Eating disorders in a sample of Egyptian women with bipolar I disorder

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Introduction
Eating disorders are relatively common among patients with bipolar disorder. Overweight, obesity, and extreme obesity are common in this patient group. Eating disorders in these patients not only increase the risk for further episodes but also have a detrimental effect on the body and may eventually prove fatal if left untreated.

Aim of the study
To assess eating disorders in female bipolar patients and the relation between eating disorders and both obesity and disturbed body image in these patients.

Participants and methods
A case–control cross-sectional study, in which 60 female bipolar patients were recruited from the Psychiatric Department and clinic of Kasr al Aini Hospital and compared with 30 female healthy controls.

Psychometric procedure
The Hamilton Depression Rating Scale, the Young Mania Rating Scale, the Eating Disorder Test, and the Body Image Scale were used and BMI was determined.

Results
There was a statistically significant difference between the case and the control group in terms of eating disorders as 80% of the cases had eating disorders compared with only 16.1% of the control group ($P = 0.000$). The eating disorders were most frequent during a manic episode (100%), followed by a mixed episode (92.9), a depressive episode (90.9%), and finally euthymia (41.4%). There was also a statistically significant difference between the case and the control group in terms of disturbed body image as cases reported more disturbed body image ($P = 0.000$). There was no statistically significant difference between the case and the control group in terms of obesity, but we found a positive correlation between obesity and disturbed body image in the case group.

Conclusion
Eating disorders are more frequent in female bipolar disorder patients, especially during a manic episode; also, obesity is common among these patients, especially those who take atypical antipsychotics, and these obese patients have a more disturbed body image.

Keywords:
body image, eating disorder, female bipolar, obesity

Introduction

Eating disorders are relatively common among individuals with bipolar disorder (BD). Although few studies have been conducted on this, researchers believe that patients with BD use eating as a coping mechanism for their illness. Medications can also trigger feelings of hunger as a side effect in some patients. According to studies, about 25.5% of BD patients have some kind of eating disorder such as binge eating disorder (BED) and bulimia nervosa (BN). The similarities between these disorders are more apparent on phenomenological grounds: eating dysregulation, mood dysregulation, impulsivity and compulsivity, and craving for activity and/or exercise (McElroy et al., 2005). Brietzke et al. (2011) found that female patients with an eating disorder had an earlier onset of BD and an increased number of mood episodes, predominantly depressive. Women with an eating disorder also had higher rates of comorbidity with substance use disorders and anxiety disorders and reported a history of suicide attempts more frequently than women without an eating disorder. Eating disorders in patients with BD can result in many risks to the patient including obesity, physical inactivity, and intake of too much carbohydrate (McElroy et al., 2005; Campos et al., 2011). Even in patients with previous depression and hypomania, clinically significant weight gain in BD begins following the first manic episode, suggesting that it is primarily related to treatment with mood stabilizers and second-generation antipsychotics (Bond et al., 2010).

Cardiovascular disease is the leading cause of mortality in persons with BD, but little is known about the utilization of services for risk reduction. Access to weight counseling in a sample of patients with BD may decrease the risk (Goodrich *et al.*, 2010). In bipolar patients, obesity and overweight are frequently associated with perturbations in the lipid profile, particularly an increase in total cholesterol, low density lipoprotein (LDL) and lipoprotein (LP), and a decrease in high density lipoprotein (HDL), which increases the risk of cardiovascular disease (Ezzaher *et al.*, 2010). Overweight/obesity, insulin resistance, and other types of metabolic dysfunctions are common in patients with BD; however, the pathophysiological underpinnings of metabolic dysfunction in BD are not fully understood. A family history of type 2 diabetes mellitus, which has been shown to have deleterious effects on metabolic function in the general population, may play a role in the metabolic dysfunction observed in BD (Rasgon *et al.*, 2010).

In addition, obesity among participants with BD was positively associated with older age, female sex, comorbid anxiety and medical conditions, and depression-related treatment, and negatively associated with past-year substance use disorder (Goldstein *et al.*, 2011). Screening for eating disorders in bipolar patients is warranted, as an intervention may minimize distress and improve the treatment outcome (Wildes *et al.*, 2007).

Aim of the study

The aim of this work is to identify and assess eating disorders in women diagnosed with bipolar I disorder and to determine the relation between eating disorders and both obesity and disturbed body image in these patients.

Participants and methods

Participants

A total of 90 women participated in this research, including 60 patients known to have BD type I and 30 controls well matched for age, educational level, and marital status. All the patients were recruited from the Kasr al Aini Psychiatric Clinic and Department. Patients included fulfilled the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV), criteria for BD type I (manic, depressive, mixed episode, and in remission) and ranged in age between 18 and 60 years. All patients with BDs because of a general medical condition especially those known to affect eating habits such as diabetes mellitus (DM) and Cushing syndrome, organic brain disorder, and Axis II disorders were excluded. None of the control participants had a past history of psychiatric or neurological disorders or a family history of psychiatric disorders.

Tools

Semistructural interview

A specially designed semistructural interview derived from the Kasr al Aini psychiatric sheet was used to determine demographic data, personal data, past history, and family history. A diagnosis was made according to the DSM-IV criteria (American Psychiatric Association, 2000).

Young Mania Rating Scale

The Young Mania Rating Scale was developed in 1978, and the inter-rater reliability for scale is high (Young *et al.*, 1978). The choice of items was made on the basis of published descriptions of the core symptoms of the manic phase of BD and includes abnormalities that exist over the entire range of illness, from mild to severe. Depressive symptoms are not assessed. The severity rating for each of 11 items is based on the patient's subjective report of his or her condition over the previous 48 h and on the clinician's behavioral interview, with an emphasis on the clinician's observations. Scoring for the items is made on a five-point scale, with different descriptions for each. Four items are given twice the weight of the remaining seven to compensate for poor cooperation from severely ill patients.

Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960)

The Hamilton Depression Rating Scale is a 17–21-item observer-rated scale that assesses depressive symptoms. It is a widely used instrument for the clinical assessment of depression. It was later expanded by Klerman, (1990) to include 24 items. The scale is intended to measure the severity of the symptoms in patients with a diagnosis of primary depressive disorders.

Eating Disorder Test (Arabic version) (Shokeer, 2002)

This test was formulated by Marshall (1998), who considered it as a personal report to assess eating disorders. It is intended to assess eating behavior, weight and body image, and certain psychological factors such as self-confidence and self-orientation. A previous version included 64 items. Now, it includes 40 items; every item is answers in three grades from totally accepted (2), partially accepted (1) and totally not accepted (0). The cut-off score equals 20; a score higher than 20 is indicative of an eating disorder.

Body Image Scale (Shokeer, 2009)

It is a scale based on the premise that body image is a mental picture of the body at the time of rest and movement. It is a self-rated scale comprising 26 items. Totally accepted (2), partially accepted (1) and totally not accepted (0).

The statistical analysis

Data were statistically described in terms of mean ± SD or frequencies (number of cases) and percentages when appropriate. Comparison of numerical variables between the study groups was carried out using the Student *t*-test for independent samples. To compare categorical data, the χ^2-test was performed. The exact test was used when the expected frequency was less than 5. The correlation between various variables was assessed using the Spearman rank correlation equation for non-normal variables. *P* values less than 0.05 were considered to be statistically significant. All statistical calculations were carried out using computer programs Statistical Package for the Social Science (SPSS; SPSS Inc., Chicago, Illinois, USA) version 15 for Microsoft Windows.

Results

The sample comprised 60 female patients (mean age 31.37 ± 7.006) and 30 healthy women (mean age 31.32 ± 6.690), with no significant difference in age ($P = 0.709$). There were no statistically significant differences in other sociodemographic data (marital status, education, and occupation).

Table 1 shows that the case group suffered more from eating disorders and the differences between the two groups were highly significant.

Table 2 shows that all the women in the case group who had a manic episode during assessment also had eating disorders, followed by those who had a mixed episode (92.9%), then patients had depressive episode (90.9) and lastly patients were in remission during assessment (41.2). The differences were highly significant.

Table 3 shows that there is no statistically significant difference between two groups in terms of BMI, but we found that 48.3% of the patients had moderate to high risk obesity, whereas 38.7% of the control group have moderate to high risk obesity.

Table 4 shows that body image was highly disturbed in the patient group than the control group and the difference was highly significant.

Table 5 shows that there was a positive correlation between the BMI and body image, but no correlation was found between the BMI and eating disorders.

In terms of the effect of using psychotropic medications on BMI, 90% of the patients who were taking atypical antipsychotics were obese, 62% of the patients who were taking typical antipsychotics were obese, 54% of patients using mood stabilizers were obese, and 56% of the patients who were on a combination of the medication (typical and atypical) were obese.

Discussion

Eating disorders appear to occur more frequently in individuals with BD. According to a recent study, more than 14% of patients with BD also have an eating disorder, and these individuals are likely to have a more severe course of illness. BD may co-occur with eating disorders, and this relationship may be clinically and theoretically significant (Jones, 2010). Our study found that 80% of the bipolar patients had an eating disorder compared with 16% of the control group and the difference was statistically significant. This is in agreement with McElroy *et al.* (2005), who reported that among adults, patients with BD have higher rates of eating disorders, and vice versa.

Different studies have found the presence of eating disorders in bipolar patients, but our results yielded a higher percentage than these studies. Fornaro *et al.* (2010), who carried out their study on 148 bipolar patients, found that 31% reported a lifetime history of at least one eating disorder. In addition, Wildes *et al.* (2007), in a study aimed at documenting eating disorder symptoms in a well-defined sample of patients with BD and to evaluate the relationship of current loss of control over eating with demographic and clinical features, found that 21% of the participants fulfilled the DSM-IV criteria for a lifetime eating disorder and 44% reported a history of loss of control over eating. This difference in the percentage of eating disorders between our study and different studies may be because of the differences in the food habits between different cultures, and our study was carried out only on women with BD, in whom eating disorders are high in general.

Eating disorders with BD can cause many risks to the patients. These risks may not only exacerbate the BD but may also have a detrimental impact on the body and may eventually prove fatal if left untreated. The risks include obesity, physical inactivity, and intake of too much carbohydrate. Our study found that 68.3% of bipolar patients were obese compared with 71% of the control group, but this difference was not statistically significant

Table 1 Eating disorders in both groups

	Group of patients (%)	Control group (%)	P
Presence of eating disorders	80	16.1	0.000
Absence of eating disorders	20	83.9	

Table 2 The frequency of eating disorders in different types of episodes in group of patients

	Manic (%)	Mixed (%)	Depressive (%)	Euthymia (%)	P
Eating disorder	100	92.9	90.9	41.2	0.000

Table 3 Body mass index in both groups

BMI	Group of patients (%)	Control group (%)	P
Normal (20–25)	31.7	29	0.542
Mild obesity (25–30)	20	32.3	
Moderate obesity (30–35)	38.3	29	
Severe obesity (35–40)	6.7	9.7	
High risk obesity (40–50)	3.3	0	

Table 4 Body image disturbance in both groups

Body image	Group of patients	Control group	P
Mean	22.4	10.9	0.000
SD	12.52	6.3	

Table 5 Correlation between body mass index, eating disorder, and disturbed body image in the patient group

Variables	R	P
BMI and body image	0.380	0.003
BMI and eating disorder	0.025	0.848

($P = 0.542$). We also found that 48.3% of the patients had moderate to high risk obesity, whereas 38.7% of the control group had moderate to high risk obesity. These results can be attributed to the food habits of our culture, with a high intake of sweets, carbohydrates, and fat, which predispose them to obesity, but we cannot ignore the effect of eating disorders on our patients, which resulted in 48.3% of the patients being categorized as having moderate to high risk obesity.

This was in agreement with McElroy *et al.* (2002), who reported cultural variations in the prevalence of obesity between different cultures; they found that American bipolar patients had significantly higher mean BMIs and significantly higher rates of obesity and extreme obesity than European patients, although it was unclear whether their prevalence rates were truly elevated, because overweight and obesity are increasingly common public health problems among the general population.

Our results indicated a relationship between obesity and types of medications used by the patients, where 62% of bipolar patients who were taking typical antipsychotics were obese, 90% of bipolar patients who were taking atypical antipsychotics were obese, only 54% of patients using mood stabilizers were obese, and 56% of the patients who were on a combination of medications (typical and atypical) were obese. The differences between the previous groups were statistically significant (*$P = 0.01$). The above findings indicate that BD, overweight, and obesity are national public health problems. Overweight and obesity also appear to be related to mood disorders, and patients with BD, in particular, may be at a greater risk for overweight and obesity than individuals in the general population. This risk may be because of factors associated with the illness itself and/or the medications used to treat BD. Our results are in agreement with Torrent *et al.* (2004), who reported that obesity and overweight in BD are partly related to prescribed drugs specially clozapine and olanzapine. Lesser but still significant weight gain may be caused by quetiapine, risperidone, lithium, valproate, gabapentin, and by some other antidepressants. Ziprasidone, aripiprazole, carbamazepine, and lamotrigine do not seem to cause significant overweight. In contrast to our results, Schoofs *et al.* (2011) found that binge eating and overweight are common comorbidities in unmedicated participants with BD. Also, Castrogiovanni *et al.* (2009) reported no association between the BED score and the medications used.

Management of both a BD and an eating disorder can be challenging. For example, antidepressants are often used to treat eating disorders, but these medications are not recommended for bipolar patients, as they may induce manic mood swings. Doctors also need to be careful when prescribing mood stabilizers or antipsychotics to bipolar patients who are either obese or binge eaters, as these drugs have been known to trigger binge eating episodes. Psychotherapy can be helpful for coping with eating disorders; family therapy and behavioral therapy are known to be beneficial in treating anorexia, bulimia, and binge eating (Brietzke *et al.*, 2011). Careful monitoring of weight changes in patients before and after drug prescription should be implemented in the clinical routine, and drugs that may potentially cause weight gain should be avoided in overweight patients with BD. Furthermore, eating habits and daily activities should be assessed as they may also have a significant impact on overall health and weight-related issues (Torant *et al.*, 2008).

In terms of the relation between the type of episode and eating disorder, our results showed that 100% of the bipolar manic patients had an eating disorder, followed by 92.9% bipolar mixed, 90.9% of the bipolar depressive type, and 41.2% in the euthymic phase. The above results are in agreement with the results of Ramacciotti *et al.* (2005), who reported the frequency of eating disorders in a group of bipolar patients. Most patients in this study developed binge eating coincident with the first episode of BD or after the onset of illness. This was true for those who developed BED as well as BN, and involved both manic and depressive phases. All BN patients were women, given the temporal sequence of the mood disorder, which generally preceded the eating disorder; we suggested a model in which the eating disorder evolves because of modulation of emotions with food, as well as the use of medications to treat BD that disrupt hunger and satiety mechanisms.

The above finding is in contrast to that of Jones (2010), who reported that individuals who also had an eating disorder were more often women and tended to have a more severe course of bipolar illness, with more mixed episodes, more previous episodes, more rapid cycling, and more suicide attempts. They also had on average a higher BMI, more obesity, or severe obesity. In addition, they were more likely to have a family history of substance abuse or mood disorders.

We found a disturbed body image in the patient group than the control group and a positive correlation between disturbed body image and BMI. This can be explained by Giusti and Panchaud (2007), who found that the psychological profile of obese patients with binge eating disorders is often characterized by decreased self-esteem, general dissatisfaction with life, impulsivity, phobias, and hostility. Thus, it is not surprising that the association of obesity with binge eating disorders is aggravated by the presence of psychic disorders, such as depression, anxiety, and BDs (Keck and McElroy, 2003). Finally, more research is required to identify the impact of specific risk factors for overweight and obesity in patients with BD. These data could be used to develop better strategies for weight gain prevention and treatment programs for those with BD.

Conclusion
Eating disorders are more frequent in female BD patients, especially during a manic episode. Obesity is common among BD patients, especially among those who take atypical antipsychotic medications. These obese patients have a more disturbed body image.

Limitations

The results in the present study should be interpreted in light of the following limitations:

(1) The small number of the study sample which might not be representative for bipolar patients, in addition the number of controls was less than cases. Although we confronted a great difficulty in having consent form controls with greater resistance in joining the study, yet this might affect our results and should be managed in future studies.

(2) Patients were recruited from Kasr al Aini psychiatric clinic and department with different profile of inpatients (with usually no patients in remission) than out patients groups. Even if we included both groups we should compare the results in the two groups with larger number of patients.

(3) Our study was cross sectional one, a longitudinal one with assessment of drug naive patients (before receiving any medications) and at follow up to detect the effect of medications on body weight might be helpful.

Acknowledgements

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