Screening for Metabolic Risk Among Patients With Severe Mental Illness and Diabetes: A National Comparison

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Objective: **People with severe mental illness have a higher risk of developing cardiovascular disease and die sooner than the general population. This study of a national sample of primary care patients in the United Kingdom compared screening for cardiometabolic risk factors among patients with severe mental illness and diabetes.** ***Methods:*** **Screening for cardiovascular disease among 2,488,948 patients with diabetes (2010–2011) and 422,966 patients with severe mental illness (2011–2012) at 8,123 primary care practices was compared.** ***Results:*** **The percentage of patients who received screening across four parameters (body mass index, blood pressure, blood glucose, and cholesterol) in the previous 15 months was higher among patients with diabetes than among those with severe mental illness (97.3% versus 74.7%, p<.001).** ***Conclusions:*** **The proportion of patients in primary care who were given screening for cardiometabolic risk was much lower among those with severe mental illness than among those with diabetes. (*Psychiatric Services* 64:1060–1063, 2013; doi: 10.1176/appi.ps.201200514)**

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Patients with severe mental illness—schizophrenia, bipolar disorder, or other psychosis—die sooner than the general population; this reality is reflected in a mortality gap of 15 to 22.5 years. Deaths from natural causes (comorbid general medical illness) in this population continue to rise and may account for between 80% and 95% of the premature mortality. Multiple factors—such as obesity, smoking, poor diet, substance misuse, physical inactivity, and some antipsychotic medications—are implicated in increasing the risk of cardiovascular events in these populations (1).

Two recent meta-analyses of systematic metabolic monitoring of patients with schizophrenia and bipolar disorder found that about one in two had obesity, one in two were smokers, one in three had metabolic syndrome, one in three had diabetes or prediabetes, two in five had hypertriglyceridemia, and two in five had hypertension (2,3). Several psychotropic drugs, particularly second-generation antipsychotics such as clozapine and olanzapine, appear to contribute to cardiometabolic risk. Among patients with long-term illness who are maintained on some second-generation antipsychotics, rates of metabolic syndrome, as well as combined rates of diabetes and prediabetes, may exceed 50% (4). Yet among drug-naive patients with schizophrenia, the rate of metabolic syndrome appears to be similar to the rate for an age-matched population (about 10%) (5).

Eighteen sets of specific guidelines for the general medical care of patients with severe mental illness or schizophrenia have been published since 2000 (6). It is not clear whether they have influenced clinical practice. The guidelines generally have not stated who should take responsibility for monitoring metabolic health, how frequently to conduct monitoring (at a minimum), or how to audit monitoring. In the United States, a key guideline is the 2004 consensus document by the American Diabetes Association, the American Psychiatric Association, and others (7).

In the United Kingdom, three key guidelines are in place, namely the 2006 National Institute for Health and Clinical Excellence (NICE) guidelines for bipolar disorder (www.nice.org.uk/nicemedia/pdf/CG38niceguideline.pdf), the 2009 revised NICE schizophrenia guidelines (www.nice.org.uk/nicemedia/pdf/CG82NICEGuideline.pdf), and the Quality and Outcomes Framework, the general medical services contract that governs care by general practitioners (GPs) (8). Since 2004, each primary care center in England has received payment through this contract to care for people with long-term conditions, including the provision of medical screening of patients with schizophrenia, bipolar affective disorder, and other psychoses (8). Each center is required to maintain registers of people with a diagnosis of each long-term condition, including severe mental illness and diabetes. The Quality and Outcomes Framework uses the term "severe mental illness" to indicate schizophrenia, bipolar affective disorder, and other psychoses. Depression is registered separately.

In order to receive payment, practices are required to offer a review of the physical health of people with severe mental illness only every 15 months. Even when treatment or diagnosis takes place in secondary care, responsibility for monitoring is often delegated to primary care. In general, general medical surveillance of psychiatric patients in primary care is more complete than testing in secondary care. Primary care is also considered to be the usual place for care of people with long-term conditions, such as diabetes.

Since April 2011, monitoring and surveillance of severe mental illness and diabetes have been compensated in the same way. The standards for cardiometabolic screening and lifestyle advice for diabetes and severe mental illness share several similarities but are not identical. Nevertheless all patients with severe mental illness and diabetes should, as a minimum, receive an assessment of blood pressure, body mass index (BMI), blood glucose concentration (or HbA1c level) and cholesterol level (or ratio of high-density lipoprotein to total cholesterol). Ideally information should be exchanged about the benefits of diet, exercise, and smoking cessation.

In a recent study in Northamptonshire, England, Hardy and others (9) compared compliance with requirements by the Quality and Outcomes Framework for metabolic testing of patients with severe mental illness and with diabetes. They found significantly less frequent testing of metabolic measures among the patients with severe mental illness. This study was an attempt to replicate this finding with a national sample.

Methods

Since April 2011, payment for treatment of severe mental illness under the terms of the Quality and Outcomes Framework requires primary care practitioners to offer a review of metabolic indicators every 15 months to persons with a diagnosis of severe mental illness. This review should include measuring blood pressure and BMI and, among patients over 40 years of age, testing for blood glucose (or HBA1c) levels and HDL:cholesterol ratio. Prior to 2012, payment for diabetes care required primary care practices to offer a review of blood pressure, blood glucose, BMI, and cholesterol every 15 months to people with diabetes, but this changed in 2012. Thus the standards for severe mental illness in 2012 and for diabetes in 2011 are almost identical (apart from the age requirement for blood tests among patients with severe mental illness) and run in consecutive years (2011 and 2012).

We collected data from the Health and Social Care Information Centre (HSCIC), the database of the National Health Service (NHS). We requested national data from 2011 and 2012 regarding compliance with the Quality and Outcomes Framework standards, data which are in the public domain.

Given that the GP contract requires cardiovascular screening of patients with diabetes and severe mental illness, the information collected at source (the primary care practice) is also stored in a national database system called the Quality Management Analysis System (QMAS). This system determines practices' contract payments. All information from the QMAS from the previous contract year (April 1 to March 31) is displayed on the NHS information center's public Web site (www.ic.nhs.uk/searchcatalogue). We compared the percentage of patients with diabetes and severe mental illness who had been evaluated for blood pressure, BMI, blood glucose or HBA1c level, and cholesterol (fasting or random). We could not compare patients' demographic characteristics, diet, or waist circumference nor assess whether they received advice about exercise or smoking habits. Measuring waist circumference and offering diet and exercise information are not contract requirements for care of diabetes or severe mental illness and, therefore, are not recorded in this database. Although providing advice about smoking is a contract requirement, the data are measured for all long-term conditions combined and not for each individual long-term condition. Additionally, we were unable to measure the proportion of patients in each group who had any primary care contact.

We calculated chi square statistics to explore whether the patient's diagnosis (severe mental illness or diabetes) was associated with the level of screening. Analyses were done with Statsdirect 2.77.

Results

The total sample included 2,488,948 patients with diabetes seen in 2010–2011 and 422,966 patients with severe mental illness seen in 2011–2012. In 2011–2012, there were 8,123 primary care practices that reported to the QMAS.

In the previous 15 months, 94.9% of patients with diabetes were assessed for BMI, 96.1% for cholesterol, 98.4% for blood pressure, and 97.5% for HBA1c level. By comparison, 79.4% of patients with a diagnosis of severe mental illness were assessed for BMI, and 84.1% received blood pressure assessment. Among those over 40 years of age, 71.7% received a cholesterol test and 64.8% received a glucose test. Differences between the two groups of patients were highly significant for each category of test (Table 1).

However, attendance and compliance are significant issues among persons with a severe mental illness (10). As a result, the Quality and Outcomes Framework allows practices to exclude patients who are too unwell or who are unwilling to attend for monitoring over a given period. After the exclusions, the reanalysis showed that 91.7% of patients with severe mental illness received a blood pressure assessment, 88.7% received a BMI measure, 81.9% received a cholesterol test, and 84.8% received a glucose test. All differences remained highly significant (Table 1).

Discussion

This research demonstrates that in a large sample from the United Kingdom, testing for metabolic risk factors was much less common among patients with severe mental illness than among those with diabetes.

Both conditions are similarly remunerated by a points system through the Quality and Outcomes Framework payment contract. The noninvasive clinical monitoring, for example of blood pressure and BMI, was more

Table 1

Metabolic testing of patients with diabetes and severe mental illness before and after exclusion of patients who were nonadherent, by measure[a]

	Diabetes		Severe mental illness			
Measure	N	%	N	%	χ^2	p
Before exclusion						
Blood pressure	2,378,115	98.4	355,834	84.1	205,712	<.001
Body mass index	2,362,485	94.9	335,652	79.4	691,072	<.001
Cholesterol	2,298,767	96.1	218,539	71.7	262,020	<.001
HBA1c or glucose	2,329,552	97.5	197,494	64.8	495,257	<.001
Total (mean)	7,006,434	97.3	771,867	74.7	890,478	<.001
After exclusion						
Blood pressure	2,378,115	98.4	218,539	91.7	97,549	<.001
Body mass index	2,362,485	94.9	335,652	88.7	96,465	<.001
Cholesterol	2,298,767	96.1	355,834	81.9	61,743	<.001
HBA1c or glucose	2,329,552	97.5	335,652	84.8	313,117	<.001
Total (mean)	7,006,434	97.3	771,867	86.9	234,503	<.001

[a] The data were reanalyzed after excluding patients with severe mental illness who were too unwell or were unwilling to attend treatment.

thorough than monitoring requiring a blood test (cholesterol and HBA1c or glucose) among patients with severe mental illness. Only 64.8% of patients older than 40 years old with severe mental illness received an HBA1c or a glucose test for diabetes in the preceding 15 months, whereas about 95% of all patients with diabetes received HBA1c testing over a similar period. It can be argued that these tests are not directly comparable, given that the glucose test is for case finding and the HBA1c test is for monitoring treatment adherence. However, the purpose of measuring cholesterol, BMI, and blood pressure—to monitor background metabolic risk—is the same for both groups. Only 71.7% of patients with severe mental illness over 40 years of age received a cholesterol check, compared with 96.1% of all patients with diabetes. If we had been able to measure glucose and cholesterol:HDL ratio testing for all patients with severe mental illness regardless of age, we would likely have found the level of monitoring to have been even lower. Notably, fewer patients with severe mental illness than diabetes had blood pressure and BMI checked.

Our findings are consistent with other research in this area in regard to blood pressure being measured more frequently than tests requiring venipuncture but are also conflicting, given that our measures of BMI were higher. Mitchell and others (11) recently reviewed studies regarding general medical monitoring for patients with mental illness. Thirty-eight of these studies (N=217,539 patients) examined routine monitoring prior to the development of explicit guidelines. Across all baseline studies, routine monitoring rates were generally low but were highest for blood pressure (66.5%) and triglycerides (59.9%), followed by cholesterol (47.3%), glucose (41.8%), weight (44.3%), and lipids and HBA1c (<20%). Rates were similar for patients with schizophrenia, for patients in the United States and the United Kingdom, and for inpatients and outpatients.

This study, based in primary care, showed higher overall rates of monitoring among patients with severe mental illness. Several explanations are possible. Quality and Outcomes Framework incentives to primary care practices might have improved monitoring. In fact, most Quality and Outcomes Framework targets are achieved, and the relatively low achievement of targets for patients with severe mental illness is an outlier. Another explanation is that monitoring for mental illness in general has improved in the last one to two years. Osborn and others (12) used The Health Improvement Network primary care database to examine general medical monitoring by primary care practices in the United Kingdom between 2000 and 2007. Throughout this period, monitoring rates for patients with mental illness were very low, but there was a trend for improvement among patients with and without mental illness.

Our findings show that patients with diabetes received considerably more thorough cardiometabolic monitoring than patients with severe mental illness. However, in terms of years lost through mortality (up to 15–22.5 years in several studies), severe mental illness is probably more serious than diabetes. Patients with mental illness, particularly those with severe mental illness—especially if they are taking long-term antipsychotic medication—should be considered at least as vulnerable as individuals with diabetes. Barriers to medical care facing these patients include lack of resources or time, low organizational support, clinicians' reluctance to change, concerns over the quality of the guidelines, and lack of clear lines of responsibility (12).

Given these findings of disproportionately low surveillance of patients with severe mental illness, even in a system that provides financial payments for cardiometabolic monitoring, what can be done to improve general medical care? At present, many mental health organizations provide no systematic education about comorbid general medical illnesses and do not have a culture of routine medical testing. Establishing clinics in psychiatric settings to promote general medical and metabolic health has been suggested. Patients also would probably benefit from education that is focused on changing health behaviors.

To date there are no randomized controlled trials (RCTs) of clinics for monitoring general medical health among persons with mental illness, but one RCT of note, the Primary Care Access, Referral, and Evaluation study (13), examined use of a package of medical care. Persons with severe mental illness (N=407) were randomly assigned either to the medical care management intervention or to usual care. At 12-month follow-up, the intervention group had received an average of 58.7% of recommended preventive services, compared with 21.8% for the usual care group. They had also received a significantly higher

proportion of evidence-based services for cardiometabolic conditions (34.9% versus 27.7%) and were more likely to have had a primary care provider (71.2% versus 51.9%) and to have received a physical examination (58.7% versus 21.8%).

It is important to note that effective monitoring of metabolic disturbances is not sufficient on its own, given that appropriate treatment is also mandatory. Data from the National Ambulatory Medical Care Survey from 1992 and 1996 found that psychiatrists offered smoking-cessation counseling during 12% of 1,600 office visits of patients with mental illness who were documented smokers. They offered diet and exercise counseling at 6% and 4% of the visits, respectively (14). In short, there is a question whether mental health professionals are able to respond if a general medical problem is found. Comorbid general medical illness among persons with mental illness is often unrecognized and inadequately treated. For example, Bernardo and others (15) found that among inpatients with schizophrenia, only 60% of those with diabetes, 28% of those with hypertension, and 14% of those with dyslipidemia received active treatment for the general medical condition.

This study had several limitations. It was retrospective, not prospective. It was reliant on secondary data. The observations of patients with diabetes and mental illness were made at different time points, given that there was a change in the data collection requirements for each condition. Finally, we were not able to adjust for any potential confounders.

Conclusions

The introduction in April 2011 of specific contract incentives for cardiometabolic screening of persons with severe mental illness may be partly successful in improving general medical surveillance among persons with mental illness, but inequalities in monitoring of persons with mental illness and diabetes remain. There is a need to educate commissioners and clinicians about the risks of cardiovascular disease among patients with mental illness and to improve medical surveillance and treatment for important comorbid general medical conditions.

Acknowledgments and disclosures

The authors report no competing interests.

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