Racial Variation in Antidepressant Treatment in a Medicaid Population

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Background: Many studies have found racial and socioeconomic variation in medical care for a variety of conditions. Undertreatment of depression for individuals of all races is a concern, but especially may affect vulnerable populations such as Medicaid recipients and minorities. With this study, we examine racial differences in the antidepressant usage in a Medicaid population.

Method: Treatment of 13,065 depressed patients (ICD-9-CM criteria) was examined in a state Medicaid database covering the years 1989 through 1994. Treatment differences were assessed in terms of whether an antidepressant was received at the time of the initial depression diagnosis and the type of antidepressant prescribed (tricyclic antidepressants [TCAs] vs. selective serotonin reuptake inhibitors [SSRIs]), using logistic regression techniques.

Results: African Americans were less likely than whites to receive an antidepressant at the time of their initial depression diagnosis (27.2% vs. 44.0%, $p < .001$). Of those receiving an antidepressant, whites were more likely than African Americans to receive SSRIs versus TCAs. These findings remained even after adjusting for other covariates.

Conclusion: Despite the easy availability of effective treatments, we found that only a small portion of depressed Medicaid recipients receive adequate usage of antidepressants. Within this Medicaid population, limited access to treatment was especially pronounced among African Americans. Racial differences existed in terms of whether an antidepressant was received and the type of medication used.

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Achieving universal access to quality health care is challenging, at least in part owing to the perception that high prices for new medication treatments will result in excessive expenditures, even though these new medications may improve the overall quality of life for patients.[1] Access to treatment has been especially difficult for certain vulnerable populations, including the poor and minorities.[2,3] Even when appropriate treatment is initiated, these vulnerable populations are also at risk for an inadequate course of treatment.[4–13] Factors associated with disparities in the access and quality of health care for minority populations include sociocultural influences, physician behavior, financial burden, and differences in biological response.[14–17]

Addressing issues of racial variation in treatment of depressive disorders could have a profound societal benefit. Depressive disorders are common, affecting 17–20 million people per year,[18,19] and they may result in societal costs higher than those associated with heart disease and arthritis.[20] These costs were estimated to be $44.7 billion in the United States for 1990, with about two thirds due to high levels of disability and limited work and social functioning.[20]

In spite of the high costs of untreated depressive disorders, they remain undertreated. Community-based surveys conducted in the 1990s found that only a third of depressed individuals received any medical treatment for a current episode, and only one fifth received mental health specialty care.[18] In recent years, however, new medications and forms of brief psychotherapy have been introduced. The selective serotonin reuptake inhibitors (SSRIs) represent a significant advance in the pharmaceutical treatment of depressive disorders. Because of a favorable side effect profile, the SSRIs have made treatment simpler and more tolerable with no apparent reduction in efficacy when compared with older forms of treatment such as the tricyclic antidepressants (TCAs).[21–24] Recent studies have suggested that introduction of the SSRIs has resulted in improvements in access to treatment.[25]

SSRI use should provide specific benefit for African Americans who, because of differences in pharmacokinetics when compared with whites, are particularly sensitive to the side effects of TCAs.[26] Fear of common side effects may prevent African Americans from seeking care,

and the experience of these side effects may result in discontinuation before an adequate course of treatment has been received. In this article, we describe racial differences in access, in terms of whether an antidepressant is received and the type of medication used, for depressive disorders in a Medicaid program.

METHOD

Data for this study came from insurance claims from a single Medicaid plan in which access to antidepressant medications was not subject to prior authorization or other forms of restrictive formulary; therefore, our analysis was not confounded by this administrative impediment that might artificially limit access. A confidentiality agreement with the Medicaid plan does not allow identification of the state from which the data come.

Claims covering the years 1989 through 1994 were searched to identify patients to be included in the study. Patients were identified by the presence of an indicator for depression, as defined by ICD-9-CM codes 296.2x (major depressive disorder, single episode), 296.3x (major depressive disorder, recurrent episode), 300.4x (neurotic depression), 309.0x (brief depressive reaction), 309.1x (prolonged depressive reaction), and 311.xx (depressive disorder, not elsewhere classified), excluding codes associated with any indicator of psychotic symptoms (296.24, 296.34) or bipolar disorder. Patients were required to be 18 years of age or older and have evidence of continuous Medicaid enrollment for a period of 6 months prior to and for at least 6 months following the index diagnostic indicator. Patients with supplemental insurance coverage in addition to Medicaid (e.g., those dually enrolled in Medicare and Medicaid) were excluded.

To study new episodes of care so that the initial treatment received once a patient was diagnosed with a depressive disorder could be examined, individuals with evidence of depressive disorder, specialty mental health care, or prescriptions for antidepressants during the 6 months prior to the index diagnosis were excluded. Also excluded were people with a diagnosis of psychosis, schizophrenia, or bipolar disorders during the 6 months prior to the depression diagnosis. Finally, only one episode per patient was included.

Data available included patient demographic information (age, race, and gender), any coexisting diagnoses related to psychiatric and other medical conditions, pharmacy claims information related to outpatient visits, and Medicaid eligibility status, categorized as aged, blind, disabled, poverty-related, Aid to Families with Dependent Children (AFDC), and the category of other or unknown.

In examining treatment decisions, antidepressant treatment received within 30 days of the date of the index diagnosis was sought. Antidepressants were divided into 2 groups: the SSRIs, including fluoxetine, paroxetine, and sertraline, and the TCAs, including amitriptyline, imipramine, doxepin, desipramine, nortriptyline, amoxapine, protriptyline, trimipramine, and clomipramine. To determine variations in drug use patterns, pharmacy claims information was reviewed for the 6 months following the initial receipt of an antidepressant.

Bivariate statistical tests, using Student t tests, chi-square tests, and analysis of variance, were done between the samples of Medicaid recipients who did and did not receive antidepressants and between racial categories. Multivariate analyses were performed using logistic regression techniques to examine the determinants of receiving any antidepressant and the determinants of receiving an SSRI. The same set of predictor variables was used in each of these analyses. The demographic variables included 2 race variables (African American vs. white; other/unknown vs. white). Age, gender, Medicaid eligibility status (blind/aged/disabled vs. AFDC, poverty-related, and other or unknown eligibility categories), and year of initial depression (each year of the study versus 1989) were included. Other predictors included whether initial care was received from a mental health provider and the total number of comorbid conditions as measured by the aggregate number of major diagnostic categories (MDCs).[27] These factors were included to account for a wide variety of factors that may impact antidepressant treatment choices. Other models of antidepressant choice have used similar variables with good predictive results.[28]

RESULTS

A total of 13,065 Medicaid recipients met the established inclusion criteria and were included in this study. Of the total sample, 4511 patients (34.5%) received an antidepressant within 30 days of the depression diagnosis. Of those receiving an antidepressant, 2349 (52.1%) received an SSRI.

Characteristics of the Medicaid recipients are displayed in Table 1. For both the total sample and the subset receiving an antidepressant, the majority of Medicaid recipients were eligible under the category AFDC, followed by the combined category of aged, blind, or disabled. The majority of subjects were women, and roughly 39% of both groups were seen by a mental health provider at the time of their initial depression diagnosis. Differences were found between those who received an antidepressant and those who did not. Antidepressant recipients tended to be older (34.3 vs. 32.1 years, $p < .0001$) and have more comorbid conditions (3.1 vs. 2.8 MDCs, $p < .0001$). Receipt of any antidepressant and the type of antidepressant received varied significantly with race. Although 56.7% of the total sample was African American, this group made up only 45.6% of the subset receiving an antidepressant. Whites constituted 37.9% of the total sample and 48.3% of those who received an antidepressant. The

Table 1. Characteristics of Study Sample[a]

Variable	No Antidepressant (N = 8554)	Antidepressant (N = 4511)	Total Sample (N = 13,065)	χ^2	t	df	p Value
Racial category, %				350.0		2	< .001
African American	62.5	45.6	56.7				
White	32.4	48.3	37.9				
Other/unknown	5.1	6.1	5.4				
Age, y, mean (SD)	32.1 (11.2)	34.3 (10.8)	32.9 (11.1)		10.3	13063	< .0001
No. of MDCs, mean (SD)	2.8 (2.1)	3.1 (2.1)	2.9 (2.1)		6.6	13063	< .0001
Female (%)	90.8	93.4	91.7	27.2		1	< .001
Prescriber was a mental health provider, %	39.0	39.4	39.1	0.16		1	.689
Year of initial diagnosis, %				95.9		5	< .001
1989	7.3	7.1	7.2				
1990	15.3	15.8	15.5				
1991	16.1	17.3	16.5				
1992	13.1	16.3	14.2				
1993	24.1	26.4	24.9				
1994	24.1	17.2	21.7				
Reason for Medicaid eligibility, %				13.7		4	.008
Aged/blind/ disabled	31.3	32.4	31.3				
AFDC	64.9	64.4	64.7				
Poverty	2.3	1.6	2.0				
Unknown	1.5	1.7	1.5				
All other	0.1	0.0	0.1				

[a]Abbreviations: AFDC = Aid to Families with Dependent Children, MDC = major diagnostic category.

other or unknown racial category, which made up 5.4% of the total sample, mainly included individuals of unknown or unspecified race, whereas Native Americans, Asians, and Hispanics each made up less than 1% of the total sample.

Table 2 shows the percentage of patients in each race group who did and did not receive an antidepressant within 30 days of the first indicator of depression. Forty-four percent of whites but only 27.8% of African Americans received an antidepressant at the time of the initial depression diagnosis ($p < .001$). Racial differences also occur in the type of antidepressant prescribed. Whites received TCAs 46.4% of the time compared with 50.1% for African Americans ($p = .036$). Although not a focus of this article, we also examined the proportion of patients who filled fewer than 4 prescriptions for antidepressants during the 6 months following depression diagnosis. This serves as an indicator of patients who did not receive an adequate course of antidepressant therapy for depressive disorder. We found that 66.1% of white and 76.4% of African American patients filled fewer than 4 prescriptions during that 6-month period ($p < .001$).

The results of the logistic regression models predicting receipt of any antidepressant are shown in Table 3. After controlling for covariates, race remained a strong predictor of receipt of any antidepressant. African Americans were about half as likely to receive an antidepressant when compared with white patients ($p = .0001$, odds ratio [OR] = 0.495, 95% confidence interval [CI] = 0.458 to 0.536). Furthermore, patients in the other or unknown racial category were significantly less likely to receive antidepressants than were white patients ($p = .0006$, OR = 0.743, 95% CI = 0.627 to 0.880).

Other demographic variables also had a statistically significant effect on the receipt of an antidepressant. Older patients ($p = .0001$, OR = 1.019 per year older, 95% CI = 1.016 to 1.023) and those with higher MDC counts ($p = .0001$, OR = 1.043 per unit increase in MDC, 95% CI = 1.025 to 1.061) were more likely to receive an antidepressant. Male gender ($p = .0001$, OR = 0.606, 95% CI = 0.522 to 0.704) and the blind, aged, or disabled eligibility category ($p = .0001$, OR = 0.802, 95% CI = 0.727 to 0.885) were associated with significant reductions in the probability of receiving an antidepressant. Year of diagnosis was also a significant predictor for the years 1992, 1993, and 1994 compared with the baseline year, 1989. The odds ratios were significantly higher in 1992 and 1993. The odds of receiving an antidepressant were greater for each subsequent year of the study with the exception of the year 1994 for which the odds of receiving an antidepressant were lower. Care received from a mental health provider was not a significant factor for antidepressant receipt ($p = .2820$).

The logistic regression results in the estimation of the type of antidepressant received for that subset of patients who received antidepressants are presented in Table 4. There was a statistically significant difference between African Americans and whites in the type of antidepressant received. African Americans were less likely to receive SSRIs ($p = .0093$, OR = 0.844, 95% CI = 0.743 to 0.959). The other or unknown race group was not significantly different from white patients ($p = .8438$).

Age and gender were also significantly predictive of antidepressant type. Older patients were less likely to receive SSRIs ($p = .0141$, OR per year older = 0.992, 95% CI = 0.985 to 0.998). Also, men were less likely to receive SSRIs than were women ($p = .0005$, OR = 0.629, 95% CI = 0.485 to 0.815). Medicaid eligibility category and the number of comorbid conditions were not significant predictors of antidepressant type.

Table 2. Descriptive Statistics According to Study Sample and Race[a]

Variable	Total Sample						Sample Receiving an Antidepressant					
	African American (N = 7401)	White (N = 4954)	Other/ Unknown (N = 710)	χ^2/(F)	df	p Value	African American (N = 2057)	White (N = 2179)	Other/ Unknown (N = 275)	χ^2/(F)	df	p Value
Age, y, mean (SD)	31.3 (10.2)	33.7 (11.5)	43.4 (11.6)	(430.5)	2,13062	< .0001	33.8 (10.1)	33.5 (11.0)	43.7 (11.3)	(117.6)	2,4508	< .0001
No. of MDCs, mean (SD)	2.8 (2.1)	3.0 (2.2)	3.2 (2.4)	(31.5)	2,13052	< .0001	3.0 (2.1)	3.1 (2.1)	3.2 (2.3)	(1.7)	2,4508	.1754
Female, %	94.9	87.7	86.1	229.4	2	< .001	96.5	90.9	90.6	56.7	2	< .001
Prescriber was a mental health provider, %	39.9	38.0	39.3	4.3	2	.115	44.2	35.1	36.7	37.8	2	< .001
Year of initial diagnosis, %				286.4	10	< .001				18.8	10	.042
1989	6.4	8.1	9.9				6.9	7.0	8.7			
1990	13.9	17.4	18.7				15.9	15.3	19.6			
1991	14.6	19.0	18.7				16.8	17.5	18.2			
1992	12.6	16.5	15.9				14.9	17.6	17.1			
1993	26.6	23.0	19.7				28.6	25.0	20.7			
1994	26.0	16.0	17.0				16.9	17.6	15.6			
Reason for Medicaid eligibility, %				1140.8	8	< .001				324.7	8	< .001
AFDC	72.9	59.6	15.2				69.0	65.8	18.2			
Aged/blind/ disabled	24.0	36.0	82.5				28.9	29.8	8.0			
Poverty	2.0	2.2	0.7				0.9	2.3	0.4			
Unknown	1.1	2.1	1.6				1.3	2.1	1.5			
All other	0.1	0.0	0.0				0.0	0.0	0.0			
Received an antidepressant, %[b]	27.8	44.0	38.7	350.0	2	< .001	…	…	…			
Received a TCA, %[b]	…	…	…				50.1	46.4	50.9	6.6	2	.036
Received < 4 prescriptions, %[c]	…	…	…				76.4	66.1	66.5	46.5	2	<.001

[a]Abbreviations: SSRI = selective serotonin reuptake inhibitor, TCA = tricyclic antidepressant.
[b]Within 30 days of the first indicator of depression.
[c]During 6 months following depression diagnosis.

Year of diagnosis played an important role in the receipt of SSRIs versus TCAs. As SSRIs became more available, there was an increase in the rate of their prescription over TCAs. The odds ratios as compared with that of 1989 were generally higher in each subsequent year, with significant differences observed for years 1992, 1993, and 1994. Patients receiving care from a mental health provider were significantly less likely to receive SSRIs (p = .0001, OR = 0.643, 95% CI = 0.566 to 0.730).

DISCUSSION

As demonstrated in this article, there are significant racial differences in the manner in which antidepressant care is received in the Medicaid program studied here. Specifically, African Americans were 55% less likely than whites to receive any antidepressant at the time of initial diagnosis and 25% less likely to receive an SSRI as the initial antidepressant. Although the current research cannot explain the underlying causes of this disparity, our results have important implications for policies that affect the delivery of mental health care to this vulnerable population.

Our results on the use of antidepressant medications are consistent with research on racial variation in medication treatment in other therapeutic areas.[4–13] In Medicaid, African Americans have been found to receive fewer prescriptions in most high-volume therapeutic drug categories, including those for psychoactive medication.[29] Racial variation within Medicaid programs has also been found in the initiation of treatment for glaucoma[30] and hypertension.[31]

With regard to access to antidepressant medications in the African American population, our results present several issues of concern. Clinical trials have suggested that African Americans are more likely than whites to respond to adequate antidepressant treatment,[32] suggesting that, other things equal, African Americans should be at least as or more likely than whites to receive an antidepressant as the initial treatment for a depressive disorder. Similarly, prior clinical research suggests that African Americans are more susceptible than whites to side effects associated with TCA use,[26,32,33] implying that African Americans should be more likely to receive SSRIs, which are associated with a more tolerable pharmacologic profile.[34] In each case, our results demonstrate an apparent contradiction to this clinical logic.

Table 3. Logistic Regression Results for Receipt of Antidepressant[a]

Variable	Parameter Estimates (SE)	p Value	OR	95% CI
Race: African American	–0.7027 (0.0399)	.0001	0.495	(0.458 to 0.536)
Race: other	–0.2970 (0.0863)	.0006	0.743	(0.627 to 0.880)
Age, y	0.0192 (0.0020)	.0001	1.019	(1.016 to 1.023)
Year of diagnosis[b]				
1990	0.0653 (0.0849)	.4422	1.067	(0.904 to 1.261)
1991	0.1083 (0.0841)	.1977	1.114	(0.945 to 1.314)
1992	0.2758 (0.0855)	.0013	1.318	(1.114 to 1.558)
1993	0.2264 (0.0799)	.0046	1.254	(1.072 to 1.467)
1994	–0.1713 (0.0830)	.0391	0.843	(0.716 to 0.991)
Gender: male	–0.5010 (0.0765)	.0001	0.606	(0.522 to 0.704)
Blind, aged, disabled	–0.2204 (0.0502)	.0001	0.802	(0.727 to 0.885)
Provider was a mental health specialist	0.0417 (0.0387)	.2820	1.043	(0.966 to 1.125)
MDC count	0.0419 (0.0089)	.0001	1.043	(1.025 to 1.061)

[a]Abbreviations: CI = confidence interval, OR = odds ratio.
[b]Compared with baseline year (1989).

Table 4. Logistic Regression Results for Antidepressant Type

Variable	Parameter Estimates (SE)	p Value	OR	95% CI
Race: African American	–0.1697 (0.0653)	.0093	0.844	(0.743 to 0.959)
Race: other	0.0276 (0.1399)	.8438	1.028	(0.781 to 1.352)
Age, y	–0.0082 (0.0033)	.0141	0.992	(0.985 to 0.998)
Year of diagnosis[a]				
1990	0.2671 (0.1420)	.0599	1.306	(0.989 to 1.725)
1991	0.1073 (0.1410)	.4468	1.113	(0.844 to 1.468)
1992	0.5314 (0.1408)	.0002	1.701	(1.291 to 2.242)
1993	1.2487 (0.1343)	.0001	3.486	(2.679 to 4.535)
1994	1.5764 (0.1439)	.0001	4.838	(3.649 to 6.414)
Gender: male	–0.4643 (0.1324)	.0005	0.629	(0.485 to 0.815)
Blind, aged, disabled	–0.1079 (0.0794)	.1738	0.898	(0.768 to 1.049)
Provider was a mental health specialist	–0.4415 (0.0648)	.0001	0.643	(0.566 to 0.730)
MDC count	–0.0158 (0.0148)	.2850	0.984	(0.956 to 1.013)

[a]Compared with baseline year (1989).

There are some limitations to our study. First, we have no information on the accuracy of the diagnostic indicators and the severity of the underlying depressive disorder. Second, we have not studied that group of patients who receive an antidepressant and do not have a diagnostic indicator in the insurance claims, but nonetheless are being appropriately treated for depression. Prior studies have found substantial underrepresentation of depressive disorder due to coding bias in insurance claims.[35,36] Finally, we do not have information on clinical outcomes associated with the differing rates of antidepressant use. Further research is required to determine whether the different rates of antidepressant usage are associated with different clinical outcomes.

In spite of its limitations, we believe that our study has important policy implications. Our results suggest that there are disparities in antidepressant use between African American and white patients. Hopefully, this will result in further study to determine the underlying causes of these disparities.

Several hypotheses are suggested from our data, and further study could lead to policies to improve care. For example, we do not have information on whether patients specifically indicated that they did not want to try an antidepressant at the time of diagnosis. Our results regarding use of any antidepressant could also be explained by a disproportionate number of African Americans who receive an antidepressant prescription but fail to fill it. Preliminary results also allude to the need for improved maintenance of care in that African Americans were more likely than whites to discontinue medications prior to the recommended length of therapy. We believe that study of these and other hypotheses will be important in future policy considerations.

In summary, in the Medicaid program studied here, African Americans were less likely than whites to receive an antidepressant, and when they received an antidepressant, they were less likely to receive an SSRI as the initial antidepressant.

Drug names: amitriptyline (Elavil and others), amoxapine (Asendin and others), clomipramine (Anafranil and others), desipramine (Norpramin and others), doxepin (Sinequan and others), fluoxetine (Prozac), nortriptyline (Pamelor and others), paroxetine (Paxil), protriptyline (Vivactil), sertraline (Zoloft), trimipramine (Surmontil).

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