

Risk Factors for Obesity among Psychiatric Patients

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Abstract

Background: The relationship between obesity and common mental health disorders is complex. Because of the high prevalence of both depression and obesity and the fact that they both carry an increased risk for cardiovascular disease, a potential association between depression and obesity has been presumed and repeatedly been examined.

Aim: To estimate the prevalence and correlates of obesity among psychiatric patients in Abha city, Saudi Arabia.

Methodology: A descriptive cross-sectional approach was followed to include 250 patients attending the Psychiatry Hospital in Abha City, Saudi Arabia. Collected data included patients' demographic data, medical history, and received medications. Patients' body mass index (BMI) was assessed. Psychiatric history was extracted from patients' medical files for diagnosis and profile.

Results: Participant patients' age ranged from 18 to 75 years, with a mean age of 40.9±15.9 years. Normal weight was recorded among 37.2% of the sample and 27.6% of the patients had overweight while 35.2% were obese. Depression was the most frequently recorded psychiatric disease (40.4%) followed by anxiety (22.8%). There were significant associations between obesity and both depression and anxiety.

Conclusions and recommendations: Obesity is significantly associated with depression and other psychiatric diseases, while negatively associated with anxiety and obsessive compulsive disorder (OCD).

Key words: Obesity, body mass index, psychological disorders, prevalence.

Introduction

The growing prevalence of overweight and obesity in developed countries constitutes a noteworthy public health problem. World Health Organization (WHO) global estimates in 2014 reported that almost 40% of adults are overweight (body mass index [BMI] ≥ 25 kg/m²) with nearly a third of them obese (BMI ≥ 30 kg/m²) (1). Previous studies among general populations suggest that overweight or obesity bears a significant association with suffering from non-specific psychiatric morbidity (2) or specific psychiatric disorders, depression (3), anxiety disorders (3), suicidal conduct (5) and personality disorders (6).

Many studies reported significant associations between obesity and mood disorders. (7, 8). As the physical disturbances burden in obesity is well proved, [10], its relation to mental health is relatively less studied. In the last few decades, there was accumulating evidence for the relation between various psychiatric disorders and obesity (11, 12). Despite this, knowledge gaps still exist with regard to the magnitude and the nature of the association between obesity and various psychiatric conditions. Very few epidemiologic studies tested the relationship between obesity and anxiety or substance use disorders. Anxiety disorder recorded moderate positive relation with obesity in the community and clinic samples (13- 15). Alcohol abuse has been associated with lower risk of overweight and obesity (16).

In Saudi Arabia, obesity is one of the most common chronic health problems (17). Many studies have revealed that overweight and obesity have an upward trend (18). High prevalence of overweight (32%) and obesity (37%) among the adult population was recorded (19) whereas a recent study among male college students in Saudi Arabia also reported the prevalence of overweight (21.8%) and obesity (15.7%) (20). Many studies have covered obesity and psychological disorders trend independently in the Saudi community but very few have explored the relation between body mass index and psychological disorders. The main objective of this study was to explore the association between obesity and common mental disorders in Abha, Saudi Arabia.

Methodology

A descriptive cross-sectional approach was followed to include adult (aged 18 years or more) psychiatric patients attending the Psychiatry Hospital in Abha City, Saudi Arabia.

Patients were included after explaining the purpose of the study and after confirming confidentiality of their data. An informed consent was fulfilled out by the patient themselves or their caregiver. Patients with severe mental disorder or aggression and those with severe mental retardation were excluded. Data were extracted including patients' demographic data, medical history and medications received. Height was measured to the nearest 0.5 cm

with a standardized stadiometer, while body weight was measured to the nearest 0.1 kg with a calibrated scale. Body Mass Index (BMI) was mathematically calculated [(weight in kg)/(squared height in meter²)]. Psychiatric history was extracted from patients' medical files for diagnosis and profile.

Data analysis

Data were collected, revised, coded and fed into a computer using the statistical software IBM SPSS (version 22). Statistical analysis was done using two-tailed tests and alpha error at 0.05. P-values less than 0.05 were considered as statistically significant. Descriptive analysis based on frequency and percent distribution was done for all patients' demographic and clinical data including obesity and psychiatric disorders. Bivariate relation between patients' BMI and psychiatric disorders was tested using Pearson's chi-square test. Odds ratio with 95% confidence interval was estimated to detect the magnitude and nature of relation between obesity and psychiatric disorders.

Results

Participant patients' age ranged from 18 to 75 years, with a mean age of 40.9 ± 15.9 years. Male gender constituted 50.8%, most of them were married (52.4%), and the education levels were college (20.4%), secondary (26.8%), intermediate (25.2%), primary (16.4%) then illiterate (11.2%). The governmental employees constituted the majority of the sample (34.4%) and 58% were unemployed. Most of the sample (60.4%) recorded sufficient income (Table 1).

With regard to obesity (Figure 1), normal weight was recorded among 37.2% of the sample and 27.6% of the patients were overweight while 35.2% were obese.

Considering psychiatric disorders, depression was the most common (40.4%), followed by anxiety (22.8%), schizophrenia (16.8%), and phobia (10.4%) while Alzheimer and somatic disorders were the least recorded diseases (0.8% for each) (Figure 2).

Table 2 shows the relation between psychiatric disorders and obesity for the sampled patients. It was clear that the relation of obesity with depression showed highly significant association as depressed patients had 2.5 times more likelihood for obesity compared to non-depressed (OR 2.46 [1.44-4.2]). Anxiety was shown to be protective against obesity as anxious patients recorded 64% lower risk (OR=0.36 (0.17-0.73)). Also patients with obsessive compulsive disorder (OCD) 78% showed a lower risk for obesity (OR=0.22 (0.05-1.0)). As for dementia, and substance abuse schizophrenia showed increased risk of obesity with non-significant association. In total, patients with psychiatric disorder showed a highly significant association ($p < 0.001$) with OR 9.18 [2.54-33.2].

Table 1: Sociodemographic Data of Studied patients with psychological disorder in Abha city

Personal data		No	%
Gender	Male	127	50.8
	Female	123	49.2
Mental Status	Single	48	19.2
	Married	131	52.4
	Divorced	48	19.2
	Widow	23	9.2
Education	Illiterate	28	11.2
	Primary	41	16.4
	Intermediate	63	25.2
	Secondary	67	26.8
	University	51	20.4
Occupation Work Place	Governmental	86	34.4
	Private	19	7.6
	Retired/ not working	145	58.0
Income	Sufficient and save	52	20.8
	Sufficient	151	60.4
	Not sufficient	47	18.8
Residence at high altitude	Yes	32	12.8
	No	218	87.2
Age	Mean±SD	40.9±15.9	
	Min - Max	18-75	

Figure 1: Obesity among sampled patients with psychological disorder in Abha City

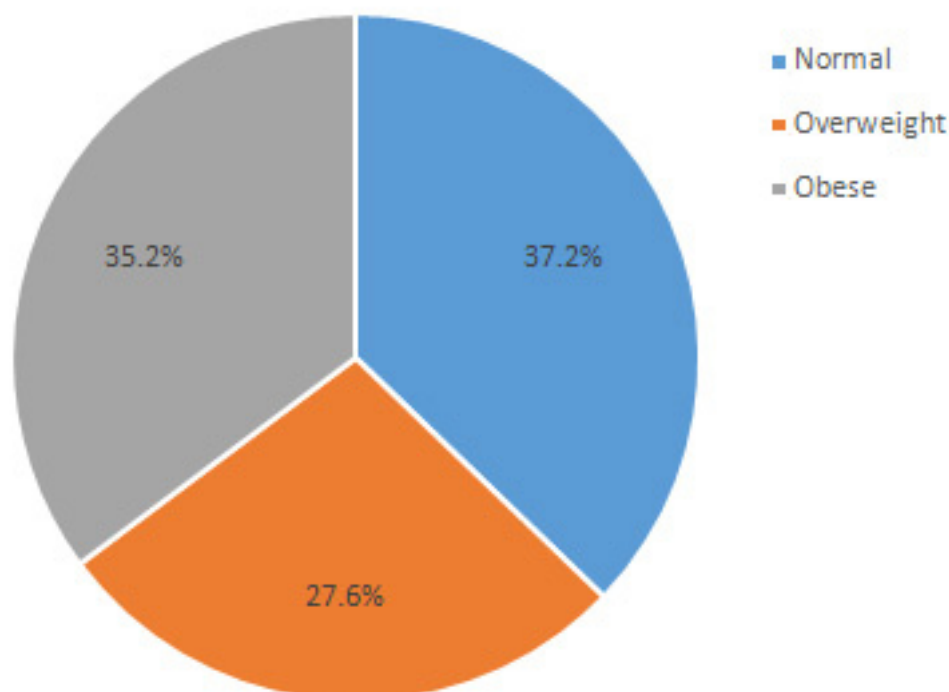


Figure 2: Psychiatric disorders among participants in Abha City

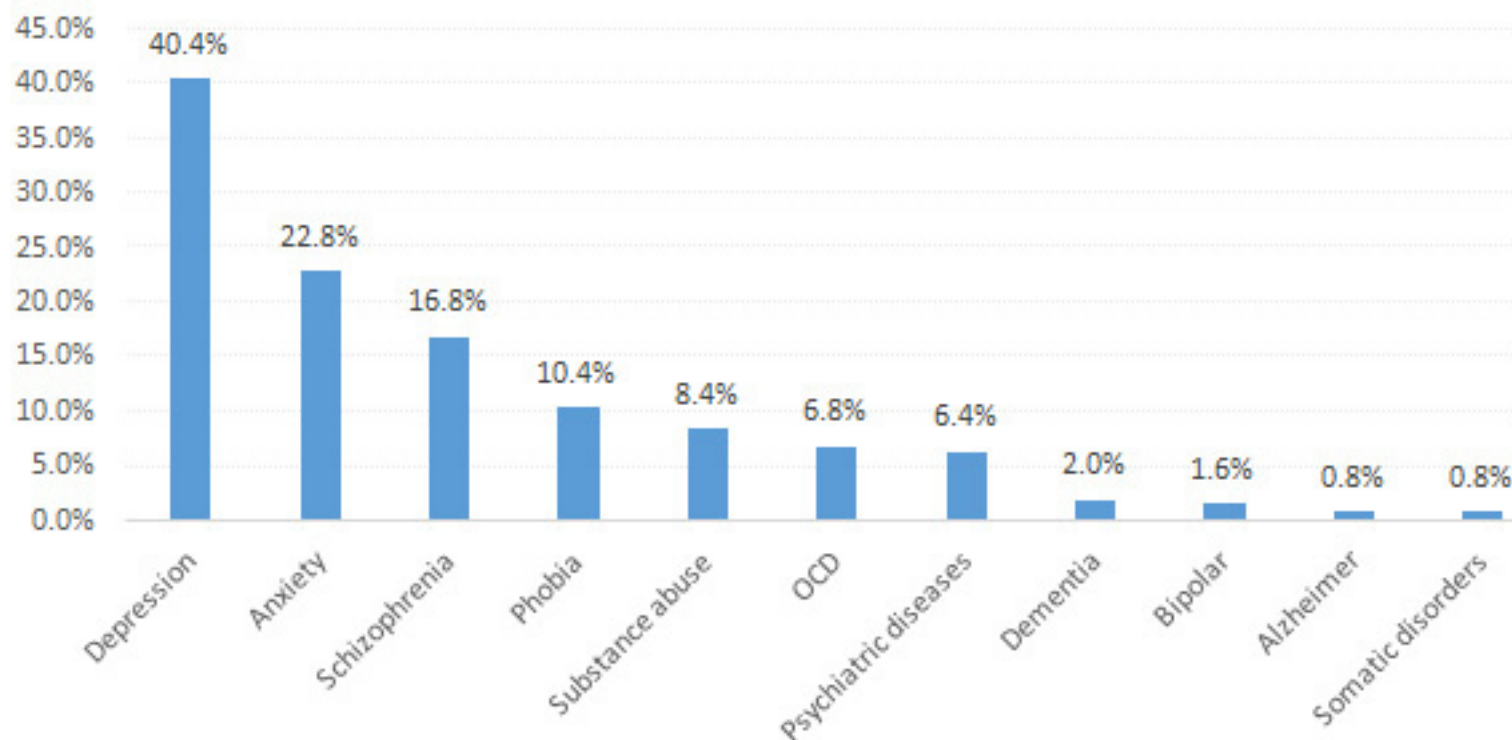


Table 2: Association between obesity and Possible psychiatric diseases among sampled patients in Abha city

Psychiatric disorder		Obese (n=88)		Non-obese (n=162)		P-value	OR (95% CI)
Depression	Yes	48	54.5%	53	32.7%	$\chi^2 = 11.2$ P = 0.001**	2.46 [1.44-4.2]
	No	40	45.5%	109	67.3%		
Anxiety	Yes	11	12.5%	46	28.4%	$\chi^2 = 8.18$ P = 0.004**	0.36 [0.17-0.73]
	No	77	87.5%	115	71.6%		
Phobia	Yes	7	8.0%	19	11.7%	$\chi^2 = 0.87$ P = 0.35	0.65 [0.26-1.6]
	No	81	92.0%	143	88.3%		
Dementia	Yes	0	0.0%	5	3.1%	$\chi^2 = 2.77$ P = 0.11	1.56 [0.96-1.71]
	No	88	100.0%	157	96.9%		
Substance abuse	Yes	10	11.4%	11	6.8%	$\chi^2 = 1.55$ P = 0.15	1.76 [0.71-4.32]
	No	78	88.6%	151	93.2%		
Schizophrenia	Yes	18	20.5%	24	14.8%	$\chi^2 = 1.29$ P = 0.25	1.47 [0.75-2.9]
	No	70	79.5%	138	85.2%		
OCD	Yes	2	2.3%	15	9.3%	$\chi^2 = 4.39$ P = 0.03*	0.22 [0.05-1.0]
	No	86	97.7%	147	90.7%		
Psychiatric diseases	Yes	13	14.8%	3	1.9%	$\chi^2 = 15.89$ P < 0.001***	9.18 [2.54-33.2]
	No	75	85.2%	159	98.1%		

OR: Odds ratio

95% CI: Confidence interval

OCD: Obsessive compulsive disorder

* P < 0.05

** P < 0.01

*** P < 0.001

Discussion

Psychiatric disorders are serious medical conditions that have high burden on all economic levels and all nations, and influence the affected individual's feeling, moods, thoughts and behavior (21). Among psychiatric illness, anxiety, depression, schizophrenia, bipolar disorder, panic disorder, eating disorder, and addictive behaviors are the most frequent. Worldwide, the prevalence of psychiatric illness ranges from 17% to 30%, affecting one in four people both in developed and developing nations (22).

In Saudi Arabia, a few studies covered that 48% of high school students had mental illness, 18.2% among adult primary care patients, and 59.4% of adolescents complained of at least one of the Depression Anxiety and Stress Scale (DASS) disorders during the period from 1986 to 2006 (23-25). These patients are usually neglected because of their disorder nature which also affects the general behavior of a person, alters the level of perception and impairs the level of functioning (26). They are more prone to metabolic disorders like obesity because of psychotropic medications, unhealthy lifestyles, cigarette smoking and healthcare inequalities (27-29).

The current study targeted patients attending the main psychiatric hospital in Abha city to explore their body mass index and to relate their body mass index to their psychiatric illness.

The study revealed that the most included in the obesity group, were patients with depression and anxiety, while those with somatic disorders were the least frequent group. Overweight and obesity were recorded among two thirds of patients. Obesity was higher among patients with depression (nearly doubled risk) and less recorded among patients with anxiety and OCD. All other psychiatric disorders were insignificantly related to obesity.

These findings were concordant with those of several other studies. Three cross-sectional studies which were done on general adult populations had an average OR of 1.33 for depression in obesity (30-32). This finding was confirmed in a meta-analysis of longitudinal studies in adolescents with roughly similar odds of developing depression in obesity (OR: 1.4) and vice versa (OR: 1.7) (33). Thus, the study provided evidence for a bidirectional link between obesity and depression with depressed adolescents having about 70% higher risk for being obese.

On the other hand, some studies failed to prove this association, where there was poor correlation between BMI and anxiety across both genders ($r = 0.024$ in males and 0.083 in females), while another cross-sectional study also reported a similar lack of association between BMI and both anxiety and depression ($r = 0.15$ and 0.1 , respectively) (34, 35).

The association between obesity and psychological illness is up till now questionable and needs further assessment

using large-scale research projects that control for all possible confounding factors.

In conclusion, this study revealed a significant positive association between obesity and depression but this association was negative for anxiety and OCD illness. Further assessment is recommended using a large scale survey covering all types of population (e.g., healthy, or psychotic) to explore the nature of the relation controlling for all possible confounders.

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