DEPRESSIVE AND ANXIOUS SYMPTOMS IN PATIENTS WITH HIGH BODY MASS INDEX

Depression and Anxiety at high BMI

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ABSTRACT

Introduction: Obesity is increasingly prevalent and being associated with mental disorders such as depression and anxiety. It is known that this association is found in both sides, because depression and anxiety favor the development of obesity, just as obesity increases the incidence of these. **Objective:** To address and quantify the prevalence of depressive and anxiety symptoms in obese patients, that is, with a high body mass index (BMI). **Methods:** Cross-sectional analytical observational study, with a quantitative approach and primary data collection through a questionnaire based on Hamilton's Depression Rate Scale and Beck's depression and anxiety scales and the body mass index (kg/m²) by measuring weight and height. **Results:** Although the results are in agreement with the scientific literature, which indicates higher rates of Anxiety and Depression Disorders in overweight and obese individuals, in this study there was no statistically significant association in the data collected. Thus, the results found were probably random, not indicating an association between the variables. **Conclusion:** The prevalence of depression and anxiety obtained in overweight and obese patients was variable and there was no relationship with the prevalence of eutrophic patients, however, the prevalence in the population studied, in general, was high.

Keywods: depression; anxiety; obesity; BMI

INTRODUCTION

The health and illness processes are influenced by biological, psychological and social factors. Obesity is commonly associated with mental disorders such as depression and anxiety. This association is seen in both directions. Mental disorders, such as depression and anxiety, favor the development of obesity, just as obesity increases the incidence of mental disorders[1].

Furthermore, when reviewing the literature, it appears that obesity was associated with greater chances of anxiety and depression disorders in both men and women, with no significant differences between genders[2].

Regarding the classification of obesity, the World Health Organization defines overweight as a Body Mass Index (BMI) equal to or greater than 25 and obesity as a BMI equal to or greater than 30. Obesity is ordered such as: Class I or Moderate Obesity when the BMI is between 30-34.9, Class II or Severe Obesity when the BMI is between 35-39.9 and Class III Obesity or Extreme Obesity when the BMI is above 40Kg /m2. Weight is considered normal when the BMI is between 18.5-24.9.

Regarding depressive disorders, according to the American Psychiatric Association[3], in the fifth edition of its Diagnostic and Statistical Manual of Mental Disorders (DSM-V), it includes the disruptive mood dysregulation disorder, major depressive disorder (including episodes major depressive disorder), persistent depressive disorder (dysthymia), premenstrual dysphoric disorder, substance/drug-induced depressive disorder, depressive disorder due to another medical condition, other specified depressive disorder, and unspecified depressive disorder. The common characteristic of these disorders is the presence of sad, empty or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual's ability to function, and these symptoms will be addressed in this study.

The incidence of psychiatric disorders has increased progressively and continuously in recent years. It is estimated that 30% of adults worldwide meet the diagnostic criteria for any mental disorder[4]. In addition, the incidence of obesity has been increasing in recent decades, due to the emergence of industrialized foods and sedentary habits.

Thus, it is very important to correlate depressive and anxiety symptoms with obesity. The objective of this research, in addition to the aforementioned correlation, will be to quantify the relationship of symptoms with patients with high BMI, a fact that is relevant to the academic and scientific community.

Finally, it is important to mention that the general objective will be to verify the prevalence of depressive and anxious symptoms in people with a high body mass index.

METHODOLOGY

Ethical aspects:

The present study was approved by the Ethics Committee for Research with Human Beings at the University of the Extreme South of Santa Catarina – UNESC.

Study design:

This is a cross-sectional analytical observational study, with a quantitative approach and primary data collection.

Study Population:

The study will be carried out with 79 patients who will be followed up at an outpatient clinic in Criciuma-SC.

Study location:

The study will be conducted at the clinic of a university in the city of Criciuma/SC.

Collection instrument:

Data will be collected from questionnaires based on the Hamilton Depression Rate Scale and Beck Depression and Anxiety Scales and the body mass index (kg / m²) measuring weight and height.

Statistical analysis:

The collected data were analyzed using the IBM Statistical Package for Social Sciences (SPSS) version 25.0 software. Quantitative variables were expressed as mean and standard deviation and qualitative variables as frequency and percentage. The results were organized and synthesized in tables.

Inferential analyzes were performed with a significance level of $\alpha = 0.05$, that is, 95% confidence. The investigation of age distribution regarding normality was performed by applying the Shapiro-Wilk test. The investigation of the homogeneity of variances was carried out by applying the Levene test.

The comparison of age means between the different groups according to the BMI classification was performed by applying the one-way ANOVA test. The investigation of the existence of an association between the qualitative variables was carried out by applying the likelihood ratio and Pearson's chi-square tests.

RESULTS

The questionnaires were applied to 78 patients seen at the nutrition clinic, with a mean age of the studied population of 49.63 years (SD = 16.37), of which 74.4% were female and 25.6% of the male. As for marital status, 59.0% were married or in a stable relationship, 19.2% were separated or divorced, 16.7% were single and 5.1% were widowed. As for ethnicity, 75.6% were white, 16.7% brown, 6.4% black and 1.3% indigenous. In terms of education, 35.9% completed high school.

As for anxiety symptoms (Table 2), of eutrophic patients (n = 14), 35.7% did not have anxiety, 42.9% mild anxiety and 21.4% moderate anxiety. As for overweight patients (n = 17), 29.4% had no anxiety level, 17.6% mild anxiety, 47.1% moderate anxiety and 5.9% severe anxiety. As for the patients with defined obesity (n = 47), 31.9% did not have anxiety, 46.8% mild anxiety, 17.0% moderate anxiety and 4.3% severe anxiety.

Regarding depressive symptoms in patients who were applied to the Beck Depression Scale, 50% of the eutrophic (n=14) did not present depression, 35.7% mild to moderate depression, 14.3% moderate to severe depression and 0% severe depression. As for the overweight patients (n=17), 35.3% had no depression, 52.9% mild to moderate depression, 11.8% moderate to severe depression and none had severe depression. In patients with obesity (n=47), 46.8% were not diagnosed with depression, 40.4% had mild to moderate depression, 8.5% moderate to severe depression and 4.3% severe depression.

Finally, using the Hamilton Depression Scale, it was concluded that, of eutrophic patients (n=14), 7.1% did not have depression, 35.7% borderline for depression, 28.6% with depression mild and 28.6% with moderate depression. As for the overweight (n=17), 5.9% are normal, 23.5% borderline, 64.7% with mild depression and 5.9% with moderate depression. As for patients with defined obesity (n=47), 6.4% are without depression, 34.0% borderline, 53.2% with mild depression, 4.3% with moderate depression and 2.1% with severe depression.

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DISCUSSION

The present study, there are many controversies about the induction of anxiety and depression by obesity and vice versa. Some authors, such as Deluchi et al.[5] and the American Psychiatric Association[3], claim that obesity also involves behavioral and emotional factors related to eating habits and that there may be comorbidities with psychological disorders such as depression and anxiety. Some authors also reinforce the multifactorial mechanism of obesity[6] and that anxiety and depression are involved in the etiology of obesity, due to the impact caused by low self-esteem[7]. An important point, mentioned by Oliveira and Fonseca[8], is that obese individuals use excess food to fill the emotional voids of depression and anxiety.

In our study, however, the results did not show a significant association between obesity and depression and anxiety, that is, the values observed were probably random, being consistent with the studies by Sunwoo YK et al.[9] and Bruffaerts R et al.[10]. The probable justification for this is that this link between the factors mentioned is complex and goes beyond obesity itself and depressive and anxiety symptoms, taking into account the social, cultural and economic conditions of the individuals studied. Furthermore, a limitation of our study that made it difficult to find the association between the events was that it did not allow temporality results regarding the onset of symptoms. Another explanation is that the specificity of the studied population may have hindered the results, as the interviewed patients have a good socioeconomic level and have access to the clinic where the collection was carried out, therefore, it is also necessary to evaluate patients with low socioeconomic. Also, another justification for not finding the association between the factors studied here is that the collected sample was not sufficient to consider a representation of the population in general, requiring a larger sample. Furthermore, another item that corroborates our study is that obesity is a very common condition in our country, making it difficult to establish a connection between it and depressive and anxiety symptoms.

An interesting point is that, as stated by McElroy et al.[11], even though this relationship sometimes arises by coincidence, there may indeed be a link between these events, therefore, more studies are needed to clarify it. Finally, as advantages of our study, we can consider the use of anthropometric measurements in a measured and unreported way by the patient, which increases the reliability of the study. In addition, validated and standardized scales were used here to assess psychiatric disorders, thus allowing for more confidence in the results.

CONCLUSION

The study showed no significant association between high BMI and depression and anxiety. The prevalence of depression and anxiety obtained in overweight and obese patients varied and there was no relationship with the prevalence of eutrophic patients. However, despite not having found an association in the results of present study, the sample of data collected showed that the prevalence of depression and anxiety in the population is high, thus requiring prevention and awareness campaigns to promote mental health.

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Table 1. Sociodemographic Data

	Mean ± SD, n (%)				P-value
	Total n = 78	Eutrophic n = 14	Overweight n = 17	Obesity n = 47	
Age (years)	49,63 ± 16,37	46,57 ± 19,63	49,35 ± 17,56	50,64 ± 15,12	0,720[†]
Sex					
Masculine	20 (25,6)	5 (35,7)	4 (23,5)	11 (23,4)	0,651[††]
Feminine	58 (74,4)	9 (64,3)	13 (76,5)	36 (76,6)	
Color					
White	59 (75,6)	12 (85,7)	16 (94,1)	31 (66,0)	0,135[††]
Black	5 (6,4)	0 (0,0)	0 (0,0)	5 (10,6)	
Brown	13 (16,7)	2 (14,3)	1 (5,9)	10 (21,3)	
Indigenous	1 (1,3)	0 (0,0)	0 (0,0)	1 (2,1)	
Marital status					
Single	13 (16,7)	4 (28,6)	3 (17,6)	6 (12,8)	0,170[††]
Married/SP	46 (59,0)	9 (64,3)	12 (70,6)	25 (53,2)	
Separate/D	15 (19,2)	1 (7,1)	2 (11,8)	12 (25,5)	
Widower	4 (5,1)	0 (0,0)	0 (0,0)	4 (8,5)	
Scholarity					
ESI	15 (19,2)	2 (14,3)	4 (23,5)	9 (19,1)	0,507[††]
CES	7 (9,0)	1 (7,1)	2 (11,8)	4 (8,5)	
IHS	12 (15,4)	2 (14,3)	1 (5,9)	9 (19,1)	
HSC	28 (35,9)	7 (50,0)	3 (17,6)	18 (38,3)	
IHE	6 (7,7)	1 (7,1)	3 (17,6)	2 (4,3)	
CHE	10 (12,8)	1 (7,1)	4 (23,5)	5 (10,6)	

SD: Standard deviation. EU: Stable Union. D: Divorced. ESI: Elementary school incomplete. CES: Complete elementary school. IHS: Incomplete high school. HSC: High School Completed. IHE: Incomplete higher education. CHE: Complete higher education. † Value obtained after application of the one-way ANOVA test. †† Values obtained after applying the Likelihood Ratio test.

Source: survey data, 2021.

Table 2. Scales

	n (%)				P-value[†]
	Total	Eutrophic	Overweight	Obesity	
	n = 78	n = 14	n = 17	n = 47	
Anxiety*					
None	25 (32,1)	5 (35,7)	5 (29,4)	15 (31,9)	0,196
Mild	31 (39,7)	6 (42,9)	3 (17,6)	22 (46,8)	
Moderate	19 (24,4)	3 (21,4)	8 (47,1)	8 (17,0)	
Severe	3 (3,8)	0 (0,0)	1 (5,9)	2 (4,3)	
Depression**					
None	35 (44,9)	7 (50,0)	6 (35,3)	22 (46,8)	0,742
Mild to moderate	33 (42,3)	5 (35,7)	9 (52,9)	19 (40,4)	
Moderate to severe	8 (10,3)	2 (14,3)	2 (11,8)	4 (8,5)	
Severe	2 (2,6)	0 (0,0)	0 (0,0)	2 (4,3)	
Depression***					
Normal	5 (6,4)	1 (7,1)	1 (5,9)	3 (6,4)	0,320
Borderline	25 (32,1)	5 (35,7)	4 (23,5)	16 (34,0)	
Mild	40 (51,3)	4 (28,6)	11 (64,7)	25 (53,2)	
Moderate	7 (9,0)	4 (28,6)	1 (5,9)	2 (4,3)	
Severe	1 (1,3)	0 (0,0)	0 (0,0)	1 (2,1)	

*Beck's Anxiety Scale. **Beck Depression Scale. ***Hamilton Depression Scale. †Values obtained after applying the Likelihood Ratio test.

Source: survey data, 2021.A