

Perception of body image and nutritional status in nutrition undergraduates from a public university

Percepção da imagem corporal e estado nutricional em acadêmicas de nutrição de uma universidade pública

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Abstract

A cross-sectional study with 90 first-year (G1) and last-year undergraduates (G2) of a nutrition program conducted to evaluate the association between body image perception and nutritional status. To evaluate the perception and distortion of body image, the Stunkard Silhouettes Scale and the Questionnaire on body image (BSQ 34) were applied. Weight (Kg) and height (m) were measured and nutritional status was classified based on the calculation of body mass index (BMI). The average values for weight, height and BMI were similar in both groups ($p > 0.05$), but a different result was found for age, whose average was significantly higher among graduates ($p < 0.05$). It was found that 73.3% of the first-year students and 77.8% of the last-year undergraduates were eutrophic, and the latter had lower prevalence of underweight and overweight compared with the former, without a significant association ($p=0.87$). Dissatisfaction with thinness or overweight was 62.3% and 82.2% in G1 and G2, respectively. It was found that 20% of the first-year students showed serious body image distortion, with a significant difference when compared to last-year ones ($p=0.001$). Body image dissatisfaction was quite prevalent, and it was more common among last-year students who had a distorted impression of excess weight. Body image dissatisfaction in different degrees was prevalent in this study, regardless of nutritional status. Physical exercise and healthy eating habits should be encouraged among college students and strategies should be promoted for a better perception of their bodies.

Keywords: Body Image. Nutritional Status. Perception. Students.

Resumo

Estudo transversal com 90 universitárias ingressantes (G1) e concluintes (G2) do curso de Nutrição, com objetivo de avaliar a associação entre a percepção da imagem corporal e o estado nutricional. Para avaliação da percepção e distorção da imagem corporal, aplicou-se Escala de Silhuetas de Stunkard e Questionário sobre Imagem Corporal (BSQ 34). Foi realizada aferição de peso (Kg) e estatura (m) e, a partir do cálculo do Índice de Massa Corporal (IMC), a classificação do estado nutricional. Os valores médios de peso, estatura e IMC foram semelhantes nos dois grupos ($p>0,05$), diferente do verificado para a idade, cuja média foi significativamente mais elevada entre as concluintes ($p<0,05$). Constatou-se que 73,3% e 77,8% das acadêmicas ingressantes e concluintes, respectivamente, estavam eutróficas, mas as concluintes apresentaram menor prevalência de baixo peso e excesso em relação às ingressantes, sem associação significativa ($p=0,87$). A insatisfação por magreza ou excesso de peso foi de 62,3% e 82,2% no G1 e G2, respectivamente. Em relação à imagem corporal, observou-se que 20% das ingressantes mostraram distorção grave, com diferença expressiva quando comparadas às concluintes ($p=0,001$). A insatisfação com a imagem corporal foi dominante, apresentando-se mais frequente entre as concluintes, que tinham uma impressão distorcida para o excesso de peso. A insatisfação com a imagem corporal em diferentes graus foi prevalente neste estudo, independente do estado nutricional. O incentivo à prática de exercício físico e a adoção de uma alimentação saudável devem ser encorajados em estudantes universitários, bem como a promoção de estratégias para uma percepção adequada do corpo.

Palavras-chave: Imagem Corporal. Estado Nutricional. Estudantes.

Introduction

Current aesthetic pattern overestimates thinness. Thus, some lean, toned and muscular body is a social indicative of health, beauty and power. This reality creates situations of frustration, decreased self-esteem and discrimination to those who do not adapt, favoring propitious conditions for distortions in body image perception.¹

Body image is a personal identity component and can be defined as the mental representation that a person has about their physical appearance and corporeity and is expressed through thoughts, feelings and behaviors concerning the body. Its formation is related to the body perception and the level of satisfaction or dissatisfaction with the body itself.²

While some studies³⁻⁵ suggest that overweight individuals are more dissatisfied with body image, others show that even among those with adequate body mass index values the prevalence of dissatisfaction is high.⁶⁻⁷ Thus, the need to verify the relationship between dissatisfaction with body image and nutritional status is evident, with the perspective of promoting improvements in perception and acceptance of the body itself.

The life transition period in late adolescence, when individuals begin to prepare for college or life independently is of paramount importance in establishing behaviors and acquiring habits that shall influence potential weight gains.⁸ Nutrition scholars are in constant contact with knowledge about food and nutrition and are supposed to have acquired information that directs their practices to obtain health, well-being and quality of life. Therefore, it is suggested that nutrition students are in an environment that favors preoccupation with body image, generating, in some cases, distortions and dissatisfactions with their self-image.¹

It is crucial to consider that future nutritionists shall be, in their professional life, guiding people in relation to food to obtain results that are expressed in the corporeity and, in this way, they shall feel subject to social expectations and exposed to criticism about their weight and physical shape. It is essential that they have some good personal relationship with food and their body to achieve an effective guidance in professional practice.²

In order to broaden this discussion, this study has aimed to evaluate the association between the perception of body image and nutritional status in nutrition students, both beginners and freshmen, from a Brazilian public university.

Methods

A cross-sectional study conducted between 2014 and 2015 with Nutrition undergraduate students from Brazilian university *Universidade Federal do Piauí* (UFPI), distributed in two groups according to their courses period: freshmen (G1, n = 45) and seniors (G2, n = 45). The sample size was obtained through probabilistic analysis from a total of 174 students enrolled in the initial (1st, 2nd and 3rd) and final (7th, 8th and 9th) periods of the course mentioned above. A 95% confidence interval and a margin of error of 7.2% were adopted.

Female students over the age of 19 were included in the survey, regularly enrolled in a Nutrition course initial and final periods in 2015, excluding pregnant women, nursing mothers, disabled persons, athletes and those who would be undergoing nutritional guidance.

Initially, a pilot study was conducted with 10% of the students ($n = 17$) of the same age group to test the instruments for data collection. To evaluate body image perception, the Figure Rating Scale (FRS; also known as the Stunkard Scale),⁹ validated in Brazil by Scagliusi et al.¹⁰, was applied. This tool consists of a set of human figures numbered from 1 to 9, ranging from thinness (silhouette 1) to severe obesity (silhouette 9). Students indicated the figure that best represented their current silhouette, as well as the one that indicated the desired look. Dissatisfaction with body image was identified from subtracting the values of the current and desired silhouettes. Positive values indicated dissatisfaction with excess weight. Negative values indicated dissatisfaction with leanness. And values equal to zero indicated satisfaction.

Body shape presence and degree of dissatisfaction were evaluated by the *Body Shape Questionnaire* – BSQ 34 developed by Cooper et al.¹¹ and adapted for Brazil by Cordás & Neves.¹² This questionnaire presents 34 questions, each with six possible answers, ranging from “always” to “never,” with scores between 1 and 6. Result is obtained from adding the scores attributed to each question, classified into four categories that define the level of concern with body image: (a) Normality (less than 70 points) or absence of body image distortion; (b) Mild distortion (between 70 and 90 points); (c) Moderate distortion (between 91 and 110 points); and (d) Severe distortion (over 110 points).

Nutritional status was classified by weight (kg) and height (m) anthropometric measurements. Plenna® digital portable scale was used with a capacity of 150 kg and sensitivity of 50 g, as well as an inelastic tape measuring 150 cm in length. Body mass index (BMI in kg/m^2) was calculated by the Quetelet's equation ($\text{BMI} = \text{weight}/\text{height}^2$) and the nutritional diagnosis was based on cut-off points standardized by the World Health Organization.¹³

Statistical analysis was performed on (software package) SPSS Statistics 18.0 for Windows® (SPSS INC., Chicago, IL, USA), by means of descriptive and analytical statistics, considering significant values of $p < 0.05$ with confidence margin of 95%. The Kolmogorov–Smirnov test was used to verify the quantitative data normality, Student's t-test and Mann–Whitney U test for comparison of means between groups, for symmetric and asymmetric variables, respectively, and Fisher's exact test to investigate the association between the variables.

This research was conducted after approval by the Research Ethics Committee (REC) of the Brazilian university *Universidade Federal do Piauí*, under document no. 42010015.9.0000.5214 and after participants signed an Informed Consent Form (ICF), as provided in Resolution 466/2012 of Brazilian government National Health Council.¹⁴

Results

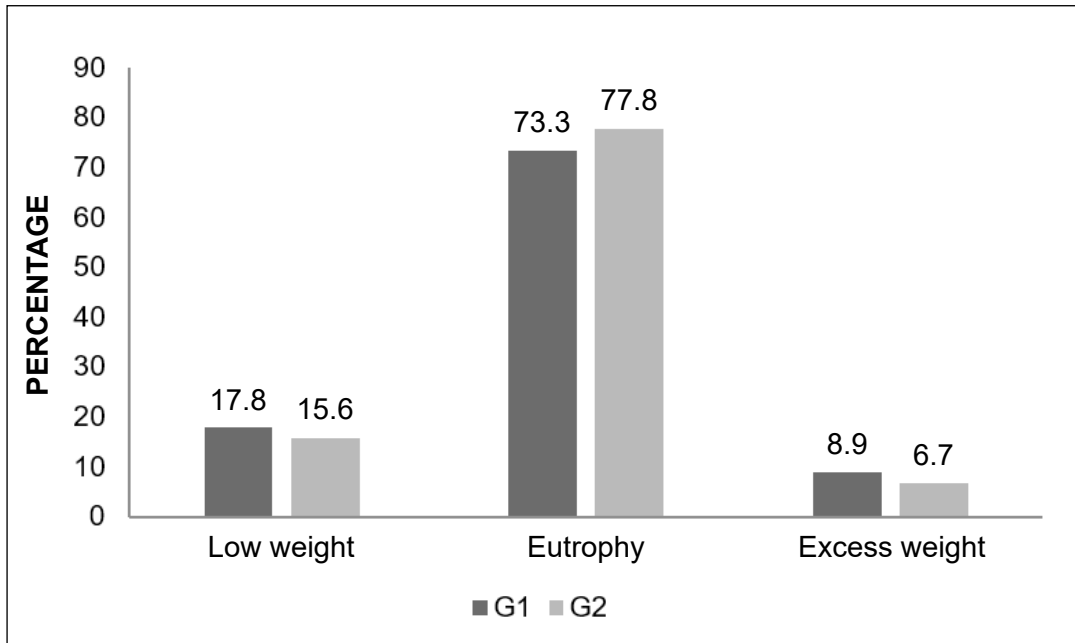
The present study evaluated 90 female students at the beginning and end of a Nutrition course, with a mean (standard deviation) of 21.4 (\pm 1.73) years and minimum age of 20 years and maximum of 30 years. Table 1 shows the values (mean and standard deviation) of age, body weight, height and body mass index (BMI) of the Nutrition course students studied. It was observed that mean body weight, height and BMI were similar in the two groups ($p > 0.05$) researched, different from what was verified for age, whose mean was significantly higher among senior students ($p < 0.05$).

Table 1. Mean values and standard deviations of age, body weight, height and body mass index for Nutrition course students. Teresina, PI, 2014/2015.

VARIABLE	G1 (freshmen) (n = 45) Mean \pm SD	G2 (seniors) (n = 45) Mean \pm SD	<i>p</i>
Age (years) ^a	20.29 \pm 1.62	22.60 \pm 1.85	< 0.001*
Body weight (kg) ^a	54.91 \pm 9.11	54.91 \pm 9.16	0.808
Height (m) ^a	1.60 \pm 0.11	1.62 \pm 0.05	0.256
BMI (kg/m ²) ^b	21.10 \pm 3.05	20.83 \pm 2.89	0.669

BMI: Body mass index. ^a Mann–Whitney U test; ^b Student's t-test (* $p < 0.05$)

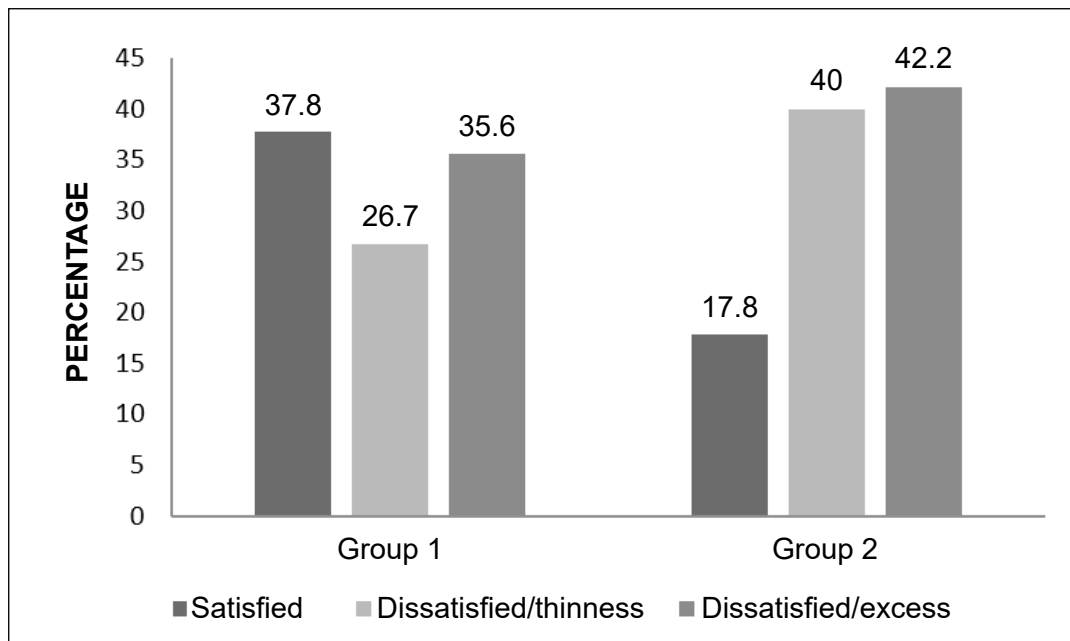
Figure 1 shows that, according to the nutritional status classification, 73.3% and 77.8% of freshmen (G1) and senior (G2) students, respectively, were eutrophic, but senior university students presented lower prevalence of underweight and overweight in relation to freshmen but without significant association between the groups ($p = 0.87$).



G1: freshmen; G2: seniors. Chi-squared test ($p = 0.87$).

Figure 1. Percentage distribution of students according to nutritional status. Teresina, PI, 2014/2015.

Figure 2 shows the percentage distribution according to satisfaction/dissatisfaction with students' body image. A high percentage of dissatisfaction due to thinness or excess weight among the students evaluated is noticed, being 62.3% and 82.2% in the freshmen (G1) and senior (G2) groups, respectively.

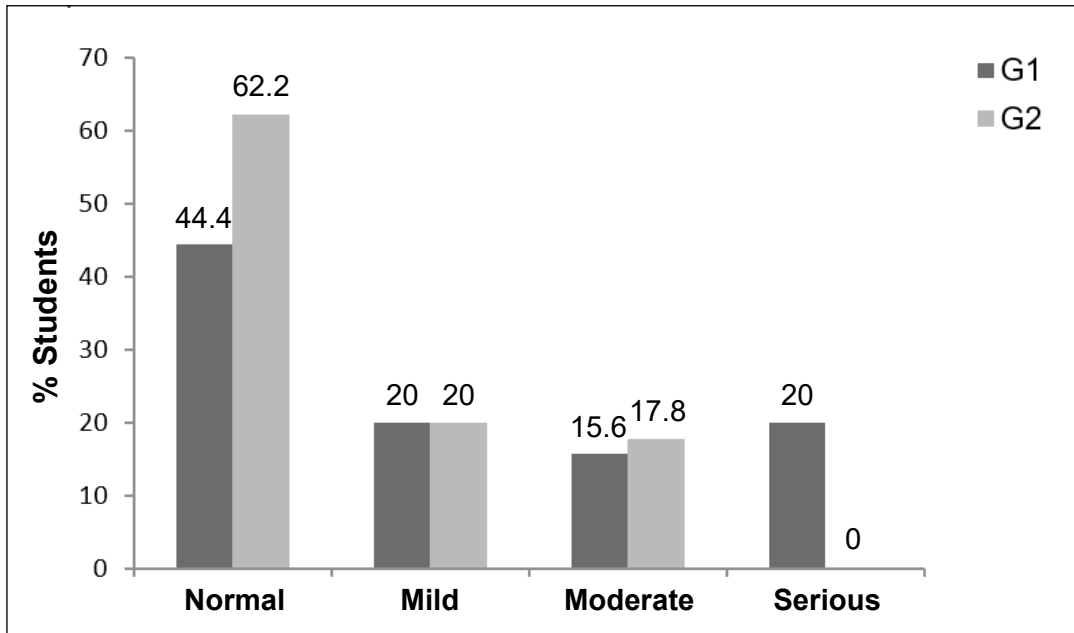


G1: freshmen; G2: seniors. Chi-squared test ($p = 0.096$).

Figure 2. Percentage distribution of students according to the degree of body image satisfaction. Teresina, PI, 2014/2015.

Regarding body image, it was observed in Figure 3 that 20% of the course freshmen showed severe distortion, with a significant difference when compared to senior students ($p = 0.001$).

The association between body image perception and nutritional status is presented in Table 2. Dissatisfaction with body image was prevalent among the students evaluated, regardless of the period in which they were in the course. And if the nutritional status was adequate or inadequate, therefore, there was no association between these variables.



G1: freshmen; G2: seniors. Degree of body image distortion G1 x G2: normal ($\chi^2 = 0.069$); mild ($\chi^2 = 0.604$); moderate ($\chi^2 = 0.500$); serious ($\chi^2 = 0.001$).

Figure 3. Percentage distribution of students according to the degree of body image distortion. Teresina, PI, 2014/2015.

Table 2. Nutritional status and satisfaction with body image by nutrition students, according to the course study period. Teresina, PI, 2014/2015.

Groups	Nutritional status	Scale of silhouettes		<i>p</i> *
		Satisfied n (%)	Dissatisfied n (%)	
G1 n = 45	Adequate	14 (42.4)	19 (57.6)	0.488
	Inadequate	3 (25.0)	9 (75.0)	
G2 n = 45	Adequate	7 (20.0)	28 (80.0)	0.661
	Inadequate	1 (10.0)	9 (90.0)	

G1: freshmen; G2: seniors. * The p-value of the Fisher's test.

Discussion

This study has evaluated the association between body image perception and nutritional status in Nutrition students. The majority of the studied population presented eutrophy. However, there were considerable percentages of weight inadequacies, with low weight being predominant, both for freshmen and seniors, exceeding percentages found by Silva et al.,¹ who, when evaluating 175 students of a Nutrition course at Brazilian university *Universidade Federal de Ouro Preto* (in the state of Minas Gerais), have found a prevalence of 9.4% of underweight and 8.5% of overweight.

Some studies point out that nutritional inadequacies are common among university students because eating habits are strongly influenced by factors such as university admission, lack of time to complete meals because of academic activities, replacement of complete meals for quick and practical snacks and the establishment of new behaviors and social relations, influencing excess weight and body image distortion.¹⁵⁻¹⁷

The prevalence of female obesity is worrying and many factors are involved in this phenomenon, highlighting inadequate dietary practices and low level of physical activity¹⁸ that affect Brazilian women.

Obesity brings immeasurable health damage, followed by significant psychological and social changes, such as the negative perception of the body itself, which is expressed in the cultivation of a slender body ideal.¹⁸ In this sense, when analyzing the perception that participants have about their own body, a high prevalence of dissatisfaction was observed, either due to overweight or thinness, especially among senior students. *It is presumed that this result can be justified by the greater demands regarding physical appearance in relation to an ideal body, especially since they are near the end of the course, when they need to be an example to future patients.*

Regarding this topic, Magalhães,² when investigating psychosocial factors related to body image in nutrition students, verified in the analysis of senior students' testimonies that the choice of the course was also based on concern with body weight and expectation of weight loss, searching self-esteem and social approval. Therefore it is verified that social pressure regarding physical shape is considerable, attributing to thinness the meaning of technical and professional capacity.

It is worth mentioning that body image good perception is important because it is related to individuals' self-esteem, that is, personal satisfaction and feeling good with themselves. In addition, body dissatisfaction is reflected in their self-image, which can lead individuals to adopt less healthy behaviors to fit an image that they believe to be ideal.¹⁹

Magalhães,² when analyzing body image satisfaction in nutrition students, has found 80% and 78% of body dissatisfaction among freshmen and seniors, respectively. It is noteworthy that,

regardless of whether student were freshmen or seniors, most of them were dissatisfied. More recently, Wanden-Berghe et al.,²⁰ in their study with university students, have observed body image dissatisfaction to a lesser extent (41.1%), since the university students of their research, in addition to being concerned about their nutritional status, would diet to lose weight.

In the analysis of body image distortion, it was observed that, in both groups, there was a higher prevalence of normality, that is, an absence of distortion. However, it is important to note the high percentage of freshmen students who presented severe distortion of their body image. This percentage is cause for concern, since they shall be future nutritionists who should also pay attention to detection and management of risky eating behaviors in their patients. On the other hand, it is probable that the knowledge acquired during the course may have positively influenced the most adequate perception of body image, since studies show that knowledge in nutrition can be determinant in body image subjectivity.¹⁷⁻²¹

Silva et al.,¹ when investigating body perception in nutrition students, have shown that 63.4% had no distortion, 22.9% presented mild distortion, 8.0% presented moderate distortion and only 5.7% reported severe body image distortion. Bosi et al.,⁵ when assessing the degree of body image distortion, have also found that the majority had no distortion (59.6%). Nilson et al.,²² when studying body image in university students, showed normal perception in 62.5%, mild distortion in 20.8% and moderate in 16.7%, these smaller percentages being attributed to the fact that the majority of university students are men, who, according to the literature, have a lower rate of body dissatisfaction when compared to women.²³

The analysis of the association between body image perception and nutritional status has shown that, although senior students had an adequate nutritional status, they were dissatisfied with their image, with no association between these variables, which may be due to the possible implications of the instruments used.

Although the application of the method of silhouettes is well accepted, studies show that the evaluation of image perception by this method can be a limiting factor because it uses a two-dimensional figure in black and white, which can hinder some more accurate identification of body image perception.^{24, 25} However, the choice of the Stunkard Silhouettes Scale⁹ is justified by its use in numerous studies and has already been validated in Brazil.

From this result, it could be verified that nutrition senior university students, even when presenting adequate BMI values, have the desire to reduce or increase their silhouette size, approaching the stereotype idealized by society, which could favor improvement in these students' satisfaction with body image.

According to Silva et al.,¹ eutrophic university students who are dissatisfied with their body image show an exaggerated concern with their bodies aesthetics. The authors cite the importance

of approaching the subject in nutrition courses in order to warn about the strong sociocultural pressure that imposes a healthy and beautiful body ideal, overlapping with professional nutritionists' principles of health and performance.

As for this topic, other studies converge with the results obtained. Ferrari et al.⁶ have observed that body image dissatisfaction is associated with nutritional status, with overweight students being the most dissatisfied. Coqueiro et al.³ have noted a significant association between nutritional status and body image dissatisfaction, indicating that BMI, the parameter used in this study, does not reflect the way individuals perceive their bodies.

Alvarenga et al.²⁶ have found that, in eutrophic university students, body dissatisfaction is expressive, since they chose as ideal and healthy numbers smaller than their current image (in the scale of silhouettes). The authors emphasize that the fact that eutrophic ones wish to have a leaner body leads to a discussion about the concept of health and good shape in force, associated with an unhealthy thinness according to medical parameters.

From the reflections raised, it should be noted that, although most university students were found to be eutrophic, there was a high prevalence of low weight and excess weight. In addition, many reported dissatisfaction with their weight, either by thinness or by overweight, in order to perceive that students are uncomfortable with their body and in conflict with themselves, *probably* by the search for some body standard valued as ideal, a requirement imposed on women by the media and society.

In the study of body image distortion, although the majority presented normality, 20% of severe distortion were obtained in freshmen. When verifying the association between body image perception and nutritional status, it was observed that the dissatisfaction was quite dominant, more frequently among seniors, who presented a distorted impression for excess weight.

Thus, the spread of lean stereotypes has increasingly influenced the search for these patterns, especially among overweight individuals. Therefore, this fact should be used as an indication for promoting changes in lifestyle aiming at adaptation to some healthier nutritional state and also promoting positive changes in body image.⁶

Conclusion

In this study, we have observed some higher prevalence of underweight and overweight in freshmen students in relation to seniors. Body image dissatisfaction in different degrees was high and more frequent among seniors, especially for the overweight group. There was no significant association between body image and nutritional status.

These findings reinforce the need for further studies deepening these issues in university environments with the aim of encouraging the adoption of healthy eating and physical exercises, especially for students who are overweight, obese or underweight.

Universities need to promote and support programs to encourage students to take care of their health, obviously seeking to find the best way to work for university students' well-being and quality of life. It is necessary to understand that the body image can be distorted among students. In this way, the involvement of all as active agents in promoting strategies for some more adequate body perception shall produce significant effects, besides promoting weight loss and preventing obesity for reaching a longer and healthier life.

Contributors

Lopes MAM has participated in all stages of the research, including the bibliographical survey and the writing of the manuscript; Paiva AA, has participated in the review, contributing in data analysis and interpretation and critical revision of the text; Lima SMT, in data interpretation and critical revision of the text; Cruz KJC has been responsible for carrying out the statistical tests; Rodrigues GP has participated in the planning and organization of the research and contributed to the revision of the text; de Carvalho CMRG has contributed to the design and conception of the research, data analysis and interpretation and final revision of the article.

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