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Research Article

Binge Eating Disorder in obese patients suffering from psychosis and mood disorders

Abstract

Purpose: The aim of the study was to investigate the possible impact of Binge Eating Disorder (BED) on quality of life (QoL), social anxiety, and perceived mental health in obese patients suffering from psychosis and mood disorder.

Methods: Two hundred obese individuals suffering from psychosis and mood disorder who applied at a program for weight loss were approached during their first visit to the program. One hundred and ninety-six of the patients participated in the study. Participants' weights and heights were measured prior to the administration of the questionnaires. Each participant completed the World Health Organization-Brief Quality of Life Assessment Scale, the General Health Questionnaire, the Social Physique Anxiety Scale, and a questionnaire on dietary and activity habits.

Results: Sixty-nine participants (35.2%) were found to suffer from BED according to DSM-V criteria. The comparison between the BED and non-BED participants showed that the Body Mass Index (BMI) of the BED/psychosis group (mean: 35.4) was higher (Mann-Whitney U test: p=0.04) than the non-BED/psychosis group (mean: 31.8). Also the BED/mood disorders group showed lower than the non-BED/mood disorder scores in all the QoL measurements, general health (total score and depression sub-scale) and social physique anxiety measurements. Furthermore, the psychological domain of QoL was the factor that differed between the BED and non-BED group (OR= 9.8, p=0.02) indicating thus that the group of obese mental health patients that is suffering from BED is highly burdened with low psychological quality of life.

Conclusion: BED in psychotic obese patients is related mainly with increased body weight while in mood disorder obese patients is related with a variety of perceived aspects of well-being.

Introduction

Weight gain induced by psychiatric medication, and more specifically, atypical antipsychotic, is quite frequent, occurring in up to 50% of patients [1,2]. This weight gain has been associated with an increase in caloric intake probably due to appetite and/or satiety alterations caused by the medication [3]. Sedation caused by the medication and schizophrenia's negative symptomatology seem to play an important role in reduced physical activity, thus contributing further to weight gain.

Binge Eating Disorder (BED) is a relatively newly described eating disorder. It is characterized by recurrent episodes of uncontrollable consumption of large amounts of food that are not followed by any kind of compensatory behaviors (e.g., purging, fasting, extreme exercise) [4]. BED has been found to be highly prevalent among individuals seeking treatment for obesity [5,6]. Furthermore, obese patients suffering from BED seem to have higher psychiatric comorbidity, poor body image evaluation, and lower self-esteem [5,7,8].

BED or sub-threshold binge eating symptomatology has often been observed in obese patients suffering from severe mental disorders such as psychosis or mood disorders. It has been reported that BED has an average prevalence of 5-20% in the schizophrenia population (approximately 5 times higher than in the general population) [9]. Khazaal et al. [2], found that among severe overweight (Body Mass Index (BMI)=28-30) and obese subjects (BMI >30), 60% of patients suffering from schizophrenia and 30% of controls had also binge-eating symptomatology. Considering mood disorders, a recent meta-analysis of 17 epidemiological studies examining the relationship between obesity and depression found a pooled odds ratio (OR) of 1.18, such that the odds of being depressed were 18% higher in obese vs. non-obese persons [10]. Yanovski

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et al., l have reported that obese patients with BED had a much higher rate of depression than those without BED and that the severity of obesity did not have an impact on the rate of depression [11].

The aim of the present study was to investigate the impact of BED in obese patients suffering from psychosis and mood disorders. The variables that were chosen in order to measure this impact were self-assessed quality of life (QoL), general mental health, social anxiety concerning body image, physical activity and dietary habits. Our hypothesis, based on the literature findings, was that the presence of BED would had a negative effect on mental health and QoL and that the group of patients suffering from BED would probably have fewer healthy nutrition habits and less physical activity.

Materials and Methods

The study was performed in accordance with the Declaration of Helsinki of the World Medical Association. All patients signed an informed consent form for this research.

Participants

Two hundred patients suffering from a mental disorder were approached during their first visit at a specialized facility ("Eph Zein," meaning "Living Well" in Greek) for obese patients suffering from a mental disorder. The facility offered free physical examinations and nutritional counseling for weight loss. Inclusion criteria were a DSM-V diagnosis of psychosis (schizophrenia, delusional, or schizoaffective disorder) or mood disorder (major depression, bipolar disorder) and a Body Mass Index (BMI) over 28. Exclusion criteria were opiate, alcohol, or cocaine dependence and impossibility to give written informed consent. Psychiatric diagnoses of psychosis/mood disorder and BED were established according to the DSM-V criteria by one psychiatrist (FG) based on clinical interviews and the diagnoses provided by the referring psychiatrists. One patient refused to participate, and 3 patients were unable to complete the questionnaires due to the severity of their psychotic symptomatology.

Overall, 196 patients were included in the study. Seventy of them were suffering from psychosis and 196 from a mood disorder. Of the 196 participants, 69 (35,2%) fulfilled the DSM-V diagnostic criteria for BED, while 127 (64,8%) did not meet the criteria for the diagnosis of BED.

Measurements

In order to calculate participants' BMI, their weights and heights were measured using a calibrated digital scale and stadiometer during their physical assessment by the Eph Zein dieticians. All patients were weighed in light, indoor clothing.

Each participant was asked to complete the following questionnaires:

a) The World Health Organization-Brief Quality of Life Assessment Scale (WHOQOL- BREF). This is a self-administered instrument that can be completed within five minutes. It accounts for the abbreviated 26-item version of World Health Organization Quality of Life Assessment Scale (the WHOQOL-100 version) [12]. It is widely used to measure QoL in clinical populations [13]. WHOQOL- BREF examines QoL in a four-domain structure: Physical Health, Psychological Health, Social Relationships and Environment. All items are scored on a 5-point Likert-type scale. The questionnaire has been standardized in Greek populations [14], and it has been widely used both in clinical and non-clinical studies in Greece [14-16]. The Greek version of WHOQOL-BREF includes four national items following WHO guidelines for the development of new language versions, displaying excellent validity, sensitivity, and test/retest reliability [14]. The national items represent four additional facets: Nutrition, Work Satisfaction, Family Life, and Social Roles/Activity. They are scored within the relevant domains of Physical Health and Social Relationships, since they have been found to strengthen the power of these domains [14].

b) General Health Questionnaire (GHQ-28). The General Health Questionnaire is a well- known self-report measure of common psychiatric symptoms widely used in clinical and non-clinical populations [17]. The instrument examines four areas of health in the following sub-scales: (a) somatic symptoms, (b) anxiety and insomnia, (c) social dysfunction, and (d) severe depression. The questions are rated on a Likert-type scale from 0 to 3. Psychometric properties of the 28-item Greek version are reported as satisfactory [18].

c) Social Physique Anxiety Scale (SPAS). Social Physique Anxiety Scale measures social anxiety that is related to the way the person perceives his/her appearance by other people [19]. The questionnaire consists of 12 items that are rated on a Likert-type scale from 1 to 5. The adaptation of the questionnaire and the study of its validity in the Greek language have been conducted by Psychontaki et al. in 2004, (unpublished data) and it has been used to study eating disorder symptomatology in non-clinical populations [20].

d) Questionnaire on dietary and nutritional habits. The questionnaire recorded whether the participant used to have breakfast, lunch, snacks, and dinner most days of the month. The possible answers were "yes" or "no".

e) Questionnaire on psychical activity. The questionnaire consisted of two parts that recorded the participant's physical activity during the last month. The first part of the questionnaire recorded any kind of formal exercise (e.g., gym, sport, indoor exercise) and outdoor mild physical activity (e.g., going for a walk). The participant was asked if he/she participated in this kind of activity at least once a week (yes/no answers). The second part of the questionnaire recorded the daily time that the participant was spending watching television or using his/her PC/laptop.

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Statistical analysis

The statistical analysis investigated the differences between the group of patients that were suffering from BED and the group that did not meet the diagnostic criteria for BED (non-BED group). For quantitative data, due to the small size of the sample, the Mann-Whitney U Test was used to test these differences. For qualitative data, chi square was used. Subsequently, a binary stepwise logistic regression was used to investigate further independent factors that could differentiate the two groups. Nagelkerkle R2 was used to calculate the level of BED variance (yes/no) that can be explained by the model produced by regression analysis. Finally, the Hosmer-Lemeshow test was used to determine whether the model produced by logistic regression possessed goodness of fit. The statistical analysis was conducted with SPSS v20 software.

Results

Demographic, Somatometric and Clinical data

There was no statistical significant difference between the two group of patients considering the percentage of them that were suffering from BED (psychotic disorders: 20 out of the 70 (28.6%), mood disorders: 49 out of 126 (38,9%)). Demographic, somatomentric, and clinical data of the two groups are presented in table 1. Chi square showed that more patients in the BED/mood disorders group were married that in the non-BED/mood disorders group (p=0.003). Mann-Whitney U testing showed that the BED/psychosis group had significantly higher BMI than the non-BED/psychosis group (p=0.04). Also, the non-BED/mood disorder group reported higher level of education that the BED/mood disorder group (p=0.05).

Quality of life, general mental health and social physique anxiety

The mean scores of the three measurements are presented in Table 2. While for the patients that were suffering from psychosis Mann-Whitney U testing did not show any significant difference between the two groups, for the mood disorder patients Mann-Whitney U showed that the BED group reported (at the 0.05 level of significance) poorer QoL measurements, increased social physique anxiety as it was measured by SPAS and poorer general health (total score and depressive symptomatology sub-scale) (Table 2).

Activity and nutritional habits

The two groups did not differ in the reported frequency of daily meals with the exception of dinner in the mood disorders group. More BED/mood patients reported that they were having dinner on a regular basis that non-BED/mood patients (p=0.02) (Table 3). The most frequent meal for all groups was lunch.

Concerning behaviors related to either mild activity and formal exercise there was no statistical difference between the BED and non-BED groups (Table 3). Also, Mann-Whitney U did not show any difference between the BED and non-BED groups in the hours spend daily in front of the TV or PC/laptop.

Finally, logistic regression analysis showed that when the results of WHOQOL-BREF, GHQ-28, SPAS, age, BMI and diagnosis (categorical variable) were entered as dependent variables, WHOQOL-BREF Psychological Health was the only variable that could differentiate the two groups (OR= 9.8, p=0.02). The Hosmer-Lemeshow test was not significant (p=0.2), indicating that the model produced by regression analysis possessed goodness of fit. Nagelkerkle R^2 was calculated at 0.09, a result that indicated that WHOQOL-BREF Psychological Health can account for only 9% of the difference between BED and non-BED obese participants.

Table 1: Demographic, Somatometric, and Clinical Data.

Demographic, Somatometric, and Clinical Data	Psychotic disorder		Mood disorder	
	BED Group	Non-BED Group	BED Group	Non-BED Group
Gender (female)	12 (60%)	31(62%)	42 (85.7%)	59 (76.6%)
Full- or part-time job (yes)	8 (40%)	16 (32%)	25 (51%)	42 (54.5%)
Marital status (married)	6 (30%)	12 (24%)	35 (71.4%)	34 (44.2%)[1]
Age (mean and SD)	35.5± 10.2	39.1±13.3	43.8±10.1	42.6±13.5
Years of education (mean and SD)	12.7 ± 3.1	12.7 ± 4	11.8 ±3.1	13.4 ±3.4[2]
BMI (mean value and SD)	35.4 ± 4.9	31.8 ± 6.8[3]	33.8±7.1	33.5±7.3

[1]: p=0.003, [2]: p=0.05, [3]: p=0.04.

Table 2: Quality of Life, General Mental Health, and Social Physique Anxiety.

Measurements: Mean and SD	Psychotic disorder		Mood disorder		
	BED Group	Non-BED Group	BED Group	Non-BED Group	P value
WHOQOL-BREF physical health	13.2±1.9	12.9±2.5	11.8±2.7	13.5±2.5	0.04
WHOQOL-BREF psychological health	12.3±2.9	12±2.7	10.8±2.7	12.4±2.9	0.03
WHOQOL-BREF social relationships	12.9±2.8	12±2.8	11.5±2.7	12.5±2.8	0.05
WHOQOL-BREF environment	13.6±2.3	12.8±2.1	12.1±1.9	13±2.2	0.05
GHQ-28 total	0.9±0.6	0.9±0.6	1.2±0.5	1±0.7	0.05
GHQ-28 somatic symptoms	1.1±0.6	1±0.7	1.2±0.7	1±0.7	0.09
GHQ-28 anxiety and insomnia	0.9±0.6	1.4±2.7	1.4±0.7	1.1±0.7	0.08
GHQ-28 social dysfunction	1.1±0.6	1.1±0.5	1.3±0.6	1.2±0.7	0.09
GHQ-28 severe depression	0.8±0.9	0.7±0.8	0.9±0.8	0.6±0.7	0.05
SPAS	40.1±5.8	37.5±7.9	44±8.2	39.5±9.3	0.03

Table 3: Activity and Nutritional Habits.

Activity and Nutritional Habits	Psychotic Disorder		Mood Disorder	
	BED Group	Non-BED Group	BED Group	Non-BED Group
Breakfast (yes)	7 (35%)	35 (62.5%)	22 (44.9%)	37 (48%)
Lunch (yes)	14 (70%)	40 (80%)	35 (71.4%)	53 (68.8%)
Morning and/or evening snacks (yes)	9 (45%)	20 (40%)	22 (44.9%)	23 (29.8%)
Dinner (yes)	13 (65%)	32 (64%)	35 (71.4%)	38 (49.4%)[1]
Exercise at least 1/week (yes)	5 (25%)	9 (18%)	4 (8.2%)	9 (11.7%)
Mild activity at least 1/week (yes)	13 (65%)	33 (66%)	30 (61.2%)	48 (62.3%0
time spent on TV daily (Mean and SD)	2.3±1.6	2.1±1.7	2.5±1.6	2.4±1.3
time spent on PC daily (Mean and SD)	1.74±1.9	1.24±1.6	1.8±1.9	2.2±2.2

[1]: p=0.02

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Discussion

The study provided three major findings. The first was that a large portion of obese individuals that were diagnosed with psychotic and mood disorders was also suffering from BED. This finding is in accordance with other studies in the literature that have reported increased frequency of BED in populations of obese mental health patients [2,9,11]. There has yet to be an explanation of this relationship, as it not quite certain if the psychiatric medication that has been "incriminated" for weight gain can also cause binge-eating symptomatology. Another hypothesis for the comorbidity of psychotic and mood disorders with BED could be related to the possible "addictive" nature of palatable food. "Food addiction," which may play an important role in binge-eating behaviors through the dopaminergic modulation of the reward system in the brain [21-23], could also be related to negative psychotic and depressive symptomatology [21,24-25]. Some of the authors that have studied the reward deficiency syndrome have suggested that, similarly to substance abuse and BED, the syndrome can also be observed in schizophrenia [24].

The second finding was that, concerning the psychosis group, BMI was the only measurement that clearly differed between the BED and the non-BED group. It is a common finding in the literature that BED is over-represented in morbidly obese populations and, more specifically, among those individuals that seek surgical help for obesity [5,6]. It is understandable that obese individuals who binge frequently would probably end up with higher BMI's than the ones who are obese, but do not suffer from BED [26]. The presence of binge eating was not found to have any significant impact on social anxiety concerning physical appearance or the general mental health of the individual. There are some possible explanations for this result. The first is that the sample size (especially the BED group, consisting of only 20 participants) was too small to reveal possible differences between the two groups. Another explanation is that the effect size of both psychosis and obesity on QoL, general mental health, and social anxiety is so great that the add-on of BED does not have a major impact on the subjective evaluation of these variables. QoL in particular has been found to be greatly diminished by obesity [27,28] and psychosis [29,30]. More specifically, high BMI in obese populations [28] and negative symptomatology in schizophrenia [30], seem to have a strong negative impact on patients' QoL.

The third finding was that, concerning the mood disorders group, the patients that were suffering from BED showed more social anxiety concerning their physical appearance, poorer quality of life in all the domains measured by WHOQOL-BREF and poorer general health. A number of research has shown that BED is highly correlated to both depression and bipolar type II disorder [31,32]. According to the study's results the group of obese individuals that is suffering from both BED and mood disorder is far more burdened that the group of the obese individuals that is not suffering from BED. A recent review of the literature on obesity and BED have shown that both conditions are related with adverse life experiences [33]. More precisely a positive association between traumatic experiences and obesity as well as trauma and the development of BED in adulthood was found, respectively in 85% and 90% of the reviewed studies [33]. In line with these findings two possible mediators between past traumatic experiences and BED in obese individuals have been proposed: the hyper-activation of HPA axis with an exaggerated cortisol response to stress that leads to stress-induced eating and obesity as well as the dissociative nature of binge eating [33]. Needless to say depression was highly prevalent to obesity and BED in most of the reviewed studies [33].

The study's results showed that when all the patients were grouped together the main difference between the BED and non-BED group was the psychological domain of QoL. This finding is in accordance with the literature that has shown that the mental health of the obese individuals that are suffering from BED is highly burdened and in multiple ways [33].

The main limitations of the study were three. Firstly the size of the psychotic disorder group was smaller than the size of the mood disorders group. This could possibly account for the fewer differences that were found between BED and non-BED patients in this group. The second limitation was that considering the nutritional and activity habits the participants were asked to retrospectively answer about these habits thus reducing the credibility of the measurement. Finally the generalisation of the results in not easily feasible as all participants were recruited at a certain service for obese mental health patients.

Conclusion

In conclusion, obesity in psychotic and mood disorders patients seems to be highly comorbid with BED. The presence of BED is related to higher BMI in psychotic patients and lower QoL, general health and social physique anxiety in obese patients suffering from a mood disorder. In general the psychological health of individuals that are obese and suffering from a mental disorders and BED seems to be much worse compared to those that are not suffering from BED. Further investigation with larger samples of patients on parameters such as chronicity of BED, age of onset and the presence of mediators such as traumatic experiences is warranted.

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