OBESITY, BINGE EATING, OBSTRUCTION SLEEP APNEA AND PSYCHOPATHOLOGICAL FEATURES

Roberto Poli, Letizia Maninetti, Paolo Bodini, Emilia Agrimi

Abstract

Objective: Several studies have shown that the mental component is strong in obese subjects. The aim of this study was to assess the presence of psychopathological features in a sample of obese patients, by verifying whether there are differences related to socio-demographic variables, particularly in the patient sub-groups of binge-eating disorder (BED) and obstructive sleep apnea syndrome (OSAS).

Method: One hundred fifty-two patients of the Cremona Hospital Obesity Center in Italy were recruited and subjected to psychometric tests and to structured psychiatric evaluation in the case of positive psychometric test results. Moreover, a questionnaire for OSAS was given to subjects, which was followed by polysomnography when positive results were obtained.

Results: The obtained data confirm the specificity of the BED sub-group, which show a higher incidence of psychopathological symptoms, both in the total index and different features. BED patients are younger than the other obese subjects, mostly unmarried and have a higher body mass index (BMI). In comparison, the overall patient sample, including BED and non-BED sub-groups, do not show any statistically significant correlation between BMI and psychopathological symptoms.

Conclusions: The BED diagnosis in obese patients is important when considering the psychopathological homogeneity of this disorder, in addition to the purpose of selecting different treatment routes that require specific studies.

Key words: binge-eating disorder, obesity, mental disorders, obstruction sleep apnea syndrome

Declaration of interest: there are no conflicts of interest in relation to the content of this study

Background

Obesity is a heterogeneous syndrome that is defined by a body mass index (BMI) value exceeding 30, while BMI between 25 to 30 characterizes the individuals as being overweight (Willet et al. 1999). The problem of obesity has reached epidemic proportions in recent years. The World Health Organization (WHO) has effectively coined the word “globesity” to highlight the global seriousness of the problem, which is not only growing in all developed countries but is already affecting a number of poor countries (Flegal et al. 2002). European data are almost similar to the dramatic records of the US, with more than half of the European male population being obese or overweight (Foltran et al. 2010). As far as women are concerned, the situation is only slightly better. However, the most worrying fact is that, compared to data from previous years, obesity is growing in both sexes and in almost every EU country (Del Torso et al. 2010). Moreover, infant obesity continues to grow (Ogden et al. 2007).

Therefore, obesity represents a serious medical problem, with very heavy health repercussions and social costs (Allison et al. 1999). Indeed, seriously obese people have 5 to 20 years shorter life expectancy (Fontaine et al. 2003).

Obesity is a syndrome with different characteristics that correspond to different causal mechanisms. However, in the majority of cases, obesity is a disorder with multifactorial aetiology, including factors such as genetic, neurobiological, psychological, cultural and environmental (i.e. food availability, lifestyle and physical activity). Currently, obesity is regarded as a medical syndrome and is not classified in psychiatric nosography, but many studies have shown common psychic symptoms in obese patients, in particular impulsiveness and low self-esteem, disinhibition, perfectionism and body dissatisfaction (Jackson et al. 2000). In some studies these symptoms occur to such an extent that some researchers have proposed that obesity should be classified as a psychiatric disorder in the next DSM-V, considering it a “food addiction”. In
fact, obesity represents compulsive food intake with an inability to limit it despite the serious consequences deriving from this behaviour (Volkow and O’Brien 2007). On the other hand, Binge Eating Disorder (BED), which is a specific eating disorder subtype, has already been classified in the DSM-IV-TR. However, at present it is only included in the appendix and in an experimental way. This disorder is characterized by recurrent episodes of compulsive binges, accompanied by a feeling of loss of control without recourse to compensatory behaviours (APA 2000). BED occurs in approximately 1-2% of the general population and, based on several studies, it is present in 9-19% of obese subjects (Stunkard1996). Several studies have shown that both psychiatric disorders and psychic symptoms are more frequent in obese subjects than in the general population (Luppino et al. 2010), and are more frequent in BED obese subjects than in non-BED obese subjects (Ramacciotti et al. 2008).

Moreover, there are contradictions in the data from the literature about the correlation between obesity gravity and presence of psychological-psychiatric disorders (Herpertz et al. 2006). Furthermore, there are limited studies showing a possible correlation between psychiatric disorders or symptoms and obstruction sleep apnea syndrome (OSAS), which is a frequent complication in obese subjects that causes nocturnal hypoventilation, frequent awakening with possible cardiovascular consequences and attention disorders, memory impairment and daily sleepiness (Punjabi 2008).

The aim of this study was to assess the presence of psychopathological dimensions in a population of obese patients on their first visit to the Cremona Hospital Obesity Centre, by evaluating the existence of possible correlations with BMI and socio-demographic variables, patients with and without BED, and patients with and without OSAS.

Materials and Methods

Patient sample

The patient sample includes 152 obese patients, consecutively recruited at the Obesity Centre over a period of 17 months, from January 2009 to May 2010. Exclusion criteria were: (1) patients under 18 and over 65 years, (2) patients with a BMI < 30, and/or (3) a diagnosis of psychotic disorder or dementia. Written informed consent of the patients was obtained before starting the assessment.

Measures

The recruited patients underwent a sequence of tests and diagnostic examinations as shown in figure 1.

Symptom Check List-90 Revised (SCL-90-R) (Derogatis 1977)

This is a self-administered test comprising 90 items with answers ranging from 0 to 4 on a Likert scale. The total score (GSI Global Score Index) is an average of all the answers. The majority of items are then calculated as factors that identify 10 psychopathologic features, including somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and sleep disorders.

Binge eating scale (BES) (Gormally et al. 1982)

This is a self-administered test comprising 16 items with multiple answers from 0 to 4 on a Likert scale. The test assesses behaviours, feelings and cognitive aspects that are related to binges and are indicative of BED when the total score is above 17.

Binge eating disorder clinical interview (BEDCI) (Fretas et al. 2006)

Patients with values higher than the cut-off BES underwent psychiatric visit with diagnostic assessment by using BEDCI, which is a structural interview designed to assess the presence of BED according to DSM-IV-TR research criteria.

Epworth Sleepiness Scale (Nguyen et al. 2006)

This is a self-administered questionnaire comprising just nine items with answers ranging from 0 to 3 on a Likert scale. The test, which assesses the degree of daily sleepiness, has been validated for OSAS. Patients with a scale indicative of possible OSAS underwent polysomnographic registration (Epstein et al. 2009) and a pneumological visit to confirm the diagnosis.

Data analysis

Data were analyzed using SPSS for Windows (version 12.0). Descriptive statistical analyses have been performed and comparison between independent groups has been carried out by the Student test (t-test) for continuous variables and by the χ² test for categorical variables. The scores of continuous variables have been correlated through the analysis of bivariate correlation (Pearson’s r). Statistical significance was set at the 5% level (p < 0.05)

Results

The sample consists of 70.3% of women and 29.7% of men, with a mean age of 45.86 years (median 45.0, SD ± 14.24, age range 18-65). In total, 60% of the patient sample is represented by married or cohabiting patients versus 40%, which were unmarried, separated or widowed subjects.

The overall patient sample, including the BED and non-BED sub-groups, did not show any statistically significant correlation between BMI and psychopathological symptoms. Gender differences are as follows: for men higher BMI was recorded (p = 0.001), while for women higher depression (p = 0.01) and somatisation (p= 0.04) scores were obtained.

Among the 152 recruited patients, 15% of the patient sample was found to suffer from BED, representing a total number of 23 patients (comprising 15 women and 8 men). Table 1 shows the socio-demographic data of the two sub-groups; BED obese patients and non-BED obese patients. BED patients
Table 1. Socio-demographic characteristics and clinical differences in the features of the two sub-groups (BED versus non-BED)

<table>
<thead>
<tr>
<th></th>
<th>BED (n = 23)</th>
<th>Non BED (n = 129)</th>
<th>p values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong> (years)</td>
<td>37.45</td>
<td>47.44</td>
<td>p= 0.00</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>35%</td>
<td>23.2%</td>
<td>p= 0.01</td>
</tr>
<tr>
<td>Female</td>
<td>65%</td>
<td>76.8%</td>
<td>p= 0.02</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married or co-habiting</td>
<td>16.7%</td>
<td>68.7%</td>
<td>p= 0.01</td>
</tr>
<tr>
<td>Single/divorced/widow</td>
<td>83.3%</td>
<td>31.3%</td>
<td>p= 0.00</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>39.9</td>
<td>34.3</td>
<td>p= 0.04</td>
</tr>
<tr>
<td><strong>Waist circumference</strong></td>
<td>111.88</td>
<td>110.18</td>
<td>p= 0.07 ns</td>
</tr>
<tr>
<td><strong>Global Score SCL-90-R</strong></td>
<td>0.74</td>
<td>0.49</td>
<td>p= 0.03</td>
</tr>
<tr>
<td><strong>BES score</strong></td>
<td>23.7</td>
<td>5.4</td>
<td>p= 0.00</td>
</tr>
<tr>
<td><strong>Epworth scale</strong></td>
<td>21.2</td>
<td>15.4</td>
<td>p=0.03</td>
</tr>
<tr>
<td><strong>OSAS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25%</td>
<td>12.1%</td>
<td>p= 0.02</td>
</tr>
<tr>
<td>No</td>
<td>75%</td>
<td>87.9%</td>
<td>p= 0.03</td>
</tr>
</tbody>
</table>

Figure 1. Flow-chart of the study
Psychopathological features in obese subjects

have a much higher average SCL-90-R score, both in the global score and for different psychopathological features, when compared to non-BED patients, with sleep being the only exception. The most pathological features in BED patients included the following (in order of importance): obsession-compulsion, interpersonal sensitivity (feelings of inadequacy and inferiority), and depression. Figure 2 shows the difference between the two sub-groups with reference to the 10 features identified by the test. In non-BED patients, the highest scores were related to somatization, sleep disorders, and depression.

In total, 14% of patients (n = 21) suffered from OSAS, with a significantly higher percentage in BED patients. When compared to non-OSAS group, patients with OSAS showed a statistically significant difference in terms of higher BMI, higher abdominal circumference, male gender and higher age. There are no differences in terms of psychopathological features, except for somatization, which shows a higher score in OSAS patients (p = 0.02).

Conclusions

Similar to previously published researches, our study shows that there is not a statistically significant correlation between the severity of obesity expressed in terms of BMI and psychiatric symptoms and manifestations (Didie and Fitzgibbon 2004). The discrepancy between statistical data showing a higher presence of obesity in men, while the current study sample indicated a prevalence of females with obesity, may be explained by women being more inclined to recognize obesity as a problem and therefore seek help at specialized centres. In fact, specific characterizations were not observed in the OSAS sub-group. In comparison, important differences emerged between the BED and non-BED sub-groups. Patients suffering from BED show specific characteristics, including lower mean age, clear prevalence in unmarried subjects, higher BMI and heavier psychopathological load, both in the SCL-90-R global score and the main dimensional factors, with the exception of sleep, which is more problematic in non-BED patients. This fact is probably explained by the continuity between BED and Night Eating Syndrome, the main feature of which is represented by night binges followed by sleep facilitation. Therefore, BED patients seem to represent a sub-population with specific characteristics, in which the obsessive-compulsive component is dominant and justifies the dependent-compulsive attitude towards food, with manifestations straddling both an eating disorder and behavioural addictions. The non-BED group is characterized by a higher prevalence in women (approximately 77%) and married subjects (68.7%). In contrast, this group does not show homogeneous characteristics in terms of psychopathological profile. Psychic symptoms, if present, are vague and less structured. As already stated, insomnia is more frequent in this group, which defines a condition of non-specific suffering/unease combined with less structured psychic symptoms when compared to the BED form of obesity.

For obese BED patients, the need for integrated treatments was confirmed, in which the psychiatrist collaborates with a specialist of internal diseases to improve the effectiveness of treatment. In contrast, for obese non-BED patients we have considered the introduction of group psychoeducation treatments that include actions of motivational support to diet and healthy lifestyles. A study aimed at assessing the effectiveness of group psychoeducation supporting diet in the treatment of obese patients with medium-slight anxiety and depression symptoms is currently in

Figure 2. Mean score of SCL-90-R dimensional factors in BED versus the non- BED groups
[SOM = somatization, O-C = obsession-compulsion, INT = interpersonal sensitivity (inferiority, inadequacy), DEP = depression, ANX = anxiety, HOS = hostility, PHOB = phobic anxiety, PAR = paranoid ideation, PSY = psychoticism, SLEEP= sleep disorders]. All the features except SOM showed p values < 0.05.
progress at the Cremona Hospital. Further studies would be necessary to explore the effectiveness of group therapy associated with diet to modify the lifestyle of obese patients, and promote an effective and lasting reduction of weight. Such therapy would include the objective of reducing weight and psychological disorders, in addition to the social stigmatization of obese individuals (Friedman et al. 2005), which worsens the situation in a vicious circle.

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References


