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Original Research Article

Comparative Study of Diabetes Mellitus Control in Psychiatric Patients versus General Population

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Abstract:

Background: Mental health disorders include unfavorable drug effects, cognitive impairments, and decreased treatment adherence, making it harder to manage Diabetes Mellitus (DM), a chronic condition that requires ongoing management. This study will evaluate diabetic and mental patients' glycaemic control and treatment results based on HbA1c levels, adherence, and lifestyle changes.

Methods: 100 patients with diabetes for six months or more participated in the cross-sectional observational study. There were 50 mental patients and 50 community members. Participants were at the age range from 30–50. A structured questionnaire collected data on medication adherence, HbA1c levels, and lifestyle factors like food and exercise. Our statistical analysis was conducted using SPSS with a significance criterion of $p<0.05$.

Results: General population HbA1c levels were 7.2 ± 1.0%, while psychiatric patients had significantly higher levels at 8.5 ± 1.2% ($p<0.01$). Compared to the general Population (7.8 ± 1.7), people with a mental health condition exhibited significantly worse treatment adherence (5.2 ± 2.3) ($p<0.01$). Psychiatric patients reported lower levels of physical activity (32% vs. 64%, $p<0.05$) and adherence to healthy nutrition (42% vs. 72%, $p<0.01$). No significant differences were found in alcohol and smoking rates.

Conclusion: This study found that mental health patients are less likely to adjust their lifestyle, control their glycaemic levels, and follow treatment regimens. These findings suggest that mental diabetes patients need extra attention to medication adherence and lifestyle promotion. Integrated care techniques for patients with mental illness and diabetes are needed for better long-term outcomes.

Keywords: Diabetes mellitus, psychiatric patients, glycemic control, HbA1c, treatment adherence, lifestyle modifications, integrated care, and chronic disease management.

Introduction

Diabetes is one of the most common and long-lasting metabolic illnesses, affecting millions worldwide. Diabetes mellitus (DM) is a global health issue. Long-term elevated blood sugar due to insulin synthesis, action, or both is its hallmark [1]. According to the International Diabetes Federation, about 500 million people have diabetes, and this number is expected to rise rapidly in the next decades. Due to the high risk of cardiovascular disease, kidney failure, blindness, and lower limb amputation, the disorder and its impacts strain individuals, families, and healthcare systems worldwide [2].

Effective disease management improves patient outcomes and reduces DM's societal impact. Drugs, lifestyle adjustments, blood glucose monitoring, and psychosocial factors are all part of the complex toolkit for controlling diabetes mellitus. People with many mental health disorders make this harder [3]. People often experience both short-term and long-term mental health disorders such as depression, anxiety, schizophrenia, and bipolar disorder. Poor glycaemic control and diabetes aggravate psychiatric symptoms are widely known. Diabetes exacerbates mental illness. People with a mental health condition face challenges different from those of the general Population when controlling DM [4]. Psychotropic medications, which treat mental illness, are important. Antipsychotics, mood stabilizers, and some antidepressants have poor

metabolic effects that can affect glycemic management [5].

The effects are obesity, insulin resistance, and dyslipidemia. Second-generation antipsychotics, used to treat schizophrenia and bipolar disorder, have been linked to type 2 diabetes. Mental health difficulties can impair cognitive function and decision-making, making diabetes treatment adherence harder [6]. Lifestyle factors make diabetes management difficult for mentally ill patients. Mental illness often causes apathy, altered habits, and neglect of self-care measures, including eating well, exercising, and taking prescriptions [7]. Substance abuse in some mental groupings can exacerbate diabetes and glycemic control. Social stigma and lack of healthcare may already put these people at risk of poor health outcomes, discouraging them from seeking treatment when they need it [8].

Given these challenges, it is crucial to determine if and how people with a mental health condition differ from the general Population in diabetes management and glycemic control. Many research has examined diabetes care in each group separately, but few have compared the results [9]. Such a comparison is needed to understand mental patients' particular issues and establish targeted diabetes care approaches. This study will compare the rate of diabetes control in the general Population with that of those with a confirmed diagnosis of DM for at least six months in people aged 30–50 to fill this information gap. This age group has a higher risk of diabetes complications, making disease management crucial. This study compares glycaemic control, therapy adherence, and lifestyle changes in people with a mental health condition to illuminate their needs. This study has three goals. First, we must assess psychiatric patients' long-term blood sugar management using HbA1c levels, the gold standard. Second, compare general Population and mental patient adherence rates for pharmaceutical and non-pharmacological therapy. The third goal is to compare the two groups' diabetic treatment based on food, activity, and drug use.

Understanding diabetes control variations between groups has policy and clinical consequences. It emphasizes the necessity for interdisciplinary diabetes management with mental health services for best results. This study may also assist in developing support groups, education, and collaborative treatment models for psychiatric diabetes patients. Finally, diabetes mellitus requires ongoing care to reduce issues and optimize quality of life gains. However, mental difficulties impair optimum glycemic control. Hence, targeted research is needed to determine why and how to solve it. This study will fill a literature vacuum by comparing the general Population and mental patient diabetes control rates. It intends to enhance results for this vulnerable Population and raise awareness of an understudied problem.

Methods

In this cross-sectional observational study, glycaemic control, treatment adherence, and lifestyle factors affecting diabetes management were compared between mental patients and the general Population. This cross-sectional study illuminated the differences between the two groups by collecting and assessing data at a certain moment.

Participants

The study included 50 mentally sick and 50 non-mental health patients. The study comprised 30–50-year aged people with at least six months of Type 1 or Type 2 diabetes. We chose this age range since diabetes-related issues begin then, making glycemic control and treatment critical. Participants were recruited from mental health and general healthcare facilities to ensure representation. By evaluating medical data, psychiatric patients were identified as having a mental ailment such as bipolar disorder, schizophrenia, anxiety, or depression. Outpatient diabetic clinics and primary care physicians' offices have public study participants. The study required informed consent from all participants.

Inclusion and Exclusion Criteria

The study employed well-defined inclusion and exclusion criteria to maintain the validity and reliability of the findings.

Inclusion Criteria

1. Adults aged 30–50 years.
2. Confirmed diagnosis of diabetes mellitus (Type 1 or Type 2).
3. Duration of diabetes of at least six months or more.

Exclusion Criteria

1. The presence of severe systemic illnesses, such as advanced cardiovascular disease, chronic kidney disease, or malignancies, could independently affect glycemic control.
2. Diagnosis of gestational diabetes as it is a temporary condition with different management protocols and outcomes compared to Type 1 and Type 2 diabetes.
3. Patients with unconfirmed or incomplete medical histories.

Data Collection

The data-gathering approach included measuring HbA1c, conducting questionnaires to assess treatment adherence and lifestyle factors, and checking medical records for medication history. Glycaemic control was assessed using HbA1c levels, a reliable indicator of two- to three-month average blood glucose levels.

Blood samples were obtained and tested at approved labs according to guidelines. HbA1c values were taken for each participant to compare the two group's glycaemic control. Standardized questionnaires investigated individuals' lifestyle habits and diabetes medication adherence. Adherence questions covered prescription ingestion, blood glucose monitoring, and follow-up visit attendance. Lifestyle factors like diet, exercise, smoking, alcohol, and sleep were studied. Self-reported data reveal diabetes self-management participation. The participant's medical records were analyzed to learn more about their diabetes history, including antidiabetic medicine type and dosage, diabetes complications, and co-morbid conditions. Due to the known effects of psychotropic medicines on glycaemic control, data included psychiatric diagnoses and treatments.

Statistical Analysis

We analyzed our data with SPSS 25.0 for statistical analysis. Demographics and baseline characteristics were summarised using means, medians, and standard deviations. HbA1c, medication adherence, and lifestyle factors were examined between the general Population and mental patients.

Continuous factors like HbA1c levels were assessed with independent sample t-tests, whereas categorical variables like adherence categories and lifestyle behaviors were tested with chi-square or Fisher's exact. A p-value < 0.05 was significant for all analyses. After accounting for age, gender, and diabetes duration, multivariate regression analysis was used to examine how psychiatric diseases affect glycaemic control and identify relevant confounders.

Ethical Considerations

The institutional ethics committee approved the study before it began. Once participants supplied informed consent, the study kept their identities and information private. Volunteers can leave at any moment without penalty. This rigorous methodology ensured reliable data collection to compare diabetes treatment outcomes between the general Population and mental patients.

Results

Demographics of Study Participants

The demographic characteristics of the study participants, including age, gender, diabetes type, and duration of diabetes, were compared between the psychiatric patient group and the general Population. The following table summarizes the key demographic data:

Table 1:

Demographic Variable	Psychiatric Patients (n=50)	General Population (n=50)	p-value
Age (years)	42.6 ± 6.3	43.2 ± 6.1	0.45
Gender (Male)	28 (56%)	30 (60%)	0.70
Diabetes Type (Type 2)	45 (90%)	46 (92%)	0.68
Duration of Diabetes (years)	8.2 ± 3.2	7.9 ± 2.8	0.70

There was no significant difference in age, gender distribution, or diabetes type between the psychiatric patients and the general population groups ($p > 0.05$).

Both groups primarily consisted of individuals with Type 2 diabetes, reflecting the general prevalence of this condition in the broader Population. The average duration of diabetes was similar in both groups, ensuring that both groups had a comparable baseline regarding the chronicity of the disease.

Comparative Analysis of HbA1c Levels, Treatment Adherence, and Lifestyle Modifications:

The primary outcome of interest was the level of glycemic control as measured by HbA1c.

In addition, treatment adherence and lifestyle factors were assessed to provide a more comprehensive view of diabetes management.

The following table presents the mean values of these variables:

Table 2:

Variable	Psychiatric Patients (n=50)	General Population (n=50)	p-value
Mean HbA1c (%)	8.5 ± 1.2	7.2 ± 1.0	< 0.01
Adherence Score (0-10)	5.2 ± 2.3	7.8 ± 1.7	< 0.01
Regular Physical Activity (%)	32%	64%	< 0.05
Healthy Diet Adherence (%)	42%	72%	< 0.01
Smoking (Yes)	20%	14%	0.43
Alcohol Consumption (Yes)	18%	22%	0.72

Mental patients had a significantly higher mean HbA1c level (8.5 ± 1.2%) than the overall Population (7.2 ± 1.0%, $p < 0.01$). This implies poorer glycemic management in mental patients.

Lower treatment adherence, lifestyle difficulties, and pharmacological adverse effects such as antipsychotic-induced insulin resistance may be the reasons. The adherence score of mental patients was lower than the general Population (7.8 ± 1.7) (5.2 ± 2.3), indicating less regularity in medication, lifestyle changes, and follow-up sessions ($p < 0.01$). Mentally ill patients may have a harder time controlling their diabetes due to cognitive deficits, bad pharmacological reactions, and lower motivation. Psychiatric patients had lower rates of physical activity (32% vs. 64%, $p < 0.05$) and nutritious diet (42% vs. 72%, $p < 0.01$) compared to the general Population. This suggests that mental health difficulties may make diabetes harder to manage by causing patients to be less active and eat poorly. No group significantly varied in smoking or alcohol use ($p > 0.05$). The study found that these factors did not explain substantially group differences but can affect diabetes control.

Discussion

This study compared mental and general population diabetes control, including glycemic control, treatment adherence, and lifestyle changes. Researchers observed that mental health patients had higher HbA1c values than the general Population, indicating poorer glycemic management. They made fewer lifestyle changes and adhered less to treatment. These findings support previous research on diabetes care in those with mental health issues.

Interpretation of Results and Link to Existing Literature

This study confirms prior findings that psychiatric individuals have poorer diabetes control and higher HbA1c levels. [10] Found that cognitive impairments, poor self-care, and psychotropic medication can raise HbA1c levels in mental patients, particularly bipolar and schizophrenia patients. It is well known that antipsychotics, especially second-generation ones, impair glucose metabolism. These medicines increase insulin resistance, weight gain, and lipid metabolism, worsening glycemic control. In psychiatric patients, medication-induced drowsiness, cognitive impairment, or lack of desire can raise blood glucose levels, making diabetes care harder. Our research found substantially poorer adherence scores in the mental health group than in the general Population. Like this study, mental health patients have lower drug adherence and less effective self-management. Cognitive impairment, lack of ambition, and forgetfulness make diabetes management harder for mentally ill persons. [11] Found that people with severe mental illnesses like schizophrenia had problems following psychiatric and chronic disease management regimens like diabetes medication.

Mental health and diabetic drugs can interact, making treatment programs harder to follow and less likely to be followed. This study also found that mental patients were less active and ate poorly than the general Population. Bad food and lack of exercise are key to poorly managed diabetes, and several studies have linked mental health difficulties, notably worry and depression, to these disorders. Depression may reduce self-care, leading to poor diet and decreased exercise [12]. Schizophrenia and bipolar disorder may also cause the inability to follow diet and exercise programs, which are essential for managing diabetes.

Possible Reasons for Poorer Glycemic Control in Psychiatric Patients

Mental patients' worse glycaemic control may have numerous causes. Psychotropic drugs, especially antipsychotics and mood stabilizers, are known to affect metabolic health. Second-generation antipsychotics like olanzapine, quetiapine, and clozapine can cause weight gain, insulin resistance, and dyslipidemia, which can impair glycemic control [13]. These medicines worsen glucose metabolism and increase type 2 diabetes risk. Psychiatric drugs disrupt appetite regulation, causing overeating and poor nutrition, making diabetes management harder. Cognitive problems can also hinder diabetes control in psychiatric patients. Cognitive impairments, including focus, memory, and organization, are often associated with schizophrenia, bipolar illness, and severe depression. People with these impairments may struggle to check blood glucose levels, take medications as prescribed, and make healthy lifestyle choices. Diabetes care requires meal planning, appropriate food preparation, and regular exercise. However, mental health issue-related cognitive dysfunctions may impair these capacities. Finally, mental health disorders might affect motivation and mood, affecting glycemic control. Due to decreased drive, depressed people may struggle to follow their mental and diabetic treatments. Mental health patients may have reduced self-efficacy and be less likely to control their diabetes. Stigma may prevent these patients from seeking mental health therapy, which can harm their psychiatric and metabolic health.

Implications for Clinical Practice

The findings of this study affect clinical practice. Their findings underline the necessity for mental health and diabetes therapy. Mental patients with diabetes face unique challenges. Therefore, healthcare providers must personalize treatment to their psychological and physiological needs. For instance, healthcare personnel must monitor psychiatric drug metabolic adverse effects and consult with psychiatrists to change treatment strategies. Doctors must also better educate people

about diabetes and mental health. Mental patients can enhance their self-management by adopting motivational interviewing or CBT to increase treatment adherence. Helping this Population control their diabetes may require customized lifestyle adjustments like more exercise and healthier eating. Healthcare systems should treat diabetic mental health patients more thoroughly and accessiblely. Endocrinologists, psychiatrists, dietitians, and mental health counselors can provide comprehensive treatment in integrated care teams with regular follow-ups. These strategies may improve diabetes care for mentally ill persons.

Limitations of the Study

This study provides useful information, but its limits must be considered. The results may not apply to a larger population due to the small sample size (100 people; 50 from the general community and 50 from psychiatric patients). Results would be more consistent, and a larger sample would make group differences easier to notice. The study's cross-sectional design also limits us to one moment for adherence, lifestyle, and glycemic control. A longitudinal study is needed to determine how mental illness affects diabetes management and outcomes. Finally, self-reports of treatment adherence and lifestyle factors may have been influenced by social desirability and recollection. Future studies should include more detailed lifestyle behavior evaluations and objective adherence measurements.

Conclusion

This study shows that patients with mental illness and the general Population manage diabetes differently. Psychiatric diabetics had greater HbA1c levels than the normal group, indicating poorer glycaemic management. Patients with mental health issues exhibited higher HbA1c levels, poor treatment adherence, and low diet and exercise participation. These findings demonstrate the many challenges mental patients experience in managing their diabetes, including psychotropic drug side effects, cognitive decline, and decreased self-care. This study found that psychiatric diabetes care must be improved immediately. Psychiatric patients may have problems following their medicine regimens due to cognitive challenges, side effects, or lack of motivation, making treatment adherence strategies crucial. This group could benefit from tailored support with healthy lifestyle choices like eating better and exercising more. Diabetes and mental health professionals must work together to overcome these challenges and improve results. The findings emphasize the necessity for diabetes-specific mental health treatment programs. Clinicians must focus on regular monitoring, education, and support for mental health patients with diabetes to help them manage their illness. Healthcare providers can help psychiatric patients control their diabetes like the general Population by increasing care coordination and overcoming lifestyle and adherence barriers. These efforts will enhance diabetic mental health over time.

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