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Use of Primary Care and by Middle Aged and Older Persons with Schizophrenia

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Abstract

Introduction—Comorbid medical conditions and receipt of primary medical care are important aspects of healthcare for older persons with schizophrenia. This study describes the prevalence of comorbid medical conditions and the factors associated with the use of primary care treatment in a group of middle-aged and older persons with schizophrenia.

Methods—Using baseline data from an ongoing study of functional skills training (N= 236), we determined the self-reported prevalence of 8 common medical conditions. In addition, patients who did (n= 146) versus those who did not (n= 90) receive primary care treatment were compared on demographic characteristics, psychiatric symptoms, and comorbid medical conditions using both univariate and multivariate analyses.

Results—The most common medical conditions were hypertension (31%), arthritis (25%), and diabetes (14%) and almost 60% of the patients had one or more medical conditions. More than 60% of the patients had received primary care treatment during the prior 3 months. Patients who used primary care were older, more likely to have received mental health treatment, and more likely to have a medical condition, especially, diabetes. There were no differences between the groups, however, in the severity of psychopathologic symptoms or cognitive deficits. Multivariate logistic regression analysis found that older age and diabetes were associated with greater utilization of primary care treatment.

Discussion—In middle-aged and older patients with schizophrenia, comorbid medical conditions were common and a majority of the patients did receive primary care treatment in the prior 3 months. Older patients and those with comorbid medical conditions were more likely to receive primary care, but there was no relationship between severity of psychiatric symptoms and receipt of primary care. Additional research is needed to determine sociodemographic and clinical factors associated with use of primary care utilization in groups of participants with a broader range of psychiatric symptom severity and supportive environments.

Keywords

schizophrenia; primary care; comorbidity; services research; aging

Introduction

Patients with schizophrenia constitute a particularly vulnerable group, for whom access to quality medical care is problematic^{1,2}. A recent investigation reported that, following myocardial infarction (MI), patients with schizophrenia had a 30% greater one-year mortality than non-mentally ill patients. Approximately half of this increased mortality was due to a lack of quality medical treatment after the MI¹. Another study found that in homeless patients with mental illness, those with schizophrenia were less likely to receive primary and preventive care than patients with major depression³. Furthermore, prior investigations have reported elevated cardiovascular risk⁴, inferior medical care and elevated mortality rate in persons with schizophrenia compared to the general population^{5,6}. However, there are also some encouraging data regarding healthcare for patients with schizophrenia; an investigation of patients treated in community-based settings found that a greater portion of patients with schizophrenia had received primary care treatment in the prior year compared to the general population⁷. At the same time, the growing concerns about the risk of diabetes, MI, and stroke in patients taking atypical antipsychotics have increased the awareness of the importance of diagnosis and treatment of comorbid medical conditions in patients with schizophrenia^{8,9}.

Published studies have reported that, in the general population, greater utilization of primary care is associated with older age, a greater number of medical illnesses, female gender, and non-minority ethnicity¹⁰, as well as with more severe depressive symptoms^{11,12}. An investigation of veterans found that diagnoses of schizophrenia, post-traumatic stress disorder, and substance abuse were associated with decreased use of medical services in a national sample of veterans with comorbid medical disorders discharged from Veterans Affairs (VA) psychiatric units¹³. In addition, factors associated with increased use of medical services included proximity to a VA outpatient clinic, receipt of VA compensation payments, discharge from a facility with greater resources devoted to medical-surgical care, and prompt outpatient mental health follow-up. We are not aware, however, of published reports that have investigated the clinical factors that are associated with receiving primary care treatment for middle-aged and older outpatients with schizophrenia. In addition, although prior authors have speculated that some of the symptoms of schizophrenia, such as negative symptoms and cognitive deficits, may interfere with receiving health care¹⁴, we not aware of any previous studies that examined the relationship between severity of psychopathologic symptoms of schizophrenia and receipt of primary care.

In this investigation, we sought to examine the prevalence of comorbid medical illnesses; determine the proportion patients who received primary care; and to determine the demographic, psychiatric and medical characteristics associated with receiving primary care treatment. We hypothesized that patients who receive primary care treatment would be older, and more likely to be female, Caucasian, to have less severe psychiatric symptoms, and to be more likely to have a diagnosed medical illness compared to patients who did not receive primary care treatment.

Methods

The data used in this investigation were obtained from an ongoing NIMH-funded investigation of a new intervention focusing on psychosocial skills training in middle-aged and older persons with schizophrenia, labeled Functional and Adaptive Skills Training (FAST)¹⁵. The FAST is a 24-session group therapy program which taught psychosocial and everyday functioning skills to middle ages and older persons with schizophrenia. In order to obtain as representative a sample as possible, all Board-and-Care homes (assisted living facilities) in San Diego County were identified. From this list, directors from randomly selected homes were approached, asked if they would allow their patients to be recruited into the FAST study, and all patients who met

study criteria were enrolled. Additional participants were recruited from outpatient community mental health centers. The patients included in the FAST study were community-dwelling outpatients over the age of 40, with a DSM-IV-based diagnosis of schizophrenia or schizoaffective disorder¹⁶. There were no exclusion criteria in the FAST study regarding specific medical disorders. The data used in this report were collected at the time of enrolment, and any referrals by the FAST study team for needed medical treatment were made after the baseline data were collected. Most of the patients lived in board-and-care homes (63%) or in a house or apartment (25%). A total of 236 patients were enrolled in the FAST intervention.

This study was carried out in San Diego, California which is located on the U.S.- Mexico border, and is the seventh largest city in the U.S. The primary care system in the U.S. differs from that in many European Countries in several ways: Health insurance is not universal in the U.S., and the most recent estimate is that 16%–18% Americans are uninsured¹⁷; many forms of medical insurance in the U.S., including Medicaid (federal) and MediCare (state and federal), the two publicly-funded insurance programs which provide care to most persons with schizophrenia, do not require a person to have a primary care physician¹⁸; finally, public mental health systems in the U.S., where a majority of people with schizophrenia receive their mental health treatment, are typically operated by local governments and are separate from physical health care systems.

Measures

Sociodemographics—Each subject's age was recorded at the time of the baseline assessment. Race/ethnicity was based on patient self-report, and for this investigation was consolidated into four categories: Caucasian, Latino, African American, and other.

Psychopathology—Severity of psychiatric symptoms was measured with the Positive and Negative Syndrome Scales (PANSS19). The PANSS is a 30-item measure with each item rated on a seven-point severity scale. The PANSS provides a total score to reflect overall psychiatric symptom severity (range 1 to 210). In addition, there are subscales for positive symptoms, negative symptoms, and general psychopathology. Higher scores reflect greater psychiatric symptom severity. For this study we used the total PANSS score as a continuous variable, and also split the sample into those with a PANSS score below 60 versus those with a score of 60 or greater.

Neurocognitive Functioning—Neurocognitive functioning was evaluated using Mattis's Dementia Rating Scale (DRS20). The DRS is a standardized measure of cognitive functioning designed to assess attention, initiation and perseveration, construction, conceptualization, and memory. Total scores range from 0 to 144 with higher scores reflecting better cognitive performance. The DRS total score was used for this study.

Medical Comorbidity—The Interval Medical History (IMED21) is a 21-item self-report questionnaire to assess typical physical symptoms associated with each of the major organ systems, and the presence or absence of 8 common medical conditions. For this study, we used presence or absence of each of the 8 medical conditions (i.e., arthritis, hypertension, heart disease, lung disease, diabetes, cancer, stroke, and other medical conditions).

Service Utilization—The Cornell Service Use Index (CSI)²² is a self-report measure of health, mental health, and social service utilization during the previous three months. The CSI records each type of service used, number and purpose of contacts (e.g., medication visit), and source of payment. For the present report we used the CSI to determine whether a patient had received primary care treatment in the prior three months.

Statistical analysis—The sample was divided into two groups of patients: those who had one or more primary care visits in the prior three months and those with no primary care visits in the past three months. The demographic and clinical characteristics of these two groups were compared using chi-square tests for categorical variables and t tests for continuous variables.

To further investigate the factors associated with utilization of primary care, we employed a multivariable logistic regression to determine which demographic and clinical factors were associated with use of primary care. The factors included in this regression were age; gender; ethnicity (Caucasian versus non-Caucasian); living situation (board-and-care home versus other); presence of each of the eight medical conditions; severity of psychiatric symptoms (PANSS score); and cognitive functioning (DRS score). These factors were entered into the regression in a single step, and the odds ratio and 95% confidence intervals were calculated. A p value of <.05 was considered statistically significant for all of the statistical tests.

Results

Table 1 describes the clinical and demographic characteristics of the sample, comparing the 146 patients who received primary care treatment in the prior 3 months to the 90 patients who did not. The patients in this study ranged in age from 40 to 78. The patients who received primary care were older than those with no primary care. Men made up slightly more than two-thirds of both groups. The sample was ethnically diverse, with about one half of the patients being non-Caucasian, and Latinos comprising almost one quarter of the sample; the distribution of ethnicity was similar in both groups. The patients who had received primary care were also more likely to have had a mental health visit in the past 3 months. The patients in both groups had similar levels of schizophrenia symptoms, in the mild to moderate range, and the two groups did not differ on severity of cognitive impairment. Almost 60% of all patients had at least one medical condition; however, the patients who received primary care were more likely to have at least one medical condition, and had a greater number of medical problems than those who did not receive such care. Among the patients who received primary care, 38 (26%) had one comorbid condition, 37 (25%) had two conditions, and 24 (16.5%) had three or more conditions. For the patients who did not receive primary care, 19 (21%) had one comorbid condition, 11 (12.2%) had two conditions, and 14 (16%) had three or more conditions. Hypertension and arthritis were the two most prevalent conditions, with more than one quarter of the patients reporting each of these conditions. More than one in eight patients had heart disease, whereas fewer than 10% of patients reported lung disease, cancer or stroke. All of these conditions were present in similar proportions of patients who did versus those who did not receive primary care. Diabetes, however, was reported in almost 15% of the patients, and was more prevalent in the patients receiving primary care than those who did not. In addition, “other” medical conditions were more frequently reported in the patients who used primary care; the most common “other” ones being elevated cholesterol (6 patients), hepatitis C (5 patients), and gastrointestinal disorders (5 patients).

Table 2 shows the results of the multivariate logistic regression that are associated with the use of primary care. The factors found to be associated with the use of primary care included age and a diagnosis of diabetes or “other medical condition.” Older patients and those with diabetes or other medical condition were more likely to use primary care in the prior 3 months. When this regression was repeated, using the presence or absence of a medical condition (rather than each specific condition), the presence of one or more medical conditions was associated with receiving primary care. Repeating the regression without the age variable did not change the results.

Discussion

In this study of patients with schizophrenia over age 40, we found that more than 60% of the patients had received primary care treatment in the prior three months. Among these patients, comorbid medical conditions were common, with almost 60% of the patients having at least one comorbid medical condition. Factors associated with receiving primary care included older age, and having one or more medical conditions, especially diabetes. However, severity of schizophrenia symptoms were not associated with whether a patient received primary care in the prior three months.

To put our prevalence data in context, we compared our sample of middle-aged and older patients with schizophrenia to the 45–64 year old age group in the National Health Interview Survey (NHIS)²³. The prevalence of diabetes and stroke was higher in our sample (diabetes: 14.4% in our sample versus 9.5% in NHIS, stroke: 6.4% versus 2.5%), whereas the prevalence of lung disease was lower (8.1% versus 12.7%). The other conditions had comparable prevalence in our sample and NHIS sample. A recent investigation²⁴ assessed a younger cohort of patients with schizophrenia (mean age=44) treated in a community mental health center; using the same questions as two health surveys of the general U.S. population, the NHIS and the National Health and Nutrition Examination Survey (NHANES). This study found that the prevalence of diabetes was higher in the patients with schizophrenia than in the nationally representative sample. Unlike our report, those authors also found that lung disease (specifically asthma, chronic bronchitis, and emphysema) was more prevalent in the patients with schizophrenia than in the general population. Given the high rates of smoking in patients with schizophrenia^{25,26}, it is possible that our instrument (the IMED) underestimated the prevalence of lung disease. However, it is also possible that this difference was real, as San Diego has one of the lowest rates of smoking in the U.S.²⁷. Unfortunately, data on smoking were not collected as part of the FAST investigation.

It is interesting that diabetes was the one common comorbid medical condition that was more prevalent in our patients who received primary care. The relationship between schizophrenia, some of the second-generation antipsychotic medications and diabetes has received increased attention in the past 5 years²⁸. An investigation of younger patients with schizophrenia treated in a community mental health center (mean age=44) found that diabetes was one of the two medical conditions (the second one was lung disease) that was more common in patients than in the general U.S. population¹⁴. A second report, comparing the control of diabetes (using hemoglobin A1C levels), reported that patients with schizophrenia had slightly better diabetes control than a matched group of patients with no mental illness²⁹. It is possible that the recent research reporting an elevated rate of new-onset diabetes with some of the second-generation antipsychotics has resulted in psychiatrists being more aware of diabetes and elevated blood glucose in their patients with schizophrenia, and referring these patients to a primary care physician for early diagnosis and ongoing management. It is also possible that the patients who did not see a primary care doctor did not have their medical conditions diagnosed as diabetes and some of the other medical conditions are typically diagnosed in a primary care setting.

Although prior reports have suggested that the negative symptoms of schizophrenia, such as avolition, may interfere with a patient's ability to navigate the multiple barriers of the medical care system¹⁴, we did not find a relationship between severity of schizophrenia symptoms and receipt of primary care. Neurocognitive deficits reported in schizophrenia have also been found to be important causes of functional impairment in these patients^{30,31}, yet in the present study the patients with greater neurocognitive deficits did not have lower utilization of primary care. There are several potential explanations for our findings. First, it is possible that our finding is real, and that there is no relationship between schizophrenia symptoms and receiving primary health care. Another possibility is that most of the patients in this sample had mild to moderate

schizophrenia symptoms, a sample which included more severely symptomatic patients might yield different results. Approximately 65% of the patients in this intervention were living in a board-and-care home, and the operators of these homes may have helped more impaired patients get to the doctor. Finally, our study may not have had adequate statistical power to detect a difference between the two groups in terms of severity of psychiatric symptoms. Further research is needed to confirm our finding or to clarify which of these potential biases may have confounded our results.

There are several limitations to this investigation. This was a cross-sectional study, and we are unable to determine if the associations found were causal. The instrument used to determine whether a person received primary care treatment, the CSI, only examined utilization for the prior 3 months; it is possible that a longer “window” might have resulted in a greater proportion of the patients receiving primary care treatment. The measure we used to obtain comorbid medical conditions, the IMED²¹, is based on self-report, and we did not confirm these diagnoses with a more comprehensive medical history or a review of patients’ medical charts. Thus this information is subject to potential recall bias on the part of the patients. In addition, patients with fewer medical problems may not have needed to see their primary care physician as frequently as every three months. This study did not assess smoking, an important contributor to many medical illnesses such as lung disease, heart disease, and cancer. Other determinants of utilizing primary care, including medical insurance and perceived barriers to medical care⁷, were not included. The negative findings in this report must be interpreted with caution, as our study may have been underpowered to detect differences between the groups on some variables. The patients in this study were middle-aged and older, and had mild to moderate level of psychopathology. These findings need to be confirmed in other groups of patients with schizophrenia. Although this project was not designed to be epidemiological, we believe it does provide valuable new insights into medical care of older schizophrenia patients. Finally, we are not able to directly compare the prevalence of medical conditions in patients with schizophrenia to that in other patient groups such as those with affective disorders or those with no mental illness.

Conclusion

Comorbid medical conditions were common in this sample of middle-aged and older patients with schizophrenia, and a majority of the patients received primary care treatment in the prior three months. Older patients, and those with comorbid medical conditions (and with diabetes in particular), were more likely to receive primary care treatment. However, there was no relationship between severity of schizophrenia symptoms and receipt of primary care. Although these findings require confirmation in other studies, the findings imply that there is not necessarily a link between severity of schizophrenia symptoms and the important health behaviors of receiving primary care treatment.

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Table 1
Comparison of Patients Who Received and Those Who Did Not Receive Primary Care Treatment in the Prior 3 Months

	Received Primary Care (N=146)	No primary Care (N=90)	t or chi-square value	Degrees of freedom	P value
Demographic					
Mean Age in years (SD)	52.2 (7.6)	49.9 (6.3)	2.3	234	0.02
Gender					
Male (%)	91 (62.3%)	62 (68.9%)			
Female (%)	55 (37.7%)	28 (31.1%)	1.1	1	0.31
Race/ethnicity					
Caucasian	85 (58.2%)	43 (47.8%)			
African American	16 (11.0%)	17 (18.9%)			
Latino	35 (24.0%)	23 (25.6%)	4.51	3	0.48
Other	10 (6.8%)	7 (7.8%)			
Living situation					
Independent	51 (34.9%)	36 (40%)	.62	1	0.48
Board and care	95 (65.1%)	54 (60%)			
Mental Health treatment in last 3 months	119 (81.5%)	61 (67.8%)	5.8	1	0.019
Psychiatric					
PANSS score (SD)	58.9 (15.9)	62.5 (17.4)	1.6	223	0.11
PANSS score $\leq$ 60	88 (60.7%)	38 (42.2%)	3.64	1	0.06
PANSS score $>$ 60	57 (39.3%)	42 (57.8%)			
DRS score (SD)	125.0 (13.5)	125.7 (13.3)	.37	221	0.71
Medical Comorbidities					
One or more medical conditions	99 (67.8%)	44 (48.9%)	8.34	1	0.006
Number of medical conditions (SD)	1.46 (1.6)	1.02 (1.4)	2.2	234	0.03
Arthritis	38 (26.3%)	23 (25.6%)	0.006	1	0.94
Hypertension	52 (35.6%)	22 (24.4%)	3.2	1	0.07
Heart disease	21 (14.4%)	9 (10.0%)	0.95	1	0.33
Lung disease	13 (8.9%)	6 (6.7%)	0.38	1	0.54
Diabetes	27 (18.5%)	8 (8.9%)	4.1	1	0.04
Cancer	10 (6.8%)	4 (4.4%)	0.58	1	0.45
Stroke	10 (6.8%)	5 (5.6%)	0.16	1	0.69
Other	42 (28.8%)	15 (16.7%)	4.5	1	0.04

SD= standard deviation

PANNS= Positive and Negative Syndrome Scale

DRS= Dementia Rating Scale

Table 2

Factors Associated with Use of Primary Care in the Past 3 Months (N=225)

	Odds Ratio	p value	95.0% C.I. for OR	
			Lower	Upper
Age	1.055	.024	1.007	1.105
Female Gender	1.052	.880	.542	2.042
Non Caucasian Ethnicity	1.477	.216	.796	2.738
PANSS total	.983	.070	.964	1.001
DRS total	.993	.568	.968	1.018
Arthritis	.560	.138	.260	1.205
Hypertension	1.195	.617	.594	2.404
Heart disease	1.488	.492	.479	4.623
Lung disease	1.258	.717	.364	4.349
Diabetes	3.195	.034	1.093	9.339
Cancer	.624	.542	.137	2.842
Stroke	.676	.601	.156	2.935
Other	2.208	.038	1.044	4.672

PANSS= Positive and Negative Syndromes Scale

DRS= Dementia Rating Scale

OR= Odds Ratio

CI= Confidence Interval