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Research Article

**A RESEARCH STUDY ON ASSOCIATION OF METABOLIC
SYNDROME WITH DEPRESSION**¹Dr. Arwa Siddiqua, ²Dr. Ammar Farooq, ³Dr. Ramsha Mushtaq Khan¹Bahawal Victoria Hospital²Govt Dispensary Factory Area Faisalabad³Jinnah Hospital Lahore**Article Received:** February 2020**Accepted:** March 2020**Published:** April 2020**Abstract:**

Objective: to find association among metabolic syndrome and depression in order to cater both illnesses side by side and increase chances of survival of the patients. It will also help to spotlight the need to find a common pathophysiological trigger common among both disorders and rectify its impact.

Method: 1598 metabolic syndrome patients from January 2019 to 2020 from outpatient department of Bahawal Victoria Hospital were analysed for depression using HAD score and the association calculated. Sample size was taken using WHO sample size calculator.

Results: the association found between both disorders was positive in a graded relationship. In both genders, there was increased prevalence between Metabolic syndrome and depression but not anxiety.

Conclusion: there is a positive association of metabolic syndrome with depression however not with anxiety irrespective of age and gender.

key words Anxiety, depression, metabolic syndrome.

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INTRODUCTION:

Depression or depressive symptoms have been associated with disease and fatality especially from cardiovascular disease.(1) Previous studies have suggested that there may be a link between depression and its complications through development of the metabolic syndrome. metabolic syndrome is a group of metabolic and hematological abnormalities.(2)The National Cholesterol Education Program (NCEP) Adult Treatment Panel III [2001] gave a definition of the Metabolic syndrome as a syndrome that includes the presence of at least three of five factors: obesity, hypertriglyceridemia,, low levels of high-density lipoprotein (HDL), hypertension, and increased glycemic levels.(3) In USA, 24% of the population is affected with this syndrome. [Wilson and Grundy].(4,5) Metabolic syndrome broadly refers to grouping up of obesity, hypertension, dyslipidemia, and insulin resistance. The components of the syndrome show significant heritability. It is also known as syndrome X.(6)this disease has become the major health problem of the developed world. Western world,where it first originated has caused the its spread across the globe where with the merger of its lifestyle with other cultures, it has become now become a swiftly emerging pandemic.The syndrome seeds the diseases like type 2 diabetes, cardiac ailments, cerebrovascular events, and other disabilities. The world wide percentage of the metabolic syndrome in the adult population is between 20 and 50 %. It is affected by many factors such as age, gender,lifestyle , nutrition habits, , socio-economic conditions and cultural background(9). Environmental factors not only effect the intensity of individual components of the metabolic syndrome but also many coronary risk factors,which makes it more difficult to evaluate(10,11,12). in the United States, all these

diseases develop within a limited time frame ,one following the other(13). In a Coronary Syndrome (ACS) survey done in Israel comprising a total of 1,060 admitted diabetic patients with ACS.(14 ,15) 359 patients with metabolic syndrome were compared with 701 subjects without the disease. Patients with metabolic syndrome had higher mortality rates compared with patients without metabolic syndrome (8.3 % and. 2.5 % respectively, $p < 0.05$). In an American Indian study, participants with metabolic syndrome had low left ventricular ejection fraction, wall thickness, and left atrial diameter (all $p < 0.001$)and overall functioning of the heart, than the other group without metabolic syndrome.(19,20,21)prevalence of depression and anxiety is directly linked to metabolic syndrome's early onset and grave outcomes especially cardiovascular. Therefore we made an effort to determine whether there is any positive correlation beteen metabolic syndrome,depression and anxiety.

METHODS:

1598 patients,of metabolic syndrome, of bahawal Victoria hospital from january 2019 to january 2020 were studied for the study .All patients were referred from rural and basic health care unit's opd on the basis of possessing traaditional risk factor of metabolic syndrome (increased cholestrol,hyper triglyceridemia, hypertension, uncontrolled glucose levels, obesity, tobacco smoking, or a family history of cardiovascular disease anxiety depression or change in sleeping or eating pattern. All patients provided written informed consent. Assessment of Depression and Anxiety was done using HAD scale Criteria. (7). A minimum of 8 out of 12 score was considered positive for Depression and anxiety were classified as a score 8 of a possible 21 for the HAD depression module (HAD-D) and anxiety module (HAD-A), respectively

RESULTS:

	entire	Male	female
Number	1598	1006	592
Age, yrs	52	51	54
Metabolic syndrome,%	62	64	57
HAD Depression Score	5.3	5.2	6.1
Depression, %	25	21	32
HAD anxiety score	9	8	11
Anxiety,%	63	55	75

The MetS was associated with a significantly higher rate of depression (men: 21% vs. 16%, $p .007$; women: 32% vs. 23%, $p = .0001$) and HAD-D score (mean \pm SD; men: 5.2 \pm 3.5 vs. 4.4 \pm 3.0, $p .0002$; women: 6.1 \pm 3.7 vs. 5.3 \pm 3.5, $p = .0001$). more over, there was a graded relationship between increasing number of components of the Metabolic Syndrome and both the prevalence of depression and HAD-D score in the entire cohort

DISCUSSION:

the findings of the study are in conjunction with the research reinforcing that Depressive symptoms are associated with Metabolic syndrome among adult male and females (15). Many Past studies have also highlighted positive association among the two. The major metabolic syndrome constituent associated with depression is obesity, although having a greater preponderance in women than men. This is similar to previous studies that have shown association between obesity and depression in female but not in males (16). In both genders, the HAD anxiety score turned out to be same in those with the Metabolic Syndrome as compared with those without the Metabolic Syndrome (22,23,24). Insulin resistance has been considered as a main factor for the Metabolic syndrome and might be an underlying reason of the association between depression and the Metabolic syndrome. Activation of neuroendocrine system might also be a common pathophysiological link behind Metabolic syndrome and depression. Abnormalities such as sympathetic overshoot and increased cortisol secretion have been observed in patients suffering from the Metabolic Syndrome, Leading to obesity and hypertension(25,26,27) Another pathophysiologic factor that leads to association between Metabolic Syndrome and depression is damage at the vascular levels causing alterations to cerebral blood flow and consequent increased risk of depression (28). This damage might be mediated by release of inflammatory mediators including chemokines, cytokines, interleukin-6, tumor necrosis factor- and leptin whose secretion is enhanced in Metabolic Syndrome (29). Another possible process linking the both may be the activation of stress response by the adrenal gland. However, present study doesn't measure long term impacts of the disease on depressive symptoms. The HAD-D score mainly calculates the scores based on recent development of depressive symptoms however chronic depressive disorders and hereditary influence remains under diagnosed in the group. In conclusion, the present study shows in a large cohort of subjects at an increased risk of cardiovascular disease that the Metabolic Syndrome is associated with depressive symptoms in both male and female gender irrespective of Body Mass index. These findings suggest the potential importance of screening for depression in patients with the Metabolic syndrome and, conversely, highlight the increased risk of cardiovascular and metabolic diseases in patients with depression

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