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Patient experience with healthcare services among older adults with serious mental illness compared to the general older population

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Abstract

Objective—To compare patient experience with healthcare services and providers among older patients (≥ 50 years old) with and without serious mental illness.

Methods—Using secondary data from the Medical Expenditures Panel Survey from 2003 through 2013, we compared adults aged 50 years and older with schizophrenia spectrum disorder ($n=106$), mood disorders (i.e., major depressive disorder and bipolar disorder) ($n=419$), and no serious mental illness ($n=34,921$).

Results—Older adults with schizophrenia spectrum disorder reported significantly worse provider communication than older adults without serious mental illness. Older adults with mood disorders reported the greatest barriers to shared decision-making and the greatest difficulty accessing services.

Conclusions—Our results highlight the need to improve the patient experience of older adults with serious mental illness. Addressing provider communication, shared decision-making, and

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Supplementary Material

Supplementary material for this article is available online.

access to care among this vulnerable group of older adults may impact clinical outcomes and costs. Future research examining the extent to which improving the patient experience may improve health outcomes and enhance treatment for this highly vulnerable older group is warranted.

Keywords

access; satisfaction with care; serious mental illness

Introduction

Adults with serious mental illness (SMI) suffer from the combined impact of low rates of preventive care,¹ inadequate medical treatment,² and difficulties navigating the healthcare system.³ For middle-aged and older adults, these issues place them at increased risk for early nursing home placement, hospitalization, medical comorbidity, and early mortality.^{4–7} Positive healthcare experiences have been associated with improved outcomes in the general population.^{8,9} However, little is known about how older adults with SMI experience healthcare services and encounter with providers.

A patient's experience accessing and utilizing healthcare services may greatly influence their decision to partner with healthcare providers and take an active role in achieving personal health goals. Positive patient experiences can improve engagement in recommended treatment¹⁰ and lead to better clinical outcomes^{11–14} and reduced healthcare costs.¹⁵ As people with SMI have higher healthcare costs than the general population and these costs increase as people age,¹⁶ improving the patient experience may have significant implications for improving care quality and reducing costs.

Several unique factors impact the patient experience of older adults with SMI. For example, healthcare providers may be less likely to address concerns expressed by older patients¹⁷ or patients who have an SMI.¹⁸ Further, insufficient communication and the absence of established working relationships with mental health specialists may impact care.¹⁹

Prior studies have examined satisfaction of patients with SMI with their mental health treatment^{20,21} and Veterans Administration primary care services.²² However, few studies have specifically examined the experiences of *older* patients with SMI compared to the general population of older adults. In order to understand the patient experience of individuals with SMI, we compared self-reports of provider communication, access to providers, and shared decision-making by older adults with schizophrenia spectrum disorder and mood disorders compared to older adults without an SMI.

Methods

Data were acquired from respondents from the publicly available Medical Expenditures Panel Survey (MEPS) Household Component survey from 2004 through 2013. As part of the household component, interviewers collected self-reported data from civilian, noninstitutionalized families and individuals. Every year a new MEPS panel of respondents is sampled from the previous year's nationally representative National Health Interview

Survey. For this analysis, the first interview (out of five in-person interviews) of each year was used and variables were consolidated. The Dartmouth College institutional review board exempted the protocol due to the de-identified nature of the downloaded data.

Demographic data

Data from the Household Component survey on socioeconomic and health factors that may impact patient experience were incorporated in the study. The following variables were included: age, gender, race, marital status, geographic location, education, health insurance status, current smoker status, and income level. Health factors included number of medical comorbidities and past 30 days service use. Patient-reported mental and physical health status was assessed using the Short Form-12 (SF-12),²³ with higher scores indicating better perceived health status.

SMI diagnosis data

Consistent with other MEPS studies with an SMI sample,²⁴ SMI diagnosis was obtained through self-report. Respondents were asked to self-report physical and mental health conditions. Self-reported physical and mental health conditions were linked to the International Classification of Disease (ICD-9) diagnosis code by trained MEPS researchers. This method has demonstrated sensitivity (88%) to provider reports of mental health diagnoses.²⁵ For this study, SMI was defined as individuals with an ICD-9 code of 295 (i.e., schizophrenia spectrum disorders including schizophrenia or schizoaffective disorder) or ICD-9 code of 296 (i.e., major depressive disorder and bipolar disorder).

Patient experience

Provider communication—We identified patient–provider healthcare quality measures from the Consumer Assessment of Healthcare Providers and Systems²⁶ supplement from the MEPS Household Component survey. This instrument measures quality of care from patients’ perspectives and has demonstrated good psychometric properties.²⁶ Questions refer to events experienced in the last 12 months. Example questions include the following: “how often does your health provider listen carefully to you?” and “how often health providers showed respect for what you had to say?”

Shared decision-making—As MEPS does not include a shared decision-making measure, we identified patients’ satisfaction with sharing healthcare decisions with their usual source of care from the MEPS Household Component survey. MEPS defines usual source of care as “the particular medical professional, doctor’s office, clinic, health center, or other place where a person would usually go if sick or in need of advice about his or her health.” Examples of questions include the following: “does health provider ask person to help make decisions between a choice of treatments? (yes/no)” and “does health provider present and explain all options? (yes/no).”

Access to provider—We used the Access to Care supplement from the MEPS Household Component survey to examine how difficult it was for patients to access their usual care provider by phone. The response options were as follows: “very difficult,” “somewhat

difficult,” “not too difficult,” or “not at all difficult.” We also included questions on receiving medical treatment without any delay from the Access to Care supplement.

Statistical analysis

Descriptive statistics were calculated describing the distribution of covariates and patient responses by SMI diagnostic group (i.e., schizophrenia spectrum disorder, mood disorder, or no SMI). Analysis of variance and chi-squared tests were used to evaluate crude differences in these variables between SMI diagnostic groups.

Multivariable logistic regression analyses were conducted to evaluate predictors of patients reporting poor clinical experience or poor access to care. All reported responses were grouped and dichotomized. For patient experience questions, responses of “never,” “sometimes,” or “no” were coded as 1, and responses of “usually,” “always,” or “yes” were coded as 0. For questions regarding access to care, responses of “very difficult” or “somewhat difficult” were coded as 1, and responses of “not too difficult” and “not at all difficult” were coded as 0. All regression models were adjusted for sociodemographic and health-related covariates including age, gender, race, marital status, geographic location, education, health insurance status (i.e., private, Medicare, Medicaid, or none), current smoker status, income level, number of medical comorbidities (including hypertension, coronary heart disease, other heart disease, cancer, arthritis, diabetes, myocardial infarction, emphysema, and/or serious cognitive impairment. MEPS defines serious cognitive impairment as an individual answering “yes” to having experienced any confusion or memory loss, difficulties with decision-making, or needing supervision), and past 30 days service use (i.e., inpatient stays and outpatient visits). Respondents were grouped by psychiatric diagnostic categories (schizophrenia spectrum disorders, mood disorders) and compared to patients with no SMI diagnosis. We accounted for MEPS complex sampling design in analyses using person weighting and adjustment for stratification. All analyses were performed using STATA statistical software v.14.1. A *p* value of 0.05 was considered statistically significant.

Results

Table 1 presents the demographic and clinical characteristics of our sample. The total sample included patients aged 50 years and older with no SMI ($n=34,921$), mood disorders ($n=419$), and schizophrenia spectrum disorders ($n=106$). The total sample had a mean age of 64.6 (SD =10.3 years); the majority were female (57.9%), White (75.9%), had a high school education (mean years of education =12.4, SD =3.5), and were not employed (56.5%). In comparison to older adults without any SMI, individuals with schizophrenia spectrum disorders or mood disorders, on average, had more outpatient visits (4.2%, 1.5%, vs. 1%) and inpatient stays (0.3%, 0.3%, vs. 0.2%), a greater number of medical conditions (1.6%, 1.8%, vs. 1.4%), lower levels of physical health functioning (SF-12 Physical Component Scores: 40.4%, 38.8%, vs. 42.8%), and were current smokers (47.1%, 36.4%, vs. 14.6%).

Provider communication

Psychiatric diagnosis was found to be a significant predictor of satisfaction with provider communication (see Table 2). Older patients with schizophrenia spectrum disorder were more likely to report dissatisfaction with provider communication than older adults without SMI. Older adults with schizophrenia spectrum disorder were more likely than older adults without SMI to report that providers did not (1) explain things in a way that was easily understood (adjusted odds ratio (aOR) =2.08; 95% CI =1.14, 3.83) or (2) spend enough time with him/her (aOR =2.17; 95% CI =1.27, 3.72). Among older adults with mood disorders, satisfaction with provider communication did not significantly differ compared to those without SMI. For unadjusted values, see supplemental tables.

Shared decision-making

Older patients with a mood disorder were more likely than those without SMI to self-report that providers did not ask him/her to help make decisions regarding choice of treatments (aOR =1.37; 95% CI =1.00, 1.88) (see Table 3). Satisfaction with shared decision-making among older adults with schizophrenia spectrum disorders did not differ significantly from older adults without SMI. For unadjusted values, see supplemental tables.

Access to care

Psychiatric diagnosis was also a significant predictor of access to care (see Table 4). Patients with mood disorders reported more difficulty accessing care than older adults without SMI. Specifically, they were more likely to have difficulty contacting their usual care provider (aOR =1.54; 95% CI =1.12, 2.11) and had difficulty contacting them after hours (aOR =1.69; 95% CI =1.21, 2.38). Satisfaction with access to care did not differ between older adults with schizophrenia spectrum disorders and older adults without SMI. For unadjusted values, see supplemental tables.

Discussion

We compared reported satisfaction with provider communication, access to providers, and shared decision-making between older adults with schizophrenia spectrum disorders and mood disorders and older adults without an SMI. Our results highlight perceived deficits in patient experience among older adults with SMI that may serve as targets for efforts to improve patient–provider experience. Older adults with schizophrenia spectrum disorders reported significantly worse provider communication and reported that visits with their physicians were too brief compared to older adults without SMI. Older adults with mood disorders reported the greatest barriers to patient’s self-report of shared decision-making and the greatest difficulty accessing services.

Older adults with schizophrenia spectrum disorders reported that their healthcare providers did not explain clinical information in a way that was easy to understand. Prior evidence indicates that healthcare providers may not know how to communicate well with people with SMI.²⁷ In addition, health providers may not have the necessary time to ensure patients comprehend and have the capacity to follow through on their clinical recommendations. Provider communication is further complicated as older age and/or a diagnosis of a

schizophrenia spectrum disorder is also associated with low health literacy.²⁸ Low health literacy may impact patients' ability to understand clinical recommendations. Finally, disorders such as schizophrenia are associated with cognitive limitations that adversely affect information processing and the ability to understand abstract concepts and sequential instructions.²⁹ One approach to improving patient comprehension is training health providers how to communicate with older patients with SMI. For example, the Collaborative Activation Training for Primary Care (CAT-PC) intervention was developed to promote patient activation and person-centered care for older adults with SMI and their primary care providers.³⁰ In addition to training older adults with SMI patient activation skills, the CAT-PC intervention trains providers how to communicate health-related information to patients with low health literacy and cognitive limitations.³⁰ However, time constraints and administrative burden within busy primary care or mental health clinics may impede providers' capacity to incorporate these approaches to tailoring communication to older adults with SMI. An alternative approach is to use nonphysician providers, such as nurses, social workers, or peer specialists, to communicate information. For example, certified peer specialists are paid employees who have a mental illness, are in recovery, and provide services to other individuals with mental illnesses.³⁰ Preliminary evidence indicates that training certified peer specialists to help older adults with SMI follow through on psychiatric and medical self-management clinical recommendations (i.e., checking blood glucose, taking medication) is feasible.³¹ Examining the clinical effectiveness of this alternative approach is a potential area of future study.

Older adults with mood disorders reported low levels of patient's self-report of shared decision-making with providers. Shared decision-making involves including the patient's perspective in clinical decision-making.³² Shared decision-making enables patients to participate in their healthcare. While shared decision-making is beneficial in the treatment of health conditions,⁹ it is not known if shared decision-making is beneficial for treatment of medical and psychiatric conditions among older adults. As shared decision-making is a shift in the patient-provider relationship, many providers may not have expertise in this approach. Electronic decision aids may assist providers in explaining all treatment options to help patients make an informed decision.³³

Older patients with mood disorders reported the greatest difficulty accessing services. This finding expands on earlier research that found veterans with bipolar disorder reported greater difficulty accessing health services than veterans with schizophrenia spectrum disorders.²² Prior studies suggest that older adults with bipolar disorder typically have fewer difficulties in functional abilities than those with schizophrenia.³⁴ However, episodic moods and fluctuating functional capacity among adults with mood disorders may negatively impact their ability to access services. Healthcare services can offer support for older patients with mood disorders such as multiple reminder telephone calls and/or text messages for appointments or refilling prescriptions.

Limitations

This study has several limitations. First, this study presents secondary analyses of data collected for other purposes. As a result, we were unable to examine certain variables of

interest with the existing dataset. For example, it is uncertain whether the “usual source of care” or “shared decision-making” variables relate to primary care or specialty mental healthcare services. Second, we could not differentiate between types of schizophrenia spectrum disorders and types of mood disorders in the publically available MEPS data. Subtypes of these disorders were aggregated and so may have indicated any schizophrenia spectrum disorder or any mood disorder. Third, the number of respondents with schizophrenia in this study is small. This small sample size might have limited ability to detect meaningful differences for respondents with schizophrenia spectrum disorders. For example, while prior studies have indicated that adults with SMI have reported a preference for shared decision-making, 35, 36 our findings indicate that patient’s self-report of shared decision-making among older adults with schizophrenia spectrum disorders did not differ from older adults without SMI. It is possible that we did not detect a difference due to the modest sample size. Alternatively, older adults with schizophrenia may not have prior experience with shared decision-making nor expect to be offered the opportunity to select alternative treatment options. Fourth, MEPS respondents may not be representative of individuals with SMI who are less likely to engage in survey research. Despite these limitations, this study includes a nationally representative sample of older adults with SMI, and this study advances our understanding of the patient experience by psychiatric diagnosis among older adults. We found differences in specific aspects of the healthcare system that can be targeted to improve the patient experience for this population.

Conclusions

This study advances our current understanding of patient experience and expands on earlier studies by focusing on an older population of individuals with SMI who have higher rates of chronic health conditions, poorer health outcomes, and higher healthcare costs compared to younger cohorts. Providers have a key role in shaping healthcare interactions and the “patient experience.” Improving provider communication, shared decision-making, and patient engagement in healthcare encounters for older adults with SMI may positively impact clinical outcomes and related costs. Future research examining the extent to which improving the patient experience can improve health outcomes and related costs can enhance treatment for this highly vulnerable health disparity group.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sociodemographic characteristics of the MEPS sample by mental health diagnosis.

	Sample	Schizophrenia spectrum disorders	Mood disorders	No SMI	<i>p</i> value ^a
	<i>N</i> =35,423	<i>n</i> =106	<i>n</i> =419	<i>n</i> =34,921	
	% (N)				
Age, years (mean, SD)	64.6 (310.3)	57.6 (7.9)	58.9 (8.3)	64.6 (10.3)	<.001
Female	57.9 (20,511)	40.6 (43)	62.5 (262)	57.9 (20,220)	<.001
Race					
White	75.9 (26,898)	66 (70)	79.2 (332)	75.9 (26,511)	<.001
Black	16.9 (5986)	28.3 (30)	14.3 (60)	16.9 (5903)	
Native American	0.6 (221)	0.9 (1)	1.7 (7)	0.6 (213)	
Asian	5 (1761)	0.9 (1)	1.9 (8)	5 (1752)	
Native Hawaiian	0.3 (93)	0 (0)	0 (0)	0.3 (93)	
Multiple	1.3 (464)	3.8 (4)	2.9 (12)	1.3 (449)	
Education, years	12.4 (33.5)	11.7 (3.1)	12.8 (2.8)	12.4 (3.5)	0.003
Not married	41 (14,524)	83 (88)	58.5 (245)	40.7 (14,212)	<.001
Not employed	56.5 (19,953)	85.9 (91)	71.5 (299)	56.3 (19,582)	<.001
Health insurance					<.001
Private	62.3 (22,052)	16 (17)	44.9 (188)	62.6 (21,850)	
Public					
Medicare	49.3 (17,448)	57.6 (61)	47.7 (200)	49.3 (17,197)	
Medicaid	13 (4609)	59.4 (63)	33.2 (139)	12.7 (4421)	
Not insured	6.5 (2314)	3.8 (4)	5.7 (24)	6.6 (2288)	
Total income					<.001
Q1	25.1 (8907)	45.3 (48)	36.8 (154)	25 (8715)	
Q2	25 (8864)	38.7 (41)	30.1 (126)	24.9 (8707)	
Q3	25 (8839)	11.3 (12)	18.9 (79)	25.1 (8750)	
Q4	24.9 (8813)	4.7 (5)	14.3 (60)	25.1 (8749)	
SF-12 Physical Component Score	42.7 (12.4)	40.4 (11.4)	38.8 (12.2)	42.8 (12.4)	<.001
Total outpatient visits	1 (4.6)	4.2 (17.6)	1.5 (5.2)	1 (4.5)	<.001

	Sample	Schizophrenia spectrum disorders	Mood disorders	No SMI	
	<i>N</i> =35,423	<i>n</i> =106	<i>n</i> =419	<i>n</i> =34,921	
	% (<i>N</i>)				<i>p</i> value ^a
Total inpatient stays	0.2 (0.6)	0.3 (0.7)	0.3 (0.8)	0.2 (0.6)	<.001
Current smoker	14.9 (5159)	47.1 (49)	36.4 (147)	14.6 (4977)	<.001
Number of medical conditions ^b	1.5 (31.7)	1.6 (31.8)	1.8 (31.9)	1.4 (31.7)	0.001

MEPS: Medical Expenditures Panel Survey; SMI: serious mental illness; SF-12: Short Form-12.

^aStatistical significance of continuous and categorical variables was assessed using analysis of variance and chi-squared tests, respectively.

^bIncludes hypertension, coronary heart disease, other heart disease, cancer, arthritis, diabetes, myocardial infarction, emphysema, and serious cognitive impairment.

Table 2

Multivariable regression of patient experience of provider communication among the MEPS sample.

	Provider listened carefully?			Provider explained things in way that was easy to understand?			Provider showed respect for what you had to say?			Health provider spent enough time with you?			Provider ask about and show respect for treatments the person is happy with?		
	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a
Psychiatric diagnosis															
Schizophrenia spectrum disorders	1.00	(0.47, 2.14)	2.08 ^b	(1.14, 3.83)	1.81	(.92, 3.56)	2.17 ^b	(1.27, 3.72)	1.45	(0.73, 2.89)					
Mood disorder	1.21	(.82, 1.82)	0.80	(0.50, 1.28)	1.05	(0.68, 1.62)	1.07	(0.76, 1.53)	1.07	(0.72, 1.61)					
Age (years)	0.98	(0.97, 0.99)	0.98	(0.97, 0.99)	0.98	(0.97, 0.99)	0.98	(0.97, 0.98)	0.99	(0.98, 0.99)					
Female	0.99	(0.89, 1.11)	0.85	(0.76, 0.94)	0.92	(0.82, 1.03)	1.03	(0.94, 1.13)	0.89	(0.81, 0.98)					
Race (ref: White)															
Black	0.99	(0.85, 1.15)	1.07	(0.92, 1.25)	0.99	(0.84, 1.17)	1.05	(0.92, 1.19)	1.00	(0.88, 1.13)					
Other	1.58 ^b	(1.29, 1.93)	1.80 ^b	(1.48, 2.19)	1.36 ^b	(1.09, 1.70)	1.49 ^b	(1.25, 1.77)	1.34	(0.82, 2.18)					
Education (years)	0.99	(0.98, 1.01)	0.95	(0.94, 0.97)	0.99	(0.96, 1.01)	1.02 ^b	(1.00, 1.03)	0.99	(0.98, 1.01)					
Not married	1.25 ^b	(1.11, 1.41)	1.30 ^b	(1.15, 1.47)	1.23 ^b	(1.08, 1.41)	1.14 ^b	(1.03, 1.27)	1.23 ^b	(1.12, 1.36)					
Not employed	0.88	(0.75, 1.02)	0.93	(0.79, 1.10)	0.95	(0.81, 1.12)	0.94	(0.82, 1.07)	0.95	(0.84, 1.09)					
Health insurance (ref: private plan)															
Public															
Medicare	0.86	(0.72, 1.03)	1.00	(0.84, 1.20)	0.88	(0.73, 1.07)	0.88	(0.76, 1.03)	1.02	(0.88, 1.19)					
Medicaid	1.10	(0.90, 1.34)	1.05	(0.88, 1.26)	1.08	(0.88, 1.32)	1.02	(0.86, 1.21)	1.11	(0.96, 1.29)					
Not insured	1.83 ^b	(1.51, 2.22)	1.76 ^b	(1.42, 2.18)	1.66 ^b	(1.34, 2.06)	1.51 ^b	(1.27, 1.80)	1.19	(0.98, 1.44)					
Total income (ref: lowest quartile)															
Q2	0.99	(0.85, 1.16)	0.98	(0.84, 1.14)	0.97	(0.83, 1.13)	0.96	(0.84, 1.11)	0.93	(0.81, 1.06)					
Q3	0.90	(0.76, 1.07)	0.93	(0.78, 1.11)	0.95	(0.79, 1.13)	0.85	(0.73, 0.98)	0.93	(0.80, 1.08)					
Q4	0.84	(0.69, 1.01)	0.72	(0.58, 0.87)	0.80	(0.65, 0.98)	0.74	(0.63, 0.88)	0.93	(0.79, 1.10)					
SF-12 Physical Component Score	0.97	(0.96, 0.97)	0.97	(0.97, 0.98)	0.97	(0.96, 0.97)	0.97	(0.97, 0.98)	0.99	(0.98, 0.99)					
Total outpatient visits	1.00	(0.98, 1.00)	1.00	(0.99, 1.01)	1.00	(0.98, 1.01)	1.00	(0.98, 1.01)	1.00	(0.99, 1.01)					
Total inpatient stays	1.00	(0.92, 1.08)	1.04	(0.97, 1.12)	1.06	(0.98, 1.15)	1.00	(0.94, 1.01)	0.98	(0.91, 1.06)					
Current smoker	1.16 ^b	(1.00, 1.34)	1.23 ^b	(1.07, 1.43)	1.42 ^b	(1.23, 1.65)	1.18 ^b	(1.04, 1.34)	0.96	(0.85, 1.09)					

	Provider listened carefully?		Provider explained things in way that was easy to understand?		Provider showed respect for what you had to say?		Health provider spent enough time with you?		Provider ask about and show respect for treatments the person is happy with?	
	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI
Number of medical conditions ^c	0.99	(0.98, 1.01)	0.99	(0.98, 1.00)	0.99	(0.97, 1.01)	0.98	(0.97, 0.99)	0.98	(0.95, 1.00)

Regression models were adjusted for sociodemographic and health related covariates including age, gender, race, marital status, geographic location, education, health insurance status (i.e., private, Medicare, Medicaid, or none), current smoker status, income level, number of medical comorbidities, and past 30 days service use (i.e., inpatient stays and outpatient visits).

MEPS: Medical Expenditures Panel Survey; SF-12: Short Form-12; aOR: adjusted odds ratio.

^aOutcome coding (never, sometimes, or no=1; usually or always=0).

^bNotes a *p* value 0.05 (statistically significance).

^cIncludes hypertension, coronary heart disease, other heart disease, cancer, arthritis, diabetes, myocardial infarction, emphysema, and serious cognitive impairment.

Table 3

Multivariable regression of patient experience of shared decision-making among older adults with serious mental illness.

	Provider ask person to help make decisions between a choice of treatments?		Does health provider present and explain all options?		Does provider ask about prescription medications and treatments other doctors may have given them?	
	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI
Psychiatric diagnosis						
Schizophrenia spectrum disorders	1.69	(0.89, 3.20)	1.68	(0.79, 3.61)	1.13	(0.61, 2.08)
Mood disorder	1.37 ^{*b}	(1.00, 1.88)	1.32	(0.83, 2.10)	0.81	(0.57, 1.15)
Age (years)	1.00	(0.99, 1.01)	1.01	(0.99, 1.01)	1.00 [*]	(1.00, 1.01)
Female	0.89	(0.83, 0.95)	1.01	(0.91, 1.12)	1.00	(0.93, 1.07)
Race (ref: White)						
Black	1.29 [*]	(1.16, 1.45)	0.83	(0.69, 0.99)	0.94	(0.85, 1.04)
Other	1.14	(0.97, 1.34)	1.13	(0.86, 1.48)	1.35 [*]	(1.16, 1.58)
Education (years)	0.98	(0.97, 1.00)	1.00	(0.98, 1.02)	0.98	(0.97, 0.99)
Not married	1.27 [*]	(1.17, 1.39)	1.22 [*]	(1.07, 1.40)	1.38 [*]	(1.27, 1.50)
Not employed	1.03	(0.91, 1.16)	1.00	(0.83, 1.20)	0.92	(0.82, 1.03)
Health insurance (ref: private plan)						
Public						
Medicare	1.00	(0.88, 1.14)	0.86	(0.69, 1.10)	1.07	(0.94, 1.22)
Medicaid	1.13	(0.98, 1.30)	1.22 [*]	(1.00, 1.49)	0.92	(0.80, 1.05)
Not insured	1.28 [*]	(1.09, 1.51)	1.42 [*]	(1.12, 1.80)	1.03	(0.87, 1.22)
Total income (ref: lowest quartile)						
Q2	1.00	(0.87, 1.12)	0.98	(0.81, 1.18)	1.07	(0.95, 1.21)
Q3	0.97	(0.85, 1.11)	0.95	(0.77, 1.17)	0.98	(0.86, 1.23)
Q4	0.85	(0.73, 1.00)	0.82	(0.66, 1.02)	0.86	(0.74, 0.98)
SF-12 Physical Component Score	0.99	(0.99, 1.00)	0.99	(0.99, 1.00)	1.01 [*]	(1.01, 1.01)
Total outpatient visits	1.00	(0.99, 1.01)	1.01	(0.99, 1.02)	0.99	(0.98, 1.00)
Total inpatient stays	1.05	(0.99, 1.12)	0.90	(0.81, 0.99)	0.87	(0.81, 0.93)
Current smoker	1.10	(0.99, 1.22)	1.39 [*]	(1.21, 1.60)	1.11 [*]	(1.00, 1.22)
Number of medical conditions ^c	0.98	(0.96, 0.99)	1.00	(0.99, 1.18)	0.98	(0.97, 0.99)

Regression models were adjusted for sociodemographic and health-related covariates including age, gender, race, marital status, geographic location, education, health insurance status (i.e., private, Medicare, Medicaid, or none), current smoker status, income level, number of medical comorbidities, and past 30 days service use (i.e., inpatient stays and outpatient visits). aOR: adjusted odds ratio; SF-12: Short Form-12.

^a Outcome coding (never, sometimes, or no=1; usually or always=0).

^b An “*” denotes a *p* value 0.05 (statistical significance).

^c Includes hypertension, coronary heart disease, other heart disease, cancer, arthritis, diabetes, myocardial infarction, emphysema, and serious cognitive impairment.

Table 4
Multivariable regression of patient experience of access to care among older adults with serious mental illness.

	Did not get care right away for illness or injury		Did not get an appointment for healthcare as soon as patient thought was needed		Very difficult or somewhat difficult to contact usual provider		Very difficult or somewhat difficult to contact usual care provider after hours		Person was unable to receive medical treatment when needed		Person was delayed in receiving medical treatment when needed	
	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI
Psychiatric diagnosis												
Schizophrenia spectrum disorders	1.20	(0.36, 4.00)	1.60	(0.80, 3.24)	1.38	(0.77, 2.5)	1.51	(0.77, 2.97)	1.95	(0.58, 6.34)	1.61	(0.61, 4.26)
Mood disorder	0.94	(0.52, 1.71)	0.86	(0.55, 1.35)	1.54 ^b	(1.12, 2.11)	1.69 ^b	(1.21, 2.38)	0.86	(0.53, 1.41)	0.68	(0.43, 1.08)
Age (years)	0.96	(0.95, 0.98)	0.97	(0.97, 0.98)	0.99	(0.99, 1.00)	1.00	(0.99, 1.00)	1.07 ^b	(1.06, 1.08)	1.04 ^b	(1.03, 1.05)
Female	0.90	(0.77, 1.06)	0.86	(0.78, 0.95)	0.97	(0.90, 1.04)	0.92	(0.85, 0.98)	0.75	(0.64, 0.87)	0.72	(0.63, 0.82)
Race (ref: White)												
Black	1.09	(0.91, 1.32)	1.37 ^b	(1.21, 1.55)	0.82	(0.73, 0.93)	0.94	(0.84, 1.06)	1.31 ^b	(1.09, 1.58)	1.64 ^b	(1.39, 1.94)
Other	1.71 ^b	(1.30, 2.24)	2.11 ^b	(1.79, 2.48)	1.13	(0.94, 1.37)	1.29 ^b	(1.09, 1.53)	0.90	(0.68, 1.19)	1.15	(0.90, 1.47)
Education (years)	0.99	(0.96, 1.01)	1.00	(0.98, 1.01)	1.00	(0.99, 1.02)	0.98	(0.97, 1.00)	0.99	(0.96, 1.02)	.93	(0.91, 0.95)
Not married	1.21 ^b	(1.04, 1.42)	1.15 ^b	(1.03, 1.29)	1.05	(0.96, 1.15)	1.04	(0.95, 1.14)	0.58	(0.49, 0.68)	.59	(0.52, 0.67)
Not employed	0.93	(0.86, 1.33)	0.90	(0.82, 1.07)	1.00	(0.90, 1.10)	0.98	(0.88, 1.09)	1.22	(0.97, 1.53)	1.20 ^b	(1.00, 1.44)
Health insurance (ref: private plan)												
Public												
Medicare	0.31	(0.91, 1.41)	0.84	(0.72, 0.97)	0.97	(0.84, 1.10)	0.95	(0.82, 1.09)	1.11	(0.85, 1.45)	1.02	(0.81, 1.30)
Medicaid	0.93	(0.72, 1.19)	1.09	(0.92, 1.29)	1.11	(0.97, 1.27)	1.44 ^b	(1.26, 1.63)	0.88	(0.68, 1.13)	0.86	(0.70, 1.06)
Not insured	3.17 ^b	(2.55, 3.94)	1.78 ^b	(1.52, 2.09)	1.22 ^b	(1.04, 1.42)	1.43 ^b	(1.23, 1.67)	0.22 ^b	(1.79, 2.67)	0.36	(0.29, 0.43)
Total income (ref: lowest quartile)												
Q2	1.13	(0.91, 1.41)	1.07	(0.92, 1.24)	1.03	(0.91, 1.16)	1.03	(0.93, 1.15)	1.09	(0.89, 1.33)	1.06	(0.88, 1.28)
Q3	0.93	(0.72, 1.19)	0.83	(0.71, 0.98)	1.05	(0.91, 1.20)	0.99	(0.87, 1.13)	1.43 ^b	(1.12, 1.83)	1.10	(0.88, 1.37)
Q4	0.83	(0.61, 1.13)	0.82	(0.68, 0.98)	1.14	(0.97, 1.33)	0.87	(0.75, 1.02)	1.82 ^b	(1.39, 2.39)	1.36 ^b	(1.06, 1.74)
SF-12 Physical Component Score	0.98	(0.97, 0.99)	0.99	(0.99, 0.99)	0.98	(0.98, 0.98)	0.99	(0.98, 0.99)	0.70	(0.59, 0.84)	1.05 ^b	(1.04, 1.05)
Total outpatient visits	0.96	(0.93, 0.98)	0.99	(0.98, 1.00)	1.01 ^b	(1.00, 1.02)	1.00 ^b	(1.00, 1.01)	1.00	(0.98, 1.02)	1.00	(0.99, 1.00)

	Did not get care right away for illness or injury	Did not get an appointment for healthcare as soon as patient thought was needed	Very difficult or somewhat difficult to contact usual provider	Very difficult or somewhat difficult to contact usual care provider after hours	Person was unable to receive medical treatment when needed	Person was delayed in receiving medical treatment when needed
	aOR ^a	95% CI	aOR ^a	95% CI	aOR ^a	95% CI
Total inpatient stays	0.86	(0.77, 0.95)	0.86	(0.78, 0.94)	0.95	(0.89, 1.01)
Current smoker	1.11	(0.93, 1.33)	1.08	(0.95, 1.24)	1.03	(0.92, 1.15)
Number of medical conditions ^c	1.00	(0.99, 1.02)	1.00	(0.99, 1.01)	0.99	(0.97, 0.99)
					1.02	(1.01, 1.03)
					1.00	(0.98, 1.02)
					1.01	(0.99, 1.02)

Regression models were adjusted for sociodemographic and health-related covariates including age, gender, race, marital status, geographic location, education, health insurance status (i.e., private, Medicare, Medicaid, or none), current smoker status, income level, number of medical comorbidities, and past 30 days service use (i.e., inpatient stays and outpatient visits). aOR: adjusted odds ratio; SF-12: Short Form-12.

^aNotes a *p* value 0.05 (statistically significance).

^bOutcome coding (never, sometimes or very difficult, somewhat difficult =1; not difficult at all, little difficulty =0).

^cIncludes hypertension, coronary heart disease, other heart disease, cancer, arthritis, diabetes, myocardial infarction, emphysema, and serious cognitive impairment.