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ANXIETY, MOOD, AND SUBSTANCE USE DISORDERS IN UNITED STATES AFRICAN AMERICAN PUBLIC HOUSING RESIDENTS

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Abstract

Background—African Americans experience considerable mental healthcare disparities in the United States, but little is known about sensitive subgroups within this population. To better understand healthcare disparities within African Americans communities, we characterized anxiety, mood, and substance use disorder prevalence and associated service utilization among public and non-public housing residents.

Methods—We used data from a nationally-representative sample of African Americans recruited as part of the National Survey of American Life.

Results—In public housing residents, the 12-month prevalence of anxiety disorders was 1.8 times higher than in non-public housing residents ($P = 0.002$), mood disorders was 1.4 times higher ($P = 0.189$), and substance use disorders was 2.2 times higher ($P = 0.031$). Public housing remained associated with mental illness after controlling for sociodemographics and chronic illness. Public and non-public housing residents did not differ significantly in mental healthcare utilization, but utilization was low with 16 to 30% of public housing residents with a 12-month disorder receiving mental health assistance.

Conclusions—A relatively high proportion of African American public housing residents suffered from psychiatric disorders, and few received mental healthcare assistance, indicating that further work is needed to enhance utilization.

Keywords

prevalence; mental illness; disparities; African Americans; community health

Introduction

In the United States, African Americans experience considerable mental healthcare disparities [1]. Compared to whites, African Americans are more likely to lack health

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insurance [2], 3 times more likely to have Medicaid (a health insurance program for the poor) [2], and less likely to receive equitable and appropriate mental health treatment [3,4]. A larger proportion of mentally ill African Americans also relies on emergency services [5] and prematurely ends treatment than whites [6]. Additionally, African Americans are more likely to fear receiving mental health treatment [7] and to be less accurately diagnosed with mental illness in primary care [8], which limits effective mental health treatment. Many African Americans also experience serious violent crime, which has been associated with mental illness [9], and about 40% of homeless [10] and federal prisoners [11] are African American, groups at high risk for mental illness [1]. These characteristics suggest that, in addition to the lack of health insurance and less effective mental health treatments, African-Americans are at greater risk for mental healthcare disparities because a larger percentage of this population is in marginalized groups. However, there has been relatively little attention regarding the epidemiology of mental healthcare in socioeconomically disadvantaged African Americans.

Public housing residents are one such group that may be especially vulnerable to healthcare inequalities. In the United States, public housing is a federal program that houses 2.4 million people of which 69% are racial and ethnic minorities and 46% are African American [12]. Public housing differs from other federal programs providing disadvantaged individuals with affordable housing in that local housing authorities own and operate public housing units rather than offer rent subsidies for privately owned residences. Limited evidence suggests that public housing residents suffer more from mental illness than non-public housing residents, possibly related to difficulty in accessing care [13] and higher levels of excessive alcohol consumption and violence [14]. In Baltimore, older adult public housing residents had more current mood disorders, schizophrenia, and substance use disorders than did other urban African American older adults [15]. Overall, of the 37% of older adult public housing residents who had a need for mental healthcare, 58% did not receive such services [16].

When compared to other community-dwelling residents, those in public housing may be doubly disadvantaged: public housing residents have limited resources, and many are from racial/ethnic minority groups that already suffer from healthcare inequalities. Our objective is to use a nationally representative sample of African Americans to characterize anxiety, mood, and substance use disorders, as well as mental healthcare utilization, among African American public and non-public housing residents. We hypothesize that African American public housing residents have a higher prevalence of psychiatric disorders and lower reported use of mental healthcare services than do African American non-public housing residents. Knowledge of the need for and utilization of mental health services by public housing residents, in particular African Americans who are socially disadvantaged, will help inform the design of more effective approaches to their care.

Methods

Sample

The National Survey of American Life (NSAL) is a cross-sectional epidemiologic study that characterized mental illness among a nationally representative sample of US African Americans and Afro-Caribbeans [17]. It is 1 of 3 epidemiologic studies included in the National Institute of Mental Health's Collaborative Psychiatric Epidemiology Surveys [18]; the National Comorbidity Survey Replication and the National Latino and Asian American Study are the others [19]. The NSAL was conducted from 2001 to 2003 and assessed mental illness using the World Mental Health Composite International Diagnostic Interview [20]. A total of 6,199 people, 3,570 of whom were African Americans, were interviewed [17]. The African American sample had a 70.7% response rate [17] and included 472 public housing

residents (weighted $n = 310$) and 3,098 non-public housing residents (weighted $n = 2,537$); weights account for sampling design and nonresponse. Although Afro-Caribbeans were included in the NSAL, there were not enough Afro-Caribbean public housing residents (weighted $n = 14$) to conduct meaningful analyses. University of Rochester's Research Subjects Review Board approved our analyses of the NSAL database.

Public Housing

Public housing is owned and operated by housing authorities receiving federal funding from the US Department of Housing and Urban Development; families, elderly, and disabled persons with low incomes can qualify for public housing [21]. Public housing residents were identified by a single question: "Is this (home/apartment) in a public housing facility, that is, is it owned by a local housing authority or other public agency?" [22] We classified all African Americans who positively endorsed this question (not including non-institutionalized adults who receive rent subsidies) as public housing residents in our analyses; all other African Americans were classified as non-public housing including about 3% of the sample that had ambiguous housing status (most of which are unlikely to be public housing residents).

Psychiatric Disorders

Algorithms based upon the DSM-IV criteria assigned the 12-month and lifetime presence of psychiatric disorders. To account for comorbidity we did not apply a hierarchical classification of mental disorders with the exception of major depressive disorder (e.g., if participants suffered from a major depressive episode their illness was classified as major depressive disorder if mania or hypomania was not present). We grouped psychiatric disorders into the following 3 categories: 1) anxiety disorders (adult separation anxiety disorder, agoraphobia with and without panic disorder, generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social phobia); 2) mood disorders (bipolar I, bipolar II, dysthymia, and major depressive disorder); and 3) substance use disorders (alcohol abuse, alcohol dependence, drug abuse, and drug dependence). Schizophrenia diagnoses are unavailable.

Service Utilization

We examined service utilization in African American public and non-public housing residents with a 12-month history of anxiety, mood, and/or substance use disorders. Service utilization includes seeking assistance for emotions, nerves, mental health, and/or use of alcohol or drugs in the previous 12 months and was divided into 3 categories. *Mental health services* include hospitalization (for mental health reasons), hotlines, mental health counselors, mental health social workers, psychiatrists, psychologists, and other mental health professionals, whereas *general medical services* encompass family doctors, general practitioners, other doctors, and non-MD health professionals. *Healthcare services* represent the use of any mental health or general medical services. Further description on the collection and coding of these variables is available in the online NSAL documentation [22].

Sample Characteristics

We included a number of covariates in our analyses based on known or suspected association with mental health, service utilization, or public housing residence. Covariates included age in years (18–29, 30–44, 45–59, 60+), gender, marital status (married/cohabiting, divorced/separated/widowed, never married), region living (Northeast, Midwest, South, West), employment status (employed, unemployed, not in labor force), education years (0–11, 12, 13–15, 16+), difficulty in paying monthly bills (extremely difficult, very difficult, somewhat difficult, slightly difficult, and not difficult at all), and chronic medical

disease (arthritis, ulcers, cancer, high blood pressure, diabetes, liver problem, kidney problem, stroke, asthma, chronic lung disease, blood circulation problem, sickle cell disease, heart trouble, glaucoma, and osteoporosis). We examined self-reported difficulty in meeting monthly payments rather than income because public housing residency eligibility is dependent on income level.

Analyses

Due to the NSAL's complex survey design, we calculated population-weighted adjusted estimates using SAS survey procedures to account for clustering and stratification sampling methods (SAS Institute, Inc., Cary, NC). Based on recommendations for analyzing complex survey data [23], we used the Rao-Scott modified chi-square test to examine demographic and chronic medical illness, anxiety disorder, mood disorder, and substance use disorder differences between African American public and non-public housing residents; similar analyses characterized 12-month service utilization among African American public and non-public housing residents with a 12-month anxiety, mood, and/or substance use disorder. Multivariable logistical regression analyses controlling for demographic and chronic medical illness characterized the association of public housing residency with 12-month and lifetime presence of an anxiety, mood, and/or substance use disorder. We accounted for the variability of subjects with missing data by using the "not missing completely at random" (i.e., *nomcar*) option in SAS 9.2 in our analyses. Weighted samples of 307 public and 2,415 to 2,427 non-public housing residents (96% of the eligible African American sample) had psychiatric disorder information.

Results

Sample Characteristics

African American public housing residents differed significantly from non-public housing residents by most demographic measures examined. Compared to non-public housing residents, public housing residents lived in different regions of the United States, had more difficulty paying monthly bills, and were more likely to be female, not or never married, unemployed or not in the labor force, and less educated (Table 1).

Psychiatric Illness

Table 2 shows the 12-month and lifetime prevalence of anxiety, mood, and substance use disorders among African American public and non-public housing residents. The 12-month and lifetime prevalence of anxiety disorders in public housing residents were 1.8 and 1.5 times greater than the levels in non-public housing residents. Twelve-month and lifetime mood disorder prevalence did not statistically differ between the groups. In regards to alcohol and drug abuse and dependence, the public housing residents' 12-month and lifetime prevalence of substance use disorders were 2.2 and 1.8 times higher than that of non-public housing residents. Overall, African American public housing residents had a 1.7 and 1.5 times higher 12-month and lifetime prevalence of mental illness (consisting of anxiety, mood, and substance use disorders) than African American non-public housing residents.

After accounting for age, gender, marital status, country region, employment, education, difficulty paying monthly bills, and chronic medical illness, public housing residency among African Americans was associated with an increased risk of lifetime anxiety, 12-month substance use, lifetime substance use, and any lifetime psychiatric disorder (Table 3).

Service Utilization

Past 12-month service utilization for mental health assistance by African American public and non-public housing residents is presented in Table 4. While there were no statistically

significant differences between utilization of services, point estimates were different. Among African Americans with a 12-month anxiety disorder, more public housing residents received healthcare services for mental health assistance than did non-public housing residents (30% vs. 24%; $P = 0.221$). Fewer African American public housing residents with a 12-month mood disorder (27% vs. 39%; $P = 0.195$) and substance use disorder (16% vs. 27%; $P = 0.358$) used healthcare services for mental illness than did non-public housing residents. There was no difference in mental healthcare assistance between African American public and non-public housing residents with a 12-month anxiety, mood, and/or substance use disorder (26% vs. 26%; $P = 0.884$).

Discussion

A larger proportion of African American public housing residents suffered from anxiety and substance use disorders than African American non-public housing residents, which is consistent with previous studies reporting that public housing residents are less healthy than non-public housing residents [15,24,25]. Sociodemographic differences were present that may contribute to the observed mental illness disparity. Compared to non-public housing residents, public housing residents had higher unemployment levels, larger proportions of females and unmarried residents, and less educational achievement, all of which may either impact mental health or treatment of mental illness [26–30]. Low income, a qualification for public housing, is another possible risk factor for anxiety and depression [31], and serious mental illness is associated with decreased annual earnings of approximately \$16,000 [32]. This reduction in income may enable more mentally ill African Americans to qualify for public housing than non-mentally ill individuals, which would subsequently increase mental illness levels among public housing residents. After controlling for sociodemographics and chronic medical illness, however, the association of public housing residency with increased likelihood of having a 12-month or lifetime psychiatric (i.e., anxiety, mood, and/or substance use) disorder persisted. Although non-Hispanic blacks may have less risk for anxiety, mood, and substance use disorders than whites [30], this trend was not present in African American public housing residents who had similar levels of anxiety and mood disorders, as well as more substance use disorders than a national largely white adult population [33]. For comparison, among US English-speaking adult household residents the estimated 12-month prevalence of anxiety, mood, and substance use disorder levels were 18.1%, 9.5%, and 3.8% [33] (African American public housing residents had levels of 19.8%, 9.2% and 6.0%).

We did not find statistically significant differences in utilization of mental health assistance from medical providers with 30.2%, 26.7%, and 16.4% of public and 23.7%, 39.1%, and 26.8% of non-public housing residents with a 12-month history of an anxiety, mood, or substance use disorder receiving care. These findings are indicative of mental healthcare disparities because among a national primarily white population of community-dwelling adults, 36.9%, 50.9%, and 34.5% of those with a 12-month history of an anxiety, mood, or substance use disorder utilized health services for mental healthcare [34], which are higher than our utilization estimates. Such racial and ethnic disparities may result because depressed Latinos, Asians, and African Americans are less likely to access mental health services than non-Latino whites [35], and depressed African Americans may have a more severe and chronic course and receive less treatment than non-Hispanic whites [36].

African American public (and non-public) housing residents may have great need for mental health treatment as only 26% of residents with a 12-month history of an anxiety, mood, and/or substance use disorder received mental health services from general or mental health providers. These illnesses can have serious consequences [33] and anxiety and depression often have chronic courses [37,38]. Many residents may never recover from their mental

illness without appropriate medical care and psychosocial interventions. The public housing setting may offer opportunities to improve services for detection and treatment of mental illnesses such as substance use disorders due to the relatively high prevalence of mental illness and low levels of service utilization. One such public housing intervention has had some success [39]. Many public housing residents may also benefit from multi-disciplinary services, and service providers such as social service agencies may be well positioned to educate residents about mental illness, help with screening, and be involved with treatment management. Specifically, some public housing apartment complexes have social workers or other potential gatekeepers that could help with mental illness education, screening, referral to appropriate care, and follow-up. Nevertheless, our data suggest that African American public housing residents do not receive or benefit from these potential opportunities to deliver improved care.

A limitation of these analyses is that the public housing residents were a small subsample of the NSAL's nationally representative African American population. The NSAL African American public housing subgroup was estimated to represent 2.5 million adults, whereas the US Department of Housing and Urban Development estimated that 1.1 million African Americans lived in public housing in 2000 [12]; thus, the NSAL sample of public housing residents is likely not entirely representative of public housing residents nationally. Also, mental health professionals did not conduct the research interviews, and reliance on non-mental health professionals for data collection may lead to inaccuracies in psychiatric illness prevalence estimates. Another limitation is that the classification of public housing status relied on a single self-report question that may be inaccurately reported. Many African Americans are also overrepresented in disadvantaged groups not examined by the NSAL (e.g., prison [11] and homeless [10] populations), exclusion of which may lead to underestimation of the true burden of mental illness among African Americans.

Conclusions

To our knowledge, using a nationally representative sample of African Americans, these analyses are the first to estimate psychiatric disorder prevalence among public housing residents nationally and to explore service utilization patterns of residents with a recent or current psychiatric disorder. This study indicates that: 1) African American public housing residents had higher levels of anxiety and substance use disorders than African American non-public housing residents, 2) in this population, public housing was associated with elevated levels of mental illness even after accounting for sociodemographic variables and chronic medical disease; and 3) public and non-public housing residents did not differ significantly in utilization of mental healthcare, but utilization was low with only 16 to 30% of public housing residents with a 12-month disorder receiving mental health assistance from the healthcare sector. The relatively high level of psychiatric disorders in the public housing sample in combination with low utilization rates demonstrates a need to better understand mental healthcare barriers public housing residents encounter. In the US, African American public housing residents appear to be a high risk group that could benefit from mental illness screening and early identification programs with appropriate referral to coordinated medical and psychiatric treatment.

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TABLE 1
African American public (weighted $n = 310$) and non-public housing (weighted $n = 2,537$) residents' sample characteristics

Sample Characteristics	Public Housing Residents		Non-Public Housing Residents		p^a
	%	SE	%	SE	
Age, years					0.073
18–29	31.6	3.4	23.5	1.1	
30–44	31.6	2.8	35.9	0.9	
45–59	19.9	2.5	24.3	0.9	
60+	16.9	3.0	16.3	0.9	
Gender					<0.001
Female	67.6	2.7	54.6	0.9	
Male	32.4	2.7	45.4	0.9	
Marital Status ^b					<0.001
Married/Cohabiting	19.8	3.4	44.3	1.1	
Divorced/Separated/Widowed	33.8	3.1	25.9	0.8	
Never Married	46.4	3.4	29.8	1.3	
Region					0.017
Northeast	28.7	6.0	14.1	0.8	
Midwest	16.9	3.7	19.0	2.1	
South	46.5	5.7	57.4	2.4	
West	7.9	1.9	9.4	0.9	
Employment Status ^c					<0.001
Employed	49.0	2.6	69.0	1.2	
Unemployed	16.2	1.8	9.3	0.8	
Not in Labor Force	34.8	3.2	21.7	1.0	
Education, years					<0.001
0–11	37.8	2.8	22.5	1.3	
12	42.9	2.8	37.2	1.2	
13–15	15.4	1.8	24.9	1.0	
16+	4.0	1.2	15.4	1.3	
Paying Monthly Bills ^{d,e}					<0.001

Sample Characteristics	Public Housing Residents		Non-Public Housing Residents		<i>p</i> ^a
	%	SE	%	SE	
Extremely Difficult	7.6	1.3	4.0	0.5	
Very Difficult	9.9	1.8	6.4	0.6	
Somewhat Difficult	23.4	1.6	20.5	0.8	
Slightly Difficult	29.2	3.1	25.9	0.9	
Not Difficult At All	29.9	2.8	43.2	1.5	
Chronic Medical Disease ^{f,g}					0.104
Yes	62.2	2.6	57.2	1.2	
No	37.8	2.6	42.8	1.2	

^a*P* determined by the Rao-Scott modified chi-square test

Some characteristics are missing data and the weighted samples analyzed are:

^b 310 public housing, 2,531 non-public housing;

^c 310 public housing, 2,530 non-public housing;

^d 309 public housing, 2,493 non-public housing;

^f 307 public housing, 2,426 non-public housing

^e „How difficult is it for (you/your family) to meet the monthly payments on your (family’s) bills?“

^g Chronic medical disease includes arthritis, ulcers, cancer, high blood pressure, diabetes, liver problem, kidney problem, stroke, asthma, chronic lung disease, blood circulation problem, sickle cell disease, heart trouble, glaucoma, and osteoporosis

TABLE 2
Psychiatric disorder prevalence in African American public and non-public housing residents

DSM-IV Mental Illness	12-Month				Lifetime				<i>p</i> ^a
	Public Housing Residents		Non-Public Housing Residents		Public Housing Residents		Non-Public Housing Residents		
	%	SE	%	SE	%	SE	%	SE	
Anxiety Disorders									
Agoraphobia w/ Panic Disorder ^b	2.8	0.7	0.9	0.2	4.7	1.1	1.7	0.3	
Agoraphobia w/o Panic Disorder ^b	4.1	0.8	1.4	0.2	5.5	1.1	2.2	0.4	
Adult Separation Anxiety Disorder ^c	4.2	1.3	2.0	0.3	11.0	1.5	5.7	0.5	
Generalized Anxiety Disorder ^b	3.4	1.1	2.4	0.4	6.4	1.7	4.2	0.5	
Panic Disorder ^b	3.6	0.9	2.1	0.3	6.2	1.2	3.1	0.3	
Posttraumatic Stress Disorder ^d	8.7	1.8	3.2	0.4	15.9	2.3	8.2	0.6	
Social Phobia ^b	8.0	1.1	4.1	0.4	10.9	1.6	7.2	0.5	
Any Anxiety Disorder ^e	19.8	2.1	11.0	0.8	31.8	2.0	20.7	1.0	<0.001
Mood Disorders									
Major Depressive Disorder ^f	8.1	1.7	4.9	0.4	13.0	2.3	10.0	0.6	
Dysthymia ^g	3.2	0.7	2.5	0.4	5.1	1.1	3.3	0.4	
Bipolar I ^f	0.2	0.2	0.9	0.2	0.9	0.4	1.3	0.2	
Bipolar II ^f	0.5	0.3	0.4	0.2	0.7	0.3	0.5	0.2	
Any Mood Disorder ^h	9.2	1.7	6.6	0.6	15.4	2.2	12.1	0.7	0.173
Substance Use Disorders									
Alcohol Abuse ⁱ	4.9	1.4	1.9	0.3	17.2	1.8	8.8	0.7	
Alcohol Dependence ⁱ	3.6	1.1	1.0	0.3	8.3	1.6	3.2	0.4	
Drug Abuse ^c	2.0	0.9	1.2	0.2	11.0	1.8	5.7	0.5	
Drug Dependence ^c	1.1	0.5	0.7	0.2	3.7	1.1	2.4	0.4	
Any Substance Use Disorder ^c	6.0	1.6	2.7	0.4	19.4	1.9	10.5	0.7	<0.001
Any Mental Disorder ^j	26.3	2.4	15.4	1.0	47.0	2.8	31.0	1.3	<0.001

Major depression is with hierarchy and any mental disorder includes anxiety, mood, and substance use disorders

Some analyses are missing data (all public housing estimates had a weighted sample of 307) with the weighted samples of non-public housing estimates being:

a_P determined by the Rao-Scott modified chi-square test

- $b_{2,424};$
- $c_{2,421};$
- $d_{2,415};$
- $e_{2,418};$
- $f_{2,426};$
- $g_{2,427};$
- $h_{2,425};$
- $i_{2,422};$
- $j_{2,418}$ for 12-month and 2,419 for lifetime mental disorder

TABLE 3

Logistic regression analyses of 12-month and lifetime presence of anxiety, mood, and substance use disorders

Sample Characteristics	Anxiety Disorders			Mood Disorders			Substance Use Disorders			Any Disorder		
	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)
Public Housing Residency	1.39 (0.97, 1.99)	1.37* (1.05, 1.77)	0.92 (0.53, 1.61)	0.98 (0.64, 1.49)	2.04* (1.03, 4.02)	2.02** (1.43, 2.84)	1.40 (1.00, 1.96)	1.62** (1.17, 2.23)				
Age, years												
18-29	5.09** (2.58, 10.03)	4.43** (2.62, 7.50)	12.34** (4.64, 32.81)	5.75** (3.37, 9.79)	14.73** (3.14, 69.00)	1.47 (0.82, 2.65)	7.03** (3.71, 13.35)	3.33** (2.18, 5.10)				
30-44	3.32** (1.71, 6.44)	3.20** (2.00, 5.12)	6.80** (3.01, 15.36)	4.16** (2.41, 7.19)	12.99** (3.06, 55.17)	2.11** (1.21, 3.67)	4.45** (2.47, 8.02)	3.13** (2.15, 4.56)				
45-59	3.15** (1.73, 5.76)	2.99** (2.03, 4.41)	6.15** (2.65, 14.31)	3.50** (2.26, 5.42)	8.97** (2.41, 33.29)	2.21** (1.28, 3.84)	4.09** (2.36, 7.11)	2.73** (1.88, 3.96)				
Gender												
Female	1.63** (1.23, 2.16)	1.72** (1.36, 2.19)	1.36 (0.95, 1.93)	1.33 (0.99, 1.79)	0.37** (0.21, 0.63)	0.22** (0.17, 0.28)	1.27 (1.00, 1.62)	0.95 (0.79, 1.13)				
Marital Status												
Divorced/Separated/Widowed	1.43* (1.04, 1.95)	1.42** (1.13, 1.77)	2.08** (1.21, 3.60)	1.79** (1.20, 2.66)	2.00* (1.14, 3.50)	1.61** (1.24, 2.09)	1.83** (1.35, 2.49)	1.70** (1.36, 2.13)				
Never Married	1.10 (0.81, 1.50)	1.06 (0.82, 1.38)	1.46 (0.92, 2.31)	1.22 (0.89, 1.68)	1.08 (0.51, 2.28)	1.16 (0.79, 1.72)	1.19 (0.90, 1.57)	1.09 (0.85, 1.39)				
Region												
Northeast	1.80 (0.99, 3.29)	1.58* (1.00, 2.48)	1.09 (0.61, 1.96)	1.95** (1.23, 3.09)	0.99 (0.24, 4.01)	1.23 (0.54, 2.79)	1.36 (0.93, 1.99)	1.59* (1.05, 2.39)				
Midwest	1.80 (0.91, 3.57)	1.60* (1.02, 2.51)	1.37 (0.76, 2.45)	2.06** (1.26, 3.37)	1.15 (0.30, 4.39)	0.98 (0.40, 2.40)	1.41 (0.91, 2.19)	1.49* (1.01, 2.19)				
South	1.26 (0.71, 2.22)	1.05 (0.70, 1.57)	0.71 (0.40, 1.25)	1.03 (0.63, 1.67)	0.75 (0.22, 2.59)	0.68 (0.30, 1.54)	1.00 (0.75, 1.33)	0.92 (0.63, 1.34)				
Employment Status												
Unemployed	1.28 (0.88, 1.88)	1.16 (0.79, 1.72)	1.23 (0.75, 2.00)	1.17 (0.80, 1.73)	2.14** (1.24, 3.68)	1.14 (0.77, 1.70)	1.50* (1.08, 2.10)	1.25 (0.95, 1.64)				
Not in Labor Force	1.44* (1.03, 2.01)	1.18 (0.86, 1.61)	1.33 (0.89, 1.99)	1.13 (0.81, 1.59)	0.76 (0.41, 1.40)	0.85 (0.61, 1.19)	1.30* (1.01, 1.69)	1.07 (0.81, 1.40)				
Education, years												
0-11	1.11 (0.69, 1.80)	1.09 (0.77, 1.55)	0.87 (0.48, 1.57)	0.69 (0.42, 1.16)	4.41* (1.33, 14.64)	4.12** (1.92, 8.85)	1.20 (0.75, 1.90)	1.19 (0.87, 1.65)				
12	0.90 (0.55, 1.49)	0.80 (0.54, 1.17)	0.67 (0.34, 1.32)	0.63 (0.40, 1.00)	1.38 (0.48, 4.01)	1.91 (0.89, 4.07)	0.82 (0.51, 1.31)	0.78 (0.56, 1.09)				
13-15	0.83 (0.47, 1.45)	0.90 (0.61, 1.32)	0.71 (0.36, 1.38)	0.77 (0.46, 1.27)	1.15 (0.36, 3.72)	2.67* (1.18, 6.06)	0.78 (0.49, 1.25)	1.00 (0.70, 1.44)				
Paying Monthly Bills												
Extremely Difficult	4.61** (2.70, 7.88)	3.44** (2.15, 5.52)	7.45** (4.46, 12.46)	4.60** (2.79, 7.59)	2.22 (0.98, 5.05)	2.79** (1.48, 5.27)	4.72** (2.78, 8.02)	3.39** (2.15, 5.34)				

Soc Psychiatry Psychiatr Epidemiol.

Author manuscript; available in PMC 2012 October 12

Sample Characteristics	Anxiety Disorders			Mood Disorders			Substance Use Disorders			Any Disorder	
	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	12-Month OR (95% CI)	Life-Time OR (95% CI)	
Very Difficult	2.75** (1.95, 3.88)	1.84** (1.31, 2.60)	3.48** (1.88, 6.45)	2.49** (1.63, 3.80)	1.96 (0.86, 4.47)	2.30** (1.45, 3.66)	3.15** (2.35, 4.23)	2.39** (1.82, 3.13)			
Somewhat Difficult	2.19** (1.64, 2.93)	1.82** (1.32, 2.52)	2.99** (1.73, 5.17)	1.94** (1.31, 2.87)	1.21 (0.66, 2.20)	1.52 (0.96, 2.43)	2.30** (1.71, 3.08)	1.80** (1.38, 2.36)			
Slightly Difficult	1.11 (0.79, 1.56)	1.23 (0.96, 1.59)	1.46 (0.92, 2.30)	1.20 (0.85, 1.70)	0.90 (0.52, 1.55)	1.30 (0.92, 1.83)	1.22 (0.95, 1.57)	1.33** (1.08, 1.64)			
Chronic Medical Disease ^d											
Yes	1.91** (1.49, 2.45)	1.76** (1.42, 2.18)	1.94** (1.27, 2.94)	1.85** (1.42, 2.39)	1.12 (0.73, 1.72)	1.75** (1.30, 2.34)	1.79** (1.36, 2.37)	1.66** (1.36, 2.04)			

OR = odds ratio. CI = confidence interval. All logistic model analyses contained a weighted sample of 2698 and all variables were included simultaneously. In logistic regression modeling, the reference groups are non-public housing residency, 60+ years of age, male gender, married/cohabiting marital status, living in the West, employed, 16+ education years, not difficult at all in paying bills, and no chronic medical disease

^a Chronic medical disease includes arthritis, ulcers, cancer, high blood pressure, diabetes, liver problem, kidney problem, stroke, asthma, chronic lung disease, blood circulation problem, sickle cell disease, heart trouble, glaucoma, and osteoporosis

* $P < 0.05$;

** $P < 0.01$

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African American public and non-public housing residents' 12-month utilization of healthcare services in the presence of a 12-month psychiatric disorder

TABLE 4

	Mental Health ^a			General Medical ^b			Any Healthcare ^c		
	%	SE	<i>p</i> ^d	%	SE	<i>p</i> ^d	%	SE	<i>p</i> ^d
Anxiety Disorder ^e			0.406			0.935			0.221
Public Housing Resident	21.3	5.8		15.1	5.0		30.2	4.9	
Non-Public Housing Resident	16.2	1.9		15.5	2.0		23.7	2.0	
Mood Disorder ^f			0.071			0.484			0.195
Public Housing Resident	14.1	5.3		17.8	7.2		26.7	7.5	
Non-Public Housing Resident	27.0	3.1		23.6	3.6		39.1	3.5	
Substance Use Disorders ^g			0.440			0.934			0.358
Public Housing Resident	16.4	8.4		6.4	4.6		16.4	8.4	
Non-Public Housing Resident	25.5	6.6		6.9	3.0		26.8	6.3	
Any Disorder ^h			0.987			0.420			0.884
Public Housing Resident	17.6	4.9		12.7	3.9		25.7	4.4	
Non-Public Housing Resident	17.5	1.6		16.1	1.8		26.3	1.7	

Service utilization includes those who sought assistance for emotions, nerves, mental health, and/or use of alcohol or drugs in the previous 12 months

^a Consists of hospitalization (for mental health reasons), hotlines, mental health counselors, mental health social workers, psychiatrists, psychologists, and other mental health professionals

^b Consists of family doctors, general practitioners, other doctors, and non-MD health professionals

^c Accounts for both mental health and general medical categories

^d *P* determined by Rao-Scott modified chi-square test Analyses have weighted samples of:

^e 61 public housing, 263 non-public housing;

^f 28 public housing, 159 non-public housing;

^g 19 public housing, 64 non-public housing;

^h 81 public housing, 368 non-public housing