A Preliminary Analysis of Individuals With Serious Mental Illness and Comorbid Diabetes

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A B S T R A C T

Objective: To understand factors related to managing illness in older individuals with serious mental illness (SMI).
Methods: Baseline data from 200 individuals with SMI and diabetes enrolled in a study were used to compare characteristics between older (age >55) vs. younger (age ≤55) individuals.
Results: Older individuals had better diabetes control compared to younger individuals, those with major depressive disorder had diabetes for a longer duration, worse diabetic control, and more emergency department encounters.
Conclusions: Helping younger individuals with SMI learn to manage their mental and physical health early-on might minimize the negative and cumulative effect of diabetes.

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Metabolic disorders, such as diabetes, are rapidly growing problems among Americans. The Centers for Disease Control and Prevention (CDC 2014) notes that in 2012, 29.1 million children and adults in the United States or 9.3% of the population have diabetes, and in 2012 alone there were 1.7 million new cases of diabetes in people aged 20 years and older. High rates of comorbid medical illnesses are found in adults with psychotic disorders including schizophrenia and schizoaffective disorder and adults with affective disorders including depression and bipolar disorder. (Dickey, Normand, Weiss, Drake, & Azeni, 2002). A sub-group of individuals at particular risk for metabolic disorder including diabetes is individuals with serious mental illness (SMI), such as schizophrenia, bipolar disorder and severe or recurrent major depression (Barnett, Mackin, Chaudhry, et al., 2007). There are a variety of factors that contribute to the higher rates of diabetes in people with SMI, including poor diet, inactivity and the effects of psychotropic drugs (Daumit et al., 2005; Dipasquale et al., 2013, Jerome et al., 2009).

Unfortunately, people with SMI have elevated rates of premature mortality due to these comorbidities (Hannerz, Borgå, & Borritz, 2001; Walker, McGee, & Druss, 2015). Older adults with SMI are known to have high rates of diabetes and die earlier than the general population. Medical illness in older persons with SMI is associated with early mortality, disability, reduced functioning, and greater rates of nursing home placement and high-cost emergency services (Bartels, 2004). Understanding factors related to managing physical and mental health in older people with SMI could help inform better treatments that may improve outcomes. This analysis of baseline data from a randomized controlled trial (RCT) testing a novel behavioral intervention intended to improve mental and physical health in people with SMI, assessed clinical characteristics of older (age >55) vs. younger (age ≤55). Additionally older adults with diffusing SMI diagnoses were compared on healthcare use in the past 2 years.

METHODS

Overview

This analysis used baseline data from an NIMH-funded study designed to test a novel intervention (Targeted Training in Illness Management/TTIM) vs. treatment as usual (TAU) among individuals with SMI and comorbid diabetes (1R01MH085665-01A2). The RCT enrolled 200 individuals in a safety-net health system primary care setting. Primary outcomes in the overall study include SMI symptoms functioning, general health, and diabetes outcomes (HbA1c levels). Secondary outcomes include other dimensions of mental and general health, such as alcohol abuse, diabetes knowledge, social support, insight and body mass index (BMI). In this analysis, older individuals (age >55 years) with schizophrenia/schizoaffective disorder (SZ), bipolar disorder (BD) or major depressive disorder (MDD) + diabetes were compared to younger individuals (≤55 years) on clinical and demographic characteristics. Within the older patient sample, diagnostic subgroups (MDD, BD, SZ) were compared with respect to clinical characteristics and hospital and emergency department (ED) use.

Participants

The RCT inclusion criteria included: having a diagnosis of SZ, BD or MDD confirmed with the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998) and receiving treatment for SMI; having diabetes based upon previous diagnosis or laboratory values; being ≥18 years of age; able to communicate in English; and able to provide written, informed consent to participation. Individuals with guardians of person provided guardian consent and patient assent. Exclusion criteria included: being actively suicidal/homicidal; being unable to be rated on study rating scales; having dementia; being pregnant; being unable to participate in groups due to uncontrolled/severe psychiatric symptoms; limited expected lifetime; being unable to provide informed consent; having special physical and/or dietary needs that are not consistent with the TTIM Intervention; or participation in another RCT that affects diabetes or mental health outcomes. The study was approved by the local institutional review board (IRB). Study participants were recruited from clinician and community referrals, word of mouth and self-reported referrals in response to IRB-approved advertisement, and via electronic health record search for having SMI on the medical problem list.

Measures

Table 1 shows baseline demographic and clinical variables between older and younger individuals with SMI. Health literacy assessment used screening questions evaluated by Wallace (2006) to detect persons with limited or marginal health literacy in primary care settings. Diabetes control was evaluated with HbA1c, which gives an indication of relative blood glucose control over the previous 3 months. Body Mass Index (BMI), a known risk factor for diabetes, was recorded. The self-reported Charlson Index evaluated the presence of significant medical comorbidity (Chaudhry, Jin, & Meltzer, 2005). In addition the following standardized measures were used:

Psychiatric Symptoms

Montgomery Asberg Depression Rating Scale (MADRS)

The MADRS is a 10-item depression severity scale sensitive to change, widely utilized in studies with patients with SMI, and has established strong validity and reliability (Montgomery & Asberg, 1979; Sajatovic & Ramirez, 2003). Higher scores indicate greater depression severity.

Brief Psychiatric Rating Scale (BPRS)

The BPRS (Overall & Gorham, 1962), is a widely used scale that measures major psychotic and non-psychotic symptoms in SMI. Higher scores indicate greater symptom severity.

Functional Status/Disability

Global Assessment of Functioning (GAF)

The GAF is a 100-point single-item scale that measures global functioning of psychiatric patients, and is widely used in SMI studies (Jones, Thornicroft, Coffey, & Dunn, 1995). Higher scores indicate better functioning.

Sheehan Disability Scale (SDS)

Related to functional status, the SDS measures role impairment associated with mental disorder (Leon, Olfson, Portera, Farber, & Sheehan, 1997). Higher scores indicate greater disability.

Other Standardized Measures

Diabetes Knowledge was assessed with the Brief Diabetes Knowledge Test, a 14-item instrument that is reliable, valid and has been used

Table 1
Demographic and Clinical Characteristics of Older vs Younger Individuals With SMI and Comorbid Diabetes.

Variable	Older individuals n = 106	Younger individuals n = 94	Statistic[**] p-value
Age	61.94 (5.1)	47.33 (6.7)	<.01
Education in years	12.85 (2.6)	12.28 (2.8)	0.02
Gender, Female	68 (53.1%)	60 (46.9%)	0.96
Race			
White	44 (59.5%)	30 (40.5%)	0.30
African-American	54 (50.5%)	53 (49.5%)	
Other	8 (42.1%)	11 (57.9%)	
Insurance Status			
Private	5 (71.4%)	2 (28.6%)	0.05
Medicare	45 (65.2%)	24 (34.8%)	
Medicaid	44 (46.3%)	51 (53.7%)	
No Insurance	12 (41.4%)	17 (58.6%)	
Duration of SMI in Years	21.58 (13.7)	14.95 (10.3)	<.01
Duration of Diabetes in Years	10.08 (7.5)	10.05 (8.1)	0.73
Psychiatric diagnosis			
Major Depression	30 (53.6%)	26 (46.4%)	0.99
Bipolar Disorder	50 (52.6%)	45 (47.4%)	
Schizophrenia	26 (53.1%)	23 (46.9%)	
Body Mass Index (BMI)	35.45 (7.3)	36.67 (10.1)	0.70
Charlson	2.49 (1.6)	1.96 (1.5)	0.01
Diabetes Knowledge	65.99 (20.8)	65.71 (18.6)	0.73
Hemoglobin A1c	7.51 (2.1)	8.53 (2.4)	<.01
MADRS	23.13 (9.4)	25.06 (8.8)	0.11
BPRS	39.43 (9.5)	40.65 (9.4)	0.39
GAF	51.95 (11.7)	51.23 (11.2)	0.84
SDS	17.69 (6.1)	18.06 (6.2)	0.72
ITAQ	17.49 (5.5)	17.25 (5.6)	0.78
CAGE	0.89 (1.5)	0.97 (1.6)	0.82
DAST-10	0.45 (1.6)	0.83 (2)	0.07
MSPSS	40.89 (10.5)	41.86 (9.8)	0.51
Health Literacy	12.64 (3.05)	12.26 (3.27)	0.63

For all variables we present mean and standard deviation (SD) except for categorical variables for which we present n and percent (%).
Charlson = Self-reported Charlson Medical Comorbidity Index.
BPRS = Brief Psychiatric Rating Scale.
MADRS = Montgomery Asberg Depression Rating Scale.
GAF = Global Assessment of Functioning.
SDS = Sheehan Disability Scale.
ITAQ = Insight and Treatment Attitudes Questionnaire.
CAGE = CAGE Questionnaire for alcohol use.
DAST-10: Drug Abuse Screening Test 10-item version.
MSPSS = Multidimensional Scale of Perceived Social Support.
[**] Continuous and ordinal variables analyzed using Wilcoxon test; categorical variables analyzed using chi-square test.

successfully with people with SMI (Fitzgerald et al., 1998; McKibbin et al., 2006). Higher scores indicate greater diabetes knowledge.

Insight into Mental Illness was evaluated with the Insight and Treatment Attitudes Questionnaire (ITAQ), an 11-item rating scale to evaluate patient recognition of illness and need for treatment in psychiatric illness (McEvoy et al., 1989). Higher scores indicate less insight.

Alcohol abuse was measured with the CAGE questionnaire, a widely used method of screening for lifetime risk for alcohol use disorders (Ewing, 1984). Higher scores indicate higher risk for problem drinking.

Drug Abuse was measured with the Drug Abuse Screening test 10-item version (DAST-10), which identifies severity of drug dependence consistent with the concept of the drug dependence syndrome (Skinner, 1982). Higher scores indicate more problems with drug use.

Social Support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS), a self-report measure of subjectively assessed social support (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Higher scores indicate higher levels of perceived social support.

Data Analysis

Analyses were conducted in SAS software version 9.2 (SAS Institute 2008) and R software version (The R Foundation for Statistical