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Depression, Diabetic Complications and Disability Among Persons With Comorbid Schizophrenia and Type 2 Diabetes

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Background: *People with schizophrenia are at increased risk for type 2 diabetes, its complications, depression, and disability. However, little is known about the interrelationships of these 3 factors in adults with schizophrenia and type 2 diabetes.* **Objective:** *We sought to assess the number of diabetic complications and depressive symptom severity as predictors of disability and evaluate depressive symptom severity as a mediator of the relationship between diabetic complications and disability in a sample of 62 adults with schizophrenia and type 2 diabetes.* **Methods:** *Two- and 3-step sequential regression models were used to evaluate the relationship of depression and number of diabetic complications with disability. Path analysis with bootstrapping was used to evaluate depressive symptom severity as a mediator of the relationship between complications and disability.* **Results:** *Diabetic complications significantly predicted disability scores when controlling for age, gender, socioeconomic status, hemoglobin A1C, positive symptom severity, and negative symptom severity. The addition of depression severity scores resulted in a significant increase in explained variance in disability scores. In the final model, only depression severity scores were significantly associated with disability scores. The full model accounted for 56.2% of the variance in disability scores. Path analysis revealed a significant indirect association of diabetic complications to disability through depression severity scores while controlling for all covariates. The association between complications and disability was nonsignificant when depressive symptom severity was included in the model.* **Conclusions:** *Depressive symptoms may present an important and tractable target for interventions aimed at reducing disability in people with schizophrenia and type 2 diabetes.*

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INTRODUCTION

Schizophrenia and other psychotic disorders are among the most severe and disabling psychiatric conditions.[1] Globally, schizophrenia is the eighth leading contributor to disability adjusted life years lost for people between ages 15 and 44 years.[2] The disease course for schizophrenia is associated with a high rate of symptom relapse (e.g., acute psychosis),[3] and even those who achieve sustained clinical remission often experience protracted functional impairment.[4] Consequently, disability among people with schizophrenia is characterized by poor social and vocational outcomes as well as by low rates of independent living.[5]

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In addition to the social and functional burden of disease, people with schizophrenia are at increased risk for comorbid physical and mental health conditions, such as diabetes[6,7] and depression,[8] which may further contribute to high levels of disability. For example, chronic medical complications associated with the course of diabetes (e.g., heart disease, vascular disease, peripheral neuropathy, kidney failure, and ocular disease) have been associated with greater rates of physical disability[9,10] among the general population (i.e., a nonpsychiatric population). Similarly, depressive symptoms are related to high rates of disability among individuals in the general population[11,12] and people with schizophrenia.[13]

Although major depression and diabetes are frequently comorbid,[14] little is known about the relative contribution of these factors to disability. Research has shown that the co-occurrence of these disorders is associated with the number of lost workdays[15] and risk for functional disability within the general population.[16] Furthermore, some research has suggested that, compared with the complications of diabetes, depression may have a stronger relationship to lost workdays[17] and global level of disability[18] among those with diabetes.

Findings from other research have suggested that depressive symptoms may partially account for the disabling effect of diabetic complications.[19] For example, diabetes and the burden of its complications have been associated with more depressive symptoms.[20–23] In turn, high depressive symptom severity has been associated with high levels of disability among people with diabetes.[15,16] At least one recent study has shown that depressive symptoms actually precipitate the development of disability among people with diabetes in the general population.[24] Given these associations, it is possible that diabetic complications may affect disability via depressive symptoms. However, few studies have simultaneously examined the relationships of diabetic complications, depressive symptom severity, and disability in the general population or in unique subpopulations. Additional research is particularly needed to improve our understanding of the relationship among depressive symptoms, diabetes complications, and disability in high-risk populations such as those with serious mental illness and type 2 diabetes mellitus (DM).

The purpose of this study was to examine the role of depression within the relationship between diabetes complications and disability among adults with schizophrenia and DM. First, we hypothesized that diabetic complications and depressive symptom severity would be positively associated with disability among members of this population. Second, we expected that depressive symptom severity would account for variance in disability beyond the total number of diabetic complications when controlling for potential covariates of disability (i.e., age, gender, socioeconomic status, positive symptoms, negative symptoms, and hemoglobin A1C). Third, we expected that depressive symptom severity would mediate the putative relationship between number of diabetic complications and disability.

METHODS

Participants

The current study used baseline data from a pilot intervention that aimed to improve health outcomes in adults with serious mental illness and comorbid DM. Participants who were older than 18 years, demonstrated the capacity to provide informed consent, and had a chart diagnosis of schizophrenia or schizoaffective disorder and comorbid DM were included in this study. Participants with a diagnosis of dementia were excluded.

Procedure

Study participants were recruited at board-and-care facilities, day treatment programs, and community clubhouses. Following receipt of informed consent, participants were invited to take part in an assessment with a trained interviewer. Interviews lasted approximately 2.5 hours, and participants were compensated $10 for completing the interview. All participants were treated in a manner consistent with the American Psychological Association Ethical Principles of Psychologists and Code of Conduct. All methods were approved by the appropriate institutional review boards.

Measures

Sociodemographic and Diabetes-Related Variables

Sociodemographic measures were used to gather self-report data on participants' age and gender. Medical and psychiatric chart abstraction was used