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Frequency of suggestive criteria for binge eating disorder in outpatients of the nutrition ambulatory of Emília de Jesus Ferreiro Nutrition School, Universidade Federal Fluminense

Frequência de aparecimento de critérios sugestivos para transtorno da compulsão alimentar periódica em pacientes atendidos no ambulatório de nutrição da Faculdade de Nutrição Emília de Jesus Ferreiro, da Universidade Federal Fluminense

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Abstract

This study aimed to identify suggestive criteria for Binge Eating Disorder (BED) frequency, analyze dietary compliance, and to determine nutritional status of patients attended at the Nutrition Clinic at Emília de Jesus Ferreiro Nutrition School, Federal Fluminense University. Thirty individuals of both genders, aged between 18 and 60 years, with body mass index between 20.33 kg / m2 and 49.21 kg / m2 participated in the study. To analyze presence of suggestive criteria for eating compulsion, the Binge Eating Scale was used. For dietary compliance analysis, weight loss was observed during consultations and compliance through the clinical records. Anthropometric evaluation included body weight, height, abdominal circumference, neck circumference and conicity index. Sample included 20 women and 10 men, and according to the questionnaire, 63% (n = 19) of the out patients presented no suggestive criteria, while 37% (n = 11) presented suggestive criteria. Regarding suggestive criteria for BED it was associated with dietary compliance ($p < 0.05$) and body mass index ($p < 0.05$), but not with abdominal circumference, neck circumference and conicity index. In conclusion, suggestive criteria for BED is associated with diet non-compliance and high values of body mass index.

Keywords: Binge Eating Disorder. Nutritional Assessment. Nutrition.

Resumo

Estudo transversal objetivou identificar a frequência de aparecimento de critérios sugestivos para transtorno da compulsão alimentar periódica (TCAP), analisar a observância à dieta e determinar o estado nutricional dos pacientes atendidos no Ambulatório de Nutrição da Faculdade de Nutrição Emília de Jesus Ferreiro da Universidade Federal Fluminense. Participaram do estudo 30 indivíduos, ambos os sexos, com idades entre 18 e 60 anos, com índice de massa corporal entre 20,33 kg/m² e 49,21 kg/m². Para análise da presença de critérios sugestivos de TCAP, foi utilizada a Escala de Compulsão Alimentar Periódica (*Binge Eating Scale).* Para análise de observância à dieta, foi observada a perda de peso durante as consultas e adesão ao tratamento através da verificação dos prontuários. A avaliação antropométrica incluiu peso corporal, estatura, índice de massa corporal, circunferência abdominal, circunferência de pescoço e índice de conicidade. A amostra foi composta por 20 mulheres e 10 homens, e de acordo com o questionário, 63% (n=19) pacientes não apresentaram critérios sugestivos para TCAP, enquanto 37% (n=11) apresentaram. Com relação ao aparecimento de critérios sugestivos para TCAP, o mesmo estava associado com a observância à dieta ($p<0,05$) e ao índice de massa corporal ($p<0,05$), porém não foram encontradas associações estatisticamente significativas com relação a circunferência abdominal, circunferência de pescoço e índice de conicidade. A presença de critérios sugestivos para TCAP está associada à não observância à dieta e a elevados valores de índice de massa corporal.

Palavras-chave: Transtorno da Compulsão Alimentar Periódica. Avaliação Nutricional. Nutrição.

Introduction

Sedentary lifestyle and obesity are two conditions considered of risk for individuals and society.[1] Diverse studies have demonstrated that both conditions have high prevalence rates in the world and Brazil, constituting true epidemics.[2,3]

There have been significant changes in people's eating habits in many countries, including Brazil, with emphasis on an excessive intake of sugars, fats, processed foods, high-sodium foods, reduced consumption of rice and beans and insufficient intake of fruits and vegetables.[4-6]

The first approach to deal with this problem would be nutritional clinical treatment, encouragement of physical activities, associated with behavior therapy. In patients with obesity class 2 and 3, however, a combination of behavior therapy and drugs have had little success and is often followed by weight regain. Once the chances of success of clinical treatment have been exhausted, a surgical treatment is recommended.[7]

So, having an ideal body weight is certainly challenging in the obesogenic environment in which we live. Other environmental factors also have an influence on gradual weight gain in the population and obese people and may cause difficulties in theircompliance with the dietarytreatment and emergence of eating disorders.[8]

Obesity is not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM V - 2013);[9] but there are robust associations between obesity and a series of mental disorders, among them: eating disorders, depression and bipolar disorders, and schizophrenia. Among the eating disorders, obesity is associated with bulimia and binge eating disorder (BED).[10]

BED corresponds to compulsiveovereating episodes and loss of control. To be rated as BED, at least three of the following behaviors must be present: eating too fast, eating until feeling full, eating large amounts of foods even when not hungry, eating alone not to feel shameor embarrassed because of the amount of food; feeling repulse for himself/herself, depression or too much guilty after compulsion. In addition, feeling extremely distressed for eating too much, the frequency and duration of the eating compulsion should occur at least once a week during three months.[11]

Even though BED is not limited to obese individuals, it is a diagnostic frequently found in this group of people, especially among those that seek treatment to lose weight. While the estimated prevalence of BED in the overall population may range from 1.5 to 5%, in clinical samples of obese patients it varies from 7.5 to 30%.[10]

Due to poor eating habits, difficulties to adhere to the dietary treatment, sedentary lifestyle and low attendance to physical exercises programs, obese individuals have shown more susceptibility to emergence of BED.[12]So, it is necessary to investigate the presence of suggestive criteria for BED in these patients.

The aim of this study was to identify the frequency of suggestive criteria for BED, analyze compliance to diet and determine the nutritional status of individuals treated in the Ambulatório de Nutrição of the Faculdade Emília de Jesus Ferreiro, Universidade Federal Fluminense (UFF) (Nutrition Outpatient Clinic at Emilia de Jesus Ferreiro Faculty, Federal Fluminense University).

Methods

It is a cross-sectional study where personal information was obtained directly from the outpatient's clinical records, and the anthropometric data was measured at the time of visits. All individuals, of both sexes, aged between 18 and 59 years and who were outpatients at the Ambulatório de Nutrição da Faculdade Emília de Jesus Ferreiro, UFF, participated in the study.

The following individuals were not included in the study: pregnant women, old people, presence of cervical mass or neck deformities, goiter, patients with decompensated chronic disease, chronic kidney disease or cancer.

The study was approved by the Research Ethics Committee of the Universidade Federal Fluminense under number CAAE 59613416.6.0000.5243. Each stage of the survey was read and explained to the patientsand, when they agreed to participate voluntarily in the study, they signed the Free Informed Consent Form.

To analyze the presence of compulsive eating behavior, it was used the Binge Eating Scale - BES. BES is a self-administered questionnaire which is valid as a tool for trackingcompulsive eating.[13]The questionnaire has 16 questions with 62 statements and the alternative that best represents the individual's response to each question should be selected. Each statement has a scale numbered from 0 to 3, where absence is scored "0" and maximum severity "3" of binge eating disorder. The final score is the result of the sum of points of each question. Individuals with a score of 17 or lower are considered without BED; with a total score between 18 and 26 they are considered with mild BED; and those with a score of 27 or higher, with severe BED.[14]

With respect to compliance to diet, we consider as conformers the patients who lost weight and attendedthe nutritioncare appointments regularly, and non-conformers those who did not lose weight and did not attend the appointments regularly. The patients who did not adhere to the nutritional treatment proposed were maintained in the present study for analysis of association ofthe presence of criteria for BED and noncompliance to diet.

The classification of the nutritional status was based on the calculation of the body index mass (BMI) according to the World Health Organization (WHO),[15] as follows: normal weight (BMI = 18.5-24.9kg/m^2); overweight (BMI= 25.0-29.9kg/m^2); and obesity (BMI> 30.0kg/m^2). The waist circumference (WC) was determined according to the National Cholesterol Education Program (NCEP) – Adult Treatment Panel III (ATPIII) in 2000, and the cutoff values were set as 102 cm for men and 88 cm for women.

The reference cutoff values were used because if we used the cutoff values of the American Heart Association (AHA) in 2009,[17] practically all patients would be classified as above the cutoff value, which would make the statistical analysis difficult.

The neck circumference (NC) was used as an anthropometric indicator, and a value equal to or higher than 37 cm for men and 34 cm for women was considered high, as suggested in the Ben- Noun et al.' study.[18]

The conicity index (C index) was calculated using Valdez' formula,[19]and by calculating the median, it was considered 1.28 as the best cutoff value for men and 1.32 for women, because virtually all patients would be above the cutoff value suggested in literature, which would make the statistical analysis difficult.

For determination of the study analysis, the Fischer's exact test was used to calculate the odds ratio (OR) for the presence or not of suggestive criteria for BED, compliance to diet, and anthropometric measures. Results were considered significant when $p < 0.05$. The software program used was Graph Pad Prism 5.0.

Results

Thirty outpatients in careat the nutrition outpatient clinic of Faculdade Emília de Jesus Ferreiro, UFF, participated in the survey, 33% (n=10) of them being men and 67% (n=20) women. The sample consisted of individuals aged between 18 and 59 years.

Regarding education, it ranged from primary education to individuals holding a postgraduate degree. Table 1 presents the characterization of the population under analysis.

Table 1. General sample characteristics. Niterói-RJ, 2017.

Age/education	Mean ± SD	Min – Max
Age (years)	38.96 ± 8.48	18 – 59
Education	N	%
Primary education	3	10
Secondary education	13	44
Higher education	10	33
Post-graduation	4	13

According to the questionnaire, 63% (n=19) of the patients did not have suggestive criteria for BED, while 37% (n=11) of them indicated suggestive criteria. The results of BED scores are shown in Table 2.

Table 2. Results of the Binge Eating Scale of the sample. Niterói - RJ, 2017.

	N	%	Média ± DP	Mín – Máx	Valor de Referência
Without BED	19	63	7.05 ± 5.60	0-17	<17
Mild BED	7	24	22 ± 4.24	19-26	18-26
Severe BED	4	13	31.5 ± 2.12	28-33	>27

Legend: Without BED – Without Binge Eating Disorder; Mild BED – Mild Binge Eating Disorder; Severe BED – Severe Binge Eating Disorder.

According to gender, 30% (n=3) of men exhibited suggestive criteria for BED, while 40% (n=8) of women exhibited suggestive criteria for BED, as show in Table 3.

Table 4 describes the anthropometrics of the sample. According to BMI, 10% (n=3) of the outpatients were overweight and 53% (n=16) were obese.

Table 5 shows data related to the association between the presence or not of suggestive criteria for BED and compliance to diet, as well as between the presence or not of suggestive criteria for BED and BMI. Emphasis is given to the results related to patients who did not comply to diet, which are associated with the presence of suggestive criteria for BED. The same occurs with patients that had higher body mass indexes; the other parameters did not show statistically significant results.

Table 3. Results of the Binge Eating Scale by gender. Niterói- RJ, 2017.

Men	N	%	Média ± DP	Min-Máx	Valores de Referência
Without BED	7	70	6.28± 5.85	0-16	<17
Mild BED	3	30	24 ± 1.41	23-26	18-26
Severe BED	0	-	-	-	>27
Women	N	%	Média ± DP	Min-Máx	Valores de Referência
Without BED	12	60	7.5 ± 5.66	0-17	<17
Mild BED	4	20	22 ± 4.24	19-26	18-26
Severe BED	4	20	31.5± 2.12	28-33	>27

Legend: Without BED – Without Binge Eating Disorder; Mild BED – Mild Binge Eating Disorder; Severe BED – Severe Binge Eating Disorder.

Table 4. Anthropometric data of the sample. Niterói-RJ, 2017.

	Mean ± SD	Min - Max	References
Weight (kg)	82.50 ± 24.67	48.70 - 143.9	-
Height (m)	164.6 ± 8.62	151 - 182	-
BMI –normal	22.33 ± 1.52	20.33 - 24.51	18.5-24.9 kg/m2
BMI –overweight	27.02 ± 1.80	25.75 - 29.23	25.0-29.9 kg/m2
BMI– obesity	35.97 ± 5.34	30.04 - 49.21	> 30.0 kg/m2
Waist circumference (M)	106.5 ± 19.23	79 - 142	102 cm
Waist circumference (W)	97.52 ± 13.21	78 - 124	88 cm
Neck circumference (M)	43.5 ± 2.12	34 - 53.5	37 cm
Neck circumference (W)	36.18 ± 2.82	31 - 45	34 cm
Conicity index (M)	*1.29 ± 0.08*	1.18 - 1.42	1.28
Conicity index (W)	*1.32 ± 0.07*	1.16 - 1.45	1.32

Legend: BMI – Body Mass Index

Table 5. Association between Binge Eating Disorder and compliance to diet, body mass index, waist circumference, neck circumference and conicity index Niterói-RJ, 2017**.**

Compliance to diet	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
Conformers to diet	13	43	11	2	< 0,05	1,6
Nonconformers to diet	17	57	7	10		
BMI	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
BMI–normal	11	37	9	2	-	-
BMI–overweight	3	10	3	0	-	-
BMI– obesity	16	53	7	9	< 0,05	1,4
WC	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
Android	3	10	3	-	0,28	1,5
Gynecoid	27	90	16	11		
NC	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
Adequate	11	37	8	3	0,47	1,9
Inadequate	19	63	11	8		
C index (M)	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
Adequate	5	50	5	-	0,17	15,49
Inadequate	5	50	2	3		
C index (W)	N	%	Without criteria for BED	With criteria for BED	Valor de P	RC
Adequate	10	50	6	4	1,00	1,00
Inadequate	10	50	6	4		

Legend: without criteria for BED –without suggestive criteria for binge eating disorder (patients that exhibited Binge Eating Scale values below 17); with criteria for BED – with suggestive criteria for binge eating disorder (patients who exhibited Binge Eating Scale values higher than 18). BMI–body mass index

Discussion

The majority of the population studied (63%) was overweight and obese according to the BMI (> 25.0 kg/m^2) andNCvalues (M = 43.5 cm ± 2.12 andW =36.18 cm ± 2.82), and had mean WC values (M=106.5 cm ± 19.23 andW= 97.52 cm ± 13.21) and C index (M= 1.29± 0.08 and M= 1.32± 0.07) higher than the cutoff values that were set to evaluate abdominal obesity.

In the study conducted by Prisco et al.[20], they found similar prevalence of BED for both men and women. The younger individuals (up to 35 years old) exhibited a higher prevalence than the ones aged over 35 years. Slightly higher prevalence was found in individuals who had primary education level or were illiterate.

In the present study, similar resultswere found regarding gender. Suggestive criteria for BED were 30% (n=3) for men and 40% (n=8) for women, but was different regarding the patients' age. The majority (64%, n=7) of the patients were 35 years old or over, and regarding education,55% (n=6) of the patients that had criteria for BED had completed higher education.

According to the questionnaire, 37% (n=11) of the patients had suggestive criteria for BED, a percentage slightly higher than the findings of Wietzikoski et al.,[21] where 20% of the sample were considered with BED according to the scores for BED.

In this study, it was observed that the patients who had suggestive criteria for BED had poor compliance to diet. According to Spitzer et al.,[22] most of the individuals with BED have a long history of repeated attempts to follow diets and are desperate with their difficulties to control eating. Some of them continue to restrict calories intake, while others quit any effort to adhere to a diet because of several failures.

Masheb et al.[23] examined differences in dietaryresults, where patients who completed the dietarytreatment had significant BMI reduction as well as in the frequency of compulsive eating and improved psychological outcomes. Thus, they found benefits of patients with BED in compliance to diet, which show benefits both in BED diagnosis and treatment.

Wietzikoski et al.[21] observed in a study with female individuals with normal weight, overweight and obesity, that 80% of the sample were not compulsive eaters, 15% were moderate compulsive eaters and 5% were severe compulsive eaters, with a mean value of 32.83 points. It was found that individuals considered obese had higher scores when compared to individuals with normal weight, suggesting that a high BMI may be associated with BED development.

In this study, similar results were found because patients with suggestive criteria for BED had high BMI values, being considered obese. It was then demonstrated the importance of providing an adequate treatment taking into account the limitations that these patients may have during the nutritional treatment. However, the specificity of these patients must be considered to ensure a successful treatment since compulsions are highly deleterious at any attempt to lose weight.[24,25]

The waist circumference evaluates the subcutaneous and visceral adiposity. It is easily measured and often used as a measure. It can be easily measured and is often used as a measure of visceral fat in epidemiological studies.[26,27] In the study conducted by Mosca et al.,[28] they analyzed the waist circumference of groups with and without BED, having 94 cm for men and 80 cm for women as reference values. They found that men without BED had a smaller WC than men with BED, and that women without BED had a larger WC than women with BED. In the present study, there was no significant association with the presence of criteria for BED.

Silva et al.[29] analyzed the WC of adult obese individualsof both sexes (22 with BED and 17 without BED), using as parameters waist circumference > 88 cm for women and 102 cm for men, and having as indicator the same cutoff value of the present study. The WC was higher than the cutoff values recommended for both groups. In the present study, similar results were found: both men and women, with or without suggestive criteria for BED, exhibited values above the cutoff values, making it difficult to perform the statistical analysis.

According to Tibana et al.,[3] the neck circumference may be a reliable parameter to indicate cardiovascular risks when compared to the fat deposited in the visceral region. The authors emphasize that NC has a strong relation with BMI, high blood pressure, and biochemical indicators of insulin resistance and cardiometabolic risks, and can be used as atool for identification of early metabolism disturbances. In the present study, the population investigated had NC values above normality, showing high risk for cardiovascular diseases, but not characterized as a significant association with the presence or not of suggestive criteria for BED.

Andrade et al.[31] observed the C index in women and its association with high blood pressure and diabetes *mellitus*. The women who had highvalues of C indexwere 72% and 75% more likely to have diabetes *mellitus*and hypertension, respectively.

Pitanga & Lessa[32] suggested 1.18 as the best cutoff value for C index, indicating 73.39% for sensitivity and 61.15% for specificity and 0.75 for area under ROC curve. For men, they recommended an C index with a cutoff value of 1.23, indicating 73.91% for sensitivity and 74.92% for specificity and 0.80 for area under ROC curve. They concluded that the C index can be used to indicate cardiovascular risk even when sensitivity and specificity were not too high. However, wrong classifications may occur, leading to a greater number of false-positive results.

In the present survey, 1.28 and 1.32 were used for men and women, respectively, as values of the sample median, as cutoff value for C index, because only 17% (n=5) of the sample had a C index < 1.18 and 1.23. This parameter did not show a significant statistical association in the female and male groups (p=0.17 and p=1.00), respectively.

It should be emphasized that this work had some limitations such as the small number of patients in each group and for being a cross-sectional study. However, as there were obese individuals in

the studied population, it is vitally important to encourage practices to lose weight, because losing weight ensures not only lower morbidity but also a considerable improvement in the emotional and behavioral conditions. Thus, nutritional treatment has as main objective to revert the changes in the nutritional status caused by compulsive eating as well as to promote healthier eating habits to restore the individual's health.[33]

Conclusion

It was found that in the investigated population there are patients with suggestive criteria for BED. It was also found that patients with these criteria had poor adherence to diet, which can be explained by the compulsive eating episodes.

Regarding the patients' nutritional status, it was observed an association between BMI and suggestive criteria for BED, because the patients that exhibited such criteria were overweight. With respect to waist circumference, neck circumference, conicity index, there were no significant associations.

Contributors

Silva CA and Grassano KBC participated in the project conception, design, analysis and interpretation of results. Barroso SG and Rocha GS participated in all stages of the work, from the project conception, guidance, correction, analysis and interpretation of results and final approval of the manuscript.

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