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Original Research Article

A Study to Assess the Diabetes and Hypertension among Patients with Psychiatric Illnesses Attending Outpatient Services

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Abstract:

Aim: The aim of the present study was to assess the Diabetes and Hypertension among patients with psychiatric illnesses attending outpatient services.

Material & methods: A cross-sectional observational study was conducted among 500 patients seeking psychiatric care at the out-patient of department of Psychiatry carried out between the duration of 6 months.

Results: The mean age of the entire sample population was 42.8 years, with mean age comparable between males and females. Males represented 40% of the study population. Mean body mass index (BMI) and mean blood pressure (BP) of the study population was 26.4 kg/m2 and 120.5/75.5 mmHg, respectively. A large proportion of patients did not smoke (90%) or consume alcohol (95%). 15% had diabetes and 8% and hypertension. 5% had both diabetes and hypertension. 46.66% of patients with diabetes had the condition for less than 5 years while 53.34% of patients with hypertension had the condition for at least 5 years or longer. More than 86.66% of patients with diabetes or hypertension were undergoing treatment for their physical NCD. Twenty patients (4%) had both diabetes and hypertension. Age, presence of a family history of any physical NCD and duration of psychiatric illness of ≥5years were significantly associated with the presence of diabetes or hypertension ($p<0.05$).Schizophrenia, schizotypal and delusional disorders were most prevalent among patients with diabetes or hypertension, and combinations of antipsychotics with other psychotropic medications were predominantly prescribed to patients with these physical NCDs. No association was observed between the psychiatric diagnosis or psychotropic medications with the presence of diabetes or hypertension.

Conclusion: Diabetes and hypertension are common physical NCDs in patients with psychiatric illness. Therefore, it is important that psychiatrists be aware of and identify patients who are at risk for such NCDs.

Keywords: Psychiatric Disorders, Physical Disorders, Non-Communicable Diseases, Diabetes, Hypertension, Frequency

Introduction

Patients with severe mental illnesses [SMI] have a high risk of developing metabolic disturbances that include obesity, type-2 diabetes, dyslipidemia, hypertension (HTN) and metabolic syndrome. [1] The coexistence of comorbidities like cardiovascular diseases with diabetes can elevate the risk of premature mortality, underscoring the need for effective diabetes management. [2] Depression is a psychiatric disturbance that can profoundly impact an individual's functioning, contribute to physical health issues, and decrease life expectancy. The global prevalence of psychiatric disturbances, including depression, is substantial, affecting approximately 300 million people at present. [3,4] Individuals with diabetes are more likely to exhibit depressive symptoms compared to those without the condition. [5] Both conditions can impede treatment adherence, disrupt metabolic control, and result in poor compliance with medication and dietary plans.

As a result, these conditions can lower the quality of life and escalate healthcare costs. The concurrent presence of hypertension and diabetes alongside psychiatric disorders detrimentally impacts both healthcare outcomes and prognosis. A comprehensive survey carried out by the World Health Organization (WHO) across 60 countries reported that comorbid depression affects 9.3% to 23.0% of individuals with chronic diseases. [6] Besides, patients with SMI have two to three times higher chance of mortality rate and significantly low life expectancy when compared to the general

population. [7,8] This is due to the presence of existing comorbidities with SMI like diabetes mellitus, HTN, obesity and lack of attention in the mental health clinics especially in developing and low-income countries. [9,10] Patients with SMI could be affected highly with type-2 diabetes and hypertension. [11,12]

HTN can affect 35%-61% of patients with bipolar disorder and 19%-58% of schizophrenic patients. [13] Besides, the prevalence of type-2 diabetes ranges from 10–15% in schizophrenic patients and 8–17% among patients with bipolar disorder. [13] Depression among these patients can result in poor self-care that can further worsen their disease condition. It leads to lack of adherence to treatment, loss to follow up, and poor compliance to lifestyle modification. It also impairs quality of life and several aspects of the functioning of patients with DM/HTN. [14] It is widely agreed that lifestyle risk factors largely explain the excess morbidity and mortality in persons with mental illness.

In our study, we aimed to evaluate the frequency of physical non-communicable diseases (NCDs) such as diabetes, hypertension, chronic lung disease, heart disease and chronic kidney disease, as elicited from information gathered among patients with psychiatric disorders at an out-patient mental health center and measures of anthropometric and blood pressure indices. In addition, we evaluated the extent to which psychiatrists at the out-patient mental health center elicited information and participated in management of physical comorbidities in this patient population.

The aim of the present study was to assess the Diabetes and Hypertension among patients with psychiatric illnesses attending outpatient services.

Material & Methods

A cross-sectional observational study was conducted among 500 patients seeking psychiatric care at the out-patient of Jay Prabha Medanta Hospital, Patna, Bihar, India carried out between the duration of 6 months.

Inclusion Criteria

- Male and female patients aged 18 years and above with known psychiatric illness and being treated at SCARF were consecutively selected for the study during their visit.
- Those who consented to be part of the study were included, irrespective of the type of psychiatric diagnosis, duration of psychiatric disease, type of comorbid physical NCD(s) or use of psychotropic medications.

Methodology

A survey questionnaire was developed based on the WHO STEP-wise approach to surveillance methodology, a standardized method to collect, analyze and disseminate data on risk factors for NCDs, especially in low-to-middle income countries.[15] The questionnaire included socio-demographic characteristics, current psychiatric diagnoses, duration of psychiatric disease, use of psychotropic medications, known medical history of physical NCDs such as hypertension, diabetes mellitus, heart disease, chronic lung disease, or renal disease, details on how/where these comorbidities were diagnosed, pharmacological management of these comorbidities and the associated treatment duration. Further, information on family history of psychiatric illness or physical NCDs and lifestyle such as diet modifications, physical activity, smoking and alcohol intake were collected. Anthropometric measurements such as height, weight, waist and hip circumference were performed using a non-stretchable tape. Blood pressure (BP) was measured in the right arm using standard cuffs fitted with a mercury sphygmomanometer in sitting position. Patients were interviewed in the local language by a trained medical doctor and responses to the interview were patient-reported or caregiver-reported in case the patient was absent. Psychiatric diagnoses of the patients were obtained from their electronic medical records available at the outpatient center. These diagnoses had been previously recorded by the treating psychiatrist at the time of patient registration and treatment initiation. Diagnostic categories were identified by the treating psychiatrist based on ICD-10 codes F01-F99 and used for analysis. [16] Psychotropic medications prescribed to the patients were recorded based on their prescriptions.

For the analysis, these medications were classified into four categories, namely patients taking: (1) One antipsychotic (either first- or second-generation);

(2) More than one type of antipsychotic;

(3 Antipsychotic medications combined with other psychotropic medications (eg. benzodiazepines, mood stabilizers, anti-depressant drugs, anti-epileptics drugs, anticholinergics); and

(4) Other medicines or combinations which do not fall in the first three categories (eg. Combinations based on mood stabilizers, benzodiazepines and/or anti-depressants).

Statistical Analysis:

STATA (release 15.1, Texas, USA: Stata Corp) was used for all statistical analyses. Statistical differences in the socio-demographic and clinical characteristics between patients with and without diabetes/hypertension were tested using Chi-square

test or Fisher's exact test (as appropriate) for categorical data and Student's t-test or Mann-Whitney test (as appropriate) for continuous data. Similarly, the association of diabetes/hypertension with different psychiatric diagnoses and the use of various psychotropic medications were tested using a Chi-square test or Fisher's exact test (as appropriate). A p-value less than 0.05 was considered statistically significant.

Results

Table 1: Demographic characteristics and information on physical illness of the study population

Characteristic	Overall N=500	Male N=200	Female N=300
Age, mean±SD (years)	42.8 ± 11.5	38.2 ± 12.4	44.6 ± 12.2
Family history of any physical NCD	300 (60)	120	180
Smoking	50 (10)	50	0
Alcohol	25 (5)	20	5
BMI, mean±SD (kg/m^2)	26.4 ± 5.2	24.6 ± 4.6	27.3 ± 5.5
SBP, mean±SD (mmHg)	120.5±12.0	122.8 ± 16.4	118.2 ± 14.2
DBP, mean±SD (mmHg)	75.5±10.6	78.2 ± 11.9	73.7 ± 9.6
Diabetes	75 (15)	28	47
Hypertension	40 (8)	10	30
Diabetes and hypertension	25 (5)	5	20

The mean age of the entire sample population was 42.8 years, with mean age comparable between males and females. Males represented 40% of the study population. Mean body mass index (BMI) and mean blood pressure (BP) of the study population was 26.4 kg/m2 and 120.5/75.5 mmHg, respectively. A large proportion of patients did not smoke (90%) or consume alcohol (95%). 15% had diabetes and 8% and hypertension. 5% had both diabetes and hypertension.

Table 2: Prevalence of diabetes and hypertension, their treatment status and duration of treatment

	n (%)
Diabetes	75 (15)
Duration of Diabetes	
<5 years	40 (53.34)
≥5 years	33 (46.66)
Patients undergoing treatment for Diabetes	65 (86.66)
Duration of Diabetes treatment	
<5 years	39 (52)
≥5 years	36 (48)
Hypertension	40 (8)
Duration of Hypertension	
<5 years	16 (40)
≥5 years	24 (60)
Patients undergoing treatment for Hypertension	35 (87.5)
Duration of Hypertension treatment	
<5 years	15 (42.86)
≥5 years	20 (57.15)
Patients with both Diabetes and Hypertension	20 (4)

46.66% of patients with diabetes had the condition for less than 5 years while 53.34% of patients with hypertension had the condition for at least 5 years or longer. More than 86.66% of patients with diabetes or hypertension were undergoing treatment for their physical NCD. Twenty patients (4%) had both diabetes and hypertension.

Table 3: Association of sociodemographic and clinical variables with diabetes or hypertension status in patients with psychiatric illnesses

Variable	diabetes or hypertension N=100	no diabetes or hypertension N=400	p-value (Chi-squared test)
Age, mean ± SD (years)	48.6±10.2	38.4±12.6	<0.0001
Males	35 (35)	180 (45)	
Females	65 (65)	220 (55)	0.119
BMI, mean ± SD (kg/m^2)	26.4±5.4	27.1±5.0	0.3232
Family history of any physical NCD	75 (75)	240 (60)	0.004
Family history of psychiatric illness	26 (26)	132 (33)	0.272
Duration of psychiatric illness			0.024
<5 years	28 (28)	160 (40)	
≥5 years	72 (72)	240 (60)	
Duration of psychiatric treatment			0.184
<5 years	58 (58)	260 (65)	
≥5 years	42 (42)	140 (35)	
Psychiatric diagnosis			0.115
Schizophrenia and related disorders	55 (55)	260 (65)	
Mood (affective) disorders	31 (31)	80 (20)	
Neurotic, and somatoform disorders	7 (7)	20 (5)	
Others	7 (7)	40 (10)	
Psychotropic medications$^{€}$			0.670
1 antipsychotic	12 (12)	48 (12)	
>1 antipsychotic	3 (3)	16 (4)	
Combination of antipsychotics with other medications	65 (65)	280 (70)	
Other medication/combinations (no antipsychotics)	20 (20)	56 (14)	

Age, presence of a family history of any physical NCD and duration of psychiatric illness of ≥5years were significantly associated with the presence of diabetes or hypertension ($p<0.05$).Schizophrenia, schizotypal and delusional disorders were most prevalent among patients with diabetes or hypertension, and combinations of antipsychotics with other psychotropic medications were predominantly prescribed to patients with these physical NCDs. No association was observed between the psychiatric diagnosis or psychotropic medications with the presence of diabetes or hypertension.

Discussion

There is a large body of evidence demonstrating that patients with mental illnesses have greater physical health morbidity, [17-19] with 60% of premature deaths amongst these patients attributed to physical illnesses such as cardiovascular and pulmonary diseases. [20] Furthermore, patients with severe mental illnesses have a shorter lifespan compared to the general population. [21,22] The increase in morbidity and mortality in patients with schizophrenia is partly explained by a higher prevalence of modifiable risk factors such as lack of exercise, obesity, alcohol misuse, smoking, and unemployment. [23,24]

The mean age of the entire sample population was 42.8 years, with mean age comparable between males and females. Males represented 40% of the study population. Mean body mass index (BMI) and mean blood pressure (BP) of the study population was 26.4 kg/m2 and 120.5/75.5 mmHg, respectively. A large proportion of patients did not smoke (90%) or consume alcohol (95%). 15% had diabetes and 8% and hypertension. 5% had both diabetes and hypertension. 46.66% of patients with diabetes had the condition for less than 5 years while 53.34% of patients with hypertension had the condition for at least 5 years or longer. More than 86.66% of patients with diabetes or hypertension were undergoing treatment for their physical NCD. Twenty patients (4%) had both diabetes and hypertension. Singh et al [25] conducted a study in a setting very similar to ours, except for the fact that clinical examination and investigations were conducted to identify various physical comorbidities. Close to half the patient population (48%) had physical illnesses, with hypertension (29.1%), respiratory diseases (15%), and diabetes (10%) amongst the most common diseases.16 Although not comparable, the difference in rates observed between our study and Singh et.al [25] could partly be explained by the fact that we depended on patient-reported presence of the illness(es), and not clinical investigations, thereby leading to under-reported rates. It is possible that the under-reporting could be due to lack of disease awareness, communication difficulties or hesitancy. In fact, previous studies have shown that

psychiatric patients have difficulties in communicating their physical illnesses to the physician.

Age, presence of a family history of any physical NCD and duration of psychiatric illness of ≥5years were significantly associated with the presence of diabetes or hypertension ($p<0.05$).Schizophrenia, schizotypal and delusional disorders were most prevalent among patients with diabetes or hypertension, and combinations of antipsychotics with other psychotropic medications were predominantly prescribed to patients with these physical NCDs. No association was observed between the psychiatric diagnosis or psychotropic medications with the presence of diabetes or hypertension. It has been well- documented that patients with schizophrenia suffer a high burden of diabetes and metabolic syndrome, and a higher prevalence compared to the general population. [26] It is to be noted that an increase in well-known risk factors in these patients partially explains most of the increased risk. [20]

A report from The National Board of Health and Welfare in Sweden showed furthermore a substantial difference between patients with serious psychiatric disorders and the general population in terms of how much of the prescribed medicines that are actually collected by the patient. [27] It can therefore be difficult to draw conclusions from our data about the actual use of the lipid lowering medications and whether any group should be prescribed more or less of this type of medication. Diabetes is connected to several complications, retinopathy and albuminuria being the ones included in this study. The risk for complications is both connected to the diabetes duration and glycaemic control. [28]. An earlier study has shown an increased prevalence of diabetic complications in patients with serious psychiatric disorders compared to controls. [29]

The results suggest that psychiatrists need to be more aware of management of common physical comorbidities such as diabetes and hypertension in patients with psychiatric illnesses. [30] Patients often seek treatment for symptoms of disorders that are diagnosed as co-morbid, rather than principal conditions. As a complex interface exists between such physical and mental illnesses, psychiatrists need to be trained to treat patients with these common physical conditions, and in specific, severe mental illnesses. In this manner, improved screening and early treatment of physical illnesses in psychiatric patients can significantly impact their psychosocial functioning and quality of life.

Conclusion

This study showed that physical examination and familial history can be helpful in detecting psychiatric patients at risk of developing physical NCDs in such a clinical setting. It is crucial for psychiatrists to increase their involvement in managing comorbid physical NCDs or for existing health systems to set up a referral path way to improve overall health outcomes for patients with psychiatric illnesses. Future studies are needed to identify potential differences that need to be incorporated while treating patients with physical NCDs based on the presence/absence of psychiatric illnesses. Studies are also required to develop a comprehensive psychosocial intervention strategy for patients with physical and mental comorbidities where lifestyle modifications are integrated within.

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