Opinions of Primary Care Clinicians and Psychiatrists on Monitoring the Metabolic Effects of Antipsychotics

Christina Mangurian, MD, MAS, Aishat Giwa, MHI, Erin Brosey, MS, Martha Shumway, PhD, James Dilley, MD, Elena Fuentes-Afflick, MD, MPH, Eliseo J. Pérez-Stable, MD, and Dean Schillinger, MD

Objective: **Although people with severe mental illness (SMI) have high rates of diabetes and other metabolic disorders, adherence to recommended screening guidelines is low. This study aimed to compare primary care clinicians' and psychiatrists' attitudes toward metabolic monitoring and treatment of patients with SMI.**

Methods: **Primary care clinicians and psychiatrists within 1 large urban integrated public health system were recruited to participate in this online survey study. Multivariate logistic regression analyses were used to examine if clinician characteristics were associated with attitudes or perceived barriers toward metabolic monitoring and treatment.**

Results: **Response rates were 77% (164/214) of primary care providers and 69% (56/81) of psychiatrists completing the survey. There were no significant differences in age or race/ethnicity between provider groups, although primary care clinicians were more likely to be women when compared with the psychiatrists (69% vs 39%, *P* < .001). Psychiatrists were more likely than primary care clinicians to believe that psychiatrists should conduct metabolic monitoring even if patients had a primary care provider (80% vs 60%, *P* = .011) However, fewer psychiatrists than primary care clinicians believed that psychiatrists should treat identified cardiometabolic abnormalities (15% vs 42%, *P* < .001).**

Conclusion: **Systemic problems with care coordination and these varying expectations likely contribute to poor cardiometabolic outcomes in this vulnerable population. (J Am Board Fam Med 2019;32: 418–423.)**

Keywords: **Diabetes Mellitus, Logistic Regression, Mental Health, Mental Disorders, Metabolic Diseases, Primary Health Care, Psychiatry, Public Health, Surveys and Questionnaires, Vulnerable Populations**

People living with severe mental illness (SMI; eg, schizophrenia and bipolar disorder) experience premature mortality and die, on average, 25 years earlier than the general population, most often from cardiovascular disease.[1–6] In fact, as age expectancy increases, the gap in life expectancy between these groups may actually be widening.[6]

In addition to multiple lifestyle risk factors, second generation antipsychotic medications can cause metabolic abnormalities, which increase cardiovascular disease risk.[7–11] In a meta-analysis, Mitchell et al (2011) found that 1 in 3 patients with schizophrenia suffer from 3 or more cardiovascular

risk factors.[9] Even in first-episode patients, studies have shown increases in weight[12–15] and cholesterol levels,[12,13] within the first 9 to 12 months of treatment. Early screening is particularly important, as rates of metabolic syndrome seem to increase with age and duration of illness.[9]

Unfortunately, cardiovascular risk factors are likely to be underdiagnosed and undertreated among individuals with SMI.[16–18] Even during medical or surgical hospitalizations where risk factors for cardiovascular disease, such as obesity and smoking, were identified, people with SMI received fewer diet consults and smoking cessation interventions when compared with nonpsychiatric populations.[18] In addition, these people with SMI were less likely to be diagnosed with laboratory-confirmed cardiovascular risk factors than their nonpsychiatric counterparts, even when controlling for demographic variables.[18]

There have been national efforts to reduce cardiovascular morbidity and mortality by encouraging screening, monitoring, and treatment of people who take antipsychotic medications.[19–22] The American Association of Clinical Endocrinologists include the diagnosis of schizophrenia as a risk factor for prediabetes and diabetes mellitus.[33] The American Diabetes Association has even mapped out standard procedures for screening patients with SMI as part of their routine medical care.[19] These guidelines recommend baseline screening and continued metabolic monitoring of body mass index, waist circumference, blood pressure, fasting blood glucose, and fasting lipids.[19,20] Despite these guidelines and psychiatrists' acknowledgment of their importance, monitoring rates continue to be low.[23–26]

This lack of metabolic monitoring raises the issue of accountability. Our prior work has examined the beliefs of community primary care clinicians and psychiatrists, respectively.[27,28] In this article, we compare these responses from within an integrated public delivery system. To our knowledge, this is the first survey study to compare opinions of 2 key specialties regarding whose role it is, or should be, to monitor and treat metabolic abnormalities among people with SMI.

Methods

Setting and Sample

All primary care clinicians (physicians, nurse practitioners, and physician assistants) and psychiatrists were approached from safety-net clinics in 1 large urban integrated public health system. The system includes clinics operated by the public health department and by affiliated community health centers. The primary care and mental health clinics do not share electronic health records. Clinician participants were surveyed between December 2009 and February 2011.

Study Procedures

The recruitment methods for psychiatrists and primary care clinicians have been described previously.[27,28] Briefly, clinicians were offered an opportunity to participate in an anonymous survey about metabolic monitoring of people taking antipsychotic medications. Potential participants were contacted by a research coordinator and asked to complete a survey either on article or online. The survey was distributed to the psychiatrists first and was adapted for the primary care clinician sample. To meet inclusion criteria, a provider must have (1) primarily treated adults and (2) spent 5% or more of their time in direct patient care. A $5 gift card was offered to all respondents regardless of survey completion. Follow-up e-mails were sent 2 weeks after initial survey distribution. Study procedures were approved by the University of California, San Francisco Committee on Human Research (number 10–03254).

Corresponding author: Christina Mangurian, MD, MAS, 1001 Potrero Avenue, Suite 7M, San Francisco, CA 94110 (E-mail: christina.mangurian@ucsf.edu).

Table 1. Preferences for Type of Clinician Who Should Be Conducting Metabolic Monitoring of People with Severe Mental Illness

	Provider Type*							
	Psychiatrists				Primary Care Clinicians			
	Disagree		Agree		Disagree		Agree	
Statement	N	%	N	%	N	%	N	%
Primary care clinicians should screen not psychiatrists[†]	30	70	14	30	52	33	102	66
Psychiatrists should screen even if the patient has established primary care[‡]	10	20	39	80	63	40	93	60

*Notably, there were minor differences in the number of providers responding to these questions. For example, 47 psychiatrists and 154 primary care clinicians answered the first statement and 49 psychiatrists and 156 primary care clinicians answered the second.
[†]Primary care clinicians were more likely than psychiatrists to agree with this statement ($P < .001$).
[‡]Psychiatrists were more likely than primary care clinicians to agree with this statement ($P = .011$).

Measures

In addition to clinician demographic and practice questions,[29,30] the survey included questions about perceived roles of providers in metabolic monitoring and/or treatment of metabolic abnormalities and barriers to metabolic monitoring of patients on antipsychotic medications. Questions were drawn from the literature and expert consultation as described previously.[23,24,27–30]

Attitudes about roles were rated on a 5-point Likert scale. Because responses were skewed, these were reduced to: (1) "Disagree" (including "strongly disagree," "disagree," and "neutral" responses), and (2) "Agree" (including "agree" and "strongly agree" responses).

Respondents were asked to identify the 1 "top barrier" that had the largest impact on metabolic screening from 25 possibilities. Questions about care coordination were collapsed into 1 category ("Difficulty with care coordination"). The survey is publicly available online (https://www.ncbi.nlm. nih.gov/pmc/articles/PMC3780562/).

Data Analysis

The t tests and χ^2 tests were used to determine if any clinician demographic characteristics were related to attitudes toward metabolic monitoring or treatment. Multivariate logistic regression analysis was used to examine if clinician characteristics might be associated with attitudes toward metabolic monitoring and treatment. Logistic regressions were used to determine whether clinician characteristics were associated with perceived barriers to metabolic monitoring.

Results

All 81 psychiatrists in this urban safety-net public health system were approached to participate; 69% (56/81) responded and 86% (49/56) of these met inclusion criteria. All 214 primary care clinicians in this urban safety-net public health system were approached to participate; 77% (164/214) of primary care clinicians responded and 98% (160/164) of these met inclusion criteria. Most primary care clinicians were physicians (62%, 99/160), whereas 36% (57/160) were nurse practitioners and 2% (4/160) were physician's assistants.

In terms of demographic information, the primary care clinicians were more likely than psychiatrists to be women (69% vs 39%, $P < .001$), but otherwise there were no significant differences between providers in age or race/ethnicity. In addition, there were no significant differences in opinions between medical doctor primary care clinicians and non-medical doctor clinicians for the questions highlighted below.

When asked about monitoring metabolic risk factors, clinicians were asked about specific circumstances. For example, most primary care providers (66%, 102/154) believed that "primary care providers, not psychiatrists," should monitor metabolic risk in contrast to only 30% (14/47) of psychiatrists ($P < .001$, $t = 4.637$, df = 199) (Table 1).

A significant proportion of both primary care clinicians (60%, 93/156) and psychiatrists (80%, 39/49) agreed that the "psychiatrist or mental health clinic, even if patients have established primary care" should monitor for metabolic risk factors, with psychiatrists believing this even more

strongly ($P = .011$, $t = -2.576$ df $= 203$) (Table 1). In contrast, less than half of primary care providers (42%, 66/158) and fewer psychiatrists (15%, 7/48) believed that the psychiatrists' role is to "prescribe oral medications to treat elements of metabolic dysfunction (eg, statins…)," with a significantly lower proportion of psychiatrists believing that they should play this role ($P < .001$, $t = 3.536$, df $= 204$).

Sixty percent (114/191) of both clinician groups reported either severity of mental illness or difficulty with care coordination as 2 barriers. There were no significant differences in reported "top barriers" between the psychiatrists and primary care clinicians. Insufficient provider time, insufficient staff availability, and difficulty accessing laboratory data were reported by close to 20% of providers overall as key barriers.

Discussion

To our knowledge, this is the first study to compare psychiatrists' and primary care clinicians' opinions on provider and system-level factors that affect monitoring and treatment of metabolic abnormalities among people with SMI. Understanding clinicians' anticipated role in screening for these risk factors is a key component to increasing the rate at which patients with SMI receive medical treatment for these symptoms.

Our findings suggest a sizable disconnect between where (and by whom) clinicians believe metabolic monitoring should be done and where (and by whom) treatment should be initiated. Despite endorsing the practicality of psychiatrists monitoring metabolic abnormalities, a majority of clinicians in both groups believed that the treatment of metabolic dysfunctions is the role of the primary care clinician exclusively. This disconnect between where monitoring and treatment should occur undoubtedly contributes to the poor rates of treatment for metabolic abnormalities among this vulnerable population.

Despite initiatives to improve cardiometabolic screening and treatment among people with SMI,[19–22] they are still woefully underscreened[26] while being at greater risk for early mortality compared with the general population. Part of this problem—as highlighted in this study—is lack of ownership over who should be doing the screening. One solution to this potential lack of coordinated care among providers could involve colocating primary care clinicians in community mental health care settings. A study by McGinty et al (2015) indicates veterans with SMI tend to receive better comprehensive medical care in the Veterans Health Administration, which offers multiple providers at 1 location and includes a nationwide network of electronic medical records that assist with patient care. They found that compared with Veterans Health Administration patients, Medicaid patients had the lowest adherence to national guidelines on medical care and screening over time.[31] Integrated health care systems provide the greatest ability to coordinate patient care but are costly and difficult to implement nation-wide.[32] Therefore, it may be worth considering having on-site physicians at community mental health clinics (the psychiatrists) perform metabolic monitoring and initiating first-line treatment for relatively easy to treat metabolic abnormalities (eg, dyslipidemia). This could be facilitated through a standardized consultation with a designated primary care physician.

This study's primary limitation is that it relies on a single urban community safety-net health system. In addition, the clinicians were not asked to choose between specific clinician groups in questions regarding monitoring or treatment, making findings of role preferences less than definitive. Although these aspects are beyond the scope of this article, we believe this study is an important first step in qualifying the role psychiatrists and primary care physicians play in the identification and treatment of metabolic and cardiovascular risk factors in patients with SMI.

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APPENDIX: Primary Care Providers Questionnaire

Date (dd/mm/yy): _____/_____/_____

Basic Information:

1. Age_____

2. Gender: ☐ Male   ☐ Female

3a. Ethnicity: ☐ Hispanic or Latino/Latina   ☐ Non Hispanic or Latino/Latina

3b. Race: (select all that apply)
☐ American Indian or Alaska Native   ☐ Asian   ☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander   ☐ White   ☐ Other: _____

Provider Characteristics:

4. What type of provider are you: ☐ Physician   ☐ Nurse Practitioner   ☐ Physician Assistant
        4a. Are more than 50% of your clients adults (>18y/o)?   ☐ Yes   ☐ No (If no, please stop survey)

5. In training (residency, fellowship, or other)?   ☐ Yes   ☐ No (If no, please skip to question #6)
        5a. Specify type of training program (e.g., internal medicine, nurse practitioner): _____
        5b. Year of graduation from training: _____

6. Approximate percentage (%) of time per week is spent in the following practice settings:

Private practice	_____	%
Hospital setting	_____	%
Outpatient primary care clinic	_____	%
Research (*circle which applies*: lab/clinic)	_____	%
TOTAL	**100**	**%**

7. Which clinic(s) do you work in? (Please select all that apply):
    List of San Francisco Community Clinics

8. Approximate percentage (%) of patients in your clinic having the following primary source of insurance:

Privately insured	_____	%
Publicly insured (e.g., Medicaid, Medicare)	_____	%
Self-pay (able to pay)	_____	%
Uninsured	_____	%
TOTAL	**100**	**%**

9. Total number of unique outpatients you saw across all practice settings in the last month: _____

10. Approximate percentage (%) of your patients with the following primary psychiatric diagnoses:

Schizophrenia or schizoaffective disorder	_____	%
Bipolar I or II disorder	_____	%
Major depression or other depression	_____	%
Other Psychiatric Diagnosis	_____	%
TOTAL	_____	**%**

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11. Approximate percentage of these psychiatric patients that are being prescribed antipsychotic medications at risk for causing metabolic dysfunction, such as increased BMI, obesity, and diabetes (e.g. olanzapine, risperdone, chlorpromazine): _____ %

12. Are you aware of the ADA/APA (American Diabetes Association, American Psychiatric Association) consensus statement describing metabolic risks associated with second generation antipsychotic medications and specifying a monitoring protocol for patients taking these medications?

                        YES   NO

Physician Attitudes:

For each question, please circle the choice that best fits your response:

13. How strongly do you agree or disagree with the following statements?

    a. Individuals with schizophrenia are more at risk than the general population for suffering metabolic dysfunction, such as increased BMI, obesity, and diabetes.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    b. Some antipsychotic medications can contribute to metabolic dysfunction, such as increased BMI, obesity, and diabetes.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

Physician Roles:

For each question, please circle the choice that best fits your response:

Roles in Monitoring:

14. How strongly do you agree or disagree with the following statements?

Monitoring metabolic risk factors (such as BMI, BP, glucose, and/or lipids) in patients on antipsychotics at risk of causing metabolic dysfunction is the role of:

    a. **Primary care providers**, *not psychiatrists* or mental health clinics.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    b. The **psychiatrist or mental health clinic**, *only if* patients do not have an established primary care provider.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    c. The **psychiatrist or mental health clinic**, *even if* patients have established primary care.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

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<u>**Roles in Treatment:**</u>
15. How strongly do you agree or disagree with the following statements about the responsibility of **community psychiatrists**?

If patients <u>**in a mental health clinic**</u> are found to have abnormalities in metabolic risk factors that are likely caused by treatment with antipsychotic medications, the following interventions may be the **responsibility of the treating psychiatrist**:

    a. Responsibility of **psychiatrists to refer to primary care providers** or other medical follow-up

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    b. Responsibility of **psychiatrists to directly contact patients' primary care** or other medical providers

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    c. Responsibility of **psychiatrists to maintain contact with primary care** or other medical providers regarding continuing treatment of metabolic risk factors

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    d. Responsibility of **psychiatrists to provide patients with literature** regarding metabolic syndrome and related metabolic risk indicators

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    e. Responsibility of **psychiatrists to refer patients to weight loss programs**, or other related psychosocial or support group programs

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    f. Responsibility of **psychiatrists to refer patients to smoking cessation programs**

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

16.   How strongly do you agree or disagree with the following statement?
    a. Prescribing oral medications to treat elements of metabolic dysfunction (e.g., statins, metformin) may, **in certain circumstances**, be the responsibility of <u>**the outpatient treating psychiatrist**</u>.

        Strongly disagree   Disagree   Neutral   Agree   Strongly agree

    b. In which of the following circumstances do you think it would be appropriate to have the <u>**treating outpatient psychiatrist**</u> prescribe oral medications to treat elements of metabolic dysfunction? Please select all that apply.

        ☐ In extremely rare circumstances (e.g., patients requesting emergency refills)
        ☐ Sharing responsibility for treatment in partnership with a primary care or other medical provider
        ☐ If a patient does not have access to primary care or other medical providers
        ☐ If the **psychiatrist** is the sole provider treating elements of metabolic dysfunction

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<ins>**Barriers to Monitoring:**</ins>
17. In the following section, please rate the degree to which the factors listed below are significant barriers to monitoring *your* patients for metabolic risk. For each factor, circle one of the following that best suits your response to whether you agree or disagree that the factor is a significant barrier to monitoring: strongly disagree (1), disagree (2), neutral (3), agree (4), or strongly agree (5), or select N/A if the factor is not relevant to your patients or practice environment.

I believe the following **patient factors** are a barrier to monitoring patients for monitoring metabolic risk:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Gender	1	2	3	4	5	N/A
Lack of insurance	1	2	3	4	5	N/A
Lack of income	1	2	3	4	5	N/A
Ethnic or cultural factors	1	2	3	4	5	N/A
Fluency of English	1	2	3	4	5	N/A
Legal status	1	2	3	4	5	N/A
Lack of education	1	2	3	4	5	N/A
Severity of psychiatric illness	1	2	3	4	5	N/A

I believe the following **staffing or physician factors (at your primary care clinic)** are a barrier to monitoring patients for monitoring metabolic risk:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Insufficient staff availability	1	2	3	4	5	N/A
Insufficient staff awareness	1	2	3	4	5	N/A
Insufficient staff training	1	2	3	4	5	N/A
Insufficient physician time	1	2	3	4	5	N/A
Ability to counsel this population about metabolic problems	1	2	3	4	5	N/A
Ability to treat metabolic problems in this population	1	2	3	4	5	N/A
Insufficient reimbursement for screening	1	2	3	4	5	N/A
Insufficient reimbursement for treatment	1	2	3	4	5	N/A
Burden of documentation	1	2	3	4	5	N/A
Difficulty accessing laboratory data	1	2	3	4	5	N/A
Medicolegal liability of testing patients	1	2	3	4	5	N/A
Medicolegal liability of treatment	1	2	3	4	5	N/A

I believe the following **referral and collaboration factors** are a barrier to monitoring patients for monitoring metabolic risk in our health care system in San Francisco County:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Difficulty arranging referral for psychiatric follow-up	1	2	3	4	5	N/A
Lack of access to psychiatric follow-up	1	2	3	4	5	N/A
Wait times for appointments for psychiatric follow-up	1	2	3	4	5	N/A
Difficulty collaborating with physicians providing psychiatric follow-up	1	2	3	4	5	N/A
Increased cost of collaborative care	1	2	3	4	5	N/A

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18. Please use the below list of barriers to answer the following questions:
   a. Please rank numerically (**with 1, 2, and 3**) what you think are the **top 3 barriers** in your practice to screening and monitoring patients on antipsychotics at risk for causing metabolic dysfunction:

__ Gender

__ Lack of insurance
__ Lack of income
__ Ethnic or cultural factors
__ Fluency of English
__ Legal status
__ Lack of education
__ Severity of psychiatric illness
__ Insufficient staff availability
__ Insufficient staff awareness
__ Insufficient staff training
__ Insufficient physician time

__ Ability to counsel these patients about metabolic problems
__ Ability to treat metabolic problems in this population
__ Insufficient reimbursement for screening
__ Insufficient reimbursement for treatment
__ Burden of documentation
__ Difficulty accessing laboratory data
__ Medicolegal liability of testing patients
__ Medicolegal liability of treatment
__ Difficulty arranging referral for psychiatric follow-up
__ Lack of access to qualified psychiatric follow-up
__ Wait times for appointments for psychiatric follow-up
__ Difficulty collaborating with psychiatrists
__ Increased cost of collaborative care

   b. If you could only choose **ONE** barrier from the above list of barriers that has the largest impact on screening, which would that be?

   _____

19. How strongly do you agree or disagree with the following statement?

   Solving the **ONE** barrier I have listed above is likely to make a measurable impact in the rate of metabolic screening for patients at risk for developing metabolic dysfunction.

   Strongly disagree   Disagree   Neutral   Agree   Strongly agree

Thank You!