INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ASSOCIATION OF OBESITY WITH BIPOLAR DISORDER IN PSYCHIATRIC PATIENT: A CASE CONTROL STUDY.

Medical Science

Dr. Hemant Belsare

Assistant Professor, Department of Psychiatry, Vedantaa Institute of Medical Science, Palghar.

ABSTRACT

Background: Obesity was significantly more common among individuals with bipolar disorder according to recent findings.
Objective: To find the association between obese and healthy individuals in bipolar disorder using Mood Disorder Questionnaire (MDQ), while controlling for the influence of sociodemographic variables.
Method: A 60 patients with Obesity & 60 patients of healthy individuals attending the outpatients department of psychiatry at Vedanta institute of medical sciences & hospital, Palghar, were selected by purposive sampling from August 2019 to July 2020.
We assessed the lifetime presence of bipolarity features by using the Mood Disorder Questionnaire (MDQ). The MDQ has been developed as a self-rating screening tool to facilitate diagnosis of the DSM-IV-defined bipolar spectrum disorders (i.e. BD-I, BD-II, and BD not otherwise specified). The symptomatic part of the Mood Disorder Questionnaire (MDQ) contains 13 hypomanic symptoms, and the cut-off point for bipolarity has been established as the presence of 7 or more symptoms.
Results: Bipolarity features were more prevalent in the patients with obesity, as compared to healthy individuals. Patients with obesity had both higher mean value of MDQ score (p = 0.046) and a higher proportion of subjects with MDQ score ≥ 7 points (p = 0.014), compared to control subjects. Such relationship was not observed in control subjects.
CONCLUSIONS: To conclude, this study showed that presence of obesity leads to problems in self image and self esteem. MDQ is associated with certain poor nutritional habits and problems.

KEYWORDS

Bipolar Disorder, Obesity, Mood Disorder Questionnaire (MDQ).

INTRODUCTION:

As per the World Health Organisation (WHO) global estimates in 2014, 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] India, with its rapid urbanisation and changing socioeconomic landscape, is experiencing an increase in obesity rates among its population.[2,3,4] In a recent nationally representative study, an estimated 135 million people were found to be suffering from generalised obesity and high prevalence rates were noted in both rural and urban areas.[5] This rising trend has also been reflected in childhood obesity with several Indian and international studies showing alarmingly increasing trends over the last decade.[6,7,8,9] These figures make it clear that obesity is assuming epidemic proportions cutting across age, sociocultural and ethnic boundaries, thus becoming a significant public health issue.

Although the physical comorbidity burden in obesity is well established,[10,11] its relation to mental health is relatively less explored. In the last couple of decades, however, evidence is gradually accumulating on the association between various psychiatric disorders and obesity, particularly among those seeking treatment for the same.[12,13,14] Despite this, knowledge gaps exist with regard to the strength and the direction of the association between obesity and various psychiatric conditions. Further, given the methodological differences between the studies, there is a need to synthesize the available evidence in this area so that clinicians and researchers have a better understanding of the links between obesity and psychiatric disorders. This has the potential to inform clinical evaluation and identify further research targets in this area such as the possible neurobiological links between obesity and psychiatric disorders. From a management perspective, it has been shown that early identification and management of common psychiatric problems can optimize outcomes among obesity patients presenting for surgical treatment. Hence, practicing clinicians need to be well informed about the same.

With this background, we carried out the present systematic review with the objective of summarizing the available evidence on the association between psychiatric illness and obesity with particular attention to the strength and direction of association and also the possible moderators in each postulated link. In this context, moderators refer to those variables that may influence the strength of relationship between two other variables (here, referring to psychiatry and obesity).

Bipolar disorder is a severe and chronic affective disorder, characterised by alternating episodes of depression, mania, hypo-mania, and mixed states, affecting up to 2.4% of the population. (15)

Bipolar disorder is also characterised by significant clinical, economic, and social burden and is a leading cause of disability (16,17)

Numerous studies show that patients with bipolar disorder are at an increased risk for obesity and that obesity is associated with a greater illness burden (18)

Obesity is commonly classified using body mass index (BMI), which is an estimate of total body fat and calculated by dividing weight (in kilograms) by height (in meters) squared (19,20)

Obesity is defined as a BMI≥30, overweight as a BMI 25.0–29.9, while extreme (class III) obesity is a BMI ≥ 40. Abdominal obesity (or visceral or central adiposity) is defined in the USA as a waist circumference >88 cm in women and >102 cm in men (21,22,23,24)

In this study to association of Obesity with Bipolar Disorders in Psychiatry Patients. Also hypothesised that baseline demographic and clinical characteristics and treatment outcomes for patients deemed obese would differ from those of non-obese patients.

MATERIALS & METHODS:

The study was carried out at the department of Psychiatry outpatient unit of Vedantaa Institute of Medical Sciences & Hospital in Palghar, Maharashtra. The Institutional Ethical Committee approved the study and all patients were recruited after obtaining written informed consent. Diagnosis of Bipolar disorder was made as per the diagnostic criteria of DSM - IV (Diagnostic and Statistical Manual Disorders, 4th edition) by using Mood Disorders Questionnaire (MDQ). All the study participants of this case control study were divided into two groups selected by purposive sampling from August 2019 to July 2020. The cases sample was constituted by 60 patients with obesity (BMI > 30 kg/m2) & control were selected from population of 60 healthy patients (BMI 18.5 - 24.9 kg/m2).

We assessed the lifetime presence of bipolarity features by using the Mood Disorder Questionnaire (MDQ) (25). The MDQ has been developed as a self-rating screening tool to facilitate diagnosis of the DSM-IV-defined bipolar spectrum disorders (i.e. BD-I, BD-II, and BD not otherwise specified). The symptomatic part of the Mood Disorder Questionnaire (MDQ) contains 13 hypomanic symptoms, and the cut-off point for bipolarity has been established as the presence of 7 or more symptoms.

STATISTICAL ANALYSIS:

Frequencies with percentages were calculated fro nominal and ordinal variables and mean and standard deviation were calculated for

continuous variables. Non Parametric test were used for data with non normal distributions. Comparisons were done by using t test and chi square test. Correlation were studied by using Pearsons correlation coefficient. Calculation were performed using IBM SPSS version 20.0 statistical packages. The level of statistical significance was determined as $p < 0.05$.

RESULTS:

A total 120 patients (60 cases & 60 Control) were included in the study. Majority of patients in both the groups were males in their early thirties. However, there were significantly higher numbers of females in the control group. Significantly more number of patients with obesity were married and employed compared to control group. The proportion of patients from non nuclear families was significantly greater in the obesity group compared to control group.

Table No. 1: Demographic Characteristics of patients.

Socio Demographic Variables	Case (n = 60)	Control (n = 60)	P Value
Age, Year (Mean + S.D.)	37.8 + 10.8	34.4 + 9.6	0.071 (S)
Gender (Male)	44 (73.3)	31 (51.7)	0.014 (S)
Marital Status (Married)	45 (75.0)	22 (36.7)	0.000 (S)
Occupation (Employed)	28 (46.7)	10 (16.7)	0.004 (S)
Family Type (Nuclear)	28 (46.7)	44 (73.3)	0.003 (S)
Residence (Urban)	37 (61.7)	41 (68.3)	0.443 (S)

The comparison of MDQ score in the subjects with obesity and in healthy controls is shown in the below table. As compared to the healthy controls patients with obesity obtained significantly higher values on the MDQ and higher percentages of MDQ > 7.

Table No. 2: Comparison of MDQ scores in the subjects with obesity & healthy controls.

	Cases (n = 60)	Control (n = 60)	P Value
MDQ - Score (Mean $\pm$ S.D.)	4.32 $\pm$ 3.78	3.16 $\pm$ 2.36	0.046 (S)
MDQ - percentage of subjects $\geq$ 7 points	15 (25.0)	5 (8.3)	0.014 (S)

DISCUSSION:

In the present study was observed 60 patients in the cases & 60 patients with control group. In our study indicate that, in comparison with healthy control patients with obesity are more likely to exhibit with bipolarity features. This findings replicates the extent data suggesting that the bipolarity are not common in subject with obesity as compared to healthy individuals. (26, 27,28).

We also concluded that subjects diagnosed with obesity who obtained $\geq$ 7 patients on the MDQ, suggesting a history of lifetime hypomanic symptoms (25).

The significantly higher ratio of the positive MDQ screening in the obesity sample (as compared to the non-obese controls) has been consistent with the results of previous studies, indicating that obesity shall be considered as "candidate biomarker" for bipolar disorders (27,28).

CONCLUSION:

To conclude, this study showed that presence of obesity leads to problems in self image and self esteem. MDQ is associated with certain poor nutritional habits and problems. These simple measures can possibly go long way to improve psychological and physical health, as well as may improve the outcome of Bipolar disorders.

The main limitation of this research are due to the case control design of the study (indicating higher risk of recall bias), and indirectness of the conclusions (i.e. the use of the MDQ screening instead of a structured diagnostic tool) (

REFERENCE:

1. World Health Organization. World Health Statistics 2014. Geneva: World Health Organization; 2014.
2. Bhardwaj S, Misra A, Misra R, Goel K, Bhatt SP, Rastogi K, et al. High prevalence of abdominal, intra-abdominal and subcutaneous adiposity and clustering of risk factors among urban Asian Indians in North India. PLoS One. 2011;6:e24362.
3. Mohan V, Deepa R. Obesity and abdominal obesity in Asian Indians. Indian J Med Res. 2006;123:593–6.
4. Deepa M, Farooq S, Deepa R, Manjula D, Mohan V. Prevalence and significance of generalized and central body obesity in an urban Asian Indian population in Chennai, India (CURES: 47) Eur J Clin Nutr. 2009;63:259–67.]
5. Pradeepa R, Anjana RM, Joshi SR, Bhansali A, Deepa M, Joshi PP, et al. Prevalence of generalized and abdominal obesity in urban and rural India- the ICMR – INDIAB Study (Phase-I) [ICMR – INDIAB-3] Indian J Med Res. 2015;142:139–50.
6. Ranjani H, Mehreen T, Pradeepa R, Anjana R, Garg R, Anand K, et al. Epidemiology of childhood overweight and amp; obesity in India: A systematic review. Indian J Med Res. 2016;143:160.
7. Raj M, Kumar RK. Obesity in children and adolescents. Indian J Med Res. 2010;132:598–607.
8. Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in US children and adolescents, 2007-2008. JAMA. 2010;303:242–9.
9. Wang Y, Lobstein T. Worldwide trends in childhood overweight and obesity. Int J Pediatr Obes. 2006;1:11–25.
10. Kearns K, Dee A, Fitzgerald AP, Doherty E, Perry IJ. Chronic disease burden associated with overweight and obesity in Ireland: The effects of a small BMI reduction at population level. BMC Public Health. 2014;14:143.
11. Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH. The disease burden associated with overweight and obesity. JAMA. 1999;282:1523–9.
12. Fitzgibbon ML, Stolley MR, Kirschenbaum DS. Obese people who seek treatment have different characteristics than those who do not seek treatment. Health Psychol. 1993;12:342–5.
13. Lykouras L, Michopoulos J. Anxiety disorders and obesity. Psychiatriki. 2011;22:307–13.
14. Lin HY, Huang CK, Tai CM, Lin HY, Kao YH, Tsai CC, et al. Psychiatric disorders of patients seeking obesity treatment. BMC Psychiatry. 2013;13:1.
15. Merikangas KR, Jin R, He J-P, Kessler RC, Lee S, Sampson NA, et al. Prevalence and correlates of bipolar Spectrum disorder in the world mental health survey initiative. Arch Gen Psychiatry. 2011;68:241–51. https://doi.org/10.1001/archgenpsychiatry.2011.12.
16. Deckersbach T, Nierenberg AA, McInnis MG, et al. Baseline dis- ability and poor functioning in bipolar disorder predict worse out- comes: results from the bipolar CHOICE study. J Clin Psychiatry. 2016;77:100–8. https:// doi.org/10. 4088/JCP. 14m09210.
17. Ferrari AJ, Stockings E, Khoo J-P, Erskine HE, Degenhardt L, Vos T, et al. The prevalence and burden of bipolar disorder: findings from the global burden of disease study 2013. Bipolar Disord. 2016;18:440–50. https://doi.org/10.1111/bdi.12423.
18. McElroy SL, Keck PE Jr. Obesity in bipolar disorder: an overview. Curr Psychiatry Rep. 2012;14:650–8. https://doi.org/10.1007/ s11920-012-0313-8.
19. National Institutes of Health. National Heart, Lung and Blood Institute: Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight in Adults: The Evidence Report. National Institutes of Health, Bethesda, MD, 1998.
20. World Health Organization: Obesity and overweight. Fact sheet N° 311. Available via http://www.who.int/mediacentre/factsheets/fs311/en/index.html. Accessed 12 Apr 2012.
21. Bray GA. Obesity: The disease. J Med Chem. 2006;49:4001–7.
22. National Institutes of Health. National Heart, Lung and Blood Institute: Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight in Adults: The Evidence Report. National Institutes of Health, Bethesda, MD, 1998.
23. de Koning L, Merchant AT, Pogue J, et al. Waist circumference and waist-to-hip ratio as predictors of cardiovascular events: Meta- regression analysis of prospective studies. Eur Heart J. 2007;28:850–6.
24. de Vegt F, Dekker JM, Jager A, et al. Relation of impaired fasting and postload glucose with incident type 2 diabetes in a Dutch population: The Hoorn Study. JAMA. 2001;285:2109–13.
25. HIRSCHFELD RM, WILLIAMS JB, SPITZER RL, CALABRESE JR, FLYNN L, KECK PE, JR., LEWIS L, MCELROY SL, POST RM, RAPPORT DJ, RUSSELL JM, SACHS GS, ZAJECKA J. Development and validation of a screening instru- ment for bipolar spectrum disorder: the Mood Dis- order Questionnaire. Am J Psychiatry 2000; 157: 1873-1875.
26. VANNUCCHI G, TONI C, MAREMMANI I, PERUGI G. Does obesity predict bipolarity in major depressive pa- tients? J Affect Disord 2014; 155: 118-122.
27. ALCIATI A, D'AMBROSIO A, FOSCHI D, CORSI F, MELLADO C, ANGST J. Bipolar spectrum disorders in severely obese patients seeking surgical treatment. J Af- fect Disord 2007; 101: 131-138.
28. ALCIATI A, GESUELE F, RIZZI A, SARZI-PUTTINI P, FOSCHI D. Childhood parental loss and bipolar spectrum in obese bariatric surgery candidates. Int J Psychia- try Med 2011; 41: 155-171.
29. GUYATT GH, OXMAN AD, VIST G, KUNZ R, BROZEK J, ALONSO-COELLO P, MONTORI V, AKL EA, DJULBEGOVIC B, FALCK-YTTER Y, NORRIS SL, WILLIAMS JW JR, ATKINS D, MEERPOHL J, SCHÜNEMANN HJ. GRADE guide- lines: 4. Rating the quality of evidence--study limi- tations (risk of bias). J Clin Epidemiol 2011; 64: 407-415.