Original Research Article

Prevalence of metabolic syndrome in patients with schizophrenia

Shahanawaz Zafar[1], Upendra Paswan[2*]

[1]Senior Residents, [2]Professor & HOD, Department of Psychiatry, Darbhanga Medical College and Hospital, Darbhanga, Bihar, INDIA.
Email: kajal6160@gmail.com

Abstract

Background: Schizophrenia is a psychiatric disorder that causes a wide range of emotional, social, and cognitive impairments, as well as serious functional impairments. Patients with schizophrenia have a shorter life span than the general population. Mortality among patients with schizophrenia is two to three times higher than the general population,5,6, and life expectancy is 20–25 percent lower. **Methods:** All patients with schizophrenia who were presenting at Darbhanga Medical College and Hospital in OPD and IPD, between January 2019 and March 2020 were included in the research. The census sample technique was used to choose a total of 100 participants who matched the study criteria. **Results:** The metabolic syndrome was found to be prevalent in 31 % (42 % in Male and 58 % in Female). The prevalence of metabolic syndrome was greater in patients > 50 years than patients aged 20–50 years. Metabolic syndrome present in schizophrenic patients, Mean and SD value of Blood glucose is 122.23±15.84, T. Cholesterol- 198.52±35.78, Triglyceride-255.45±29.22, HDL -38.24±4.23 and Waist circumference 122.41±34.25, comparison with non metabolic patients we have found statistically significant difference between the group and p value was <0.005. **Conclusion:** The high incidence of metabolic syndrome in schizophrenia patients, healthcare providers should take steps to detect risk factors and treat affected patients promptly, increasing the patient's quality of life and lowering healthcare expenses.

[*]**Address for Correspondence:**
Dr Upendra Paswan, Professor & HOD, Department of Psychiatry, Darbhanga Medical College and Hospital, Darbhanga, Bihar, INDIA.
Email: kajal6160@gmail.com
Received Date: 04/09/2021 Revised Date: 17/10/2021 Accepted Date: 11/10/2021
DOI:

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	DOI: ---

INTRODUCTION

Several studies have found that patients with schizophrenia have a higher death rate. Besides higher risks for cancer, respiratory and cerebrovascular disorders, and of death from suicide or homicide, the main cause is cardiovascular disease.[1] Even before antipsychotic medication became available in the 1950s, abnormal responses to insulin and diabetes-like glucose tolerance curves,[2] were observed in psychiatric patients. In 1959, Planansky and Heilizer[3] reported weight increase in chlorpromazine-treated individuals. Untreated schizophrenia patients have a larger BMI, WHR (waist/hip ratio), and a threefold quantity of intra-abdominal fat (IAF) than healthy controls, according to Thakore *et al.*[4] Further factors associated with schizophrenia, like unhealthy diet patterns,[5] smoking,[6] lower levels of physical activity and cardiorespiratory fitness,[7] and poor living conditions certainly contribute to the finding that these patients, including those on antipsychotics, may have a higher risk to develop metabolic syndrome (MetS) than the general population.[8] It has been hypothesized that alterations in metabolic parameters in individuals treated with antipsychotics may, in part, be genetically determined.[9] Hypertension, abdominal obesity, poor lipid metabolism (blood triglycerides, cholesterol), and/or impaired blood glucose control are all symptoms of MetS. Though the concept of MetS is widely accepted, there is still debate about the exact pathophysiology, resulting in a variety of definitions (e.g., by the American Heart Association,[10] the National Cholesterol Education Program,[11] and the International Diabetes Federation/World Health Organization.[12] Despite this, increased awareness of the danger of MetS in schizophrenia patients has resulted in treatment guidelines that require regular monitoring of important physical and laboratory markers, which are now considered clinical standard of care in numerous countries.[13]

How to cite this article: Shahanawaz Zafar, Upendra Paswan. Prevalence of metabolic syndrome in patients with schizophrenia. *MedPulse International Journal of Psychology.* November 2021; 20(2): 27-30. http://www.medpulse.in

MATERIALS AND METHODS

The ethical committee of Darbhanga Medical College and Hospital authorized this cross-sectional study prior to data collection. Between January 2019 and March 2020. The Study comprised patients with pure schizophrenia who were being treated with antipsychotics. Patients with additional psychiatric disorders, medical conditions such as hypertension, diabetes, thyroid illness, electroconvulsive therapy, or pharmaceutical treatment other than antipsychotics were excluded. Psychiatrists diagnosed schizophrenia using the current criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V). A total of 100 patients were chosen. Data was collected using a demographic questionnaire, paraclinical testing, and anthropometric measures after the patients or their legal guardians gave their informed consent. The newest NCEP ATP III criteria were used to diagnose metabolic syndrome (2001). Metabolic syndrome was defined as any patient who displayed the following symptoms: 1) a large waist circumference (102 cm [40 in.] for males, 88 cm [35 in.] for women); 2) high triglycerides (150 mg/dL); 3) low HDL-C (40 mg/dL in men, 50 mg/dL in women); 4) hypertension (130/85 mmHg); and 5) impaired fasting glucose (110 mg/dL). Their height was measured with a one-millimeter precision using a height meter. The narrowest portion of the waist was used to measure the circumference. If the patient had no previous history of hypertension yet had high blood pressure, the patient's blood pressure was checked again an hour later to confirm the diagnosis of hypertension. Spectrophotometry was used to monitor blood sugar and lipids in the Central laboratory of Darbanga Medical College and Hospital. SPSS Statistics (SPSS Statistics -21) was used to analyze the data, and the chi-square test and logistic regression were used to find associations between the variables. For the purpose of doing logistic regression for the age variable, patients were split into two groups: those under 40 years old and those over 40 years old. Individuals were classified as either married or single, and then the two groups were compared.

RESULTS

Table 1: Prevalence of Metabolic syndrome in patients with schizophrenia.

Metabolic syndrome	No of Cases
Yes	39(39%)
No	61(61%)
Total	100 (00%)

Metabolic syndrome present in patients with schizophrenia 39(39.0%) and 61% cases Metabolic syndrome absent.

Table 2: Metabolic syndrome and sociodemographical characteristics in patients with schizophrenia

Variable	Metabolic syndrome(yes)	Metabolic syndrome(No)	Total	Chi-square P Value
		Age		
20-50 years	6(18.8%)	26(81.2%)	32(32.0%)	Chi-square- 8.111
>50 Years	33(48.5%)	35(51.5%)	68(68.0%)	P Value- 0.004
Total	39 (39.0%)	61(61.0%)	100(100%)	
		Gender		
Male	22(52.4%)	20(47.6%)	42(42.0%)	Chi-square- 5.450
Female	17(29.3%)	41(70.7%)	58(58.0%)	P Value- 0.029
Total	39 (39.0%)	61(61.0%)	100(100%)	
		Marital status		
Married	05(23.8%)	16(76.2%)	21(21.0%)	Chi-square- 6.076
Unmarried	27(39.1%)	42(60.9%)	69(69.0%)	P Value- 0.047
Divorce	07(70.0%)	03(30.0%)	10(10.0%)	
Total	39 (39.0%)	61(61.0%)	100(100%)	
		Educational Status		
Illiterate	08(40.0%)	12(60.0%)	20(20.0%)	Chi-square- 1.049
Primary	09(47.4%)	10(52.6%)	19(19.0%)	P Value- 0.789
Higher Sec.	07(31.8%)	15(68.2%)	22(22.0%)	
Graduate	15(38.5%)	24(61.5%)	39(39.0%)	
	39 (39.0%)	61(61.0%)	100(100%)	

The majority of patients were aged > 50 years (n = 68), and the remaining patients were between 20 and 50 years old (n = 32). In the population, (69.0%) patients were unmarried, 21 (21.0%) were married, and 10 (10.0%) were divorced. 20 (20.0%) patients were illiterate, 19 (19.0%) were primary school educated, 22 (22.0%) were high school educated, 39 (39%) Graduate. There was no significant relationship between education level and the prevalence of metabolic syndrome.

Table 3: Metabolic syndrome and Biochemical with anthropometric parameters in patients with schizophrenia

Variables	Metabolic syndrome(yes)	Metabolic syndrome(No)	P value
Blood Glucose(F) /mg/dl	122.23±15.84	120.45±18.24	0.456
T. Cholesterol (mg/dl)	198.52±35.78	135.23±27.44	0.023
Triglyceride	255.45±29.22	156.78±23.45	0.001
HDL (mg/dl)	38.24±4.23	46.27±10.45	0.004
SBP (mmHg)	128.24±13.42	122.31±27.23	0.521
DBP(mmHg)	82.74±13.55	79.52±6.88	0.230
Waist circumference (cm)	122.41±34.25	10.9.23±18.11	0.001

Metabolic syndrome present in schizophrenic patients, Mean and SD value of Blood glucose is 122.23±15.84, T. Cholesterol- 198.52±35.78, Triglyceride-255.45±29.22, HDL -38.24±4.23 and Waist circumference 122.41±34.25, comparison with non metabolic patients we have found statistically significant difference between the group and p value was <0.005.

DISCUSSION

Metabolic syndrome was found in people with schizophrenia in this research. 39 cases (39.0%) and 61 cases (61%) There is no metabolic syndrome. According to McEvoy, *et al.*[14] metabolic syndrome affects 51.6–54.2 percent of women and 36–36.6 percent of males. In another research, metabolic syndrome was shown to be prevalent in 39 percent of men and 55.9% of women. [14] The increased incidence of metabolic syndrome in women might be attributed to a more sedentary lifestyle, obesity (particularly since women have a bigger waist circumference than males), and hormonal issues. The bulk of our patients (n = 68) were above the age of 50, with the remaining patients (n = 32) being between the ages of 20 and 50. Patients were single in 69.0 percent of the population, married in 21 (21.0 percent), and divorced in 10 (10.0 percent). 20 (20.0%) of the patients were illiterate, 19 (19.0%) had completed elementary education, 22 (22.0%) had completed high school, and 39 (39%) had completed college. There was no link between educational attainment and the incidence of metabolic syndrome. In individuals with schizophrenia, there was a link between age and the incidence of metabolic syndrome. With increasing age, the prevalence of metabolic syndrome rose. This might be because obesity and lipid problems are more common in older people. These findings are in line with those of prior research.[16,17] The frequency of metabolic syndrome and marital status had a significant association. The incidence of metabolic syndrome was higher in married and divorced persons than in singles. According to Saadatian *et al.*,[16] 75.6 percent of patients with metabolic syndrome and 53.2 percent of those without were married. Sweileh *et al.*,[15] on the other hand, observed no link between marital status and the incidence of metabolic syndrome. The findings of this investigation revealed that there is no link between educational attainment and the incidence of metabolic syndrome. Saadatian *et al.*,[16] on the other hand, found a link between education and the incidence of metabolic syndrome: 65 percent of patients with metabolic syndrome were illiterate, whereas 70 percent of patients without metabolic syndrome were educated. Metabolic syndrome was found in schizophrenia patients in this research. Blood glucose was 122.23±15.84, T. Cholesterol was 198.52±35.78, Triglyceride was 255.45±29.22, HDL was 38.24±4.23, and Waist circumference was 122.41±34.25. When compared to non metabolic patients, we observed a statistically significant difference between the groups with a p value of <0.05. The incidence of metabolic syndrome was greater in persons who had been diagnosed with schizophrenia for more than a year. These findings were in line with the findings of Heiskanen *et al.*[17]

CONCLUSION

The high incidence of metabolic syndrome in schizophrenia patients, healthcare providers should take steps to detect risk factors and treat affected patients promptly, increasing the patient's quality of life and lowering healthcare expenses.

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Source of Support: None Declared
Conflict of Interest: None Declared