Interpersonal relationships, mood states, and self-esteem in a sample of obese binge eaters

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Introduction

The Binge eating Disorder (BED) diagnostic criteria have been included in DSM-IV (APA, 1994) at the experimental stage, considering the BED like a disorder to master at a diagnostic level. Binge eating disorder is characterized by recurrent episodes of binge eating, accompanied by a sense of loss of control over eating during the episode, and it is not associated with the regular use of inappropriate compensatory behavior (APA, 2000). Clinical studies have pointed out that from 23% to 46% of obese individuals have binge eating behaviours (Spitzer et al., 1993; Yanovsky, 1999; Ricca et al., 2000), whereas, in the whole community, the presence of such episodes is lower (range: 1,8-4,6%) (Stunkard, Berkowitz, Tanrikut, Reiss & Young, 1996). Although it has been showed that the use of a strict diagnostic methodology reduces BED prevalence in obese individuals, it is well known that obese people exhibit a psychological distress linked to BED. This fact can mainly be seen among people with severe obesity (BMI > 40; de Zwaan, 2001) and among individuals who have attended bariatric surgery interventions (Hsu et al., 2002).
Moreover, several clinical studies have suggested that binge eating obese individuals show a greater comorbidity with different psychiatric disorders than obese individuals without BED (National Task Force on the Prevention and Treatment of Obesity, 2000). Several studies have demonstrated the presence of a greater psychiatric comorbidity in obese individuals with BED than obese individuals without BED (Grilo, 2002; Yanovski, 1999). The presence of binge eating appears to be associated with different weight fluctuations (Spitzer et al., 1993), with a lower self-esteem, with a greater psychological suffering and with psychiatric disorders in axis I (Allison et al., 2005; Bulik et al., 2002; Grucza et al., 2007), and axis II (Yanovski et al., 1993; Marcus, 1995, Masheb & Grilo, 2006). Moreover, the impact of binge eating on quality of lifeof obese individuals has also been demonstrated (de Zwaan et al., 2002). Finally, the BED influence in obese individuals has also been studied in an Italian sample (Ramacciotti et al., 2000).
Up to date, there are inconclusive findings regarding the association between obesity and psychological distress, especially with treatment-seeking obese people: little is known whether psychological and psychiatric concerns in treatment-seeking obese individuals may be related more to BED than to their degree of obesity. Several studies enforce the hypothesis that the higher psychiatric comorbility in obese subjects must be due more to the acuity of BED than to the level of obesity (Telch & Agras, 1994; Wilfley et al., 2000). Moreover, it has been showed that obese subjects with BED request more psychotherapeutic interventions or psychological counseling (Yanovski et al., 1993; Ramacciotti et al., 2008).
Finally, research on personality showed that there were no differences between obese binge eaters and obese no binge eaters on several personality variables (e.g., impulsiveness, dependence) (Davis et al., 2008).
The aim of this study is to investigate whether obese binge eaters have higher level of psychological distress than no binge eating obese individuals, in terms of interpersonal relationships, self-esteem, quality of life, and mood states.

Method

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Participants

The participants of the study are 221 overweight and obese consecutive patients, 167 female and 54 males, ranging on age from 13 to 79 years (M = 43,57; sd = 15,36), and attending two clinical services of the AUSL 6 of Palermo (Italy). All the subjects have a *BMI* > 25 (M = 34,49; sd = 6,90; range 25,10 – 62,60). The intake psychological assessment was conducted by two psychologists belonging to the structures mentioned above. Patients received an application form explaining the aim and the procedure of the research. After informed consent was obtained, participants were given questionnaires to be filled out.

Measures

The psychological assessment of the patients has been carried out by means of the following *self-report* tests:

- *Obesity Related Well-Being (O.R.WELL*) (Mannucci et al., 1999); self-reported questionnaire assessing the obese patients quality of life. It makes reference both to the intensity and the subjective relevance of physical and psychological *distress* connected with obesity. This tool is made of eighteen questions conceptually related to three different areas: symptoms (measures obesity-related somatic symptoms and physical functioning), discomfort (evaluates the impact of obesity on the patients' emotional status and obesity-related worries) and impact (measures the effects of obesity on familial relationship, role functioning and social network). Items are divided into two factors: psychosocial aspects and physical discomfort related to obesity. In this study, the internal consistency (Cronbach's alpha) of the instrument was adequate: α = range: .654 - .794).
- *Binge Eating Scale (BES)* (Gormally *et al*., 1982); self-report questionnaire assessing behaviour, sensations and cognitive aspects associated with episodes of binge eating; this test is made of sixteen questions with multiple answer with a variable final score between the values 0 - 46. Higher scores indicate greater severity; in particularly, the scores less or equal to 17 means the absence of a binge behaviour, while if the score between 18 and 26 reflects an average level of binge behaviour, score equal or superior to 27 indicates a serious disease. In this study this instrument has adequate internal consistency (alpha = .741).
- The *Profile of Mood States* (POMS; McNair, Lorr and Droppelman, 1991) is a 65-item measure of dysfunctional affect or mood. The POMS is a 58-item self-report questionnaire. The POMS yields a score for total mood disturbance based on five subscales: anxiety, depression, hostility, confusion, vigour, and fatigue. For this sample, the Cronbach's alpha was .87 for total mood disturbance. *Rosenberg Self-Esteem Scale* (Rosenberg, 1979); contains 10 Likert scale items that assess global self-esteem; higher scores indicate higher self-esteem. In this study this instrument has good internal consistency (alpha = .874).
-*Inventory of Interpersonal Problems-Short Form* (IIP-32; Barkham, et. al., 1996) is a 32-item self-report inventory developed to assess patient social adjustment and interpersonal difficulties. IIP-32 consists of eight scales intended to operationalize the octants of a circumplex of interpersonal problem: domineering/controlling, vindicative/self-centered, cold/distant, socially inhibited, non-assertive, overly accommodating, self/sacrificing, intrusive/needy. This model claims that interpersonal behaviours can be organized graphically in two dimensions. One dimension, a dimension of affiliation ranges from friendly or warm behaviour to hostile or cold behaviour. The other dimension, a dimension of dominance ranges from dominating or controlling behaviour to yielding or relinquishing control. In this study the IIP showed to possess adequate internal consistency (range: α = .657 - .871).
- *Body Influence Assessment Inventory (BIAI)* (Osman *et al*., 2006); is a 28-item self report inventory, that taps four dimensions of bodily experiences in the eating disorders area: 1) *negative affect* e 2) *positive affect about appearance* (protective dimension), 3) *suicide-related rumination* and 4) *physical appearance practices*. In this study the BIAI showed to possess adequate internal consistency (range: .599 - .687).

Statistical Analyses

Participants were grouped as binge eaters obese individuals (N= 63) and non-binge eaters obese individuals (N= 158) according to the *BES* cut-off score (27). The following statistical analyses have been carried out in order to examine the research hypothesis: correlation (Pearson's r) among scores of all the study variables, and Student's t test for the comparison between independent groups.

Results

Means, standard deviations and differences between the two groups are shown in Table 1. The scores show that obese individuals with binge eating have a significantly worse quality of life than obese individuals without binge eating ($t = -8{,}420$, $\alpha < .01$) as regards to psychosocial aspects ($t = -8{,}074$, $\alpha < .001$) and physical discomfort ($t = -5{,}990$, $\alpha < .001$). These issues, in addition to being more present (ORWELL occurrence) in people with binge eating (binge M = 35,93, DS = 7,23; non binge M = 29,32, DS = 6,21), also seem to become more relevant (ORWELL relevance) to them (binge M = 27,16, DS = 11,47; non binge M = 15,73, DS = 8,67). It has been also shown that binge eaters have lower self-esteem ($t = 4{,}643$, $\alpha < .001$), higher levels of depression ($t = -5{,}137$, $\alpha < .001$), fatigue ($t = -4{,}368$, $\alpha < .001$), and more frequent states of tension, anxiety ($t = -4{,}207$, $\alpha < .001$) and confusion ($t = -4{,}010$, $\alpha < .001$) than obese individuals without binge eating. Finally, obese BED individuals show increased aggression and anger toward the others ($t = -2{,}621$, $\alpha < .01$).
Regarding the interpersonal relationships, the binge eaters subjects show greater difficulties than obese no BED on unassertiveness ($t = -3{,}746$, $\alpha < .001$), overly accommodating ($t = 4{,}457$, $\alpha < .001$) and overly nurturant ($t = -3{,}834$, $\alpha < .001$) behaviors. No differences between the two groups were found on problems with domineering/controlling and intrusiveness. There are also no significant differences with regard to the BMI level.
Finally, binge eating subjects reported problems regarding the perception of their body image ($t = -3{,}893$, $\alpha < .001$).

Table 1: Means, Standard Deviation and differences between the two groups (N = 221)

	no binge		binge		DIFFERENZE TRA I DUE CAMPIONI	
	Mean	SD	Mean	SD	t	p
età	44,98	16,12	39,54	12,21		
BMI	34,24	6,82	35,18	7,14	-0,88	0,38
ORWELL O	29,32	6,21	35,93	7,23	-6,63	0,00
ORWELL R	15,73	8,67	27,16	11,47	-7,86	0,00
ORWELL tot	30,4	20,14	61,1	31,92	-8,42	0,00
ORW_F1	22,24	16,24	45,82	25,36	-8,07	0,00
ORW_F2	8,16	6,89	15,28	9,79	-5,99	0,00
ROS_SELF	21,13	4,75	17,52	5,87	4,64	0,00
BIAI_S_N	13,31	5,29	21,02	8,33	-8,07	0,00
BIAI_S_P	15,75	6,27	11,28	5,21	4,83	0,00
BIAI_C_S	7,34	1,34	9,52	4,16	-5,90	0,00
BIAI_C_P	12,62	4,13	13,26	4,08	-1,00	0,32
BIAI TOT	49,03	8,98	55,07	12,78	-3,89	0,00
POMS T	53,68	12,16	60,44	14,48	-4,21	0,00
POMS D	53,52	11,89	64,03	16,79	-5,14	0,00
POMS A	56,65	12,96	62,05	14,59	-2,62	0,01
POMS V	52,39	12,29	45,6	12,12	3,72	0,00
POMS S	55,94	11,59	64,21	12,96	-4,37	0,00
POMS C	50,49	11,02	57,79	13,41	-4,01	0,00
BES	7,59	4,79	26,86	6,76		
IIP, 1	51,83	9,54	54,17	10,74	-1,62	0,11
IIP, 2	49,7	9,55	52,84	11,44	-1,91	0,06
IIP, 3	46,88	7,67	52,19	11,77	-3,63	0,00
IIP, 4	47,21	7,99	52,88	10,85	-3,30	0,00
IIP, 5	50,22	8,8	56,02	11,65	-3,75	0,00
IIP, 6	53,81	10,42	61,35	12,47	-4,46	0,00
IIP, 7	53,71	9,32	59,42	11,08	-3,83	0,00
IIP, 8	55,65	11,4	59,25	14,49	-1,64	0,10
IIP tot	50,94	7,79	57,95	8,7		

Note. BMI= Body Mass Index. ORWELL= Obesity Related Well-Being total. ORW_F1= ORWELL psychological scale. ORW_F2= ORWELL physical scale. Orwell O= ORWELL occurrence. orwell R= ORWELL relevance. BIAI_S_N= BIAI negative affect about appearance scale. BIAI_S_P= BIAI

positive affect about appearance scale. BIAI_C_S= BIAI suicide-related rumination scale. BIAI_C_P= BIAI physical appearance practices. BIAI TOT= Body Influence Assessment Inventory total. ROS_SELF= Rosenberg Self-Esteem Scale. BES= Binge Eating Scale. p.p. = weighed score. POMS T= anxiety scale. POMS D= depression scale. POMS A= hostility scale. POMS V= vigor scale. POMS S= fatigue scale. POMS C= confusion scale. IIP 1= domineering/controlling scale. IIP 2= vindictive/self-centered scale. IIP 3=cold/distant scale. IIP 4= socially inhibited scale. IIP 5= non assertive scale. IIP 6= overly accommodating scale. IIP 7= self-sacrificing scale. IIP 8= intrusive/needy scale.

The correlational analysis among the observed variables (*Table 2*) show that more episodes of binge eating are correlated with lower self-esteem (p < .01) and a poorer quality of life, both for the severity of symptoms (*ORW* O; p< .01) and their relevance (*ORW* R; p< .01). More frequent episodes of binge eating are related also with higher levels of depression (*POMS* D; p< .01), increased fatigue/laziness and lack of energy (*POMS* S; p< .01; *POMS* V; p< .01), more frequent tension, anxiety (*POMS* T; p< .01), confusion (*POMS* C; p< .01) and anger towards others (*POMS* A; p< .01).
Regarding the interpersonal relationships, more frequent binge eating behaviors are associated with low levels of dominance (*IIP*-5; p< .01; *IIP*-4; p< .01) and high levels of affiliation (*IIP*-6; p< .01; *IIP*-7; p< .01). Finally, the increased presence of binge eating behaviors is significantly associated with problematic issues concerning the perception of body image, such as more frequent negative affect about appearance (*BIAI_SN*; p< .01), suicide-related rumination (*BIAI_CS*; p< .01) and physical appearance practices (*BIAI_CP*; p< .05). No significant correlation has, however, been revealed between BMI and binge eating behaviors.

Table 2. Correlations (r Pearson) between the variables examined in obese individuals (N=221)

	BMI	BES	ROS_SELF	ORW_F1	ORW_F2	ORW O	ORW R	POMS T	POMS D	POMS A	POMS V	POMS S	POMS C	IIP 1	IIP 2	IIP 3	IIP 4	IIP 5	IIP 6	IIP 7	IIP 8	BIAI_S_N	BIAI_S_P	BIAI_C_S
BMI																								
BES	0,102																							
ROS_SELF	0,093	-,425(**)																						
ORW_F1	,209(**)	,592(**)	-,449(**)																					
ORW_F2	,237(**)	,428(**)	-,255(**)	,572(**)																				
ORWELL O	,195(**)	,522(**)	-,405(**)	,812(**)	,670(**)																			
ORWELL R	,247(**)	,581(**)	-,440(**)	,938(**)	,739(**)	,782(**)																		
POMS T	-0,077	,342(**)	-,337(**)	,455(**)	,268(**)	,459(**)	,399(**)																	
POMS D	0,02	,430(**)	-,468(**)	,515(**)	,363(**)	,499(**)	,465(**)	,785(**)																
POMS A	-0,033	,282(**)	-,322(**)	,393(**)	,268(**)	,451(**)	,334(**)	,768(**)	,780(**)															
POMS V	-0,006	-,274(**)	,411(**)	-,274(**)	-,255(**)	-,256(**)	-,313(**)	-,338(**)	-,415(**)	-,232(**)														
POMS S	0,027	,373(**)	-,297(**)	,440(**)	,338(**)	,454(**)	,417(**)	,746(**)	,743(**)	,660(**)	-,336(**)													
POMS C	-0,069	,343(**)	-,350(**)	,338(**)	,281(**)	,361(**)	,324(**)	,669(**)	,695(**)	,607(**)	-,400(**)	,690(**)												
IIP, 1	-0,063	,163(*)	-,191(**)	,180(**)	,160(*)	,269(**)	,146(*)	,244(**)	,225(**)	,406(**)	0,035	,215(**)	,170(*)											
IIP, 2	-0,094	0,075	-0,127	0,036	0,11	0,077	0,086	0,062	0,119	0,085	-0,073	0,021	0,079	,158(*)										
IIP, 3	-,177(**)	,233(**)	-,304(**)	,194(**)	0,131	,136(*)	,207(**)	,194(**)	,262(**)	,202(**)	-,202(**)	0,085	,174(**)	,182(**)	,678(**)									
IIP, 4	0,003	,236(**)	-,387(**)	,357(**)	,241(**)	,245(**)	,363(**)	,274(**)	,376(**)	,201(**)	-,368(**)	,178(**)	,189(**)	-0,002	,336(**)	,504(**)								
IIP, 5	-0,097	,284(**)	-,366(**)	,358(**)	,168(*)	,283(**)	,363(**)	,247(**)	,365(**)	,204(**)	-,261(**)	,228(**)	,236(**)	0,091	,259(**)	,396(**)	,464(**)							
IIP, 6	0,046	,347(**)	-,231(**)	,276(**)	,223(**)	,341(**)	,257(**)	,253(**)	,344(**)	,255(**)	-0,098	,297(**)	,303(**)	0,088	0,054	,173(**)	,216(**)	,394(**)						
IIP, 7	0,058	,269(**)	-,198(**)	,221(**)	,146(*)	,247(**)	,179(**)	,201(**)	,261(**)	,188(**)	0,068	,219(**)	,135(*)	,289(**)	-0,043	0,094	-0,007	,177(**)	,395(**)					
IIP, 8	0,098	,140(*)	-0,05	0,091	0,04	0,122	0,076	-0,015	0,032	0,009	,210(**)	0,035	-0,01	,364(**)	0,022	0,001	-0,053	,144(*)	,175(**)	,373(**)				
BIAI_S_N	,224(**)	,596(**)	-,551(**)	,718(**)	,493(**)	,641(**)	,698(**)	,451(**)	,611(**)	,456(**)	-,355(**)	,438(**)	,430(**)	,175(**)	0,067	,235(**)	,378(**)	,398(**)	,310(**)	,283(**)	0,123			
BIAI_S_P	-,223(**)	-,391(**)	,307(**)	-,437(**)	-,290(**)	-,345(**)	-,448(**)	-,252(**)	-,274(**)	-,215(**)	,379(**)	-,275(**)	-,265(**)	-0,047	,135(*)	-0,047	-,212(**)	-,189(**)	-,149(*)	-0,047	-0,054	-,492(**)		
BIAI_C_S	-0,05	,448(**)	-,353(**)	,378(**)	,235(**)	,341(**)	,316(**)	,356(**)	,425(**)	,284(**)	-,149(*)	,338(**)	,300(**)	,147(*)	,225(**)	,306(**)	,311(**)	,230(**)	,173(**)	,147(*)	-0,014	,427(**)	-0,055	
BIAI_C_P	-0,023	,149(*)	-,206(**)	,242(**)	,161(*)	,286(**)	,215(**)	,267(**)	,256(**)	,237(**)	-0,04	,175(**)	,143(*)	,235(**)	0,083	0,109	0,096	0,091	0,053	,139(*)	0,063	,301(**)	0,069	,190(**)

Note. *BMI*= *Body Mass Index*. *BES*= Binge Eating Scale. ROS_SELF= Rosenberg Self-Esteem Scale. ORW_F1= *ORWELL* psychological scale. ORW_F2= *ORWELL* physical scale. *ORWELL* O= *ORWELL occurrence*. *ORWELL* R= *ORWELL relevance*. *POMS* T= = anxiety scale. *POMS* D= depression scale. *POMS A*= hostility scale. *POMS V*= vigor scale. *POMS S*= fatigue scale. *POMS C*= confusion scale. *IIP,* 1= domineering/controlling scale. *IIP,* 2= vindictive/self-centered scale. *IIP,* 3= cold/distant scale. *IIP,* 4= socially inibited scale. *IIP,* 5= non assertive scale. *IIP,* 6= overly accommodating scale. *IIP,* 7= self-sacrificing scale. *IIP,* 8= intrusive/needy scale. *BIAI*_S_N= *BIAI* negative affect about appearance scale. *BIAI_S_P*= *BIAI* positive affect about appearance scale. *BIAI_C_S*= suicide-related rumination scale. *BIAI_C_P*= *BIAI* physical appearance practices.

Discussion

This study aimed to investigate whether obese binge eaters have higher level of psychological distress than no binge eating obese individuals, regarding interpersonal relationships, self-esteem, quality of life, and mood states.
The findings of our study can be summarized in two main points. First, our data show that the presence of binge behaviors in obese subjects is associated with increased psychological distress, characterized by lower self-esteem, worse quality of life, with regard to psychosocial and physical aspects as well, and more mood problems. About the last point, the obese individuals with binge eating reported higher levels in all areas that have been investigated: depression, fatigue/laziness, tension/anxiety, confusion and aggressiveness.
Regarding the study of interpersonal relationships, some studies have suggested the presence of a not very cohesive and supportive relational system in binge eaters obese subjects (Riener et al., 2006), in spite of the specific arrangements put in place by obese individuals in managing relationships. From our study, these relationships are characterized by unassertive, overly accommodating and protective behaviors towards the others.
Finally, the increased presence of binge eating behaviors is significantly associated with problematic issues concerning the perception of body image; this fact acquires a greater importance since the perception of body image is considered an important mediator between obesity and psychological distress (Friedman et al., 2002).
Although the presence of psychological distress in obese subjects with binge eating behavior has been highlighted in several works, yet few studies have evaluated both the multiple aspects of psychological distress experienced by obese subjects with binge eating behavior in a sample of consecutive patients.
The second core finding of this study is that the obesity level (BMI) is not correlated with binge eating behavior: in our sample the two groups of subjects (BED and non-BED obese subjects) have not a different level of obesity. There is recent clinical and research evidence that the psychological distress associated with binge eating is associated more with the severity of such conduct than with the level of obesity (Telch & Agras, 1996; Bulik et al., 2002): for example, a study of BED and non-BED obese subjects has shown that, although there was a similar BMI in the two groups, the problems related to weight and body shape were more severe in BED subjects (Allison et al., 2005).
The lack of difference between BED obese women and BED women without additional diagnosis of obesity, in relation to eating psychopathology, depression and personality disorders, showed the independence between issues associated with BED and obesity levels (Barry, Grilo & Masheb, 2003). In the same way, psychiatric or eating disorders problems have not been found in overweight, obese and severely obese women (Didie & Fitzgibbon, 2004). Finally, the worst quality of life of obese subjects seems associated more with binge behavior than obesity degree.
In our study obese binge eaters subjects show a significantly worse quality of life than non-binge obese subjects, even though the two groups did not differ in the BMI degree. This finding is coherent with Rieger et al. (2005) that found that as BED obese subjects have a worse quality of life (work, social life, sexual relations) than non-BED obese subjects, despite not finding different levels of BMI in both groups.
Although the diagnostic validity of BED is still debated (Latner & Clyne, 2008), there is no doubt that binge eating behaviors are associated with psychological distress often characterized by eating disorders and psychiatric morbidity. There is a still-open debate on whether to consider BED as a specific disorder or an obesity psychopathological markers (Stunkard & Allison, 2003). We know that obese subjects who also have a diagnosis of BED are in greater demand for psychological counseling or psychotherapeutic interventions compared with obese subjects without diagnosis of BED (Yanovski et al., 1993; Ramacciotti et al., 2008).
Clinically, the results of these studies support the importance of following a diagnosis of BED in obese patients requiring treatment (medical or psychological), since there are differences between these two types of psychopathological subjects.

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