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Psychological aspects of a group of patients with obesity, candidates for bariatric surgery

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ABSTRACT

Introduction. Obesity is a worldwide problem, and there are several genetic, metabolic and, social factors that can increase the risk of suffering it, however, psychological aspects play an important role in the development of the disease. It is known that bariatric surgery has been a method that improves the quality of life in patients with obesity and even more so when intervening in the area of mental health.

Objective. To evaluate which are the most relevant psychological aspects associated with the development of obesity in patients who are candidates for bariatric surgery.

Methodology. It is a study with a quantitative focus, it is a prospective transversal study with a level of descriptive analysis, in a group of 30 women with obesity who are candidates for bariatric surgery. They were evaluated employing a semi-structured interview and instruments that allowed them to identify the existence of anxiety, psychopathological symptoms, somatic symptoms, and positive mental health.

Results. It was identified that, on average, each woman presents 3 pathological symptoms related to mental health as a major depressive episode, suicide risk, life-long anxiety disorders, and generalized anxiety, and that 28.97% of the evaluated population presents trait anxiety. Likewise, 80% of the participants manifested a constant presence of somatic symptoms added to the physiological problems that obesity brings.

Discussion. The women with obesity evaluated present trait anxiety, that is, it is more linked to their personality, and therefore require greater psychological and nutritional accompaniment

Conclusion. women candidates for bariatric surgery present comorbidity with anxiety, distress, depression, and suicidal risk, so they should have psychological and multidisciplinary care.

KEYWORDS

Obesity, Malnutrition, Mental health, Depression, Anxiety.

LIST OF ABBREVIATIONS

WHO: The World Health Organization.

PAHO: Pan American Health Organization.

PHQ-15: Patient Health Questionnaire.

MINI: International Neuropsychiatric Interview.

INTRODUCTION

Recently, the relationship between obesity and malnutrition has been reported with the presence of symptoms that affect and intervene in the mental health of patients who are candidates for bariatric surgery. The World Health Organization (WHO) defines obesity as: "an abnormal or excessive accumulation of fat that can be harmful to health"[1]. People who suffer from obesity often consider surgery as a definitive solution. Still, it has been seen that this treatment requires an interdisciplinary team and a certain level of psychological stability. Therefore, this research investigated the symptomatic aspects of mental health that obesity brings with it, as the

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product of the confluence of genetic, environmental, sociocultural and psychological factors.

Psychology addresses the emotional problems, body perception deficiencies and interpersonal relationship problems that significantly affect people who suffer from it. The decrease in the quality of life caused by obesity is not only due to the increase in the incidence of chronic medical pathologies such as diabetes, cancer or diseases of the type cardiovascular but also to the increase in health disorders mental like depression (major or minor), anxiety, low self-esteem, emotional flattening, fatigue, difficulty in sleeping and/or daytime sleepiness, bipolar disorder, panic disorder or agoraphobia and disorders due to abuse of substances[2,3].

Low self-esteem is associated with obesity given the impact people have on their appearance, athletic skills and social competencies since self-image and self-confidence are mediated by weight, mainly in women mediated by the beauty standards set by the market and accepted by society as a prototype[3].

On the other hand, depression in malnutrition by excess is a state determined by phases of irritability or sadness, which have a variable intensity and duration, where learning difficulties or resistance to execute activities are presented, which is evident in the different contexts in which the person interacts[4], affecting their behaviour and relationships with their peers.

Based on the physical and psychological consequences, medicine has created bariatric surgery as a short and long term technique, which has proven to be effective in the treatment of morbid obesity, bringing as benefits the reduction of complications, weight loss and significant improvements related to excess malnutrition[5]. Although this procedure is directed to the aspect of improvement of the quality of life, it is necessary to take into account that the support of diverse experts in nutrition, endocrinology and in the area of psychology is required to work on self-control and mental health.

Obesity has not been classified as a mental disorder; relationships can be found between malnutrition due to excess and psychopathological symptoms, without being able to identify a specific profile and diagnostic criteria of the people who suffer from it. However, at present, it has been possible to identify that "there is increasing evidence of the possible existence of certain psychopathological comorbidity in obesity"[6].

Mental health is generally understood as "a state of well-being in which a person faces the usual stresses of family and community life or as the development of a person's potential is an integral part of public health"[7]. WHO and the Pan American Health Organization (PAHO) consider this definition from the perspective of well-being, but in people with obesity, well-being is clearly affected. however, people with mental illnesses who receive treatment with drugs for affective disorders, anxiety, and other psychotic disorders, can facilitate the development of overweight and obesity[8]. The above shows the relationship between mental illness and obesity in another direction.

Bariatric surgery has been known to improve the quality of life and even more so when intervening in the area of mental health[9]. Within the requirements for patients before and after the procedure, they must have intervention from the area of psychology[10]. However, little research has been found on psychological treatments or methods of coping with levels of anxiety and impulsivity in the face of food intake. It is known that for people who do not have psychological intervention before surgery and follow-up after the procedure, surgery may not be successful in the long term, because patients who do not control their anxiety and impulsivity levels of food intake could lead back to weight gain and continue with the problem of obesity[11].

METHODOLOGY

It is a study with a quantitative approach, it is prospective transversal with a level of descriptive analysis, which has a type of intentional sampling in that we looked for a clinical population with special characteristics, that is, that they were women, candidates for bariatric surgery, without any neurodevelopmental impediment, that they were in an age range between 18 and 60 years old, literate and women who were not under the effect of any medication or psychoactive substances at the time of the interview. The objective of the research was explained to them and a pre-clinical assessment was conducted to determine whether they met the inclusion criteria. People already included in the study were those who accepted their voluntary participation and signed informed consent. The bioethics committee of the University of San Buenaventura in Medellín determined that the study is low risk. The research adopted the guidelines established in the Declaration of Helsinki and in Resolution 8430 of 1993, title II, chapter I of the Colombian Ministry of Health. The study was conducted in the third quarter of 2018.

The sample was composed of 30 women, who were evaluated by means of a semi-structured interview and instruments that allowed them to identify the existence of anxiety, psychopathological symptoms, somatic symptoms and positive mental health. The interviews were carried out by the researchers (previously trained psychologists) to solve possible doubts and to verify the complete filling out of the instruments. The interviews were carried out in the morning and lasted between 30 and 45 minutes.

In the characterization of the participants, basic information such as age, socioeconomic level, marital status, academic training, level of stress, number of people with whom they currently live and occupation was investigated in a gen-

eral way. Said information allows for the identification of the general conditions of the participants, observing common characteristics present in the sample.

In the psychological interview, we inquired about family history related to obesity, level of study, work situation, personal history of alcohol consumption, smoking and eating patterns. Questionnaires such as the State-Trait Anxiety Inventory (STAI) were also applied to measure anxiety in the sample, the positive mental health inventory generating an identification of personal satisfaction, prosocial attitude, self-control, autonomy, problem-solving, self-actualization and interpersonal relationship skills.

The PHQ-15 questionnaire was used, which is a short and self-administered instrument that can be useful in the detection of somatization and in the monitoring of the severity of somatic symptoms in clinical practice and research. It evaluates eight diagnoses, corresponding to specific DSM-IV diagnoses: major depressive disorder, panic disorder, and bulimia nervosa) depressive disorder, other anxiety disorder, probable alcohol abuse / dependence, binge eating disorder, and probable somatoform disorder. PHQ-15 scores of 5, 10, 15 represented cut-off points for low, medium, and high somatic symptom severity, respectively. Additionally, the International Neuropsychiatric Interview (MINI) was applied, which is a short diagnostic structured interview for diagnostic psychiatric disorders, developed in clinical formats (MINI-CR) and patient-rated formats (MINI-PR), the test was designed to apply it in clinical, multicenter, epidemiological and clinical trials.

DATA ANALYSIS

A descriptive analysis of the variables that were sensitive for the understanding of the phenomenon was carried out. Data were tested for normality using the Shapiro Wilk test. To measure the strength of the relationship of the variables of interest, the correlation analysis of Sperm, Mann Whitney's U and Kruskal Wallis was used. A logistic regression analysis was performed for the variables most closely related to obesity and an explanatory model was run to establish the variables that account for the phenomenon. The data were analyzed with the statistical program SPSS version 20 licensed for the University of San Buenaventura headquarters Medellin Colombia.

RESULTS

After the application of the different psychological tests, it was identified that the evaluated women belong to the age ranges between young and adult women, as well as the presence of psychopathological symptoms, trait anxiety, somatic symptoms and positive mental health related to obesity.

Among the characteristics of the participants, it was established that the average age for the sample of this study was 36.33 ± 14.052 (Li 31.09 Ls 41.58).

The characterization found that 66.7% of women had previously received some type of psychological care before starting the process for surgery and the remaining 33.3% of the population had no history of mental health intervention before applying for surgery. On the other hand, the results showed that 66.7% of women were in a medium socio-economic level, 23.3% in a low socio-economic level and 10% in a high socio-economic level (Table 1).

Table 1. Characterization of a group of 30 obese women, candidates for bariatric surgery.

		n	%
Age by stages	Young adult	25	83.3
	Adultintermediate	5	16.7
Marital status	Married	11	36.7
	Free union	4	13.3
	Single	11	36.7
	Separate	2	6.7
	Widow	2	6.7
Socioeconomic level	Low	7	23.3
	Medium	20	66.7
	High	3	10
Leve lof academic trainig	high school	12	40
	Incomplete University	7	23.3
	Professional	8	26.7
	Postgraduate	3	10
History of psychological care	No history	10	33.3
	With a history	20	66.7
Age by stages	Young adult	25	83.3
	Intermediate adult	5	16.7

Source: own. Data are expressed as porcentages (%).

Symptomatic Pathology in Women

The International Neuropsychiatric Interview (MINI) test shows the presence or absence of certain psychological symptoms, so the disorders with the highest frequency in women with excess malnutrition are the major depressive episode with 30%, suicide risk with a slight score of 30%, exceeded by lifelong distress disorders with 33.3%, with this be-

ing a striking factor, since distress has been present throughout the lives of these women and could be related to obesity, followed by generalized anxiety disorder with 30% as reported in the literature mentioned above (Figure 1).

On the other hand, the disorders that are least present in women are current alcohol dependence with 13%, current alcohol abuse with 10%, suicide risk with a high score of 6.7%, lifelong antisocial with 3.3% and abuse of psychoactive substances, pills and slimming agents with 3.3%. (Figure 1).

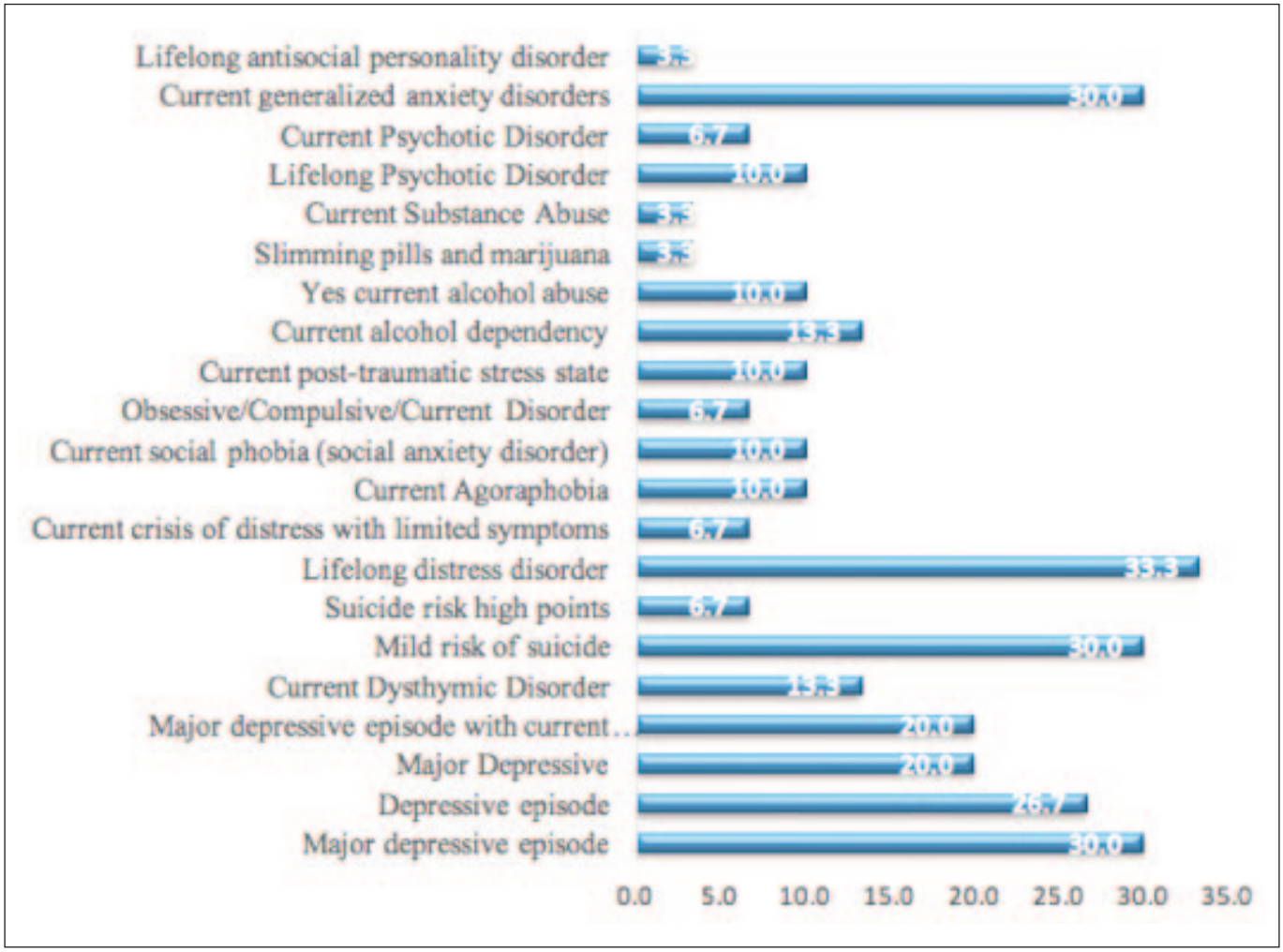
Anxiety State and Anxiety Trait

It was found in the investigation that the variables do not follow a normal distribution, due to this the theory of central means is taken as a guide having as reference values the median and the confidence intervals, which allows verifying that there is a tendency to present high scores of anxiety, which for this case is greater the trait anxiety.

Thus, the STAI test shows a tendency for the women in the study to be anxious, and it is notable that the state anxiety as a current moment of the women is less than the trait anxiety, since the state anxiety has an average of 26.8 and the trait anxiety has an average of 28.97, although there is no significant difference, thus implying that the anxiety that is tied to the personality of the women is greater and is a characteristic part of it (Table 2).

An explanatory model was run using the Durbin-Watson test (DW = 2,373), which shows that the assumption of independence of errors is fulfilled and that it means the final results are reliabile. The model used showed us that 70.0% of the women evaluated present generalized anxiety and the ROA efficiency score indicates that there is a significant improvement in the prediction of generalized anxiety when the patient has depressive episodes (Chi 2 = 9.618 gl = 1 p = .002). The Nagelkerke R-squared value indicates that the pro-

Figure 1. Percentage of psychopathological symptoms found in a group of obese women candidates for bariatric surgery.



Source: own. Percentage of psychopathological symptoms found in a group of obese women candidates for bariatric surgery. As significant data, it was evidenced by this screening test that each woman on average presents 3 possible disorders.

Table 2. Anxiety score in a group of women with obesity, candidates for bariatric surgery. A group of women with obesity, candidates for bariatric surgery.

	ẍ	Medium	SD	CI 95%	
				Li	Ls
Anxiety Condition	26.80	28.00	±3.809	25.38	28.22
Anxiety Trait	28.97	29.50	±5.933	26.75	31.18

Source: own. Data are expressed as medium and standard deviation (SD), upper limit and lower limit. CI – confidence interva, ẍ:average.

posed model explains 39% of the variance of generalized anxiety disorder. For the regression analysis, it was observed that there is an 83.3% probability of success in diagnosing generalized anxiety when women do not report depressive episodes, in other words, for each depressive episode there is 25 times less probability of developing generalized anxiety (Wald = 5 , 33, gl1, Exp (B) = 0.04). On the other hand, in the presence of panic disorder, the TGA is decreased 5.2 times and with self-control the presence of TGA is decreased 2.8 times.

Positive Mental Health

The psychological resources that these women have were evaluated through positive mental health, among them: personal satisfaction, autonomy, self-control, problem solving and interpersonal relationships. In the study it was found that in general the women present a good positive mental health, in a range from 1 to 4 the scores obtained were:, personal satisfaction with a median of 3.5 (ẍ= 3.5±0.5, Li=3.3 Ls=3.7) and prosocial attitude with a median of 3.6 (ẍ = 3.5±0.6, Li=3.3 Ls=3.7). The variable that presented the lowest score was self-control which gave a median of 3.0 (ẍ = 2.8±0.5, Li=2.6 Ls=3.0) showing significant differences. (table 3).

The above reflects that although malnutrition due to excess is present in the population studied, there is also a personal satisfaction not necessarily linked to self-image, where it allows them to acquire a degree of confidence that leads them to present a performance in activities concerning the social sphere, however it is observed that self-control is the variable that records the lowest score which could be linked to the control of impulses associated with food consumption.

Somatic Symptoms

Among the results obtained in the PHQ-15, which evaluated the current somatic symptoms, it was identified that 56.7% of the population evaluated presented stomach pain; with regard to back pain, 66.6% of the women scored with the presence of such pain. On the other hand, 63.4% of the women in the study currently suffer from pain in their arms, legs, joints, knees, hips, among others. Similarly, 43.3% have menstrual cramps or other associated pain and the remaining 56.7% have no discomfort or definitely no longer have a period.

Headache is one of the most frequent symptoms in the participants of the investigation, 73.3% of the women evaluated

Table 3. Positive mental health in a group of women, candidates for bariatric surgery.

	ẍ	Medium	sd	CI 95%		Minimum	Maximum
				Li	Ls		
Positive mental health	3.3	3.5	0.4	3.2	3.5	1.9	3.9
Personal satisfaction	3.5	3.5	0.5	3.3	3.7	1.8	4.0
Prosocial attitude	3.5	3.6	0.6	3.3	3.7	1.8	4.0
Autonomy	3.3	3.5	0.7	3.0	3.6	1.2	4.0
Self-control	2.8	3.0	0.5	2.6	3.0	2.0	3.6
Problem solving and self-updating	3.4	3.7	0.6	3.2	3.6	1.8	4.0
Interpersonal relationship skills	3.4	3.5	0.6	3.1	3.6	1.9	4.0

Source: own. Data are expressed as medium and standard deviation (sd), upper limit and lower limit. CI – confidence interva, ẍ:average.

present it, as well as the symptom of feeling tired or with little energy in 73.3%, followed by constipation problems in 70%. In the same way, sleep problems are present in 63.3% of the sample.

On the other hand, chest pain is present in 20% of the sample and dizziness in 33.4% of those evaluated. Palpitations are present in 26.7% and 30% of the population currently has difficulty breathing. Nausea, gas and indigestion are present in 15 of the women (50%). Finally, the somatic symptoms with the lowest percentages were the presence of pain during sexual relations with 10% and total absence of fainting in the women evaluated.

Association Between Psychopathological Symptoms and Psychological Resources

In order to establish the relationship of comorbidity in the patients, an association analysis (Spearman) was performed between the evaluated aspects, and a moderate and negative relationship between state anxiety and prosocial attitude could be established ($r = -0.448$, $p = 0.013$) and the trait of variable with autonomy, ($r = -0.550$, $p = 0.002$); which indicates that the lower the state of anxiety, the greater the prosocial attitude and the lower the trait of anxiety, the greater the autonomy. Additionally, it was found that there is no association between the state of anxiety with psychotic disorders and suicidal risk respectively ($p = 0.837$), ($p = 0.879$), as well as with the trait of anxiety with psychotic disorders and suicide risk ($p = 0.092$), ($p = 0.601$).

As a synthesis, it was found that the trait of anxiety and the state of anxiety are independent of positive mental health and that the state of anxiety is the same for those with lifelong anxiety disorder and generalized anxiety disorder.

DISCUSSION

In this research work, when applying the MINI screening test that allows identifying psychopathological symptoms in the evaluated women, we found a prevalence of major depressive episodes, generalized anxiety and lifelong distress. These results are similar to those reported, where the psychological aspects often presented by women with obesity are related to emotional or mood aspects, difficulties in adapting to the environment in which they are, anxiety, lack of self-control, impulsivity and other pathologies related to eating disorders that play an important role in excess malnutrition[4,6,12,13].

On the other hand, obesity is mediated by factors such as sedentary or unhealthy living habits, which are also closely linked to psychological disorders such as anxiety, depression, bipolar disorder, panic or agoraphobia disorder and substance abuse disorders[14]. However, at present, there is no specific psychopathology of the patient with obesity, but we know that certain psychological factors (motivation and resistance to change, impulsivity, executive functions, emotional regulation and addictive tendency) could be pathogenic before the appearance of adiposity"[2].

Additionally, in this study, it was found that beyond the effects at the psychological level, there are physiological symptoms, such as those found in the population studied when applying the PHQ-15 instrument, predominantly those related to indicators of major depressive disorder. A total of 24 women of the 30 evaluated present 4 or more somatic symptoms such as sleep problems, tiredness, exhaustion and headache, which may be a consequence of obesity or a possible cause for the development of other diseases since this is a constant problem in malnutrition due to excess as a predecessor and consequence of this.

With the above, there are two positions regarding depression and obesity, which are associated in the first place because women with depression tend to present eating disorders such as binge eating and a notable decrease in physical activity, these aspects being precursors to the appearance of obesity. It has been reported that individuals with psychological distress are 25 times more likely to gain weight than those without it[15]. On the other hand, the second position refers to the fact that women with obesity tend to be guided by social stigma and present limitations when participating in various social activities, malnutrition due to excess being a predecessor of depression[16]. Associating the above with the variables evaluated in this research, the somatic symptoms such as the feeling of low energy, exhaustion and sleep problems highlight the lack of physical activity in comorbidity with the diagnostic criteria of depression and generalized anxiety.

In different researches, it has been found that anxiety is a common psychological disorder and repeatedly associated with obesity since food intake increases significantly when episodes of this pathology occur[17,18] When establishing the relationship or independence of the variables analyzed for this study, it was found that a large part of the factors evaluated are independent and there is a low correlation between them, unlike the variable generalized anxiety and trait anxiety, which were considered significant in the symptoms present in obesity.

This is why the results allowed the identification of anxious symptoms in the population, therefore, in state of anxiety an average of 26.80 was recognized and in trait anxiety 28.97, no high percentage differences were found between both, however, trait anxiety it is linked to the personality of women. When reviewing a logistic regression modeling for generalized anxiety disorder it was established that only the presence of depressive episodes explains this disorder, since other disorders or symptoms do not show statistically significant associations in this population[19,20]. With these data, it is important to review that when women present depressive episodes, their anxiety decreases, which should be taken into account in diagnoses that focus only on anxiety, because they may be compensating for their involvement with these episodes.

At present, one of the most effective and successful treatments to solve the problem of obesity, which brings with it psychological and social problems, is bariatric surgery as it is one of the most effective techniques for weight loss[21]. Although this procedure has immediate benefits, in the long-term patients who do not follow a healthy diet, physical activity and manage food anxiety can regain their lost weight. It has been reported that between 20 and 87% of patients with weight regain after surgery can gain between 10 and 60 kilos, favoring the reappearance of comorbidities such as diabetes[15]. This weight gain in most cases is influenced by behavioural factors such as eating on impulse and not attending controls since it has been shown that patients with these characteristics increase up to 5 times more likely to gain weight. The results obtained when applying the STAI A/E A/R test were found to be significant in that most of the women with obesity evaluated present trait anxiety, that is, it is more linked to their personality, and therefore require greater psychological and nutritional accompaniment, since if their anxiety is mediated by food intake, bariatric surgery could fail[12].

Many of these psychological and behavioral factors mentioned above could be identified before surgery, in order to evaluate and plan treatment before and after surgery together with an interdisciplinary group to ensure the maintenance of long-term weight loss for the physical health and psychological well-being of the bariatric surgery candidate[22].

On the other hand, it was shown that the women evaluated with the Positive Mental Health inventory in the self-control variable have an average of 2.8 being below the median, which indicates a possible correlation with high food intake, consumption of some psychoactive substances such as marijuana and the supply of diet pills, which is present in 3.3% of the women evaluated. Thus, it was found that self-control could be linked to trait anxiety since both factors can be triggers of potential impulsivity directed to excess food or substance use[6]. Thus, interpersonal relationships in women with malnutrition due to excess are reduced due to low assertiveness, difficulty in expressing feelings and in adapting to society, since the high levels of emotionality and anxiety to which they are predisposed to generate high degrees of tension and impulsivity reflected in frequent addictions not only to food but also to alcohol and drugs[12,23].

Taking into account that the psychological aspects evaluated in this research are significant and predominant in the women studied, the need to provide timely treatment and accompaniment in conjunction with interdisciplinary work with nutritionists, psychiatry, psychology and the families of affected women is evident, as this will provide support for patients to maintain the weight lost through bariatric surgery in the long term[24] and thus avoid sequelae in mental health, obtain tools and coping strategies to improve their quality of life, which will be reflected in the reduction of anxiety, depression, antisocial behaviour and consumption of some substances, reducing the risk of future psychological and physical conditions associated with malnutrition from excess[25].

CONCLUSIONS

In the present study, it was possible to evidence that there are predisposing factors such as the family history of obesity, stress, sedentary life or alcohol intake associated with malnutrition due to excess as reported in the literature. Additionally, it was evident that at a general level, specific socio-cultural criteria such as socioeconomic stratum, marital status, academic level, support network or a number of people with whom one lives, are not found to identify a predisposition to obesity.

Women with obesity present trait anxiety, an aspect associated with personality; in addition they present a high presence of depression and anguish, these psychological aspects of greater need for intervention that are linked to aspects of their personality require interdisciplinary accompaniment to provide tools for the control of aspects related to anxious symptoms and make it possible to prevent sequelae in mental health associated with malnutrition.

Likewise, psychological factors were identified based on the positive mental health present in the evaluated population, where it is highlighted that obesity does not show significant affectations in aspects such as personal satisfaction, prosocial attitude, problem-solving and interpersonal relationships. On the contrary, in this research project, the variables evaluated in this inventory can allow the generation of coping strategies in the face of psychological evaluation processes.

To conclude, women who are obese show headaches, backaches and joint pain, these symptoms being a way of manifesting the discomfort that these people without treatment must suffer, so medical intervention is not enough since it focuses on the relief of these as symptoms, but they are not recognized as part of the central problem such as obesity and the implications that these can bring to the psychological discomfort.

LIMITATIONS OF THE STUDY

The present study evidences some of the methodological limitations as a small sample and the absence of a comparative group. However, the results of the study may serve as a baseline for future studies with larger samples that can confirm our results.

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REFERENCES

1. OMS.Obesidad y sobrepeso [Internet]. Abril 2020. p. 1–7. [Consultado el 21 de septiembre de 2020]. Disponible en: https://www.who.int/es/news-room/fact-sheets/detail/obesity-and-overweight
2. Quintero J, Félix Alcántara MP, Banzo-Arguis C, de Velasco Soriano RM, Barbudo E, Silveria B, et al. Psicopatología en el paciente con obesidad. Salud Ment. 2016;39(3):123–30.
3. Raimann X. Obesity and obesity-associated complications. RevMed Clin Condes. 2011;22(1):20–6.
4. Sánchez AMA, Benavides EG, Ramírez MTG. Obesidad: ¿Baja Autoestima? intervención psicológica en pacientes con obesidad. Enseñanza e Investig en Psicol. 2005;10:417–28.
5. Catalán V, Salvador J, Frühbeck G, Gómez-Ambrosi J, van-der Hofstadt Román CJ, Leal Costa C, et al. Mejora en la calidad de vida tras cirugía bariátrica. Rev An del Sist Sanit Navarra. 2018;41(2):287–92.
6. Baile JI, González MJ. Psychopathological comorbidity in obesity. An Sist Sanit Navar. 2011;34(2):253–61.
7. Gómez-Restrepo C, de Santacruz C, Rodriguez MN, Rodriguez V, Tamayo Martínez N, Matallana D, et al. Encuesta Nacional de Salud Mental Colombia 2015. Protocolo del estudio. Rev Colomb Psiquiatr. 2016;45(1):2–8.
8. Velázquez VMJ, Maldonado GG, González AHS, Perales GM. Revisión sistemática de la asociación entre sobrepeso, obesidad y enfermedad mental, con énfasis en el trastorno esquizofrénico. Rev Colomb Psiquiatr. 2009;38(4):705–16.
9. Pacheco Sánchez D, Pinto Fuentes P, Asensio Díaz E. Actualización en cirugía bariátrica / metabólica. Nutr Clin Med. 2019;XIII(2):113–27.
10. Lozno HY, Escobar ID, Duque JJ, Rosero O, Sánchez EAW, Matheus J, et al. Guía de práctica clínica para la atención en el consultorio del sobrepeso y la obesidad en adultos de 18 a 70 años. 1a edición. Davinci. Colombia; 2019. 1–48 p.
11. Sharafi SE, Garmaroudi G, Ghafouri M, Bafghi SA, Ghafouri M, Tabesh MR, et al. Prevalence of anxiety and depression in patients with overweight and obesity. Obes Med. 2020;17 (December 2019):1–5.
12. Antonio AL. El sobrepeso y la obesidad como un problema de salud. Rev Médica Clínica Las Condes [Internet]. 2012;23(2):145–53. Available from: http://dx.doi.org/10.1016/S0716-8640(12)70291-2
13. Rivera-Vázquez P, Carbajal-Mata FE, Maldonado-Guzmán G. Valoración del nivel de autoestima en adolescentes con sobrepeso y obesidad; oportunidad de cuidado enfermero. Rev Enferm Hered. 2017;10(1):22–6.
14. Rodríguez-Hernández A, De La Cruz-Sánchez E, Feu S, Martínez-Santos R. Inactivity, obesity and mental health in the spanish population from 4 to 15 years of age. Rev Esp Salud Publica. 2011;85(4):373–82.
15. Papapietro V K. Reganancia de peso después de la cirugía bariátrica. Rev Chil cirugía. 2012;64(1):83–7.
16. Fernández López AJ, González Valverde FM, Pastor Pérez P, Ruiz M, Maestre M, Albarracín Marín Blázquez A. Psychiatric Evaluation in Patients Candidates for Bariatric Surgery. Spanish J Surg Res. 2016;19(1):8–12.
17. Cofré-Lizama A, Delgado-Floody PA, Saldivia-Mansilla C, Jerez-Mayorga D. Diagnóstico integral en pacientes obesos mórbidos candidatos a cirugía bariátrica y sugerencias para su tratamiento preoperatorio. Rev Salud Pública. 2017;19(4):527–32.
18. Asociación Americana de Psiquiatría. DMS-5. Manual Diagnóstico y Estadístico de los Trastornos Mentales. 5 Ed. Vol. 9. Washington; 2013. 636 p.
19. Gariepy G, Nitka D, Schmitz N. The association between obesity and anxiety disorders in the population: A systematic review and meta-analysis. Int J Obes. 2010;34(3):407–19.
20. Maatouk I, Herzog W, Böhlen F, Quinzler R, Löwe B, Saum KU, et al. Association of hypertension with depression and generalized anxiety symptoms in a large population-based sample of older adults. J Hypertens. 2016;34(9):1711–20.
21. Umaña JA, Escaffi MJ, Lehmann PY, Ignacia Burr PM, Muñoz G.A M. Evaluación psiquiátrica en cirugía bariátrica: estudios LABS y el ciclo de Gartner. Rev Médica Clínica Las Condes. 2017;28(6):901–13.
22. Pataky Z, Carrard I, Golay A. Psychological factors and weight loss in bariatric surgery. Curr Opin Gastroenterol. 2011;27(2):167–73.
23. Benzerouk F, Gierski F, Ducluzeau P-H, Bourbao-Tournois C, Gaubil-Kaladjian I, Bertin É, et al. Food addiction, in obese patients seeking bariatric surgery, is associated with higher prevalence of current mood and anxiety disorders and past mood disorders. Psychiatry Res. 2018;267:473–9.
24. Rojas C, Brante M, Miranda E, Pérez-Luco R. Descripción de manifestaciones ansiosas, depresivas y autoconcepto en pacientes obesos mórbidos, sometidos a cirugía bariátrica. Rev Med Chil. 2011;139(5):571–8.
25. Marshall S, Mackay H, Matthews C, Maimone IR, Isenring E. Does intensive multidisciplinary intervention for adults who elect bariatric surgery improve post-operative weight loss, co-morbidities, and quality of life? A systematic review and meta-analysis. Obes Rev. 2020;Vol 21(7):1–80.