

OVERWEIGHT AND OBESITY: FREQUENCY AND CORRELATES AMONG THE PATIENTS OF FIRST EPISODE OF DEPRESSION

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ABSTRACT

Objective: To study the magnitude and correlates of overweight and obesity among the patients presenting with first episode of depression at a teaching hospital of Azad Jammu and Kashmir.

Study Design: Correlational study.

Place and Duration of Study: Poonch Medical College Rawalakot, from Jan 2018 to Jun 2018.

Methodology: The sample population comprised of 110 patients of first episode of depression reporting in the psychiatry outpatient department at a teaching hospital in Rawalakot, Azad Jammu Kashmir. Depression was diagnosed by using the routine ICD-10 criteria for a depressive episode. Overweight were the patients with BMI 25 or more and obese were with the body mass index 30 or more. Relationship of the age, gender, smoking, family income and lipid profile were studied with the presence of overweight or obesity among these patients suffering from the first depressive episode.

Results: A total of 110 patients suffering from first episode of depression were included in the final analysis. Out of these 43 (39.1%) had body mass index in normal range, 24 (21.8%) were overweight while 43 (39.1%) were obese. It was found that female gender and abnormal lipid profile at first presentation had significant association with the overweight or obesity among the target population.

Conclusion: Patients with first episode of depressive illness showed high prevalence of obesity and overweight. Female patients suffering from depression and those having abnormal lipid profile indices at first presentation should be considered at a high risk of obesity and overweight.

Keywords: Body mass index, Depression, Obesity, Overweight.

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INTRODUCTION

Obesity is a major public health problem worldwide and millions of people suffer from it and the complications associated with this condition¹. Our country is no exception in this regard and overweight and obesity emerge as common health issues among all the age groups of Pakistani population². Obesity has been linked with various physical and psychiatric illness in the past including DM, HTN, mood disorders and anxiety spectrum disorders^{3,4}.

Depression is one of the most frequently diagnosed psychiatric illness⁵. All the biological functions of the body are disturbed when the patient is suffering from this complex disease including the sleep, appetite and sexual function⁶.

Depression may give rise to multiple other medical conditions including DM, HTN, IHD and other metabolic problems^{7,8}.

Presence of overweight and obesity among patients depressive illness has been reported in the studies published in recent past. 46% of the patients were obese in a study done on the patients of depression in a developed country like USA⁹. Another similar study showed that obesity was associated with increased risk of depression among the females but not the males¹⁰.

Sedentary life style in depression may contribute to the overweight and obesity among the patients. Distress of obesity and negative cognitions about the self image may increase or worsen the depression. Obesity and depression have been studied on local adolescence and children population but no local study is available to look for the frequency of overweight and obesity among the first episode of depression in general

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population so the rationale of this study is to determine the prevalence and correlates of obesity and overweight among the patients of depressive illness.

METHODOLOGY

All participants were informed about the nature of study and consent was obtained at the start. Study approval was obtained from the institutional review board committee of Poonch Medical College Rawalakot. This correlational study was conducted from Jan 2018 to Jun 2018. At a tertiary care hospital of AJK. Non-probability consecutive sampling technique was used. WHO sample size calculator was used to calculate the sample size. Mannan *et al.* study was used with population prevalence proportion of 90% yielding a sample size of more than 100 patients. By using formula $n = z^2 p (1-p) / d^2$ where $z = 95\%$, $d = 5\%$, $p = 90\%$, So $n = 133$ ¹³. All the patients of first episode of depressive illness between the age of 18 and 65 of age presenting in the outpatient department (OPD) were included in the study. Exclusion criteria were the Patients with a past or current history of any psychiatric or chronic physical illness (DM, IHD, HTN, RA or other diseases of chronic nature) or with a past or current history of substance use so that direct effect of obesity can be related with the depression. Patients who were already diagnosed cases of depression or any other psychiatric illness were also excluded. Patients who were pregnant or could not read or perform the questionnaire were also not included in the study.

Depressive episode was diagnosed on the basis of following ICD-10 criteria to diagnose the depressive episode.

At least one of the symptoms for most days and most of the time for at least 2 weeks. Persistent sadness or low mood; and / or loss of interests or pleasure and fatigue or low energy. Other symptoms included disturbed sleep, poor concentration or indecisiveness, low self-confidence, poor or increased appetite, suicidal thoughts or acts, agitation or slowing of movements and guilt or self-blame.

Depression is then classed as not depressed (fewer than four symptoms), mild depression (four symptoms), moderate depression (five to six symptoms) and severe depression (seven or more symptoms, with or without psychotic symptoms). We included all the cases of first episode of depression regardless of the severity of depressive episode. Body Mass Index (BMI) was interpreted according to WHO guidelines as BMI for Normal <25, BMI for Overweight 25-30 and BMI for Obesity >30. Abnormal lipid profile in our analysis was defined as: TC >100 mg/dl and/or LDL-cholesterol >70 mg/dl and for hypotriglyceridemia value of TG >70 mg/dl¹⁰. Family income was classes as income less than outgoing or more than or equal to outgoing based on the recent economic survey done in Pakistan¹¹⁻¹⁴.

Ethical approval was obtained from the ethical review board committee of the institution. Consenting patients underwent the application of inclusion and exclusion criteria. Those fulfilling these were finally included in the study analysis. All patients underwent a detailed history taking and examination. BMI was calculated by the standard formula after measuring the height and weight. Patients were asked to answer the questions according to their condition in last two weeks. Socio demographic variables were collected on a proforma specially designed for this study.

Samples were identified under the categories of presence of normal BMI, overweight and obese. Variables in the study included age, gender, smoking, family income and lipid profile. Chi square test was used to establish the relationship of factors. Binary logistic regression analysis was done to evaluate the correlation further. All statistical analysis was performed using Statistics Package for Social Sciences version 24.0. Differences between groups were considered significant if p -values ≤ 0.05 .

RESULTS

A total of 133 patients with first episode of depression were approached to participate in the study. A total of 5 participants refused

participation, 15 were ineligible due to exclusion criteria (8 gave history of psychoactive substance use, 3 had DM, 1 had HTN, 2 had previous episodes of mood disorder, 1 was pregnant). After being consented, an additional 3 did not provide complete data at baseline, leaving 110 participants who underwent BMI calculation. Mean age of the study participants was 36.61 ± 4.341 years while mean BMI was 26.35 ± 5.265 . Out of these 43 (39.1%) had BMI in normal range, 24 (21.8%)

patients suffering from a common mental health problem. The study is an attempt to record presence of overweight and obesity among the patients suffering from first episode of depressive illness. Depression is the most commonly diagnosed mental health illness in Pakistan according to a recent review published in international journal of neuroscience and behavioral science¹⁴. Using the standard criteria for BMI we found that 60.9% of our patients

Table-I: Characteristics of the study participants.

Socio Demographic Factors	Normal Body Mass Index (<25)	Overweight (25-30)	Obese (>30)	p-value
Age				
<40	32 (74.4)	12 (50)	27 (62.8)	0.128
≥40	11 (25.6)	12 (50)	16 (37.2)	
Gender				
Male	31 (72.1)	03 (12.5)	05 (11.6)	<0.001
Female	12 (27.9)	21 (87.3)	38 (88.4)	
Smoking				
No	39 (90.1)	23 (95.8)	36 (83.7)	0.262
Yes	04 (9.9)	01 (4.2)	07 (16.3)	
Family Income				
< Out-going	17 (39.5)	05 (20.8)	10 (23.3)	0.155
≥ Out-going	26 (60.5)	19 (79.2)	33 (76.7)	
Lipid Profile				
Abnormal	06 (13.9)	07 (29.2)	33 (76.7)	<0.001
Normal	37 (86.1)	17 (70.8)	10 (23.3)	

Table-II: The correlated factors the presence of overweight and obesity among the depressed patients

	Odds Ratio	Confidence Interval		p-value
		lower	Upper	
Age (ref. is <40 years)	0.581	0.158	2.135	0.414
Gender (reference is male)	7.654	2.917	20.085	<0.001
Smoking (ref. is no smoking)	1.391	0.337	5.739	0.648
Family income (ref. is ≥ outgoing)	0.294	0.110	0.782	0.014
Lipid profile (ref. is normal profile)	9.209	2.257	7.570	0.002

were overweight while 43 (39.1%) were obese. Table-I shows the general characteristics of the patients and shows that female gender and abnormalities in lipid profile are correlated with obesity. Table-II shows that similar variable were strongly associated with the overweight and obesity when regression analysis was done with odds ratio of 7.654 and 9.209 respectively.

DISCUSSION

To our knowledge this is the first ever study of its kind in Azad Jammu and Kashmir on

showed the presence of overweight and obesity which is in accordance with the available literature^{9,15}. Important reasons for overweight and obesity among these patients may be metabolic abnormalities, endocrinopathies, sedentary life style, smoking, craving for sweets or other effects linked with the etiology or course of depression^{4,13}. Mental health issues have a direct link with the overall wellbeing of an individual¹⁶. Stress, anxiety, depression or other psychological problems are negatively linked with poor quality

of life among the obese people in various studies done in the past^{13,17}. Bidirectional relationship of obesity and depression has been under keen interest of clinician and researchers. A positive feedback cycle develops between the two and psychiatrist feels difficulty in controlling depression due to obesity and physician is unable to control the obesity due to the depressive symptomatology^{18,19}. Only solution to this problem may be early recognition and treatment. Emphasis must be laid on primary prevention and screening of the parameters right from the start. First episode of the illness is the most appropriate time in our settings as community intervention before the start of illness is a huge task which in current circumstances of our country is not possible. Therefore, we incorporated first episode depression patients in our study design and wanted to look for obesity in them right from the start of this mental illness.

Various studies in past concluded that advancing age is a consistent correlate with presence of obesity among the patient's major depressive disorder^{13,20}. The results in our study were different and age was not related to presence of overweight or obesity in our target population. Reason might be more restricted diet plan with advancing age which can serve as a protective factor or low socioeconomic status of the patients.

Female gender was found to be significantly correlated with the presence of overweight and obesity in our analysis in accordance with the international literature⁴. Females overall are at a greater risk for depression and obesity independently and same is observed when these two parameters are studied together. All the biological, psychological and social causes may contribute to both the factors and may increase when they exist together. Usually in AJK terrain is mountainous and most males have to go out and they travel a lot on foot so usually have a protective factor for development of obesity or weight gain. Females due to social, religious and cultural factors have usually been home bound which increases the chance of developing

overweight and obesity. Health education and awareness regarding routine exercises among the females may solve this issue to some extent in this vulnerable group of population.

Abnormal lipid profile at the time of first presentation with symptoms of depression was linked with the presence of overweight and obesity in our patients. Similar results were reported by studies done in the recent past in other parts of the world^{10,20}. The repeatability of these findings in various studies done in different populations highlight the biological model of depression. These abnormalities may be part of etiology of depression or may occur as a consequence of depressive episode. Health budget of our country does not allow routine screening of high risk individuals from the community and people usually does not bother to get these investigations on their own until they fell sick. Most of the times these abnormalities are picked when there is first episode of any illness and the physician order the investigations. Routine screening especially of high risk individuals is the key to minimize the disability.

Smoking was not related to presence of obesity in our depressive patients. Mixed results were seen in the studies done in the past^{15,20}. In our sample most of the females did not smoke so lack of association may be attributed to this factor. Smoking has various biological and psychological effects on the body so more studies should be done to look into this phenomenon. Smoking might also lead to hyperlipidemias which were found associated with obesity in our sample population.

Family income was not related to presence of overweight and obesity among the patients of first episode of depression in our target population. This in a very interesting phenomenon regarding the relationship of increased family income and gain of weight. Though it seems that it would a directly proportional relationship but still few studies have found the increased prevalence of obesity in low income people as well²³. Stress, even that of increasing the income

may be linked with the release of stress hormones including cortisol which may result in increased weight gain. Therefore this parameter was included in the analysis to establish any such association but it could not be established either by using chi-square or binary logistic regression analysis.

There are many limitations in our study. The findings cannot be generalized as our study population was not selected from a randomized sample of all the patients suffering from first episode of depression in various hospitals of our country. Another limitation is the chance that the patients may be suffering from bipolar depression and may develop mania in coming years. Family history of obesity and eating habits before depression were not taken into account in our study. We suggest further studies on a broader based and a more representative sample size using locally developed and standardized psychometric tools on the subject in order to look for a definitive relationship between the two catastrophic conditions.

CONCLUSION

Patients with first episode of depressive illness showed high prevalence of obesity and overweight. Female patients suffering from depression and those having abnormal lipid profile indices at first presentation should be considered at a high risk of obesity and overweight.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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