

## Self-Perception of Body Image in College Students of a Nutrition Course

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### ABSTRACT

**Objective:** To evaluate the body image of university students in the course of nutrition. **Materials and methods:** A cross-sectional study was carried out with 181 students of both genders from the Nutrition Undergraduate of Maranhão, Brazil. The presence and degree of dissatisfaction with body shape were evaluated by the Body Shape Questionnaire (BSQ 34), another instrument used in this study was Body Figure Silhouettes (BFS). **Results:** The participants presented the mean age of 23.1 ( $\pm 5.2$ ) years, the majority of women (89.5%). Most of the subjects were eutrophic (66.9%) according to BMI, and no image perception disorder according to BSQ34. According to the BSF, 56 students had the silhouette represented by figure 4, however, the figure most desired by 111 students was demonstrated by silhouette 3, ( $p$ -value 0.000). Demonstrating the desire for weight loss of the majority, despite being represented by a silhouette eutrophic. **Conclusion:** Most (66.9%) eutrophic, according to BMI and without image disturbances (54.7%) according to BSQ 34. However, there is a trend of overweight and obese individuals presenting with image disorders.

**Keywords:** body image, anthropometry, undergraduate students.

### BACKGROUND

Body image (BI) is defined as the "image that the individual has in their mind about the size, structure, shape, and contour of their own body, as well as the feelings about those characteristics and the parts that the body constitute"<sup>1,2</sup>.

Body dissatisfaction is a disturbance of the attitudinal component and includes the evaluative spheres, characterized by the difference between the current and the considered ideal body; and affective, that is, how much the individual suffers due to this difference<sup>2</sup>. Body dissatisfaction is multidimensional and may be isolated or jointly related to weight, body shape, and appearance<sup>3</sup>.

Studies carried out with college students showed that this group is subject to nutritional or perception disorders<sup>4</sup>. It is essential to consider that this group of students will be, in their future professional life, responsible in guide people about food, in obtaining results that are expressed in their body and so, they will feel subject to social expectations and exposed to criticism about their weight and their physical form. Thus, they must have a good personal relationship with food and their own body to aim to give effective guidance to the third parties<sup>5,6</sup>; but this is not synonymous with a perfect body.

Body image studies attempt to understand which factors play a role in the development and maintenance of body image disorders. In general, women present greater body dissatisfaction than men, as well as a higher prevalence of eating disorders. It is pointed out that body dissatisfaction is associated with depressive symptoms, stress, low self-esteem, greater food restriction, and lack of physical activity, indicating the importance of evaluating this parameter<sup>7</sup> in the evaluation of the perception of body image in students of the Nutrition course.

## METHODS

Cross-sectional research design study with 181 students of the Nutrition Undergraduate Course of the Bacabal School of Education (FEBAC), Maranhão, Brazil. It was adopted a 95% confidence interval.

**Inclusion Criteria:** The population of this study was intentionally chosen and formed of scholars of the Bachelor of Nutrition Course of FEBAC, duly enrolled and normally attending classes in the academic semester of data collection. This sample included students of both genders, aged 18 years or above, without distinction of ethnicity or social class. Data collection occurred in May 2018.

**Data Collection Instruments:** The presence and degree of dissatisfaction with body shape were evaluated by the Body Shape Questionnaire (BSQ 34) developed by Cooper et al. (1987) and adapted to Brazil by Cordás and Castilho (1994). This questionnaire presents 34 questions, each with six possible answers, varying from "always" to "never", with scores between 1 and 6. The result is obtained from the sum of the scores assigned to each question, classified into four categories which define the level of concern with body image: (a) normality (less than 70 points) or absence of distortion of body image; (b) slight distortion (between 70 and 90 points); (c) moderate distortion (between 91 and 110 points); and (d) severe distortion (over 110 points)

The Body Figure Silhouettes (BFS) was another instrument used, created by Stunkard in 1983. Such a scale has shown good reproducibility<sup>8</sup> and has been used in many studies with adolescents and adults of both genders. This is an instrument commonly used to evaluate distortions in the body image of individuals, allowing to verify the differences between the present and the idealized body, besides the body image at the moment of the application of the study.<sup>8</sup>

For this study, the BFS used contained a scale with nine figures of body silhouettes. The silhouettes were arranged in ascending order, from left to right, numbered from one to nine respectively; the first figure illustrated an extremely thin body (number 1) and the last figure an extremely fat body.<sup>9</sup>

For the acquisition of socio-demographic data of the participants, a questionnaire containing information on age, gender, skin color (self-declared), marital status, student's semester, tobacco use, alcoholic drinks and medication, physical activity practice, among others.

The ethical aspect of this study was approved by the Research Ethics Committee of the University Hospital of the Federal University of Maranhão, under the opinion number 2.509.353. Also, it followed the principles of non-maleficence, beneficence, justice, and autonomy contained in Resolution n. 466/2012 of the National Health Council, assuring the anonymous character of the participants and the freedom of choice in accepting or refusing to participate, or consent in the course of the research.

Data Analysis: The data were tabulated in Microsoft Excel 2013® and the statistical analysis of the results was performed in the statistical program SPSS (Version 22). Data were presented in relative, absolute, and mean frequency and standard deviation. To verify the relationship between disturbance in body perception and categorical variables, the Qui-Quadrado test was applied. To verify the relationship between disturbance in body perception and continuous variables, Analysis of Variance (ANOVA) was applied. To verify the difference between the current and desired silhouette, the Wilcoxon test was applied. The normality test was performed from the Shapiro-Wilk. All associations and comparisons were considered statistically significant when alpha was less than 5%.

## RESULTS

A total of 181 students, with a mean age of 23.1 ( $\pm 5.2$ ) years and majority women (89.5%). Regarding lifestyle, most reported not smoking (99.4%), not drinking (87.3%), and did not perform any physical activity regularly (70.7%) (Table 1).

Table 1. Sociodemographic and lifestyle characterization of undergraduate nutrition students. Maranhão, Brazil, 2018.

<b>Variables</b>	<b>n</b>	<b>%</b>
<b>age (years)</b>		
<b>18 a 28</b>	161	89,0
<b>29 or more</b>	20	11,0
<b>Md±Dp</b>	23,1±5,2	
<b>Gender</b>		
<b>Male</b>	19	10,5
<b>Female</b>	162	89,5
<b>Year of study</b>		
<b>1° (1° e 2° sem.)</b>	52	28,7
<b>2° (3° e 4° sem.)</b>	43	23,8
<b>3° (5° e 6° sem.)</b>	46	25,4
<b>4° (7° e 8° sem.)</b>	40	22,1
<b>Color</b>		
<b>White</b>	52	28,7
<b>Not White</b>	129	71,3
<b>Marital status</b>		
<b>With mate</b>	22	12,2
<b>Without mate</b>	159	87,8
<b>Smoking</b>		
<b>No</b>	180	99,4
<b>Yes</b>	1	0,6
<b>Alcoholism</b>		
<b>No</b>	158	87,3
<b>Yes</b>	23	12,7
<b>Physical activity</b>		
<b>No</b>	128	70,7
<b>Yes</b>	53	29,3
<b>TOTAL</b>	<b>181</b>	<b>100,0</b>

When applying the Body Shape Questionnaire (BSQ 34), it was verified that more than half of the students did not have an image disorder, followed by slight distortion with 27.1% of students (Table 2). Table 2. Anthropometric characterization and body dissatisfaction (Body Shape Questionnaire - BSQ 34) of undergraduate nutrition students. Maranhão, Brazil, 2018.

<b>Variables</b>	<b>n</b>	<b>%</b>
<b>Disturb</b>		
<b>Absence</b>	99	54,7
<b>Mild</b>	49	27,1
<b>Moderate</b>	21	11,6
<b>Severe</b>	12	6,6
<b>Body mass index</b>		
<b>Malnutrition</b>	13	7,2
<b>Eutrophy</b>	121	66,9
<b>Overweight/obesity</b>	47	26,0
<b>Arm Circumference</b>		
<b>Depletion</b>	44	24,3
<b>Eutrophy</b>	112	61,9
<b>Overweight/obesity</b>	25	13,8
<b>Waist Circumference</b>		
<b>Without risk</b>	154	85,1
<b>High risk</b>	23	12,7
<b>Very high risk</b>	4	2,2
<b>Waist/Hip Ratio</b>		
<b>Without risk</b>	177	97,8
<b>Risk</b>	4	2,2
<b>Waist/Height Ratio</b>		
<b>Without risk</b>	146	80,7 %
<b>Risk</b>	35	19,3%
<b>TOTAL</b>	<b>181</b>	<b>100,0</b>

In the analysis, the current and desired silhouettes (Body Figure Silhouettes -BFS) comparisons 71.2% of the malnourished marked eutrophy as desired; 69.6% of eutrophic patients scored the same option and 85.7% of overweight/obese patients scored eutrophy as desired. Considering that silhouettes 1 and 2 represent malnutrition, 3 to 5 eutrophy, and 6 to 9 overweight/obesity (Table 3).

Table 3. Comparison between body perception of current silhouette and desired silhouette (BFS - Body Figure Silhouettes) of undergraduate nutrition students. Maranhão, Brazil, 2018.

Silhouette	Current		Desired		p-value
	n	%	n	%	
<b>1</b>	20	11,0	5	2,8	<0,001
<b>2</b>	39	21,5	48	26,5	
<b>3</b>	37	20,4	111	61,3	
<b>4</b>	56	30,9	11	6,1	
<b>5</b>	22	12,2	6	3,3	
<b>6</b>	7	3,9			
<b>TOTAL</b>	<b>181</b>	<b>100,0</b>	<b>181</b>	<b>100,0</b>	

According to the BSF, 56 students had the silhouette represented by figure 4, however, the figure most desired by 111 students was demonstrated by silhouette 3, (p-value < 0.001) as shown in Table 3. Demonstrating the desire for weight loss of the majority, despite represented by a eutrophic silhouette.

Table 4 correlates the sociodemographic parameters with the body dissatisfaction. By showing that of the 12 people who had severe body image distortion, according to BSQ 34 questionnaire, all were women and 11 of them were between 18 and 28 years old and 58.3% were in the first year. However, the majority (91.8%) of the participants of this age group presented slight distortion followed by 90.5% with moderate distortion, and, lastly, 86.9% presented no degree of distortion.

Table 4. Relationship between and body dissatisfaction (Body Shape Questionnaire - BSQ 34) and sociodemographic perception of undergraduate nutrition students. Maranhão, Brazil, 2018.

Variables	Absence		Mild		Moderate		Severe		p-value ¥
	n	%	N	%	n	%	n	%	
<b>Age (years)</b>									
<b>18 a 28</b>	86	86,9	45	91,8	19	90,5	11	91,7	0,803
<b>29 or more</b>	13	13,1	4	8,2	2	9,5	1	8,3	
<b>Md±Dp</b>	23,0±5,4		22,9±5,5		24,0±4,4		22,7±5,2		0,837*
<b>Gender</b>									
<b>Male</b>	14	14,1	5	10,2	1	4,8	0	0,0	0,411
<b>Female</b>	85	85,9	44	89,8	20	95,2	12	100,0	
<b>Year of study</b>									
<b>1° (1° e 2° sem.)</b>	24	24,2	19	38,8	2	9,5	7	58,3	0,059
<b>2° (3° e 4° sem.)</b>	24	24,2	11	22,4	5	23,8	3	25,0	
<b>3° (5° e 6° sem.)</b>	24	24,2	12	24,5	9	42,9	1	8,3	
<b>4° (7° e 8° sem.)</b>	27	27,3	7	14,3	5	23,8	1	8,3	
<b>Color</b>									
<b>White</b>	29	29,3	14	28,6	5	23,8	4	33,3	0,943
<b>Not White</b>	70	70,7	35	71,4	16	76,2	8	66,7	
<b>Marital Status</b>									
<b>With mate</b>	7	7,1	8	16,3	4	19,0	3	25,0	0,112
<b>Without mate</b>	92	92,9	41	83,7	17	81,0	9	75,0	
<b>Smoking</b>									
<b>No</b>	98	99,0	49	100,0	21	100,0	12	100,0	0,842
<b>Yes</b>	1	1,0	0	0,0	0	0,0	0	0,0	
<b>Alcoholism</b>									
<b>No</b>	85	85,9	44	89,8	16	76,2	11	91,7	0,456
<b>Yes</b>	14	14,1	5	10,2	5	23,8	1	8,3	
<b>Physical activity</b>									
<b>No</b>	72	72,7	36	73,5	14	66,7	7	58,3	0,899
<b>Yes</b>	27	27,3	13	26,5	7	33,3	5	41,7	
<b>TOTAL</b>	<b>99</b>	<b>100,0</b>	<b>49</b>	<b>100,0</b>	<b>21</b>	<b>100,0</b>	<b>12</b>	<b>100,0</b>	

¥ Square-chi; \*ANOVA.

Students who were overweight and obese according to BMI, showed moderate and severe disturbance, 52.4% and 75%, respectively (p-value < 0,001). The majority (73.7%) of the eutrophic did not have an image disorder. Of the 13 that were considered malnourished, 12 of them were absent from disturbance and 1 with mild disturbance (Table 5).

Table 4. Relationship between and body dissatisfaction (Body Shape Questionnaire - BSQ 34) and sociodemographic perception of undergraduate nutrition students. Maranhão, Brazil, 2018.

Variables	Absence		Mild		Moderate		Severe		p-value ¥
	n	%	N	%	n	%	n	%	
<b>Age (years)</b>									
<b>18 a 28</b>	86	86,9	45	91,8	19	90,5	11	91,7	0,803
<b>29 or more</b>	13	13,1	4	8,2	2	9,5	1	8,3	
<b>Md±Dp</b>	23,0±5,4		22,9±5,5		24,0±4,4		22,7±5,2		0,837*
<b>Gender</b>									
<b>Male</b>	14	14,1	5	10,2	1	4,8	0	0,0	0,411
<b>Female</b>	85	85,9	44	89,8	20	95,2	12	100,0	
<b>Year of study</b>									
<b>1° (1° e 2° sem.)</b>	24	24,2	19	38,8	2	9,5	7	58,3	0,059
<b>2° (3° e 4° sem.)</b>	24	24,2	11	22,4	5	23,8	3	25,0	
<b>3° (5° e 6° sem.)</b>	24	24,2	12	24,5	9	42,9	1	8,3	
<b>4° (7° e 8° sem.)</b>	27	27,3	7	14,3	5	23,8	1	8,3	
<b>Color</b>									
<b>White</b>	29	29,3	14	28,6	5	23,8	4	33,3	0,943
<b>Not White</b>	70	70,7	35	71,4	16	76,2	8	66,7	
<b>Marital Status</b>									
<b>With mate</b>	7	7,1	8	16,3	4	19,0	3	25,0	0,112
<b>Without mate</b>	92	92,9	41	83,7	17	81,0	9	75,0	
<b>Smoking</b>									
<b>No</b>	98	99,0	49	100,0	21	100,0	12	100,0	0,842
<b>Yes</b>	1	1,0	0	0,0	0	0,0	0	0,0	
<b>Alcoholism</b>									
<b>No</b>	85	85,9	44	89,8	16	76,2	11	91,7	0,456
<b>Yes</b>	14	14,1	5	10,2	5	23,8	1	8,3	
<b>Physical activity</b>									
<b>No</b>	72	72,7	36	73,5	14	66,7	7	58,3	0,899
<b>Yes</b>	27	27,3	13	26,5	7	33,3	5	41,7	
<b>TOTAL</b>	<b>99</b>	<b>100,0</b>	<b>49</b>	<b>100,0</b>	<b>21</b>	<b>100,0</b>	<b>12</b>	<b>100,0</b>	

¥ Square-chi; \*ANOVA.

The medians found in Table 6 show that most individuals do not have image disorders, regardless of their BMI, but the higher the BMI was, the greater was the incidence of disturbances. This information is significantly relevant (p-value 0.001).



Table 6. Association between body dissatisfaction and anthropometry of undergraduate nutrition students. Maranhão, Brazil, 2018.

Variables	Absence	Mild	Moderate	Severe	p-value
	Mean (Min-Max)	Mean (Mín-Máx)	Mean (Mín-Máx)	Mean (Mín-Máx)	
<b>BMI<sup>1</sup></b>	22 (15-32)	23 (17-30)	25 (21-33)	26,5 (20-32)	<0,001
<b>AC<sup>2</sup></b>	70 (52-98)	74 (60-90)	74 (66-92)	80 (61-82)	<0,001
<b>WC<sup>3</sup></b>	93 (77-119)	97 (80-110)	98 (91-118)	105,5 (91-117)	0,003
<b>WHR<sup>4</sup></b>	0,75 (0,61-0,9)	0,76 (0,67-0,98)	0,77 (0,7-0,84)	0,75 (0,67-0,8)	0,054
<b>WHeightR<sup>5</sup></b>	0,44±0,04	0,46±0,04	0,46±0,05	0,48±0,05	0,001*

<sup>1</sup> Body mass index; <sup>2</sup>Arm circumference; <sup>3</sup>Waist circumference; <sup>4</sup>Waist/Hip ratio; <sup>5</sup>Waist/height ratio.

\*ANOVA.

## DISCUSSION

This study has evaluated the body image perception in Nutrition students since these are part of a group of people inserted in a context in which there is social pressure to maintain healthy lifestyle habits and body appearance within the standards required by society. Thus, students in this area can be considered a risk group for the development of eating disorders.

A predominance of women was found in the research, corroborating with the data collected in the study conducted at the Federal University of Rio Grande in 2017, with 111 students from the Physical Education, Nursing, Medicine and Psychology courses, of which 62% were women. In 2007, 335 students participated in a study, with nutrition students from public and private universities in São Paulo in Brazil, with most of them being women (93.7%), mean age 23.5 years (SD = 4.9), white color (65.1%), single (86.6%). Similar data was found in the current research, with the participants differing only in color, where the majority (71.3%) was of self-declared other ethnicities.

Data from the Census of Higher Education in Brazil (2017), showed that the nutrition course is among the five most sought after courses by the female population, thus corroborating the findings presented here. In this study, tobacco rates were low, corroborating data from Palheta et al., (2015) and Brazil, where, from 2006 to 2014, smoking fell by 30.7%<sup>9</sup>. This drop in the rate of tobacco use is linked to the actions developed by the country's National Tobacco Control Politics (National Tobacco Control Policy of Brazil). This pattern is confirmed in this research and collaborates to promote the population's health.

Regarding lifestyle data, 70.7% (128/181) did not perform any type of physical activity, in contrast to what the philosophy of nutrition science propagates in relations to physical inactivity. It is important for the lifestyle to be in accordance with what is taught by the professional. A study conducted by Souza et al. (2015) had the objective of verifying the level of physical activity and stages of behavior change in university students in the health area<sup>10</sup>. The sample consisted of 416 individuals, from Physical Education (n = 67), Nursing (n = 87), Pharmacy (n = 79), Physical Therapy (99) and Nutrition (n = 84). The results

found in the study indicated that almost 30% of health academics were considered physically inactive or insufficiently active, 6% in Physical Education, 34.5% in Nursing, 35.5% in Pharmacy, 28,3% in Physical Therapy, and 40.5% in Nutrition.

A physically inactive lifestyle is related to the substantial increase in the development of chronic degenerative diseases like heart disease, hypertension, diabetes, obesity, and some types of cancers. It is estimated that around 31% of the global population is insufficiently active. In Brazil, data collected in the capitals showed that 49.4% of adults are insufficiently active and 16.2% are considered physically inactive<sup>9,11,12</sup>. The encouragement of physical exercise and healthy eating should be applied in university students, as well as the promotion of strategies for proper body perception<sup>13</sup>.

The BSQ 34 questionnaire revealed that more than half of the students did not have an image disorder, followed by 27.1% with mild disturbance, 11.6% with moderate, and 6.6% with severe image disorder. Of the physical education students evaluated in Souza (2012), 81.5% of the students had no body image distortion, 12% presented slight distortion, and 6% presented moderate distortion.<sup>10</sup> Lopes, et al., (2017) observed nutrition students and noticed that, in total, 81.5% of the students did not a present distortion of body image, 12% presented slight distortion, and 6,5% presented moderate distortion.

In a study on body perception, conducted at the School of Physical Education of the Federal University of Pelotas in Brazil, 65% of men and 20% of women said they would like to change their silhouette, for a more defined one. Nutrition scholars are in constant contact with knowledge about food and nutrition and are supposed to have acquired information that directs their practices towards attaining health, well-being, and quality of life. Therefore, it is suggested that students of nutrition are in an environment that favors the preoccupation with the body image, generating, in some cases, distortions and dissatisfactions with self-image.<sup>13</sup>

The results available here have higher proportions than other gender studies, as examples above, and cause concern regarding the physical and mental health of these students. It is known that the perception of the "ideal" body image is developed over time and is subject to several elements that involve the family, cultural, historical, biological, social, and individual context. In this context, it is necessary to identify and explore these influences to assist in the formation of corporate images, thus showing self-esteem and seeking to reduce the development of eating disorders caused by body image dissatisfaction.<sup>14</sup>

In regard to the body mass index, 66.9% presented themselves as eutrophic, followed by overweight in 26% (47/181) and obesity in 7,1%. Regarding the relationship between disorder, evaluated by the BSQ 34 questionnaire and results from anthropometry, some showed a significant positive correlation. The indexes: BMI, AC and WC presented per value <0.05 (p-value <0.001, <0.001 and 0.003, respectively). This is translated by stating that most individuals do not have a disorder, but the closer they are to the risk indexes, the higher the rates of the presence of some degree of image perception disorder. Thus, it is shown that these students want to be thinner than they really are, despite the average BMI is within the normal range.

In Pelotas, similar data were found. Evaluating nutrition students, thirty-two students were newcomers and 33 trainees. Moreira et al. (2017) also found profiles of similar nutrition students when the parameter used is BMI, finding 65.6% of eutrophics, followed by 19.8% of overweight.<sup>15</sup> As in the study

by Laus et al., (2009) the significant positivity found in the correlation analysis between the two instruments and between them and the BMI demonstrates that both act in the detection of the studied constructo.<sup>14</sup>

The data presented here show that, despite being eutrophic, students aim for a lower IMC than the real one, corroborating with the study by Bosi et al<sup>16</sup>, in which students of the Nutrition course in the state of Rio de Janeiro who had a reported average BMI of 20.8 kg / m<sup>2</sup> (according to the weight and height reported by the students) wished to have an IMC equal to 20.1 kg / m<sup>2</sup>. This could be attributed to societal pressure and shows that the ideal body image among university students reflects the same slim and muscled patterns (for females and males, respectively) currently praised in sociocultural contexts, where fat or higher body weight are seen as a stigma of ugliness, causing individuals with a higher BMI to feel uncomfortable and concerned with their body image.

The cross-sectional design stands out as a limitation of this study, which does not allow observing the cause-effect relationship, as well as generalizing the results obtained here. However, even with this limitation, the study is relevant, since it aims to contribute to the identification of possible body image disorders in a sample of the population that is responsible for taking care of the individuals' nutritional health and dietetics. Body dissatisfaction is a precursor for negative self-perception or self-worth and can lead to the development of eating disorders.

## CONCLUSION

This study verified that eutrophy prevailed in the study population, with no disturbance of image perception, according to BSQ 34 questionnaire and with body image dissatisfaction in both genders, according to BSF. However, it can be seen whether a tendency of overweight and obese individuals to present a body image disorder. It is essential to consider that future nutritionists will be, in their professional life, guiding about food to obtain results that are expressed in the body and, in this way, they will feel subject to social expectations and exposed to criticism about their weight and their physical form. They must have a good personal relationship with food and the body to achieve effective guidance in professional practice.

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