

## Clinical attachment influence, gender and aptitude in surgical indication in an anxious and depressive symptomatology in patients with morbid obesity.

Margarita García<sup>(2)</sup>, María del Mar Benítez<sup>(2)</sup>, Rafael J. Martínez<sup>(2)</sup>, Mercedes Borda<sup>(2)</sup>, Asunción Luque<sup>(1)</sup>

1. Hospital Universitario Virgen del Rocío. España. 2. Facultad de Psicología. Universidad de Sevilla. España

Correspondence: marbenitez@us.es

### Abstract:

**Aim:** To investigate the relation of attachment style, the diagnostic orientation to bariatric surgery and the gender in the face of the anxiety and depressive symptomatology in a group of patients with morbid obesity candidates for bariatric surgery.

**Materials and methods:** Observational, transversal and unicentric study. A group of 211 patients is through a convenience selection method. The questionnaires used to recollect of data are stencils with socio-demographic and clinical data, the Hospital Anxiety and Depression Scale and the Survey Adult Attachment.

**Results:** The variables of attachment style and diagnostic orientation to bariatric surgery are related to both symptomatology in a significant way. Instead, gender is a variable that is related to depressive symptomatology but not to anxious symptomatology.

**Conclusions:** There is a greater presence of depressive symptomatology in the patient with morbid obesity if this is female, shows an insecure attachment and is not suitable for bariatric surgery. In the same way, there is a greater presence of anxious symptomatology if this shows an insecure attachment and is not suitable for bariatric surgery.

### Keywords:

- Morbid obesity
- Anxiety
- Depression
- Attachment
- Gender

### Introduction

Obesity is one of the problems that most concern public health worldwide. It has been discovered that it has a multifactorial origin (1), being considered one of the most serious and prevalent noncommunicable diseases of the 21st century (2). Obesity is considered a metabolism disorder in the body which main characteristic is the excessive accumulation of fat.

The most used tool for its diagnosis is the Body Mass Index (BMI) (3). According to the WHO (World Health Organization), in 2016, more than 11.9 billion adults were overweight (39%), and out of these, 650 million were obese (13%) (4). This generates worrying expectations for the future, since it is estimated that, in 2030, the prevalence of overweight will be 89% and obesity, 48% (5).

There are several medical comorbidities associated with obesity and with it, the increased risk of chronic noncommunicable diseases and premature death (6, 7). For this reason, health programs are trying to reduce obesity through primary prevention campaigns (8).

Currently, simple obesity is included as a medical illness in the International Classification of Diseases (ICD-10), however, in DSM V it does not appear as a mental disorder (9). However, psychopathological aspects are important as they affect the etiology and / or the course of obesity. They become so important that even suffering from a major psychiatric illness is a contraindication in the process of bariatric surgery (10).

The most prominent psychopathological disorders associated with obesity are depression and anxiety, although we also find other common disorders, such as binge eating disorder, evasion and aggressive behavior, social marginalization and low self-esteem (8). Depression is considered a mood disorder, and it's an affective anomaly, characterized by anhedonia. Ocampo et al. (2017), have shown that depression has a directly proportional relationship with obesity, and also, that this relationship is greater in the adolescent female gender (5). Anxiety is characterized by appetite suppression, but if it is maintained chronically, it increases cortisol levels in the body, causing an increased appetite for hypercaloric foods (9). One study confirms the existence of psychopathologies related to anxiety in 46% of patients suitable for bariatric surgery, with the highest scores in people with obesity than in people with normal weight (11).

The study carried out by Parodi (2015), found that 18.8% of patients with obesity had anxiety disorder and 31.8% were at risk of suffering from it; and that 8.7% had depressive disorder and 14.5% were at risk of suffering from it. Both disorders had a higher prevalence in females (12). Other research evaluating the psychopathological status of groups capable and unfit for bariatric surgery, obtained differences between both groups, with a prevalence of euthymic status in the group of eligible patients, and a presence of psychic symptoms in the unfit group (13).

Lin et al. (2013), obtained the following data: 42% of patients with obesity suffered from a psychopathological disorder. Out of these, 17.2% were related to general anxiety and 7.2% to depression. This study found that women had a higher score in depression compared to men, but there were no differences related to anxiety. In addition, there were no differences when suffering from a psychopathological disorder between patients eligible to undergo bariatric surgery and patients who were undergoing non-surgical treatment (14).

De la Verga and Cruz (2018) consider that the analysis of the vital history in patients with obesity, is also a key element for the understanding of psychopathological disorders suffered by adults. Specifically, they suggest that the person with obesity has low control over food intake, relating it to an erroneous association between primary caregivers and food consumption (15). The attachment that the person has with his family is important, since if he comes from a dysfunctional family or with a lot of pressure, the possibility of suffering from overweight and obesity increases, causing the attempts to lose weight to fail (11). According to Bowlby (2006), attachment is the emotional relationship that is created between the child and his primary caregiver (16). Stable and secure attachment relationships promote real support and an effective self-regulation strategy. In addition, attachment is also important for the emotional regulation, self-esteem, and self-image. On the other hand, if that person has an insecure attachment relationship with their caregivers, the probability of having poor regulation in stressful situations increases, so it is easier for them to resort to food to lessen that discomfort. It should be noted that insecure attachments are related to anxiety, feelings of guilt, depression, and the inability to adapt to the environment among others (17). Recent studies on insecure attachment and obesity show that the relationship between both variables becomes increasingly likely (18).

In most studies related to obesity, the percentage of female population with this diagnosis was found to be higher. Camacho, Alcalá and Nieves (2015) with their study of genders found no significant differences in their adult population (19) as did Pinel et al. (2017). They did not obtain significant differences between overweight boys and girls (20). Given the existing evidence of various forms of psychopathology present in people with obesity, it is interesting to know to what extent certain variables, such as attachment, gender and being fit or unfit for bariatric surgery are related to the presence of psychological variables. The general objective of this study is to investigate whether the anxious and depressive symptomatology in a sample composed of morbidly obese patients candidates for bariatric surgery, is related to the variables described above.

### Materials and methods

The study consisted of a total sample of 211 patients who presented morbid obesity for bariatric surgery. These were evaluated by the faculty of the Mental Health Liaison and Inter consultation Program of the Virgen del Rocío Hospital (HU Virgen del Rocío), in Seville. According to the faculty members of the Mental Health Unit, 137 out of

those patients were considered fit to undergo bariatric surgery and 74 were rated unsuitable. The criteria of the patients considered as fit to undergo surgery were: 1) They showed a BMI greater than 40 Kg / m<sup>2</sup>; 2) They showed medical comorbidities such as diabetes or AHT (arterial hypertension); 3) There was an absence of severe psychopathological disorder or eating behavior disorder; and 4) There was an absence of alcohol or drug abuse.

The access to this clinical sample was achieved through a pre-existing agreement between the Hospital Mental Health Liaison; the Interconsultation Program, and the Department of Psychological Personality, together with the Evaluation and Treatment of the College of Psychology of Seville. An observational, cross-sectional, and single-center study was performed. The variables to be analyzed included the demographics of the patients obtained through the data from the medical records, the surgical indication (diagnostic orientation), the adult attachment evaluated with the Adult Attachment Questionnaire and the anxiety and depression evaluated with the Anxiety Scale and Hospital Depression (HADS). All statistical analyzes were performed with the statistical package IBM SPSS Statistics Version 22.0 for Windows. First, a descriptive analysis of the demographic data was performed. A descriptive analysis was also carried out between independent study variables (attachment, diagnostic orientation and sex) and dependents (anxiety and depression). The assumption of normality was verified through Kolmogorov-Smirnov and the assumption of homoscedasticity through the Levene F statistic. In spite of not fulfilling the assumption of normality, it was decided to carry out the general univariate linear model with each dependent variable. The confidence level used was 95%, ( $p < 0.05$ ).  $H^2$  was used for the effect size index.

Regarding ethical considerations, all study participants signed the reported consent, as stipulated in Article 7 of the Basic Act 41/2002, which regulates the patient autonomy, rights and obligations related to information and clinical documentation. A random number was assigned to the set of data obtained for each patient, thus guaranteeing the anonymity thereof, and acting according to the provisions of the Organic Act 15/1999 on Protection of Personal Data and Act 14/1986 on General Health.

## Results

### Descriptive

Table 1 below, shows the descriptive data used for the sample.

Variable	Statistical
Age	42.62 (10.8)
Weight	131.05 (24.02)
Sex	
Male	60 (28.4%)
Female	151 (71.6%)
Studies	
With studies	4 (1.9%)
Elementary	95 (45%)
Middle	60 (28.4%)
High	34 (16.1%)
Marital Status	
Single	62 (29.4%)
Married	110 (52.1%)
Widowed	9 (4.3%)
Divorced	14 (6.6%)
Separated	10 (4.7%)

*Table 1: Descriptive data of the sample composed of morbidly obese patients candidates for bariatric surgery (data are presented as average (standard deviation) for quantitative variables and frequency (%) for qualitative variables).*

The results of the descriptive analyzes for the variables can be seen in Table 2.

	Anxiety	Depression
	M (DT)	M (DT)
Attachment		
Safe	5.47 (4.23)	4.87 (4.32)
Unsafe	9.11 (3.97)	9.01 (4.36)
Diagnostic orientation		
Suitable	6.29 (4.24)	5.83 (4.52)
Unfit	9.34 (4.23)	9.21 (4.54)
Sex		
Male	6.82 (4.75)	5.90 (4.32)
Female	7.60 (4.35)	7.49 (4.92)

*Table 2: Description of the variables Anxiety and Depression based on the variable Attachment (Safe and Unsafe), Diagnostic orientation (Suitable and Unfit) and Sex (Male and Female). It was noted that the differences between the variables described (Anxiety and Depression) based on Attachment were more remarkable than those corresponding to the variables Diagnostic Orientation or Sex. In contrast, the Diagnostic Orientation variable had more remarkable differences than the Sex variable.*

It was observed that the highest score in the dependent variables was related to the unsafe value in the Attachment variable, unfit in the Diagnostic Orientation variable and Women in the Sex variable. Assumptions of normality and homoscedasticity.

The results of the normality assumption can be seen in Tables 3 and 4. There through the Kolmogorov-Smirnov test without correction of significance Lilliefors, it was concluded that, in most of the variables the assumption of normality is rejected. This indicates that there is a lower concentration of empirical data in the central zone of the Gaussian bell and higher concentrations as we approach the upper and lower ends of the said central zone. The only relation of variables where normality was found, was in the Unfit value of the variable Diagnostic orientation related to both Anxiety and Depression; and in the Woman value of the Sex variable related to Anxiety.

		Statistics	gl	p
Attachment	Safe	.159	83	.001
	Unsafe	.093	91	.048
Diagnostic Orientation	Suitable	.119	112	.001
	Unfit	.097	62	.200
Sex	Male	.169	50	.001
	Female	.079	124	.051

*Table 3: Normality tests in the variable Attachment, Diagnostic Orientation and Sex related to Anxiety.*

		Statistics	gl	p
Attachment	Safe	.197	83	.001
	Unsafe	.095	91	.040
Diagnostic orientation	Suitable	.154	112	.001
	Unfit	.087	62	.200
Sex	Male	.150	50	.007
	Female	.102	124	.003

*Table 4: Normality tests in the variable Attachment, Diagnostic Orientation and Sex related to Depression. Regarding the assumption of homoscedasticity or equality of variances that we see in Table 5, the Levene F test confirmed that there is the same dispersion in the Anxiety and Depression variables in comparison with the Attachment, Diagnostic Orientation and Sex.*

		Levene Statistics	df1	df2	P
Attachment	Anxiety	.135	1	172	.713
	Depression	.007	1	172	.935
Surgery orientation	Anxiety	.014	1	172	.907
	Depression	.067	1	172	.796
Sex	Anxiety	1.10	1	172	.297
	Depression	1.435	1	172	.233

*Table 5: Tests of homoscedasticity in the variables Attachment, Diagnostic Orientation and Sex related to Anxiety and Depression. After the analysis of the assumptions, a general univariate linear model was carried out since, at least one of the assumptions, homoscedasticity, was fulfilled. General Univariate Linear Model.*

Table 6 shows the results obtained in the general univariate linear model related to the Anxiety variable.

	S.C.T III	gl	M.C	F	p	η²
Corrected model	799.848	7	114.264	7.134	.001	.231
Interception	6287.295	1	6287.295	392.532	.000	.703
Attachment	367.316	1	367.316	22.932	.000	.121
Diagnostic orientation	93.927	1	93.927	5.864	.017	.034
Sex	17.754	1	17.754	1.108	.294	.007
Attachment * Diagnostic Orientation	20.765	1	20.765	1.296	.257	.008
Attachment * Sex	22.092	1	22.092	1.379	.242	.008
Diagnostic Orientation * Sex	14.247	1	14.247	.889	.347	.005
Attachment * diagnostic Orientation * Sex	18.469	1	18.469	1.153	.284	.007
Error	2658.870	166	16.017			
Total	12919.000	174				
Total corrected	3458.718	173				

Table 6: General univariate linear model in the variables Attachment (Safe and Unsafe), Diagnostic Orientation (Suitable and Unfit) and Sex (Male and Female) related to Anxiety.

In relation to the variable Attachment with Anxiety, significant differences with an average effect size were found, . It also got significant differences with a small effect size in the variable Diagnostic Orientation in relation to Anxiety, . But there were no significant differences when Sex and Anxiety were related, with a negligible effect size. Table 7 shows the results obtained in the general univariate linear model related to the Depression variable.

	S.C.T III	gl	S.C	F	p	η²
Corrected model	1038.361	7	148.337	8.314	.001	.258
Interception	5440.869	1	5440.869	304.945	.001	.646
Attachment	361.937	1	361.937	20.285	.001	.108
Diagnostic Orient.	102.170	1	102.170	5.726	.018	.033
Sex	80.291	1	80.291	4.500	.035	.026
Attachment *						
Diagnostic Orient.	7.107	1	7.107	.398	.529	.002
Attachment * Sex	3.757	1	3.757	.211	.647	.001
Diagnostic Orient. * Sex	42.991	1	42.991	2.410	.122	.014
Attachment						
Diagnostic Orient. * Sex	12.740	1	12.740	.714	.399	.004
Error	2979.639	167	17.842			
Total	12593.000	175				
Total corrected	4018.000	174				

Table 7: General univariate linear model in the variables Attachment (Safe and Unsafe), Diagnostic Orientation (Suitable and Unfit) and Sex (Male and Female) related to Depression.

In this case, significant differences were found in the variables Attachment, Diagnostic Orientation and Sex in relation to Depression. The effect size of the relationship between Attachment and Depression was medium, that of the relationship between Diagnostic Orientation and Depression was small and that of the relationship between Sex and Depression was small.

### Discussion

The objective of the main study is to investigate how the variables Attachment, Diagnostic Orientation and Sex are important dimensions in the definition of Anxious and Depressive symptomatology in morbidly obese patients candidates for bariatric surgery.

Based on the hypotheses, it was expected that in this sample, the score in anxious and depressive symptomatology would be higher in patients with an insecure attachment and with an unfit diagnostic orientation. On the other hand, it was expected that patients with a secure attachment and a fit diagnostic orientation would have a lower score in the said symptomatology. In addition, sex would also influence symptoms, obtaining higher scores in women. The results of this study confirm that the variable attachment is an aspect to consider when explaining anxious and depressive symptoms in morbidly obese patients. It is shown that patients with an insecure attachment obtain a higher score in the said symptomatology. There are many studies that have shown that insecure attachment is more likely to suffer from anxiety-related disorders and depression compared to secure attachment. It should be considered that the sample was composed of morbidly obese patients, so it is convenient to think that there is a greater probability that inappropriate learning has been generated (related to a bad association between the main caregiver and food consumption) in strategies for the self-control of the mood itself, by adopting "emotional eating" behaviors to assume stressful situations or negative emotional issues, thus producing weight gain (8, 11, 12, 15)

Regarding the diagnostic orientation, the unfit patients score higher in the symptoms than the fit patients, confirming the hypothesis. Patients with unfit morbid obesity are in a complex situation, since they are people with morbid obesity and, in addition, they cannot solve it through surgery. This affects the treatment of the disease in a negative way due to the increase in the symptoms studied.

Anxiety and depression are the most important alterations related to both the cause and the consequence of the development of morbid obesity (13, 14). On the other hand, the sex variable explains a small part of the depressive symptomatology, however, the anxious symptomatology, there is no relationship found. Therefore, the hypothesis would not be fully confirmed. Even so, in both situations, women score higher symptoms than men. Women are considered to have more stress due to obesity, greater body dissatisfaction and greater problems with food intake (13). The fact that sex does not influence anxious symptomatology could be due to the fact that people with morbid obesity, in general, live in a society where they are discriminated against, promoting anxiety regardless of sex (12) small.

### Limitations

Although the study has a large sample, the extrapolation to the rest of the population is limited since the results

obtained focus on a sample for convenience in a specific hospital in Seville.

As for the strange variables, it has been shown that the variables studied do not explain the entire symptomatology, so we cannot talk about a causal relationship since there are many other variables that have not been considered in this study and could also affect the patients.

### Conclusions

There is a lot of research on obesity, but the vast majority focuses on medical causes. It is necessary to expand the variables of obesity through the analysis of psychological variables as they can be both cause and consequence of it. The results of this study confirm that attachment and diagnostic orientation are factors to be taken into account in the explanation of anxious and depressive symptoms in morbidly obese patients candidates for bariatric surgery. On the other hand, there is no relationship between the sex variable and the anxious symptomatology. On the other hand, said variable is related to depressive symptomatology. In short, there is a greater presence of depressive symptomatology if the morbidly obese patient is a woman, shows an insecure attachment and is not suitable for bariatric surgery. Similarly, there is a greater presence of anxious symptomatology if it shows an insecure attachment and is not suitable for bariatric surgery.

### Conflict of interests

The author declares no conflicts of interest.

### Bibliography

1. Fernández-Travieso, J. C. (2016). *Incidencia actual de la obesidad en las enfermedades cardiovasculares*. *Revista CENIC Ciencias Biológicas*, 47(1), 1-11.
2. Delgado Floody, P., Caamaño Navarrete, F., Jerez Mayorga, D., et al. (2015). *Efectos de un programa de tratamiento multidisciplinar en obesos mórbidos y obesos con comorbilidades candidatos a cirugía bariátrica*. *Nutrición Hospitalaria*, 31(5), 2011-2016.
3. Bray, G. A. (2004). *Medical consequences of obesity*. *The Journal of Clinical Endocrinology & Metabolism*, 89(6), 2583-2589.
4. Organización Mundial de la Salud. (2017). *Obesidad y sobrepeso*. Recuperado de: <http://new.who.int/es/news-room/fact-sheets/detail/obesity-and-overweight>.
5. Ocampo, J., Guerrero, M., Espín, L., Guerrero, C., & Aguirre, R. (2017). *Asociación entre índice de masa corporal y depresión en mujeres adolescentes*. *International Journal of Morphology*, 35(4), 1547-1552.
6. Baile, J. I. y Gonzáles, M. J. (2011). *Comorbilidad psicopatológica en obesidad*. In *Anales del sistema sanitario de Navarra*, 34(2), 253-26.

7. Fernández-López, A. J. (2015). *Patología basal en los obesos mórbidos del área de salud VII de la Región de Murcia (España)*. *Relevancia de su estudio*. *BMI-Journal*, 5(3), 873-875.
8. Cofré, A., Moreno, J., Salgado, F., Moreno, A. C., & Mella, E. R. (2017). *Estilos vinculares y conducta alimentaria en niños*. *Summa Psicológica UST*, 14(2), 62-71.
9. Lopera, D. T., & Restrepo, M. (2014). *Aspectos psicológicos de la obesidad en adultos*. *Revista de Psicología Universidad de Antioquia*, 6(1), 91-112.
10. Ossorio, M. D. L. Á. M. (2016). *Cirugía Bariátrica y Trastorno Psiquiátrico Mayor*. *BMI-Journal*, 6(1), 912-915.
11. Salinas Rodríguez, J. L., González Díaz, A. F., Espinosa Sierra, V., & González Díaz, H. E. (2018). *Diferencias en comportamientos de riesgo y problemas en personas con sobrepeso y obesos*. *Revista Electrónica de Psicología Iztacala*, 21(1), 1-19.
12. Parodi, C. A. (2015). *Ansiedad, depresión y trastorno de la imagen corporal en pacientes que consultan en la Unidad de Obesidad del Hospital de Clínicas*. *Memorias del Instituto de Investigaciones en Ciencias de la Salud*, 13(3), 64-74.
13. Luque, A. (2017). *Apego preocupado y sintomatología bulímica en candidatas a cirugía bariátrica*. *BMI-Journal*, 7(3), 1880-1885.
14. Lin, H. Y., Huang, C. K., Tai, C. M., et al. (2013). *Psychiatric disorders of patients seeking obesity treatment*. *BMC psychiatry*, 13(1), 1-8.
15. De la Vega Morales, R. I., & Cruz Hernández, L. (2018). *Efectos de la terapia cognitivo-conductual en factores asociados a la obesidad: un estudio de caso*. *Revista Psicología y Salud*, 28(1), 85-94.
16. Bowlby, J. (Ed.) (2006). *Vínculos Afectivos: Formación, Desarrollo y Pérdida*. MADRID: Ediciones Morata.
17. Arias, A. R. (2015). *Los cuidados maternos y su relevancia en la salud mental: primera experiencia vinculación del sujeto*. *Revista Electrónica Psyconoex*, 7(11), 1-16.
18. Benítez Hernández, M. D. M., Luque Budia, A., Borda Mas, M. D. L. M., Dorado Siles, I., & Rodríguez Testal, J. F. (2017). *Apego preocupado, pensamiento rumiativo y pensamiento referencial en candidatas a cirugía bariátrica*. *Apuntes de Psicología*, 35(1), 63-71.
19. Camacho-Laraña, M., Alcalá-Pérez, V., & Nieves-Alcalá, S. (2015). *Diferencias de género en pacientes con obesidad mórbida tributarios de cirugía bariátrica*. *Revista de Psicopatología y Psicología Clínica*, 20(3), 189-198.
20. Martínez, C. P., Cuberos, R. C., Sánchez, M. C., Garcés, T. E., Ortega, F. Z., & Cortés, A. J. P. (2017). *Diferencias de género en relación con el Índice de Masa Corporal, calidad de la dieta y actividades sedentarias en niños de 10 a 12 años*. *Retos: nuevas tendencias en educación física, deporte y recreación*, (31), 176-180.