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Analysis of body mass and food consumption of university students of the male sex in Brazil

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Abstract

This study aimed to characterize food intake, body weight and self-perception about weight among university men of a Higher Education Institution in Brazil. Cross-sectional study, conducted in 2019, with a representative sample of 375 university students, using a validated questionnaire. Regarding nutritional assessment, most of them were classified as eutrophic (61.3%). It is noteworthy that 31.5% were overweight (overweight and obesity). Although most (42.6%) of the students realized that they were at normal weight, when the other categories (below or overweight) are added, 57.4% indicated these options. Asked about attitudes towards the current weight, 33.9% answered that they were not doing something and 14.3% indicated that they were trying to maintain them. Adding to the other options, 48.2% tried to lose or win. Most of them did not diet, exercise, use of weight loss medications in the 30 days prior to the research. Regarding physical activity in the week prior to the survey, 37.1% did not practice. On food intake the previous day, most consumed fruits, vegetables or boiled vegetables at least once. On the consumption of fast food (hamburger, coxinha, snacks or french fries), 53.9% did not make consumption in the previous week. Regarding biscuits, cakes or sweets, 40.8% ate once. It was observed that the interviewees presented good eating habits, however, part of them perceived their weight as not ideal. Although a small frequency indicates that you have done something (diet, exercises, use of medications) to lose weight, attention should be paid to these situations in order to monitor possible risk behaviors, highlighting universities as important spaces for help and promotion of men's health.

Keywords: Body Weight; Food Consumption; Health Risk Behaviors; Men's Health; Universities

1. Introduction

The scientific production on the man-health relationship is increasing, especially that directed towards understanding the demand for and access to health services, morbidity and mortality profiles and representations about health and illness in specific social groups [1-3].

In this way, it is necessary to consider that among the specific social groups, there is the subgroup "university men", which, due to the specificities of the academic dynamics, is subject to lifestyle changes and the adoption of risky health behaviors such as: use and abuse of alcohol, tobacco and other drugs; lack of traffic safety; violence against you and third parties; the absence of sports activities and healthy eating habits, as reinforced in national [1, 4-8] and international [9-12] studies.

Entering the university coincides with a period of questioning about values, beliefs, desires, perspectives, and autonomy [6]. Thus, among the health risk behaviors adopted by university students, those related to eating habits stand out.

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These young people have little time, and sometimes, few financial resources to eat healthy. They often skip meals and eat a large amount of fast or nutritionally unbalanced meals. Added to this, they may present a decrease in physical activity and an increase in alcohol and tobacco consumption, all these factors that contribute to increased morbidity and mortality in this population [13-15].

The perception of body image/body mass is another complex phenomenon that involves cognitive, affective, social, and cultural aspects, especially among young people [16]. The process of its formation is influenced by several factors, such as sex, age, beliefs, values and means of communication, in which beauty standards are dictated that demonstrate stereotyped anthropometric profiles, which can generate concern about the body image in spectators [2, 17].

Data from the Surveillance of Risk Factors for Chronic Noncommunicable Diseases (VIGITEL) survey show that, in 2018, overweight in the Brazilian adult population was 55.7%, being higher among men (57.8%) than among women (53.9%) [18]. However, some studies indicate that women more often self-evaluate as overweight, even with a body mass index within the normal range. Sociocultural norms have perpetuated the stereotype of the association between thinness and beauty among women, causing a thin body to be considered ideal, while the male beauty standard makes men desire a larger, more voluminous, and muscular body [19]. -20]. Thus, knowing how men perceive their body weight is important in order to understand adopted behaviors that relate to self-perception of weight [15].

Despite studies observing high percentages of university students with unhealthy lifestyles and defending the need for preventive measures and health education, whether or not integrated into the student assistance agenda of Brazilian universities, there are few studies analyzing health risk behaviors, specifically in male college students [6, 21].

The present study aimed to characterize food consumption, body weight and self-perception of weight among university men from a Federal Institution of Higher Education in Minas Gerais.

2. Material and methods

Cross-sectional and descriptive study, carried out with male students from a federal university located in Minas Gerais, Southeast region of Brazil. Students from on-site undergraduate courses from the educational units (campuses) located in the host city of the university in question were selected. The sample selection method was by probability sampling by clusters and stratified in two stages. In the first, all male and female students were divided according to areas of knowledge, following the classification of the Ministry of Education [22], with courses in each area of knowledge being drawn by a simple random sample. As only face-to-face courses were considered, since access to and application of the questionnaire would make it difficult to carry out the study in distance courses, 35 courses were eligible. For sample calculation, a maximum expected prevalence of 50%, a confidence level of 95% and a margin of error of 5% were considered. After correcting for the design effect d_{eff} equal to two and adding 20% for the non-response rate, a minimum sample size of 359 male students was determined. A total of 375 university students, enrolled as regulars at the university, aged 18 years or over, participated in the research. All signed the Free and Informed Consent Form (ICF).

As a collection instrument, the National College Health Risk Behavior Survey (NCHRBBS) questionnaire was used, developed by the Center for Disease Control and Prevention (CDC) in the United States, already validated in Brazil by Franca and Colares [23]. The university students were approached in the classroom, between September 2018 and May 2019, in the morning, afternoon and evening shifts.

For this article, questions about anthropometric data, perception of body weight, physical activity, and food consumption on the day before the survey were used. To classify the nutritional status, the Body Mass Index (BMI) was used, calculated from data on self-reported body mass (in kilograms) and height (in centimeters) [$BMI = \text{mass (kg)}/\text{height}^2(\text{m})$]. Thus, university students were classified according to the BMI categories of the World Health Organization (1998) – BMI < 18.5 kg/m²: underweight; BMI between 18.5 to 24.9 kg/m²: Eutrophy; BMI between 25.0 to 29.9 kg/m²: Overweight; BMI ≥ 30.0 kg/m²: Obesity.

Data analysis was performed using the Statistical Software for Professionals (Stata) version 13.0. The characterization of the sample was performed by calculating the absolute and relative frequencies.

Study approved by the Ethics Committee of the Federal University of São João del-Rei, opinion 2,597,457 (CAAE: 80352517.7.0000.5151).

3. Results

Table 1 shows the variables on body mass and physical activity among male university students interviewed.

Regarding the nutritional assessment, most were with ideal body mass (eutrophic) (61.3%). However, it is noteworthy that 31.5% were overweight (overweight and obesity). Although most (42.6%) perceived that they were at the correct body mass, when the other categories were added (much below normal weight; slightly below; slightly above; much above), 57.4% perceived their body mass as not ideal. Asked about what they were doing with their body mass, 33.9% answered “nothing” and 14.3% tried to maintain it. When the other options are added, 48.2% were trying to lose or gain body mass. Most did not diet, exercise, use laxatives or slimming pills in the 30 days prior to the survey. 37.1% did not practice physical activity in the seven days prior to the study.

Table 1 Variables on body mass and physical activity among university men from a federal institution. Minas Gerais, Brazil, 2019

Variables on body mass and physical activity	Total (n = 375)	
	n	%
Body Mass Index (BMI)		
Under weight	27	7.2
Eutrophic	230	61.3
Overweight	89	23.8
Obesity	29	7.7
Body mass perception		
Very underweight	13	3.5
Slightly underweight	73	19.5
At the right body mass	163	42.6
Slightly overweight	109	29.1
Much above normal body mass	17	5.3
What are you trying to do with your body mass?		
Nothing	127	33.9
Lose	106	28.3
To gain	88	23.5
To maintain	54	14.3
Diet to maintain or lose body mass in the last 30 days		
Yes	87	23.2
No	288	76.8
Physical exercise to lose or maintain body mass in the last 30 days		
Yes	145	38.7
No	230	61.3
Vomiting or using laxatives to lose or maintain body mass in the last 30 days		
Yes	07	1.9
No	368	98.1
Weight loss pills in the last 30 days		

Yes	07	1.9
No	368	98.1
In the last week, on how many days did you exercise or play sports that made you sweat and breathe hard for at least 20 minutes?		
None	139	37.1
12 days	82	21.9
3 - 4 days	78	20.8
5 - 6 days	52	13.9
Every day	24	6.3

Table 2 shows the Food variables referring to the previous day

Table 2 Food consumption on the day before the survey among university men from a federal institution. Minas Gerais, Brazil, 2019

Food consumption on the day before the survey	Total (n = 375)	
	n	%
Number of times you ate fruit or drank fruit juice		
None	90	24.0
One time	129	34.4
Twice	87	23.2
Three or more times	69	18.4
Number of times you ate vegetables or cooked vegetables		
None	90	24.0
One time	152	40.5
Twice	116	30.9
Three or more times	17	4.6
Number of times you ate hamburgers, drumsticks, snacks or French fries		
None	202	53.9
One time	137	36.5
Twice	27	7.2
Three or more times	09	2.4
Number of times you ate cookies, pies, cakes, or sweets		
None	111	29.6
One time	153	40.8
Twice	74	19.7
Three or more times	37	9.9

Most consumed fruits, vegetables, or cooked vegetables at least once the day before the survey. Regarding the consumption of hamburgers, drumsticks, snacks, or French fries, 53.9% did not consume them. Regarding cookies, cakes, or sweets, most (40.8%) ate once the day before.

4. Discussion

The study in question showed a prevalence of obesity among respondents equal to 7.7%. Similar results were found in a study conducted in 2019 that found that 6.2% of male university students at a Brazilian university were obese [16]. Higher proportions were found in Mexico, in a study carried out exclusively with medical students at a federal university, showing a prevalence equal to 11.3% among men [24]. This fact can be explained by the intense workload demanded by full-time graduation, which ends up causing a negligence in relation to health, even if we assume that students have knowledge about the importance of healthy habits. A lower prevalence was found in a study carried out with male students of the physical education course, showing a frequency of obesity equal to 3.7%. The authors argue that this can be explained by the greater stimulus to the practice of physical activity [25]. Thus, it is noted that the undergraduate course, as well as the workload of studies, are important factors that can influence the life habits of students.

In a study that evaluated the cardiovascular risk of university students in Recife, the authors found that 35.5% of men were overweight (overweight and obese) - a value very close to the finding in our study (31.5%). Among the explanations for the high percentages of overweight among students, one of them may be the fact that entering the university is often the first moment in which the individual takes responsibility for their food and combining school activities with the lack of care that, historically, is lower among men than among women, behaviors that predispose to excess weight may be present in the lives of these university students [26]. In view of this, health promotion actions aimed at young university students are essential to prevent being overweight and obese, which are important risk factors for illness.

Even though most of the interviewees presented themselves as eutrophic (61.3%), it is important to highlight that authors debate that university students are in a phase of transition from adolescence to adulthood, and that high prevalence of overweight has been found in students from universities in Brazil [27-28], the United States [29] and Portugal [30]. Authors also argue that this situation gains prominence among men and practitioners of physical activities [31].

In this study, 31.5% were overweight. Although they comprise a population group with specificities, as already described, it is worth comparing this data with those of the Brazilian population in general, which was 55.7% in 2018, having been higher among men (57.8%) in relation to women. women (53.9%) [18].

Regarding the perception of body weight, 31.4% of respondents in our study indicated being overweight. A similar value (37.5%) was found by Faria, Gandolfi and Moura [6]. The self-perception of body image with traces of dissatisfaction with a weight understood as higher may be related to actions that are harmful to health with the aim of losing body mass, to fit into the stereotyped standards of today's society. Therefore, harmful means for weight loss must be analyzed, and the use of laxatives and the habit of vomiting are the main ones. In 2014, it was found that 2.5% of students at a Brazilian university used laxatives or vomited in order to lose body mass [6]. In this study, 1.9% of students reported using these strategies.

Most men in the present study indicated that they did nothing about their current weight (33.9%), assuming they were satisfied with their body mass. In the study by Faria, Gandolfi and Mura [6], the proportion was 14.1%. In relation to those who were trying to lose weight, our study showed a proportion equal to 28.3%, a value much lower than that found by other researchers in Brasília [6], which was 42.3%. In relation to weight gain, 23.5% of the young people in our research indicated this option, corroborating the findings of the research in Brasília [6].

This study found that 23.2% of college students were on a diet to lose body mass and 38.7% were exercising. In the study by Faria, Gandolfi and Moura [6], the proportions for the two behaviors were 31.2% and 43.9%, respectively. Among the possibilities for less concern about diets and physical exercises for weight loss, it may be the fact that most students in the current study were not concerned about body mass-related issues.

Regarding slimming pills, 1.9% of the participants in the present study said they used them. A higher number was found by Faria, Gandolfi and Moura [6] in the male population (8.6%), and by Mendoza Gonzalez and Olalde Libreros [24] (5.9%). The differences found can be justified by possible cultural differences, since one of the studies [24] was carried

out in Mexico and specifically with medical students, suggesting that students can have greater access and knowledge about the use of these drugs.

Regarding the frequency of physical exercise in the seven days prior to the survey, 37.1% of the students did not practice it; 21.9% practiced between 1 and 2 times; 20.8% between 3 and 4 times; 13.9% between 5 and 6 times; and 6.3% practiced every day. The degree of physical inactivity was similar to that presented in the literature, with values of 35.6% [16] and 41.7% [26] found. This rate of inactivity is high and increases the chance of illness from cardiovascular causes, obesity, and chronic diseases such as diabetes and high blood pressure.

It is important to note that due to the way the question was prepared (in the last week, on how many days did you exercise or practice sports that made you sweat and breathe hard for at least 20 minutes), it is difficult to make a more elaborate analysis of this habit, as there was no access to the total time spent by respondents in their physical activities. The recommendations of the World Health Organization (WHO) regarding the practice of physical activity refer to the time spent weekly with medium/vigorous physical activities, with an established average of 150 minutes per week [32].

Regarding food consumption, the consumption of healthy foods (fruits, juices, and vegetables) and other more harmful to health (hamburgers, cookies, and sweets) was researched, considering the diet on the day before the survey. Considering the consumption of fruit or fruit juice, most consumed at least once. Similarly, the prevalence of consumption of fruit or fruit juice between one and three times a week of 70.7% is found in the literature [6].

Concerning the consumption of vegetables, 40.5% of the participants consumed them once the day before, 24.0% none, 30.9% twice and 4.6 three times or more; results similar to those found by Faria, Gandolfi and Mura [6]. In the research by Cureau, Duarte and Teixeira [21], it was found that 88.8% of the participants did not eat fruits and vegetables, however, it is important to note that low-income university students from a city in southern Brazil were investigated, which may influence this result. In addition, the researchers evaluated the regular consumption of these foods, which could explain the divergence between this study's data; once the question of the questionnaire used was considered only the day before the study.

Related to the consumption of foods considered predictors of a less healthy diet, such as hamburgers, French fries, and snacks (fried and packaged), most did not consume (53.9%). In relation to sweet cookies, pies/cakes, and sweets, most of them were consumed the day before (40.8%). Despite this, the findings of our study show that college men had good eating habits. Contrasting this finding, a study that compared the prevalence of excess body mass between the surveys carried out in 2010, 2012 and 2014, with university students from the same institution, showed that, among men, there was greater consumption of foods with fat and irregular fruit intake [8].

Another study argues that the university population tends to demonstrate inadequate lifestyle habits, with high consumption of foods rich in fat, and the simultaneous maintenance of good academic performance, participation in cultural events and satisfactory social experiences are factors that make it difficult to maintain healthy eating habits [1]. In our show, these behaviors were different. However, it is worth highlighting, once again, the way in which it was questioned, considering the day before the research, which is a limitation of our study.

5. Conclusion

It was observed that most of the investigated university men had normal body mass (eutrophic). However, it is noteworthy that 31.5% were overweight (overweight and obesity), which requires weight control and reduction actions among those who are overweight, including the others, in order for them to maintain their body mass within of the values considered normal. Although most of them perceived that they were at normal body mass, when the other categories are added (underweight or overweight), 57.4% indicated these options. And when asked what they were doing with their body mass, 48.2% were trying to lose or gain it. Although a small frequency indicates that you have done something (diet, exercise, use of laxatives or pills) to lose body mass, attention should be paid to these situations in order to monitor possible risk behaviors.

In general, good eating habits were found, highlighting the consumption of fruits, vegetables or cooked vegetables, and the non-consumption of hamburgers, drumsticks, snacks, or French fries; despite a percentage having indicated consumption of cookies, cakes, or sweets.

The results that point to a healthier diet may be related to the use of University Restaurants (UR), as there are two on the campuses where most of the students in this analysis study. These restaurants have a government subsidy that makes the price of food substantially lower than the price of other establishments, and, at the same time, they have a

menu that varies daily and that has the intervention of nutritionists in its preparation, which culminates in an easy access of the university population to a quality food. However, it should be noted that this analysis does not present data regarding the amount of food ingested by the population studied, only the frequency and food categories that prevail. These establishments seem to play an important role among the aspects that favor these university students to adopt less health risk behaviors related to food. In this way, studies that better investigate this relationship should be carried out, as they may offer important information to support public health policies for this population, including Universities as important spaces for help, well-being, and health promotion.

Finally, studies that include the male university population are extremely important to characterize the health risk behaviors in this group, which directly impacts their morbidity and mortality profile. Understanding how these practices take place, preventive measures and health education can be planned and implemented in order to reduce several risk factors for illness, improve the quality of life, through the adoption of healthier habits, and minimize eventual distortions within relation to self-perception of body image.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest among the authors.

Statement of ethical approval

The study was approved by the Ethics Committee of the Federal University of São João del-Rei, opinion 2,597,457 (CAAE: 80352517.7.0000.5151), Brazil.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study by signing the Free and Informed Consent Form.

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