



Weight status, physical activity and eating habits of young adults in Midwest Brazil

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Abstract

Objective: To assess weight status and eating habits of undergraduate university students in relation to gender and examine the relationships between weight status, physical activity and eating habits.

Design: Cross-sectional study conducted between October 2016 and May 2017.

Setting: Young adults in Midwest Brazil.

Participants: Undergraduate university students (n 2163) majoring in health care.

Results: Among 2163 students, 69.3% were female, 65.4% were aged 20–29 years, 66.8% consumed alcohol and 44.2% did not achieve more than 150 min of physical activity per week. We found significant differences in the consumption of beans ($P < 0.04$) and full-fat milk ($P < 0.01$) between women and men. Women also had more sedentary lifestyles ($P < 0.01$) and showed higher prevalence of overweight (33.8%) and obesity (5.0%) than men. Students who did not engage in physical activity were more overweight ($P = 0.03$), consumed more soft drinks ($P < 0.01$) and meat with excess fat ($P = 0.01$). There was a positive association between weight status and fruit ($P = 0.02$), salad ($P < 0.01$), greens/vegetables ($P < 0.01$) and beans ($P < 0.01$) intake.

Conclusions: The low level of physical activity and unhealthy eating patterns reported by the study participants were inconsistent with the national recommendations for a healthy active lifestyle for adults and may contribute to the increasing rate of overweight and obesity in this population. A joint effort between universities and all relevant government agencies is needed to develop and promote school- and community-based interventions.

Keywords
Physical activity
Eating habits
Young adults
University

The Western lifestyle has changed the dietary habits and lifestyle pattern of young students in developing countries, which is leading them to develop overweight and obesity and consequently be more prone to develop type 2 diabetes mellitus and CVD⁽¹⁾. A study reported substantial correlations between junk food intake and screen time⁽²⁾. A study in Brazil reported a positive relationship between physical activity and increased intake of vegetables and fruits, whereas watching television was linked to an increased consumption of fried food⁽³⁾.

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 behaviours adopted by the students were unhealthy eating habits, having excess weight and consuming alcoholic beverages⁽⁴⁾.

The transition from high school to university is a critical period for changes to occur in dietary habits, lifestyle and weight gain⁽⁵⁾. Several studies in developing and developed countries have shown that dietary behaviours of university students are poor, with low intakes of milk, fruit and vegetables, and high intake of foods rich in fat and carbohydrates⁽⁶⁾. University student populations are widely reported to engage in high rates of physical inactivity, sedentary behaviours and unhealthy dietary behaviours including skipping meals, inadequate snacking, high

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consumption of fast foods and insufficient consumption of fruits and vegetables⁽⁷⁾.

A focus on strengthening protective factors and earlier investment in prevention of non-communicable diseases among young people, and particularly university students, are therefore essential. In this respect, in university students aged 18–24 years, the establishment of healthy lifestyle behaviours, including healthy eating, may have a lasting impact on the health of these individuals and consequently on the health of their future families⁽⁸⁾.

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⁽⁹⁾. Therefore, data on the dietary and lifestyle patterns of young people are needed for any intervention programme aimed at promoting healthy food habits and lifestyle among the young population. Thus, the present study aimed to assess weight status and eating habits of undergraduate university students in relation to gender and examine the relationships between weight status, physical activity and eating habits.

Methods

Study design and sample

The present cross-sectional epidemiological study was conducted among undergraduate students majoring in health care (Nursing, Physical Education and Pharmacy) at a private institution in Brasilia, Brazil.

A convenience sample, consisting of 2163 undergraduate students (who were aged 18 years or older) out of the total of 2468 students enrolled in the programme during the academic year of 2016, were included in the study. The loss of 305 students, representing 12.4% of the population, is because students did not attend the university on the day of data collection. A second attempt to include the students who 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.

The study population was composed of first to eighth-semester students who were in their classrooms on the day of data collection. Most participants were women (69.3%), 65.4% were aged 20–29 years, 66.8% used alcohol and 44.2% did not achieve 150 min or more of physical activity per week.

The number of participants was defined based on the guidelines on simple random sampling provided by Luiz and Magnanini⁽¹⁰⁾. 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 974 undergraduate Nursing students, 903

undergraduate Physical Education students and 286 undergraduate Pharmacy 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 sixty students. The completed questionnaire was placed in an envelope containing the group name and the course session (morning, afternoon or 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 the 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, were obtained (protocol number 1.794.275).

We used a self-administered questionnaire on health-related lifestyle habits. All questions were obtained from the Surveillance of Risk and Protection Factors for Chronic Diseases through Telephone Interviews (Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico (VIGITEL))⁽¹¹⁾. The questionnaire monitored the main risk and protective factors for non-communicable chronic diseases among adults older than 18 years and is applied on an annual and continuous basis in all Brazilian states and the Federal District⁽¹¹⁾.

Sociodemographic characteristics

The following demographic variables were included in the analysis: gender (male or female); age; socio-economic level (based on the questionnaire of the Brazilian Association of Research Companies)⁽¹²⁾; 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

Food consumption was assessed using healthy and unhealthy diet markers according to the nomenclature used in VIGITEL⁽¹¹⁾. Regular consumption of fruits and vegetables (≥ 5 d/week), recommended consumption of fruits and vegetables (consumption of 5 servings/d on ≥ 5 d/week) and regular consumption of beans (≥ 5 d/week) were considered healthy diet markers.

Unhealthy diet markers included habitual intake of meat with excess fat (red meat with apparent fat and chicken with skin), habitual intake of full-fat milk and regular consumption of soft drinks or powdered drink mix/artificial juice (≥ 5 d/week).

Assessment of weight status

Weight status was assessed by calculating BMI (weight in kilograms divided by the square of height in metres). Self-reported weight and height, as well as cut-off points, were used in the calculation. Participants were classified as underweight (BMI < 18.5 kg/m²), normal weight (BMI = 18.5–24.9 kg/m²), overweight (BMI = 25.0–29.9 kg/m²) or obese (BMI ≥ 30.0 kg/m²)⁽¹³⁾.

Physical activity

Level of physical activity was classified as inactive (less than 150 min of moderate-intensity physical activity per week or less than 75 min of vigorous-intensity physical activity per week accumulated across work, home, transport or discretionary domains) or active (150 min or more of moderate-intensity physical activity per week). The WHO⁽¹⁴⁾ has recommended that adults aged 18–64 years should do at least 150 min of moderate-intensity physical activity per week.

Analyses

Data are presented as absolute and relative frequencies, and displayed with their respective 95% CI. Gender differences and the association between physical activity and nutritional status and eating habits were analysed using χ^2 tests. The association between nutritional status and the remaining variables was analysed using χ^2 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 statistical software package SAS version 9.2, while the multiple correspondence analysis was conducted using the statistical software package IBM SPSS Statistics version 21. The level of significance was set at 5%.

Results

Table 1 shows participants' sociodemographic characteristics and health-related lifestyle behaviours.

Table 2 shows gender differences in eating habits, smoking, alcohol consumption, physical activity and weight status (overweight and obesity). There were significant differences in beans ($P < 0.04$) and full-fat milk consumption ($P < 0.01$) between men and women. Men were found to smoke more ($P < 0.01$) compared with women. Although prevalence of alcohol use was higher among men (69.2%), there was no difference in alcohol consumption between the two groups. Women were found to be more sedentary ($P < 0.01$) and showed a higher prevalence of overweight (33.8%) and obesity (5.0%) than men.

Table 3 shows the association between physical activity and health-related lifestyle habits. Students who did not achieve the recommended level of physical activity (150 min or more per week) were found to be more overweight

Table 1 Description of the sample of undergraduate university students (n 2163) majoring in health care, Brasília, Brasília, FD, Brazil, 2017

Characteristic	<i>n</i>	%
Sex		
Female	1500	69.3
Male	663	30.7
Age (years)		
≤19	334	15.4
20–29	1415	65.4
≥30	414	19.2
Socio-economic level		
A	87	4.0
B	607	28.1
C	1191	55.1
D	278	12.8
Undergraduate course		
Nursing	974	45.1
Physical Education	903	41.7
Pharmacy	286	13.2
Semester of course		
1st to 4th	1826	84.4
5th to 8th	337	15.6
Self-perception of health		
Excellent	296	13.6
Very good	583	26.9
Good	898	41.5
Fair	338	15.6
Poor	48	2.2
Smoking		
Yes	555	25.6
No	1608	74.4
Use of alcohol		
Yes	1445	66.8
No	718	33.2
Weight status		
Underweight	100	4.6
Normal weight	1227	56.7
Overweight	735	33.9
Obese	101	4.8
Physical activity ≥ 150 min/week		
Yes	1207	55.8
No	956	44.2
Total	2163	100.0

($P = 0.03$). Physically active participants consumed more fruit ($P < 0.01$), salad ($P < 0.01$) and greens/vegetables ($P < 0.01$), whereas physically inactive participants consumed more soft drinks ($P < 0.01$) and meat with visible fat ($P = 0.01$). These findings demonstrate that physically active individuals tend to have healthier lifestyles than their physically inactive peers.

There was a positive association between weight status and fruit ($P = 0.02$), salad ($P < 0.01$), greens/vegetables ($P < 0.01$) and beans ($P < 0.01$) intake. Physical activity was found to be associated with weight status (Table 4).

Figure 1 shows the joint relationship between eating habits, weight status and physical activity, as assessed by multiple correspondence analyses. For this data set, there was only 29.6% explanation in two dimensions (sum of dimensions 1 and 2). Figure 1 indicates that underweight participants consumed meat with visible fat, full-fat milk and soft drinks, while obese participants did not consume full-fat milk, meat with visible fat, beans and soft drinks. This is probably due to

Table 2 Comparison of eating habits, smoking, alcohol consumption, physical activity and weight status by gender in the sample of undergraduate university students (*n* 2163) majoring in health care, Brasília, DF, Brazil, 2017

Variable	Female			Male			<i>P</i> value
	<i>n</i>	%	95 % CI	<i>n</i>	%	95 % CI	
Fruit consumption (≥ 5 times/week)	787	52.4	49.9, 55.0	338	50.9	47.1, 54.7	0.52
Raw salad consumption (≥ 5 times/week)	626	41.7	39.2, 44.2	290	43.7	39.9, 47.5	0.38
Greens or vegetables consumption (≥ 5 times/week)	779	51.9	49.4, 54.4	354	53.3	49.5, 57.1	0.53
Beans consumption (≥ 5 times/week)	1066	71.1	68.7, 73.3	499	75.3	71.9, 78.5	0.04*
Soft drinks consumption (≥ 5 times/week)	421	28.1	25.8, 30.3	209	31.5	27.9, 35.0	0.10
Habitual intake of full-fat milk	622	41.4	38.9, 43.9	231	34.8	31.2, 38.4	< 0.01
Habitual intake of meat with visible fat	483	32.2	29.8, 34.5	213	32.1	28.5, 35.6	0.97
Sedentary (physical activity < 150 min/week)	727	48.4	45.9, 51.0	229	34.5	30.9, 38.1	< 0.01**
Smoking	348	23.2	21.0, 25.3	207	31.2	27.6, 34.7	< 0.01
Use of alcohol	986	65.7	63.3, 68.1	459	69.2	65.7, 72.7	0.11
Overweight (BMI = 25.0–29.9 kg/m ²)	508	33.8	31.4, 36.2	227	34.2	30.6, 37.8	0.10
Obesity (BMI ≥ 30.0 kg/m ²)	75	5.0	3.9, 6.1	26	3.9	2.4, 5.4	0.54

P* < 0.05, *P* < 0.01.

Table 3 Association between physical activity participation and health-related lifestyle habits in the sample of undergraduate university students (*n* 2163) majoring in health care, Brasília, DF, Brazil, 2017

Variable	Physical activity ≥ 150 min/week						<i>P</i> value
	No (<i>n</i> 956)			Yes (<i>n</i> 1207)			
	<i>n</i>	%	95 % CI	<i>n</i>	%	95 % CI	
Weight status							
Underweight	57	6.0	4.4, 7.4	43	3.5	2.5, 4.6	0.03*
Normal weight	519	54.2	51.1, 57.4	708	58.6	55.8, 61.4	
Overweight	334	34.9	31.9, 37.9	401	33.2	30.5, 35.8	
Obese	46	4.8	3.4, 6.1	55	4.5	3.3, 5.7	
Alcohol consumption							
No	338	35.3	32.3, 38.3	380	31.4	28.8, 34.1	
Yes	618	64.6	61.6, 67.6	827	68.5	65.9, 71.1	0.06
Smoking							
No	708	74.0	71.2, 76.8	900	74.5	72.1, 77.0	
Yes	248	25.9	23.1, 28.7	307	25.4	22.9, 27.8	0.79
Consumption of fruit (≥ 5 times/week)							
No	541	56.9	53.4, 59.7	497	41.1	38.4, 43.9	
Yes	415	43.4	40.2, 46.5	710	58.8	56.0, 61.6	< 0.01**
Consumption of salad (≥ 5 times/week)							
No	605	63.2	60.2, 66.3	642	53.1	50.3, 56.0	
Yes	351	36.7	33.6, 39.7	565	46.8	43.9, 49.6	< 0.01**
Consumption of greens/vegetables (≥ 5 times/week)							
No	523	54.7	51.5, 57.8	507	42.0	39.2, 44.7	
Yes	433	45.2	42.1, 48.4	700	58.0	55.2, 60.7	< 0.01**
Consumption of beans (≥ 5 times/week)							
No	278	29.0	26.2, 31.9	320	26.5	24.0, 29.0	
Yes	678	70.9	68.0, 73.8	887	73.4	71.0, 75.9	0.18
Consumption of soft drinks (≥ 5 times/week)							
No	645	67.4	64.5, 70.4	888	73.5	71.0, 76.0	
Yes	311	32.5	29.5, 35.5	319	26.4	23.9, 28.9	< 0.01**
Habitual intake of full-fat milk							
No	566	59.2	56.0, 62.3	744	61.6	58.9, 64.3	
Yes	390	40.7	37.6, 43.9	463	38.3	35.6, 41.1	0.25
Habitual intake of meat with visible fat							
No	621	64.9	61.9, 67.9	846	70.0	67.5, 72.6	
Yes	335	35.0	32.0, 38.0	361	29.9	27.3, 32.4	< 0.01**

P* < 0.05, *P* < 0.01.

Table 4 Association between weight status and health-related lifestyle habits in the sample of undergraduate university students (*n* 2163) majoring in health care, Brasília, DF, Brazil, 2017

Variable	Weight status												P value
	Underweight (<i>n</i> 100)			Normal weight (<i>n</i> 1227)			Overweight (<i>n</i> 735)			Obese (<i>n</i> 101)			
	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	
Alcohol consumption													
No	38	38.0	28.4, 47.5	408	33.3	30.6, 35.8	230	31.3	27.9, 34.6	42	41.6	31.9, 51.1	0.14
Yes	62	62.0	52.4, 71.5	819	66.7	64.1, 69.3	505	68.7	65.3, 72.0	59	58.4	48.8, 68.0	
Smoking													
No	78	78.0	69.8, 86.1	902	73.6	71.0, 75.9	555	75.6	72.4, 78.6	73	72.2	63.5, 81.0	0.59
Yes	22	22.0	13.8, 30.1	325	26.4	24.0, 28.9	180	24.4	21.3, 27.6	28	27.8	18.9, 36.4	
Consumption of fruit (≥5 times/week)													
No	49	49.0	39.2, 58.8	575	46.8	44.0, 49.6	378	51.4	47.8, 55.0	36	35.6	26.3, 44.9	0.02*
Yes	51	51.0	41.2, 60.8	652	53.2	50.3, 55.9	357	48.6	44.9, 52.1	65	64.4	55.0, 73.7	
Consumption of salad (≥5 times/week)													
No	64	64.0	54.5, 73.4	726	59.2	56.4, 61.9	414	56.3	52.7, 59.9	43	42.6	32.9, 52.2	<0.01**
Yes	36	36.0	26.5, 45.4	501	40.8	38.0, 43.5	321	43.7	40.0, 47.2	58	57.4	47.7, 67.0	
Consumption of greens/vegetables (≥5 times/week)													
No	60	60.0	50.4, 69.6	610	49.7	46.9, 52.5	325	44.3	40.6, 47.8	35	34.6	25.3, 43.9	<0.01**
Yes	40	40.0	30.4, 49.6	617	50.3	47.4, 53.0	410	55.8	52.1, 59.3	66	65.3	56.0, 74.6	
Consumption of beans (≥5 times/week)													
No	13	13.0	6.4, 19.5	342	27.8	25.3, 30.3	200	27.3	23.9, 30.4	43	42.6	32.9, 52.2	<0.01**
Yes	87	87.0	80.4, 93.5	885	72.2	69.6, 74.6	535	72.7	69.5, 76.0	58	57.4	47.7, 67.0	
Consumption of soft drinks (≥5 times/week)													
No	71	71.0	62.1, 79.8	892	72.7	70.2, 75.1	495	67.4	63.9, 70.7	75	74.3	65.7, 82.7	0.07
Yes	29	29.0	20.1, 37.8	335	27.3	24.8, 29.7	240	32.6	29.2, 36.04	26	25.7	17.2, 34.2	
Habitual intake of full-fat milk													
No	62	62.0	52.4, 71.5	734	59.8	57.0, 62.5	445	60.6	57.0, 64.0	69	68.3	59.2, 77.3	0.41
Yes	38	38.0	28.4, 47.5	493	40.2	37.4, 42.9	290	39.4	35.9, 42.9	32	31.7	22.6, 40.7	
Habitual intake of meat with visible fat													
No	60	60.0	50.4, 69.6	836	68.2	65.5, 70.7	494	67.3	63.8, 70.7	77	76.2	68.9, 75.5	0.10
Yes	40	40.0	30.4, 49.6	391	31.8	29.2, 34.4	241	32.7	29.3, 36.0	24	23.8	14.4, 31.0	
Physical activity ≥150 min/week													
No	57	57.0	47.3, 66.7	519	42.3	39.5, 45.0	334	45.4	41.9, 49.1	46	45.6	35.8, 55.2	0.03*
Yes	43	43.0	33.3, 52.7	708	57.7	54.9, 60.4	401	54.6	50.8, 58.0	55	54.4	44.7, 64.1	

 P*<0.05, *P*<0.01.

dietary re-education. Physically active individuals (150 min or more per week) tended to regularly consume greens/vegetables, fruit and salad, whereas their physically inactive counterparts did not consume these foods regularly.

Discussion

The present study is the first to assess weight status, eating habits and physical activity among a large sample of university undergraduate students in Brasília (Midwest Brazil). Interventions promoting a healthy and active lifestyle – especially those carried out in the university setting – can play an important role in the prevention and management of overweight and obesity in young adults⁽¹⁵⁾.

Assessment of BMI based on self-reported weight and height showed that most participants were in the healthy weight category (56.7%). However, the percentages of undergraduates who had above-normal BMI values (33.9% overweight and 4.8% obesity) were higher than those found in other Brazilian studies⁽¹⁶⁾. Factors that may be associated with excess weight, as measured by the BMI, are poor dietary habits and low levels of physical activity⁽¹⁷⁾.

Other studies with undergraduate students from different countries have also found high prevalence of overweight and obesity⁽¹⁸⁾. A study conducted with university students in Greece⁽¹⁹⁾ showed that 34.4% of men and 19.9% of women were overweight, while 5.1% of men and 3.4% of women were obese. In Turkey, 6.0% of men were obese, while 25.1% of men and 5.6% of women were overweight⁽²⁰⁾. In Pakistan, the majority of university students were normal weight, 37% were overweight and about 9% were obese⁽²¹⁾. In Spain, 12.4% were underweight, 79.2% were normal weight and 8.4% were overweight or obese⁽²²⁾.

Some studies suggest that nutritional inadequacies are common among undergraduate students, because their dietary habits are strongly influenced by factors such as university admission, lack of time to have full meals due to university activities, replacement of full meals by snacks, establishment of new behaviours and new social relations. These factors influence overweight and self-image disparity⁽²³⁾.

Brazilian studies show that the consumption of fruits and greens/vegetables by university students is below the recommended daily intake for this population

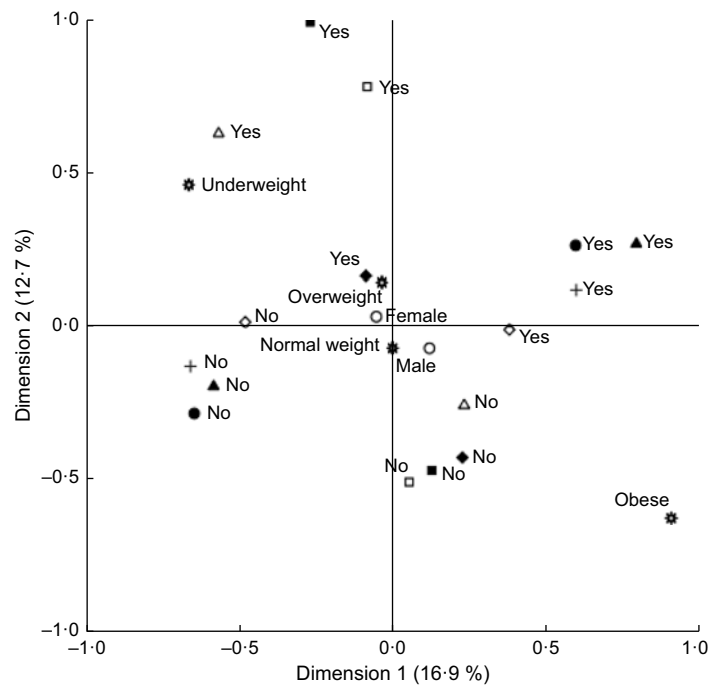


Fig. 1 Joint relationship between eating habits, weight status and physical activity of the sample of undergraduate university students (n 2163) majoring in health care, Brasília, DF, Brazil, 2017. \diamond , achieves 150 min or more of physical activity per week; \bullet , consumes beans ≥ 5 times/week; \circ , consumes fruit ≥ 5 times/week; \blacktriangle , consumes salad ≥ 5 times/week; \triangle , consumes soft drinks ≥ 5 times/week; $+$, consumes greens/vegetables ≥ 5 times/week; \square , habitual intake of full-fat milk; \blacksquare , habitual intake of meat with visible fat; \circ , gender; \star , nutritional status.

group⁽²⁴⁾. Frequency of fruit and vegetable consumption among university students has been widely investigated in Brazil and internationally^(25,26). Recent studies show that regular intake of fruits and greens/vegetables increased between 2008 (33.0%) and 2016 (35.2%). However, consumption levels are still below the recommended levels for a healthy diet that prevents non-communicable chronic diseases^(27,28).

A study conducted among undergraduate medical students in Northern Italy found that 73.4% of their daily diet consisted of foods rich in fats, while 13.1% were fast foods⁽²⁹⁾. The percentage of students who consumed fruits and greens/vegetables was 76.6 and 8.3%, respectively⁽²⁹⁾. These findings indicate 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⁽³⁰⁾.

A study in Jeddah reported that 73.4% of the students were eating foods rich in fat and 13.1% were eating fast food daily, while the majority of the students (76.6%) ate fruits and 38.3% ate vegetables weekly⁽³¹⁾. A study conducted with university students in Leon (Spain) and Bologna (Italy) showed that both groups consumed more fat and less vegetables than the recommended daily portions⁽³²⁾. This leads to a high incidence of overweight and evidences eating habits that are not consistent with the Mediterranean dietary tradition, which is rich in fruits, fish, grains and greens/vegetables⁽³²⁾. These results were

attributed to changes in dietary patterns, which are very common during university years⁽³²⁾.

The present study is in line with other national and international research that shows a high prevalence of physical inactivity among young people⁽³³⁾. In the present study, more than half of the sample was classified as sedentary (56.4%). Bergier *et al.*⁽³⁴⁾ in found that 49.7% of about 2500 undergraduate students from the Czech Republic, Poland, Slovakia and Hungary undertook less than 150 min of physical activity per week. Gasparotto *et al.*⁽³⁵⁾ also found that about 55% of undergraduate students in the fields of Biological and Exact Sciences and Humanities undertook less than 150 min of physical activity per week. Nevertheless, a study conducted among university health-care students found a disturbing reality: most participants (65.5%) self-reported being sedentary⁽³⁶⁾. High levels of sedentary lifestyle were also found in a study with university students in the USA: 46% of participants were physically inactive or irregularly active⁽³⁷⁾. Generally, fewer females achieve the physical activity recommendations: in Mexico and Hong Kong, male university students were physically more active/exercised more frequently⁽³⁸⁾.

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⁽³⁹⁾. University is a place where students learn, work, socialize,



spend their leisure time and make use of health services⁽⁴⁰⁾. Therefore, policies are needed to enable the provision of spaces and alternatives for physical activity participation and healthier lifestyles in educational settings.

The present study has a number of limitations. First, the cross-sectional nature of the data analysed impedes indicating any causal relationship or direct influence 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.

Conclusion

In conclusion, the present study described eating and physical activity habits of a sample of Brazilian undergraduate university students. From both a dietary and physical activity perspective, the habits of the young adults surveyed in the present study were not consistent with a healthy lifestyle and the prevention of non-communicable diseases in adulthood. A joint effort between universities and all relevant government agencies is needed in order to develop school- and community-based interventions that promote physical activity and healthy eating practices among young Brazilian adults.

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