviews[8], where only 14.2% of the same age population was physically inactive.

The incidence of risk behaviors among university students is high[24]. Several studies conducted with young university students showed that women are mostly less physically active than their male counterparts[25].

This may be correlated with the fact that women report performing multiple tasks, having little time for physical activity[26].

Florindo et al.[27] demonstrated an association between level of physical activity (PA) and fruit and vegetable consumption among university students.

Thus, the increase of regular physical activity participation during university attendance may have a positive impact on current and future health, due to the possibility of these individuals becoming more active adults[28].

The university is a place where students learn, work, socialize, spend their leisure time, and make use of health services[29].

The present study has a number of limitations. First, the cross sectional nature of the data analyzed impedes indicating any causal relationship or direct influences of the variables included in the study. Second, the data on physical activity and diet were collected using a self-reported questionnaire, which might have caused measurement errors in the estimation of the prevalence (over-reporting in the case of healthy habits or under- reporting in the case of unhealthy habits as previously reported in literature). Finally, regarding dietary information, consumption of each of the selected foods was collected based on frequency per week without portion size.

If health care professionals are regarded as potential health promoters, then their own health behavior represents an important key function.

CONCLUSION

The diet adopted by the university students, mostly characterized by low

consumption of fruits, vegetables and legumes, does not reflect good eating choices according to the dietary guidelines for the Brazilian population[30].

Since this course is related to sport, a larger number of physically active students was expected.

Therefore, it is suggested that all undergraduate courses in the fields of health include the subject of healthy eating and enable the practice of physical activities in the curricula to help students establish healthier habits.

Universities play a critical role in promoting a healthy environment that enables the qualification of individuals who are aware of the importance of a healthy diet and regular physical activity for their wellbeing, and the effective formation of multipliers of these habits in society.

COMPLIANCE WITH ETHICAL STANDARDS

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Ethical approval
Ethical approval was obtained from the local Human Research Ethics Committee – Centro Universitário do Distrito Federal (UDF) and the protocol (no. 1.794.275) was written in accordance with the standards set by the Declaration of Helsinki.

Conflict of interest statement
The authors have no conflict of interests to declare.

Author Contributions
Conceived and designed the experiments: LZM, ARV, JMTB. Performed the experiments: LZM, BAL, DJOG, PS, LCC, MLAC. Analyzed the data: LZM, ARV. Contributed reagents/materials/analysis tools: DJOG, LCC, MLAC. Wrote the paper: LZM, ARV, BAL, PS, JMTB.

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