

# Evaluation of the Correlation of the Effects of Obesity in the Quality of Social Life

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**Abstract**— Currently, the development of obesity is related to innumerable factors, among them are diet, depression and anxiety. In addition, body satisfaction stands out as another factor, more and more obese people are dissatisfied with their body image. This is a cross-sectional and quantitative epidemiological research. The sample consisted of 202 people of both genders. To determine the condition of the nutritional status, height, weight and Body Mass Index (BMI) were used. To obtain the data, the inventories of BECK for depression and anxiety were used. As results, there were no significant associations between depression, anxiety and stress, related to obesity,  $p \leq 0.498$ ,  $p \leq 0.439$  and  $\leq 0.297$ . Regarding body satisfaction, there was a significant association with  $p \leq 0.021$ . In recent decades, chronic noncommunicable diseases (CDNT) have begun to lead the causes of death in the country, increasingly the Ministry of Health has been developing actions in articulation with several governmental and non-governmental sectors, whose main objective is to promote quality prevention and control.

**Keywords**— Obesity. Depression. Anxiety. Body Satisfaction.

## I. INTRODUCTION

In recent times there have been several changes in the behavior of individuals, including a significant change in eating habits, through a lower intake of fruits and vegetables and a higher consumption of ultra processed foods, which characterized the so-called nutritional transition (MELLENDIJK; WIESMANN; KILIAAN, 2015). As a consequence of these changes, it was noted that the number of obese people increased significantly (CARVALHO et al., 2013).

Obesity is a chronic noncommunicable disease (CNCD) defined as a concentration of fat in the body whether it is localized, as in cases where there is greater adiposity of the abdominal region, or generalized (SINGH; KUMAR; MAHALINGAM, 2017). In the described DCNT an energy imbalance occurs, since its gain tends to be greater than its expense (ECKEL et al., 2016).

The diagnosis of the described disease usually is made through an anthropometric evaluation, in which the Body Mass Index (BMI) is one of the most used

indicators, resulting from the division of weight in kilos by height in meters, elevated to square (THOMAZ; SILVA; COSTA, 2013). It should be noted that despite having advantages such as low cost, it does not reveal the distribution of body fat and that the individual is considered "obese" if his BMI is greater than or equal to  $30 \text{ kg} / \text{m}^2$  (ABESO, 2016).

There are several negative effects of obesity, including diabetes, elevated low density lipoprotein (LDL) levels, atherosclerosis, and dyslipidemia (HASHEMI et al., 2014). In addition, studies have shown the correlation between it and the metabolic syndrome, dysfunction determined by a clustering of diseases that involve insulin resistance, a hormone that "adjusts" the levels of glucose in the body and acts on the synthesis of fats (MELLENDIJK; WIESMANN; KILIAAN, 2015).

In view of the above, it is concluded that obesity has a significant impact on public health, in addition to influencing population durability and quality of life (QoL), since it amplifies the chances of morbidity and

mortality, and decreases QoL indicators, when compared obese and non-obese from the same age group (BARROS et al., 2013). Thus, the present study aims to evaluate the correlation of the effects of obesity on the quality of social life.

## II. METHODOLOGY

This is a cross-sectional and quantitative epidemiological study carried out in the city of Vitória da Conquista - BAHIA, Brazil (-14 ° 51 '58', longitude of -40 ° 50 '22), which currently has a population of 320,129 inhabitants. The present work is a cross-cutting of an umbrella project: "Epidemiological Profile of Chronic Diseases in Southwest Bahia".

The sample consisted of 202 people of both genders, being 100 of the female gender and 102 of the masculine gender, selected by age range of 19 to 59 years. As inclusion specifications for composition of the inclusion criteria, the study included people who accepted and agreed to sign the Informed Consent Form (TCLE), similarly those who answered the questionnaires selected to obtain the results.

In order to define the nutritional condition among the selected adults, it uses measurements of height (in centimeters) and weight (in kilograms) taken during the data collection of the study, using the Body Mass Index (BMI), obtained by the ratio of body weight in kilograms and height in square meters ( $\text{weight} / \text{height}^2$ ), and categorize these measures considering as cut-off point for classification of adult individuals in the following groups: Overweight  $\geq 25$  and  $< 30$ ; Obesity  $\geq 30$  (Da Silva et al., 2018).

The BECK inventories for depression and anxiety were used to assess depression and anxiety disorders (Sousa et al., 2017; Tolentino et al., 2018). BAI (*Beck Anxiety Inventory*) was created by Beck, Epstein, Brown and Steer, at the *Center for Cognitive Therapy* (CCT) in 1988, which describe the development of the instrument and provide information about its psychometric properties. The scale was constructed based on several self-reporting tools used in CCT to measure aspects of anxiety. The BAI is a 21-item self-report scale that measures the intensity of anxiety and contains descriptive affirmations of anxiety symptoms. The items are evaluated by the person with reference to himself, in a scale that has 4 points. According to the Manual of the Portuguese version of the Beck Scales, it reflects increasing levels of severity for each symptom such as: "Absolutely not"; "Lightly: it did not bother me much"; "Moderately: It was very unpleasant, but I could bear it" and "Gravely: I could hardly bear it".

The BDI (*Beck Depression Inventory*) is the acronym for the Depression Inventory instrument, which is used to measure the intensity of depression. It was originally created by Beck et al. (1961) and reviewed by Beck et al. (1979/1982). It is a self-report scale, composed of 21 items, each with four alternatives, with subtle degrees of severity of depression, with scores ranging from 0 to 3. The items were selected based on observations and reports of symptoms and attitudes more frequent in psychiatric patients with depressive disorders, but were not chosen to reflect any theory of depression in particular.

Body image questionnaire was used to verify body satisfaction. The body image is defined as the thoughts, perceptions, and feelings that a person has about his own body, is a relevant association with body weight, eating disorders, disorders of image, and can have repercussions on quality of life and health, as well as acceptance of the image itself (AKSAN, 2004). Classifying the individual as being satisfied or dissatisfied in relation to their body image (AQUINO, 2008).

Simple application questionnaire, in which the person only selects / marks the image in which, better, identifies. It can be found for both adults and children, with different images. The classification of adults can be expanded for use in the elderly (AKSAN, 2004).

The scale used in the original form of Kakeshitet al (2009) (KAKESHITA ET AL., 2009), is composed of 15 figures for adults and 11 figures for children in plastic cards of 6.5 cm wide by 12.5 cm high, with the figure centered on black background, bordered by margins 0.5 cm equidistant from the edges of the figure and carton, with the 15 figures arranged horizontally.

The data were processed and tabulated in the EXCEL program and the statistical analyzes were performed using the statistical software SPSS®, Version 25.0. A descriptive analysis of the data represented by percentages was performed and a correction analysis was performed between the studied variables in order to verify the epidemiological profile of the obese residents of victory of the conquest. The Pearson chi-square test was also performed to verify the possibility of association between the variables tested. The level of significance was set at 95%, used in health research.

Participants were briefed on the techniques used for collection, according to Resolution 466/12 (National Health Council), which constitutes international research documents involving humans. It is noteworthy that the project was approved by the Research Ethics Committee (Opinion No. 1,859,545).

### III. RESULTS

Twenty-two elderly men and women of both genders, 100 (49.5%) and 102 (50.5%) were male. Of these, 20.3%, 23.3% and 62.8% of the sample reported having depression, anxiety and stress, respectively. 64.8%

were shown to be unsatisfied with their body. It should be evidenced the sample was divided into overweight with a value of 76.7, with a value of 23.3 of the obese sample. The sample description is further detailed in table 1.

Table 1. Characteristics of the sample.

		n	%
Gender	Male	102	50.5
	Female	100	49.5
Work	Yes	147	72.8
	No	55	27.2
Social Class	A	1	0.5
	B	19	9.5
	C	51	25.6
	D	98	49.2
	E	30	15.1
Status	Married	90	44.8
	Single	95	47.3
	Marital Status	14	7.0
	Widow	2	1.0
	Primary Incomplete	22	11.2
Education	Elementary Complete	8	4.1
	Medium Incomplete	13	6.6
	Complete Medium	44	22.3
	Incomplete Higher	57	28.9
	Full Superior	50	25.4
Education Type	Illiterate	3	1.5
	Public	145	73.6
	Private	52	26.4

#### Common Mental Disorder Variables and Health Conditions

Depression	With	41	20.3
	No	161	79.7
Anxiety	With	47	23.3
	No	155	76.7
Stress	With	129	68.2
	Without	60	31.7
BMI	Overweight	155	76.7
	Obesity	47	23.3
Body Satisfaction	Yes	70	35.2
	No	129	64.8

Source: Own research, 2018.

IMC - Body Mass Index

The Pearson correlation coefficient was used in Table 2, which is used to measure the degree of linear correlation between variables. It can be verified that overweight and obese participants had less depression, anxiety and stress. When done in the chi-square did not

obtain a significant association, presenting  $p \leq 0.498$ ,  $p \leq 0.439$  and  $p \leq 0.297$ , respectively.

The body satisfaction variable when performed in the chi-square compared to the other variables had a significant association, presenting  $p \leq 0.021$ . Table 2

reinforces information on variables, depression, anxiety, stress level and body satisfaction, as well as their

associations.

Table 2. Association test ( $X^2$  of Pearson).

		Overweight	Obesity	<i>p-value</i>
		<b>n</b>	<b>n</b>	
<b>Depression</b>	No	124	37	0.498
	With	31	10	
<b>Anxiety</b>	No	118	37	0.439
	With	37	10	
<b>Stress</b>	No	48	12	0.297
	With	97	32	
<b>SatisfactionBody</b>	Content	60	10	0.021*
	Not Satisfied	93	36	

Source: Research, 2018.

Significance \*  $p \leq 0.05$  (95%).

#### IV. DISCUSSION

The results of the present study were obtained from a sample of 202 adults of both sexes in the city of Vitória da Conquista, Bahia. With the analysis of the data presented in the results it was possible to identify the correlation of obesity with depression, anxiety, stress and body satisfaction.

There was a high prevalence of overweight and obesity, and 76.7% were classified as overweight and 23.3% were classified as obese. The adverse consequences of obesity on health are many and varied, ranging from increasing the risk of premature death to non-fatal but debilitating complaints that have adverse effects on quality of life. (Malnick et al, 2016).

The diagnosis of obesity has been carried out using the body mass index (BMI), initially used in adults, for its association with the risk of falling ill and dying, after which it was noticed that obesity was a risk factor especially for DCNT (World Health Organization, 2012).

It is well known that the trend of NCDs is increasing, and in recent years several factors have contributed to this growth, among them is the greater population aging, sedentary lifestyle, greater exposure to risk factors, increased urbanization and industrialization (MALTA, SILVA JR, 2013). In Brazil, chronic noncommunicable diseases (NCDs) are the main cause of death in adults and the elderly, especially cardiovascular diseases and neoplasias. The presence of these diseases, for the most part, is associated with very frequent excess of weight among women. (Gallon & Wender, 2012).

As for depression, it did not achieve a significant value in the obesity of the patients participating in the study, obesity has been increasingly associated with mental disorders, commonly referred to as mental

disorders, such as depression and anxiety. (Lin HY et al, 2013). This association is clear if we think that mental disorders favor the development of obesity, in the same way that obesity can increase the incidence of depression. (McEwen BS, 2005).

McEwen and others have constructed an explanatory model of the neurobiological mechanisms present in chronic illness processes that demonstrate how stress, anxiety, and depression intertwine with the major chronic noncommunicable diseases.

It is extremely important to understand that depression and anxiety are disorders that together with obesity form the processes of illness of non-communicable chronic diseases. However, the junction that exists is bidirectional, so obesity also presages depression, and some of its consequences are the negative effects on self-image, gross comments on weight and somatic outcomes of the disease. (SILVA, AO et al, 2016).

When there is an association between obesity and other mental disorders, there is evidence of anxiety between the obese, anxiety disorders are more prominent in patients with obesity than in overweight patients, receiving the diagnosis of anxiety increases the likelihood of the patient becoming obese. (Verdolin LD et al, 2012).

The patients in the present study presented anxiety indexes that were considered to be at least what suggests that the level of anxiety is not shown as a factor of great significance in the diagnosis of obesity in these patients. (Mattos et al., 2014).

Regarding the association between body weight and body satisfaction, it can be observed that the obese present greater body dissatisfaction. The understanding of

obesity itself, in some cases, starts from the dissatisfaction with self-image.

It is not evidenced the understanding of the variable body dissatisfaction as a factor for obesity, but obesity generates dissatisfaction that often culminates in depression. On the other hand, the negative form in which one looks at this body, individuals with depression begin to have feelings of self-recrimination and self-deprecation (Dixon et al 2013), thus promoting more social isolation.

## V. FINAL CONSIDERATIONS

In recent decades, chronic noncommunicable diseases (CDNT) have begun to lead the causes of death in the country, increasingly the Ministry of Health has been developing actions in articulation with several governmental and non-governmental sectors, whose main objective is to promote quality prevention and control of CNCs.

In the study, we verified the correlation of obesity with the variables depression, obesity, stress and body satisfaction. No significant association was found between overweight / obesity and depression, obesity and stress, these are health problems that are found in several obese people worldwide. In the present study, a significant association was found in the variable body dissatisfaction. Nowadays, for social and cultural standards, being thin is considered a beauty standard, consequently, the more obese, the less self-esteem.

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