# Nutritional status and eating disorders among students of the nutrition undergraduate course at the Instituto Federal de Educação, Ciência e Tecnologia, Ceará state, Brazil

Estado nutricional e transtornos do comportamento alimentar em estudantes do curso de graduação em nutrição do Instituto Federal de Educação, Ciência e Tecnologia, Ceará, Brasil

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## Abstract

Eating disorders tend to occur among young women, placing university students as a risk group. This study aimed to evaluate the nutritional status associated to the perception of the body image and the eating behavior of female students in a Nutrition course. It is a cross-sectional, descriptive and analytical study with a representative random sample, using the self-reported body mass index (BMI); Body Shape Questionnaire (BSQ); the Bulimic Investigatory Test Edinburg (Bite); and the Eating Attitudes Test (EAT-26). Descriptive analyzes of mean ± standard deviation (SD) and simple and relative frequencies were used. Statistical analysis was used to analyze variance (ANOVA) and significance level between the groups was determined by the Turkey test, with a significance level of $p < 0.05$. The means ± SD of age and BMI were 23 ± 4 years and 23.39 ± 4.01, respectively. Prevalence were: 46.14% reveal distortion of the body image by BSQ; 9.62% had a risk of developing eating disorders in EAT-26 and 15.38% expressed abnormal eating behavior. In the studied population there is great concern about the body, demonstrating the influence of sociocultural pressure on this group.

**Keywords:** Eating disorders and Food Intake. Body Image. Nutritional Status.

## Resumo

Transtornos alimentares tendem a ocorrer entre mulheres jovens, colocando universitárias como grupo de risco. Este estudo objetivou avaliar o estado nutricional agregado à percepção da imagem corporal e ao comportamento alimentar de estudantes do sexo feminino do curso de Nutrição. Trata-se de estudo transversal, do tipo descritivo e analítico, com amostra aleatória representativa, que utilizou o índice de massa corporal (IMC) autorreferido; o *Body Shape Questionnaire* (BSQ); o *Bulimic Investigatory Test Edinburg* (BITE); e o *Eating Attitudes Test* (EAT-26). Foram empregadas análises descritivas de média ± desvio padrão (DP) e frequências simples e relativas. Para a análise de diferenças estatísticas, utilizou-se a análise de variância (Anova), e o nível de significância entre os grupos foi determinado pelo teste de *Turkey*, com nível de significância $p<0,05$. As médias ± DP de idade e IMC foram 23 ± 4 anos e 23,39 ± 4,01, respectivamente. As prevalências foram: 46,14% apresentaram distorção da imagem corporal pelo BSQ; 9,62% tiveram risco de desenvolver distúrbios alimentares pelo EAT-26; e 15,38% expressaram comportamento alimentar anormal. Na população estudada, há grande preocupação com o corpo, o que demonstra influência da pressão sociocultural nesse grupo.

**Palavras-chave:** Transtornos da Alimentação e da Ingestão de Alimentos. Imagem Corporal. Estado Nutricional.

## Introduction

Eating disorders (EDs) are psychiatric disorders, and their bearers are characterized by having a pattern disorder in eating behavior and distortions of body image, which cause severe damage to their health, such as: physical, endocrine, pulmonary, renal, cardiac, hematological, hydroelectrolytic and bone changes, metabolic complications, among others. These are pathologies that usually present their first manifestations in childhood and adolescence.[1] The main types of EDs are anorexia nervosa (AN) and bulimia nervosa (BN).[1]

AN is characterized by dietary limitations, starting with a reduction of more caloric foods, progressing to total fasting.[2] BN is characterized by the ingestion of a large amount of food in a small time interval, and the perception of this fact leads the patient to take extreme measures, which are the so-called bulimic episodes. At that moment, the individual presents a great feeling of guilt and tries to compensate for the act through induced or self-induced vomiting and excessive physical activity.[3,4]

The prevalence of AN varies from 0.5% to 3.7%, and of BN from 1.1% to 4.2% in the world, according to the criteria used to establish the classification of eating disorders (EDs). In Brazil, it is not yet possible to find this information in the literature. Regarding the predisposition to developEDs, women aged between 12 and 25 years are considered the group with the greatest susceptibility to the onset of an eating disorder, since during this period there are usually modifications in the daily routine, as well as changes in eating habits and in the body image.[5]

Researchers point out that health students are at increased risk for the onset of eating disorders due to their routine activities. In addition, for Nutrition undergraduate students, an important factor to consider is their interaction with food and their thinking regarding the external aspect, attributing great relevance to good appearance and relating it to their professional success.[6,7]

Thus, we highlight the importance of this study, which deepens the knowledge about eating behavior and distortion of the body image, which may lead to EDs. This study aimed at evaluating the nutritional status linked to the body image perception and to the eating behavior of female students of the Nutrition course of the Instituto Federal de Educação, Ciência e Tecnologia (Federal Institute of Education, Science and Technology - IFCE), Limoeiro do Norte campus.

## Methods

The study was carried out with a quantitative and transversal design, of the descriptive and analytical type, and had 130 undergraduate students of the Nutrition course as population. The sample consisted of 52 female students who were chosen at random. Thus, the sample was defined according to Triola,[8] who considers a 95% confidence level and an acceptable error of 5%. The study was conducted between March and September 2015.

The data collection was performed at the Nutrition Evaluation Laboratory of the Instituto Federal de Educação, Ciência e Tecnologia do Ceará (Federal Institute of Education, Science and Technology of Ceará - IFCE), Limoeiro do Norte campus, at previously chosen hours and respecting the availability of the students. Three self-reported instruments widely used for the detection of eating disorders (EDs) were applied, all in versions translated into Portuguese: the Body Shape Questionnaire (BSQ), the Eating Attitudes Test (EAT- 26) and the Bulimic Investigatory Test Edinburgh (Bite).

The BSQ is a questionnaire that aims to assess the level of concern with shapeand body weight, besides detecting the devaluation of physical appearance. This questionnaire accurately analyzes the estimation of body size and feelings about body shapes. It consists of 34 questions with 6 possible answers: "never" (1 point), "rarely" (2 points), "sometimes" (3 points), "often" (4 points), "very often" (5 points) and "always" (6 points). The classification is made based on the total number of points

obtained and it demonstrates the concern with body image and body dissatisfaction: normal (<70 points): characterizing absence of dissatisfaction with the image; mild dissatisfaction (>70 and <90 points); moderate dissatisfaction (>90 and <110 points); and severe dissatisfaction (>110 points).[9]

The EAT-26 is a questionnaire used to verify and identify abnormal attitudes and eating behaviors typical of AN, being composed of 26 questions with six options of answers (always = 3 points, usually = 2 points, often, sometimes, rarely and never). Based on the score obtained, the authors who made the translation decided as cut-off point values> 21 points, which indicated EAT-26 positive for eating disorders and increased risk for EDs.[10]

The Bite is an instrument developed to identify individuals who present binge eating and who have bulimic symptoms. The questionnaire is composed of 33 questions, and the "yes" answer represents the presence of the symptom, worth one point, while the "no" answer means absence (0 points). In questions 1, 13, 21, 23 and 31, the scoring is reversed. Its classification was as follows: low (> 10 points): no symptoms of BN; medium (10 to 19): unusual eating behavior; and high (> 20 points): with symptoms of BN and with a great possibility of fulfilling the criteria for the diagnosis.[11]

In relation to the scale of silhouettes, a version created and validated by kakeshita[12] was used to assess and assist in verifying the prevalence of the participants' body dissatisfaction. The scale is composed of a set of 15 silhouettes, in which each silhouette has a corresponding mean BMI, ranging from 12.5 to 47.5 kg/m². For the application of the test, each person was asked first to choose a silhouette that best represents her current physical shape (current BMI). After that, the person should indicate the silhouette she would like to have (desired BMI). The difference between the current BMI and the desired BMI allowed the evaluation of the participants' body perception.

In addition, the weight and the height were measured for the calculation of the body mass index (measured BMI), which was the ratio betweenthe body mass (kg) and the square of the height (m²),[13] with the objective of comparing it to the values found in the Scale of Silhouettes. The study participants were weighed on a Toledo® digital anthropometric scale, with a capacity of 200 kg and an interval of 100g. The heightwas measured with a Professional Sanny® stadiometer, with a capacity of 40 to 210 cm. The classification of the BMI was based on World Health Organization criteria.[14]

Descriptive analyzes of mean ± standard deviation and simple and relative frequencies were used. For the analysis of statistical differences, the analysis of variance (Anova) was used, and the level of significance between groups was determined by the Turkey test. For the data analysis, the software GraphPad Prism, version 5.03® was used.

The present research was evaluated and approved by the Research Ethics Committee of the Escola de Saúde Pública do Ceará (School of Public Health of Ceará), with opinion no. 946.036. The participants signed the Informed Consent Term (ICT), in which the information and guidelines about the research were clearly expressed. Thus, all the procedures that were performed in this study are in agreement with the institutional determinations and the Resolution no. 466/2012 of the National Health Council, which deals with the guidelines and norms regulating research involving human beings.

## Results

The sample consisted of 52 participants with means ± standard deviation (SD) for age of 23 ± 4 years; BMI of 23.39 ± 4.01 kg/m²; measured height of 158.0 ± 5 cm and measured weight of 58.59 ± 10.91 kg. Table 1 shows data on mean, standard deviation and percentages of BMI by classification.

Regarding the results of the questionnaires, the overall mean score for the BSQ was 73.94 ± 32.91 points; for the EAT-26 it was 10.17 ± 7.55 points; and for the Bite it was 4.25 ± 3.65 points. Table 2 shows the prevalence of inappropriate eating behaviors through the results obtained by the EAT-26 and Bite and the dissatisfaction with the body image evaluated by the BSQ in nutrition undergraduatestudents. Table 3 shows the relationship between the BMI classification and the results found (mean, standard deviation and significance level) with the EAT-26, Bite and BSQ questionnaires.

Concerning the Scale of Silhouettes, the data express that the participants classified as undernourished presented, in total, dissatisfaction for thinness; overweight and obese students were generally dissatisfied with being overweight; and the eutrophic ones, in the majority (72.7%), were dissatisfied by excess weight (table 4).

**Table 1.** Classification of the BMI in Nutrition undergraduate students. Limoeiro do Norte, Ceará, 2015.

| BMI (kg/m²) | Mean | SD | % |
| --- | --- | --- | --- |
| Low Weight | 18.04 | ± 0.6 | 5.77 |
| Normal/Eutrophic | 21.56 | ± 1.8 | 63.46 |
| Overweight | 27.19 | ± 1.4 | 26.92 |
| Obesity | 34.89 | ± 5.1 | 3.85 |

Source: (WHO, 1995).[14]

**Table 2.** Prevalence of dissatisfaction with body image and inadequate eating behaviors in Nutrition undergraduate students. Limoeiro do Norte, Ceará, 2015.

| Scale (score) | % | CI 95% |
|---|---|---|
| BSQ severe dissatisfaction | 15.38 | 12.9 – 17.8 |
| BSQ moderate dissatisfaction | 9.61 | 5.8 – 13.4 |
| BSQ mild dissatisfaction | 21.15 | 13.6 – 28.7 |
| BSQ satisfaction | 53.85 | 39.6 – 68.2 |
| Positive EAT | 9.62 | 3.0 – 16.3 |
| Negative EAT | 90.38 | 71.0 – 110.1 |
| High Bite | 0 | ---- |
| Medium Bite | 15.38 | 14.4 – 16.4 |
| Low Bite | 84.62 | 67.1 – 102.1 |

CI = Confidence Interval, with confidence established in 95% of cases.

**Table 3.** Relationship between the classification of the BMI with the mean score of the EAT-26, of the Bite and of the BSQ in Nutrition undergraduate students. Limoeiro do Norte, Ceará, 2015.

| BMI (kg/m²) | EAT-26 | | |
|---|---|---|---|
| | Mean | SD | P |
| Low Weight | 10.33 | 0.6 | * |
| Normal/Eutrophic | 7.84 | 5.2 | * |
| Overweight | 15.0 | 9.6 | * |
| Obesity | 14.5 | 17.7 | 0.257 |
| | BITE | | |
| | Média | DP | P |
| Low Weight | 3.3 | 1.6 | 0.0048 |
| Normal/Eutrophic | 3.3 | 3.2 | * |
| Overweight | 5.9 | 4.0 | * |
| Obesity | 8.5 | 3.5 | * |
| | BSQ | | |
| | Mean | SD | P |
| Low Weight | 61.3 | 19.3 | 0.0178 |
| Normal/Eutrophic | 62.5 | 22.0 | * |
| Overweight | 96.4 | 29.3 | * |
| Obesity | 157.5 | 19.1 | 0.0128 |

* $P < 0,001$

**Table 4.** Relationship between the classification of the measured BMI with the results found in the Scale of Silhouettes in Nutrition undergraduate students. Limoeiro do Norte, Ceará, 2015.

| Measured BMI (kg/m$^2$) | Current BMI | | Desired BMI | | Dissatisfied for thinness | Dissatisfied for overweight | P |
|---|---|---|---|---|---|---|---|
| | M | D | M | D | % | % | |
| Undernourished | 19.7 | 2.5 | 25.8 | 3.8 | 100 | 0 | 0.0251 |
| Normal/ Eutrophic | 22.6 | 5.2 | 23.6 | 3.1 | 27.3 | 72.7 | * |
| Overweight | 32.5 | 4.2 | 26.6 | 3.5 | 0 | 100 | 0.5641 |
| Obesity | 42.5 | 3.5 | 24.6 | 3.7 | 0 | 100 | 0.3546 |

* P<0,001

## Discussion

The prevalence of the EAT-26 risk was 9.62%, and of the Bite was 15.38%, demonstrating the presence of inappropriate eating habits by nutrition students. The data found do not indicate severe cases for the EAT-26 and Bite. Findings in the literature, in general, show moderate cases, according to the classifications of the questionnaires. Thus, it is important to highlight a possible evolution of these conditions to a higher degree, contributing to the appearance of EDs.[15,16]

In the comparison with other studies carried out with Nutrition undergraduate students who performed the EAT-26, the prevalence of risk behavior for AN of the present study was similar to the 11.8% found in the study with undergraduate students of Nutrition in Porto Alegre-RS.[17] Nevertheless, the values of this study were lower than the 20.2% found among Nutrition students of a private institution of higher education in the Center-West of the country,[7] and than the 21.03% found in Nutrition students of the Faculdade Federal de Juiz de Fora-MG (Federal University of Juiz de Fora-MG). It is suggested that this prevalence may be clarified by the relationship between physical appearance within the standard established by society, which praises thinness for women, such as the contents acquired in the Nutrition undergraduate course.[18]

Regarding BN pointed out by the Bite in the current study, no data were found to indicate the presence of symptoms characteristic of this disorder, however, a percentage of 15.38% was found, indicating an unusual dietary pattern. Although this percentage is not low, it is still below the 20.9% found among undergraduate students of the Universidade Federal de Santa Catarina (Federal University of Santa Catarina)[19] and the 24.32% related to the Nutrition students of the Centro Universitário do Leste de Minas Gerais (University Center of the East of Minas Gerais).[20]

Comparing with research carried out with undergraduate students from other health areas, we may state that the prevalence of the current study, with respect to the EAT-26, was higher than the 8.9% found in Psychology students and lower than 12.2% of the Nursing students of a study carried out in the Center-West of Brazil,[7] and than 11.1% of students of Physical Education of a University of Minas Gerais.[20] In relation to the Bite, in the present study the percentage found was of 15.38% of students that presented an unusual dietary pattern, which is higher than the 13.88% found in undergraduate students of Physical Education[20] and lower than 47.2% presented in another study with 72 students of Nursing and Physical Therapy.[21]

Regarding the BSQ, the prevalence of body image dissatisfaction was 46.1%, with mild (21.15%), moderate (9.61%) and severe (15.38%) classifications. It is also worth noting that 72.7% of the eutrophic students, according to the Scale of Silhouettes, were dissatisfied with excess weight, thus showing a desire for weight loss. However, a majority of 63.5% of the students had a BMI within eutrophic patterns, thus suggesting a classic episode of overestimation of body weight by the population under study. In the present research, when we related the nutritional status to the body dissatisfaction by the BSQ, it was possible to verify that the BMI classification is significant and is directly associated to the score obtained in the BSQ.

When comparing with other studies that used the BSQ to evaluate the level of dissatisfaction with body image, a similar result was identified, in which 47.3% of students from different undergraduate courses in the health area of a University of Santa Catarina were dissatisfied with their body image.[22]

With the purpose of evidencing that these EDs are also present in middle school students, a study was carried out with this public, from a public school in Florianópolis-SC, showing a result of 18.8%, lower than the one found in the current research. This difference may be attributed to the different contexts in which these researches were carried out.[23] A study with 175 students from the Nutrition course of the Universidade Federal de Ouro Preto (Federal University of Ouro Preto) pointed out that 36.6% had some level of distortion of the body image.[24]

Nonetheless, in a study conducted by Moreira et al.,[25] with undergraduate students from the Bahia Medical School, it was found that 50% were dissatisfied with their image, being this result higher than the one found in this study. A common result between the two studies was that the BSQ score values were higher in undergraduate students with eutrophic BMI than in undergraduate students with low-weight BMI.[25]

Regarding the Scale of Silhouettes, the results found were similar, with high values of dissatisfaction with the body image. In the study carried out by Miranda et al.,[26] it was found that 76.6% of the undergraduate students were dissatisfied, 61.7% of whom wanted to have a smaller silhouette. In scientific research conducted by Martins et al.[27] with 865 undergraduate students of various undergraduate courses, 77.9% were dissatisfied, and among women, 62.4% were dissatisfied with excess weight and 15.5% with thinness.[26]

Therefore, these results show that young people have a strong concern about body image, and when this state of dissatisfaction takes exacerbated proportions, the result may be the development of various eating disorders.

The target population of this study presented a frequent problem, dissatisfaction and distortion of body image, which leads to an overestimation of the weight, an event that has been reported in several studies with undergraduate students. Thus, it is possible to observe that nutritional status, according to the BMI, shows association with body image, which demonstrates the students' search for the adequacy to this body considered as "ideal". The motivations may vary from the search for healthy habits or the adaptation to social models of beauty, to a dissatisfaction with body image in an unhealthy way, as well as the development of inadequate eating habits - the main risk factors for the development of EDs.[22,24]

Some studies point to a conjecture about the perception of body weight overlapping with the classification of the BMI, i.e., how the person sees her or himself is more decisive for changes in eating habits than the composition of the body itself. The presence of dissatisfaction with the image, especially in women, leads to inappropriate eating behavior and weight reduction, with the use of laxatives, diuretics, induced vomiting, excessive physical activity, among others. Thus, it is important for health professionals to take these occurrences into account, in order that they may make an early detection of the emergence of EDs, followed by prevention of the severity of symptoms and treatment of episodes.[20,24]

This study presents some methodological limitations, among which we mention: the use of questionnaires that present only characteristics of the symptoms of EDs, since they are insufficient to confirm the diagnosis and the fact that it is a cross-sectional study, since a time relation was not observed among the variables, which is possible only in longitudinal research, with continuous monitoring.[22]

In this context, it may be indicated that the development of EDs and of their risk factors has an important relation with beauty patterns, with body image, with thinking about food and with the body itself.

## Conclusion

The present study showed a lower prevalence in relation to the results of the EAT-26 and Bite questionnaires. These instruments indicate cases of mild or moderate inadequate eating behavior, which may lead to more severe cases. However, the research presented a high prevalence of dissatisfaction with body image, a result expressed by two instruments, the BSQ and the Scale of Silhouettes.

Therefore, it is important to develop strategies to prevent eating disorders (EDs), aiming at positive changes in eating behavior and in the way of perception of the physical appearance of the population understudy, since it is a risk group for the development of EDs.

## Contributors

Maia RGL; Fiorio BC; de Almeida JZ and da Silva, FR participated in all stages, from the conception of the study to the revision of the final version of the article.

Conflict of interest: the authors declare that there are no conflicts of interest.

## References

1. Phillipi ST, Alvarenga M, Scagliusi FB. Nutrição e transtornos alimentares: avaliação e tratamento. São Paulo: Manole; 2011.

2. Cordás TA, Salzano FT, Rios, SR. Os transtornos alimentares e a evolução no diagnóstico e tratamento. In: Philippi ST, Alvarenga M. Transtornos alimentares: uma visão nutricional. São Paulo: Manole; 2004. p. 39-62.

3. Abreu CN, Cangelli-Filho, R. Anorexia nervosa e bulimia nervosa: a abordagem cognitivo-construtivista de psicoterapia. Psicologia: teoria e prática. 2005; 7(1):153-165.

4. Ferreira CP. Disfonia e bulimia: avaliação dos sintomas e sinais vocais e laríngeos. Rev Soc Bras Fonoaudiol. 2008; 14(2):177-185.

5. Oliveira-Cardoso EA, Zuben BVV, Santos MA. Qualidade de vida de pacientes com anorexia e bulimia nervosa. DEMETRA: Alimentação, Nutrição & Saúde. 2014; 9(Supl. 1):329-340.

6. Fiates GMR, Salles RK. Fatores de risco para o desenvolvimento de distúrbios alimentares: um estudo em universitárias. Rev Nutr. 2001; 14(Supl.):3-6.

7. Souza AA, Souza JC, Hirai ES, Luciano HA, Souza N. Estudo sobre a Anorexia e Bulimia Nervosa em universitárias. Psic: Teor e Pesq. 2011; 27(2):195-198.

8. Triola MF. Introdução à estatística. 7 ed. Rio de Janeiro: Livros Técnicos e Científicos; 1999.

9. Cordás TA, Castilho S. Imagem corporal nos transtornos alimentares. instrumento de avaliação. Psiquiatr Biol. 1994; 2(1):17-21.

10. Nunes MA, Camey S, Olinto MTA, Mari JJ. The validity and 4-year test-retest reliability of the Brazilian version of the Eating Attitudes Test-26. Braz J Med Biol Res. 2005; 38(16):55-62.

11. Cordás TA, Hochgraf PB. O BITE: instrumento para avaliação da bulimia nervosa versão para o português. J Bras Psiquiatr. 1993; 3(42):4-141.

12. Kakeshita IS. Adapatação e validação de escalas de silhuetas para crianças e adultos brasileiros [tese]. [São Paulo]: Universidade de São Paulo; 2008.

13. Cervi A, Franceschini SCC, Priore SE. Análise crítica do uso de índice de massa corporal para idosos. Rev Nutr. 2005; 18(6):765-775.

14. World Health Organization. Physical status: the use and interpretation of anthoropometry. Report of a WHO Expert Committee. Geneva: WHO; 1995. Technical report series, 854.

15. Fichter MM, Quadflieg N, Hedlund S. Twelve-year course and outcome predictors of anorexia nervosa. Int J Eat Disod. 2006; 39(2):87-100.

16. Souto S, Ferro-Bucher JSN. Práticas indiscriminadas de dietas de emagrecimento e o desenvolvimento de transtornos alimentares. Rev Nutr. 2006; 19(6):693-704.

17. Garcia CA, Castro TG, Soares, RM. Comportamento alimentar e imagem corporal entre estudantes de nutrição de uma universidade pública de Porto Alegre – RS. Revista HCPA. 2010; 30(3):219-224.

18. Ferreira KLA. Estado nutricional, transtornos alimentares e consumo de álcool entre estudantes do curso de Nutrição de uma Instituição Federal. Juiz de Fora [Trabalho de Conclusão de Curso]. [Juiz de Fora]: Universidade Federal de Juiz de Fora; 2013.

19. Cenci M, Peres KG, Vasconcelos FA. Prevalence of bulimic behavior and associated factors in undergraduate female students. Rev Psiquiatr Clin. 2009; 36(3):83-88.

20. Santos RCE, Gonçalves MA, Stracieri APM. Fatores de risco para anorexia e bulimia nervosas em universitárias dos cursos de Nutrição e Educação Física do Centro Universitário do Leste de Minas Gerais. Nutrir Gerais 2010; 4(6):580-592.

21. Umebara LM; Virote W. Comportamento de risco para transtornos alimentares em universitários. VI Fórum Científico FAP; 2012; Apucarama. Disponível em: http://www.fap.com.br/forum_2012/forum/pdf/Saude/Comunicacao_Oral/ResSauCO03.pdf

22. Costa LCF, Vasconcelos FAG. Influência de fatores socioeconômicos, comportamentais e nutricionais na Insatisfação com a imagem corporal de universitários. Rev Bras Epidemiol. 2010; 13(4):665-676.

23. Alves E, Vasconcelos FAG, Caldo MCM, Neves J. Prevalência de sintomas de anorexia nervosa e insatisfação com a imagem corporal em adolescentes do sexo feminino do município de Florianópolis, Santa Catarina, Brasil. Cad Saúde Pública. 2008; 24(3):503-512.

24. Silva JD, Silva ABJ; Oliveira AVK, Nemer ASA. Influência do estado nutricional no risco para transtornos alimentares em estudantes de nutrição. Ciênc Saúde Coletiva. 2012; 17(12):169-174.

25. Moreira LAC, Azevedo ABG, Queiroz D, Moura L, Santo DE, Cruz R, et al. Body image in a sample of undergraduate medical students from Salvador, Bahia, Brazil. J Bras Psiquiatr. 2005; 54(4):294-297.

26. Miranda VPN, Filgueiras JF, Neves CM, Texeira PC; Ferreira MAC. Insatisfação corporal em universitárias de diferentes áreas de conhecimento. J Bras Psiquiat. 2012; 61(1):25-32.

27. Martins CR, Pelegrini A, Matheus SC, Petroski EL. Body image dissatisfaction and its relationship with nutritional status, body fat, and anorexia and bulimia symptoms in adolescents. Rev Psiquiatr. 2010; 32(1):19-23.