Mental Health Service Use among Older African Americans: The National Survey of American Life

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Abstract

Objectives—The objective of this study was to examine mental health services utilization of older African Americans using data from the National Survey of American Life (NSAL).

Methods—A sub-sample of African American respondents aged 55 years or older (n=837) was used for this study. Thirteen mental disorders, including mood, anxiety, and substance disorders, were assessed using the Diagnostic Statistical Manual-IV World Mental Health Composite International Diagnostic Interview. Seventy-four respondents (9.6%) met criteria for a disorder. Self-reported service use included psychiatric and non-psychiatric mental health services, general medical care, and non-health care (e.g., human services and complementary-alternative medicine).

Results—Overall, 46.5% (n=30) of older African Americans with any one 12-month disorder used some form of services in the last year; 47.2% (n=12) with two or more disorders used any services. Those reporting any mood disorder had higher service use in every sector compared to those with any anxiety or any substance disorder. Age was significantly related with each service sector except for non-health care. There were no significant gender or work status differences, and marital status was only significant in non-health care use. Those aged 55–64, married, and not residing in the south were more likely to report any service use than their respective counterparts.

Conclusions—These findings reveal that a significant proportion of African American older adults with mental health disorders do not receive professional help. Future research on system, provider, and patient factors is needed to clarify and explain underutilization of mental health services.

OBJECTIVE

Historically, research on mental health service use has followed two paths. One tradition of services research focuses on existing service users, examining the types of services used, the probability of leaving treatment prematurely, and treatment outcomes in clinical samples (1–4). Community surveys, on the other hand, provide information about service users as well

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as non-users. Much of the literature from the second tradition focuses on understanding the demographic and social factors associated with the decision to seek and the ability to obtain professional help (5–8). This approach can provide quantitative estimates of the pool of people with disorders who go untreated (9, 10).

As the population ages, it is important to identify gaps in mental health services for older adults. In fact, there are significant racial differences in mental health service use. Previous community surveys show that African Americans are less likely to use outpatient mental health services than White Americans (5–7, 11, 12). A study of VA patients, aged 60 and older, found fewer outpatient visits, but no racial differences in inpatient use, for African Americans. This was true for all disorders except substance disorders, for which older African Americans had more outpatient visits (13). Older African Americans with mental disorders are more likely than White Americans to seek care from a general practitioner (6, 8, 11, 14). Compared to White Americans, African Americans are less likely to receive psychotropic medications from their primary care physician (14). Among older adults living in public housing, most of whom were African American, over half of those in need of care had not received any mental health treatment over the preceding six months (15, 16). Those who did receive care were most likely to go to a primary care physician. Finally, among Medicare recipients older African Americans had more inpatient hospital days for mental health problems than older Whites despite similarities in rates of psychiatric disorders or comorbidity (17).

In summary, the literature suggests that older African Americans underutilize mental health services, rely on primary care physicians for mental health care, and are less likely to use outpatient services than Whites. However, these studies interviewed too few African Americans to examine the heterogeneity within the African American population. The National Survey of American Life (NSAL) provides a unique opportunity in this regard because it is a nationally representative sample with enough older African Americans to examine differences in service use among this group as well as to better understand both the treatment experiences of those who receive care, and learn more about those who are not receiving care. The present study provides a foundation for future work which will examine key subsamples and additional treatment issues of older African Americans by describing their mental health service utilization. In particular, this study answers the following questions: Among older African Americans, what proportion use mental health services and how is service use related to the presence of a mental disorder? What service sectors are older African Americans most likely to go to for a mental health problem? And what demographic factors predict service use among older African Americans?

METHODS

Sample

The NSAL is a national multistage probability sample in the continental United States. Data were collected by the University of Michigan's Institute for Social Research Survey Research Center on behalf of the Program for Research on Black Americans. Data were collected from February 2001 to June 2003 using face-to-face computer-assisted interviews. Interviewers participated in a 10-day training program and were closely supervised

throughout the data collection period. Initial interviews and every 10th interview were taped and evaluated for reliability. The full sample consisted of 6,082 adults aged 18 and older, including 3,570 African Americans, 891 non-Hispanic whites, and 1,621 blacks of Caribbean descent who reside in areas where blacks reside. The overall response rate was 72.3%; 70.7% for African Americans. Design and sample characteristics of the NSAL are described elsewhere (18). This study focuses on the 837 African Americans aged 55 years or older. Among this analytic sample, 74 respondents (9.6%) met criteria for a mood, anxiety, or substance disorder within the previous 12 months. Those with a disorder had lower incomes than those without a disorder. Otherwise there was no significant demographic difference between the two groups.

Measures

Diagnostic Assessment—A modified version of the Diagnostic and Statistical Manual (DSM) IV World Mental Health Composite International Diagnostic Interview (WMH-CIDI) (19) was used to assess mental disorders. The present analysis examines anxiety disorders (panic, agoraphobia, social phobia, generalized anxiety, post-traumatic stress, and obsessive compulsive disorder (20)), mood disorders (major depressive, dysthymia, bipolar I & II), and substance disorders (alcohol abuse and dependence without abuse, and drug abuse and dependence without abuse).

Mental Health Service Utilization—Data utilized in this study come from a questionnaire section administered to all respondents, regardless of whether they met criteria for a mental disorder. Respondents were asked whether they sought help from a list of treatment providers for problems with emotions, nerves, mental health, or use of alcohol or drugs, in the past 12 months. The mental health sector encompassed psychiatrists, mental health hotlines, psychologists, and other mental health professionals. The general medical care sector included general and specialized practitioners, family doctors, nurses, occupational therapists, and other health professionals. The non-health care sector comprised human services (religious advisors, counselors, and social workers) and complementary-alternative medicine including herbalists, chiropractors, self-help groups and internet support groups. Twelve-month service use was defined as at least one visit to a member of the treatment sector within the 12 months prior to the interview.

Covariates—Mental disorder is a dichotomous variable assessing whether the respondent had any mood, anxiety, or substance disorder within the last 12 months. Additional variables include a two-category measure of age, sex, work status (employed, unemployed/not in labor force), education (0–11 years, 12 years or more), household income divided at the median, marital status (married/cohabitating, never married/separated/divorced, widowed), and region (South, non-South). Region was dichotomized as South versus non-South because over half of the respondents live in the South and preliminary analyses suggest that they differ significantly from older African Americans living in other regions. An iterative, regression-based multiple imputation approach was used to impute missing values for household income and education using information about employment status, marital status, and home ownership, as well as age, sex, region, race, and nativity of household residents.

Statistical Analysis

Standard errors are adjusted for NSAL's complex survey design, usually resulting in larger standard errors than analyses treated for simple random samples. Therefore, large differences may not be statistically significant (21). Cross-tabulations are presented to illustrate demographic differences in service use. The percents represent weighted proportions; the standard errors and 95% confidence intervals reflect the recalculation of variance using the study's complex design; and the Rao-Scott χ^2 represents a complex design-corrected measure of association. Logistic regression was used to examine the demographic correlates of service use, adjusted for the presence of any 12-month DSM-IV disorder. Odds ratio estimates and 95% confidence intervals are presented along with design-corrected Likelihood ratios. All analyses were conducted using SAS 9.1.3 with the Taylor expansion approximation technique for calculating the complex design-based estimates of variance (22), with α-levels of 0.05 representing the cut-off for statistical significance.

RESULTS

Overall, 7.3% (n=54) of older African Americans obtained services in response to problems with their emotions, mental health, or use of alcohol or drugs. The demographic correlates of 12-month service use are presented in Table 1. Those 55–64 years of age reported using more general medical care and mental health services compared to non-health care options. Use of any services, mental health services, and general medical care was lower among those 65 years or older. Age showed no significant relationship to use of non-health care.

Table 1 reveals that respondents with 12 years of schooling or more showed a higher percentage of mental health service use. Older African Americans with incomes less than $21,000 were more likely to use general medical services or any services compared to those with incomes of $21,000 or greater. Older adults who were married or cohabiting were least likely to use non-health care. Those residing in areas other than the South showed the highest percentage of use of mental health and any services.

Service sector use for selected mental disorders is presented in Table 2. Among those who met criteria for any 12-month DSM-IV disorder, the proportion of cases obtaining any type of services ranged from zero for agoraphobia without panic disorder to 100% for bipolar disorder. Overall, 46.5% (n=30) of older adults with any disorder used some form of services in the past year. The percentage using any services was similar among those with two or more disorders (47.2%; n=12) compared to those with any disorder. In addition, 3.1% (n=24) of older African Americans who did not meet criteria for a disorder reported using mental health services.

The 12-month disorder summary variables revealed that respondents with any mood disorder reported higher service use in every sector compared to respondents with any anxiety or substance disorder. Any non-health care showed the lowest utilization rates. General medical showed the highest percentage of use among those with anxiety and mood disorders. Those with substance disorders used mental health services more than any other service sector. Those without a disorder used both the mental health and general medical sectors.

Table 3 presents odds ratios and 95% confidence intervals estimating the relationship between demographic characteristics, presence of any DSM-IV 12-month disorder, and 12-month service use. All of the models demonstrated acceptable model fit. Gender and work status were not associated with service use; the presence of any disorder significantly increased use across sectors. Respondents aged 55 to 64 were more likely than those 65 years or older to obtain any service use. Respondents who were married or cohabiting were more likely to indicate any service use than respondents who were never married, separated, divorced, or widowed. Residing in the West, Midwest, or Northeast was significantly associated with a threefold increase in the odds of any service use compared to residing in the South.

Being 55 to 64 years old and living in the non-South compared to the South was associated with using general medical services. Individuals never married/separated/divorced compared to those married/cohabiting and having less than 12 years of education had increased odds of any non-health service use.

DISCUSSION

Among older African Americans more than half of respondents with a mental disorder did not use services, suggesting a substantial amount of unmet need among this population, although we do not know if everyone who meets criteria for a disorder has a need for treatment. In addition, 3% of those without a disorder reported using services. These may be individuals with subsyndromal disorders, individuals who are in recovery, or those with other issues for which they are seeking treatment, such as disorders not assessed, trouble with life transitions or traumatic events, or concerns about family or friends. These findings suggest that mental health care is being utilized by those who need it, although not everyone who needs care is receiving it.

Many of those who received services did so through the general medical rather than the mental health care sector. This raises questions about the type and adequacy of treatment older African Americans are receiving for mental disorders (5, 23). The current study also provides valuable information about factors that may promote and inhibit the use of services among older African Americans by examining within-group differences. For example, age had a significant influence on service use. Those 65 and older were less likely than those 55 to 64 to receive mental health or general medical services. There are two possible explanations for these results, both of which may have an impact on service provision. One explanation is that service use declines with age. Given the expected increases in the proportion of the African American population 65 and older, this is cause for concern. In addition, the number of those 85 and older is also expected to increase (24). This group is particularly vulnerable to mental disorders (25). These demographic changes coupled with potential declines in service use with age and difficulties in diagnosis, such as disentangling symptoms of depression and anxiety from those of physical ailments (26), suggest a need to rethink how and where we diagnose and treat mental disorders among older African Americans. Another explanation is a cohort effect. That is, the current cohort aged 55 to 64 use more services than previous age cohorts and will continue to do so as they age. Finally, Ford et al. (2007), also analyzing data from the NSAL, reported that respondents 55 to 64

years of age were the most likely to have a lifetime disorder followed by respondents 65 to 74 (27). Those 75 years of age and older were least likely to have a lifetime disorder. Respondents 55 to 64 years of age also reported a higher likelihood of a 12-month disorder compared to those age 75 and above. Since the oldest group has a lower prevalence of mental disorders, they may also have a lower need for services.

The age effect while creating individual suffering may not have a simple institutional solution. For instance, older people have lower rates of disorders and later onset disorders are less severe (28). African Americans have higher mortality rates beginning at about age 45 (29) and as a result, those African Americans with higher mental health needs might die earlier and would be selected out of the population needing mental health care (26). Conversely, older African Americans have more disability and lowered mobility (30) and as a result may be unable to "seek" services in the traditional way in which services are currently organized and provided. While these are viable, possible explanations, we are unable to test these hypotheses within this initial paper. Given the exploratory nature of this first paper, it is perhaps premature to decide on a definitive explanation for the observed relatively lower use of mental health services among those 65 years and above until new analyses are conducted.

Differences in service use by education and region are hard to understand and we must be cautious about the possible explanations. Those with a high school education or higher were more likely to use mental health services. This is consistent with prior research and suggests that education may be related to acceptance of information about the symptoms of mental illness and appropriate treatment (5, 8, 31). The finding that lower education is associated with greater use of non-health care services suggests that those with less education may be using less traditional sources of care. To the extent that older African Americans in the South live in rural areas, accessibility to services may be more difficult than in other regions. In addition, older African Americans in the South have been found to have larger family networks which may provide alternative sources of support or inhibit professional service use (32, 33).

There are study limitations that should be noted. It is possible that the significant findings from multiple comparisons may have resulted from a Type 1 error, or chance. It should also be noted this initial exploratory analysis was unable to include other health behavior model variables that might better account for some of the findings. Future papers will explore such models. Another potential factor influencing service use among those with a mental disorder not fully addressed in this study is the type of disorder. The current analysis was not able to measure access barriers explicitly. Bivariate results suggest, for example, that more older African Americans with a mood or anxiety disorder used general medical services, while more of those with substance disorders used mental health services. Substance disorders may be more easily recognizable among this group as a mental health problem needing specialty treatment. Another possibility is that depression can be treated more easily with antidepressants while substance abuse requires a more specialized treatment setting. Because the prevalence of 12-month disorders is relatively small, there are not sufficient numbers to examine the influence of type of disorder further, however, descriptive patterns in the data suggest that this issue merits further research.

Only 74 respondents met criteria for a disorder and only 30 of these sought help. This is a rather small number and underscores how despite the large sample size, a subgroup analysis (i.e. elderly) that is concerned with a fairly rare event, such as mental illness, can suffer from some of the same limitations and shortcomings of smaller clinical studies. This speaks to the necessity and importance of utilizing both approaches to further our understanding of the impact of mental disorders among older African Americans and other minority groups. The small numbers of older African Americans who actually meet criteria for a mental disorder limits the generalizability of the paper's findings. For example, diagnoses beyond "any disorder" are not included in table 3 because the sample sizes are not large enough for reliable analyses. Differences by specific disorder are important to consider and as a result, future community studies are needed that focus on larger clinical samples of ethnic minorities and African Americans (34).

Finally, the classification of mental disorder relies heavily on self report data with limited input from clinical judgment. This makes it difficult for present epidemiologic methods to address adequately the argument that DSM criteria are culturally biased. To the extent that the DSM is biased across race, it is likely that the CIDI is similarly biased. Since the CIDI relies heavily on self-report data with little opportunity for clinical contextual adjustments of symptoms, it cannot address cultural variation that may be missed in the symptom criteria. The reality is that the current state of the art for psychiatric epidemiology is tied inextricably to procedures that limit the use of clinician-based interviewing (35). In addition, the presumption is that meeting criteria for a disorder indicates a need for services which is not necessarily the case.

Despite these limitations this study provides important information on mental health service use among older African Americans. Although the results suggest some underutilization of services, there are encouraging findings. In fact, 63.5% (n=12) of the current sample with major depression received services. The ECA and NCS-R reported treatment rates of 36% and 57% for major depression across all racial and ethnic groups (5, 8). Interestingly, a preliminary comparison of the NSAL to the NCS-R for respondents 55 years and older revealed that a higher percentage of depressed African Americans than White Americans obtained professional services. Thus, older African Americans may not be doing worse than others, and there are considerable improvements in treatment rates since the ECA.

This study is the first to investigate the relationship among demographic characteristics, presence of any 12-month DSM-IV disorder, and 12-month service use in a national sample of older African Americans. The findings suggest that type of disorder is an important issue for this group and that African Americans 65 and older are least likely to receive services. Given the changing demographics of our society, and our finding that a sizeable proportion of those who met criteria for a disorder did not seek or receive professional services, future research should pay particular attention to both personal and structural barriers impeding service use for this important and rapidly growing demographic group.

Acknowledgments

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Table 1

Demographic Correlates of 12-month Service Use^a in Older African Americans

	Any Service Use % (SE)	Any Mental Health % (SE)	General Medical % (SE)	Any Non-Health % (SE)	n^b
Age					
55–64 years	11.0 (2.1)	5.2 (1.4)	6.6 (1.7)	2.6 (1.1)	362
65 years	4.0 (1.2)	1.3 (0.6)	3.1 (1.1)	1.0 (0.4)	418
χ^2 df=1^c	8.65	7.48	2.92	2.54	
p-value	0.003	0.006	0.026	0.111	
Sex					
Male	6.1 (1.6)	2.8 (1.1)	4.9 (1.5)	1.8 (0.9)	278
Female	8.1 (1.3)	3.4 (0.9)	4.6 (1.2)	1.8 (0.6)	502
χ^2 df=1^c	1.25	0.19	0.04	0.00	
p-value	0.263	0.661	0.845	0.956	
Work Status					
Employed	5.7 (1.7)	2.9 (1.1)	2.6 (1.4)	2.4 (1.0)	259
Unemployed/Not in Labor Force	8.1 (1.5)	3.3 (1.0)	5.8 (1.1)	1.5 (0.6)	521
χ^2 df=1^c	1.09	0.06	2.46	0.84	
p-value	0.296	0.802	0.117	0.361	
Education					
0–11 years	8.0 (2.0)	1.3 (0.6)	5.6 (1.9)	2.0 (0.8)	336
12 years	6.8 (1.5)	4.3 (1.1)	4.2 (1.0)	1.7 (0.7)	444
χ^2 df=1^c	0.22	6.76	0.50	0.10	
p-value	0.641	0.009	0.481	0.749	
Income					
Less than $21,000	9.8 (1.5)	3.7 (1.2)	7.1 (1.4)	1.6 (0.6)	457
Greater than $21,000	4.8 (1.6)	2.6 (1.0)	2.4 (1.1)	2.0 (0.8)	323
χ^2 df=1^c	3.92	0.44	5.85	0.16	
p-value	0.048	0.505	0.016	0.688	
Marital Status					
Married/Partner	8.2 (1.8)	4.1 (1.1)	5.3 (1.6)	0.3 (0.4)	238

	Any Service Use % (SE)	Any Mental Health % (SE)	General Medical % (SE)	Any Non-Health % (SE)	n[b]
Never Married/Separated/divorced	7.9 (2.1)	3.6 (1.6)	4.4 (1.8)	3.9 (1.6)	260
Widowed	5.6 (1.6)	1.5 (0.9)	4.2 (1.6)	1.7 (0.7)	281
χ^2 df=2[c]	1.31	2.71	0.27	9.44	
p-value	0.520	0.258	0.876	0.009	
Region					
South	5.1 (1.0)	1.6 (0.7)	3.3 (1.0)	1.0 (0.4)	494
Non-South	10.2 (2.3)	5.1 (1.4)	6.5 (1.7)	2.8 (1.2)	286
χ^2 df=1[c]	5.28	4.93	2.67	3.18	
p-value	0.022	0.026	0.102	0.075	
Total	7.3 (1.1)	3.2 (0.7)	4.7 (0.9)	1.8 (0.6)	780

[a] Twelve-month service use within a particular treatment sector was defined as making at least one visit to a member of the treatment sector within the 12 months prior to the respondent's interview for problems with their emotions, nerves, mental health, or use of alcohol or drugs.

[b] Unweighted n's are reported.

[c] A Rao-Scott chi-squared test was used to correct for the complex survey design.

DSM-IV: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; WMH-CIDI: World Mental Health Composite International Diagnostic Interview; SE: Standard Error; AA: African American.

Table 2

12-month DSM-IV/WMH-CIDI Disorders by 12-month service[a] sector in Older African Americans

	Any Service Use % (SE)	Any Mental Health % (SE)	General Medical % (SE)	Any Non-Health % (SE)	n[b]
Anxiety Disorders					
Panic Disorder	78.6 (10.6)	33.0 (15.2)	55.6 (17.2)	10.0 (9.6)	12
Agoraphobia without panic	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	5
Social Phobia	24.4 (10.0)	6.4 (6.0)	18.1 (7.7)	6.4 (4.0)	22
Generalized anxiety disorder	48.9 (23.9)	20.1 (18.3)	34.9 (21.6)	14.0 (13.6)	5
Obsessive compulsive disorder	28.9 (19.4)	15.3 (14.8)	15.3 (14.8)	28.9 (19.4)	5
Post-traumatic stress disorder	48.1 (15.6)	20.0 (12.3)	39.0 (15.8)	11.1 (10.3)	15
Any anxiety disorder[c]	44.4 (6.8)	19.4 (5.4)	34.2 (6.8)	9.5 (4.4)	53
Mood Disorders					
Major depressive disorder	63.5 (10.4)	30.7 (11.3)	47.5 (10.9)	10.0 (7.5)	24
Dysthymia	78.0 (13.2)	29.8 (19.0)	51.4 (14.4)	6.1 (6.0)	11
Bipolar I-II disorder[d]	100.0 (0.0)	0.0 (0.0)	81.7 (18.5)	18.3 (18.5)	3
Any mood disorder[c]	64.3 (10.2)	30.0 (11.0)	46.4 (10.7)	12.0 (7.7)	25
Substance Disorders					
Alcohol abuse	20.8 (14.6)	5.9 (5.9)	20.8 (14.6)	0.0 (0.0)	8
Alcohol dependence	30.3 (23.4)	30.3 (23.4)	0.0 (0.0)	0.0 (0.0)	6
Drug abuse	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0
Drug dependence	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0
Any substance disorder[c]	37.1 (18.3)	25.3 (17.5)	16.5 (12.0)	0.0 (0.0)	9
Any Disorder[e]					
No disorder	3.1 (0.8)	1.4 (0.5)	1.3 (0.6)	0.9 (0.4)	706
Any disorder[c]	46.5 (6.2)	20.1 (5.0)	36.7 (5.9)	10.3 (4.1)	74
Two or more disorders	47.2 (9.1)	17.0 (9.5)	31.4 (6.7)	7.7 (4.2)	28

[a] Twelve-month service use within a particular treatment sector was defined as making at least one visit to a member of the treatment sector within the 12 months prior to the respondent's interview for problems with their emotions, nerves, mental health, or use of alcohol or drugs.

[b] Unweighted n's are reported.

[c] Cases within any anxiety disorder/any mood disorder/any substance disorder/any disorder may have multiple disorders

[d] Bipolar I-II disorder represents proportion of respondents who were yes on either Bipolar I, II, or subthreshold bipolar

[e] Seventy-five respondents (9.6%) met criteria for a DSM-IV mood, anxiety, and/or substance disorder.

DSM-IV: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; WMH-CIDI: World Mental Health Composite International Diagnostic Interview; SE: Standard Error.

Table 3

Multivariate Logistic Regression of 12-month Service Use[a] in Older African Americans[b]

	Any Service Use OR (95%CI)	Any Mental Health OR (95%CI)	General Medical OR (95%CI)	Any Non-Health OR (95%CI)
Age (reference=55–64 years)				
65 years	0.30 (0.15, 0.59)	0.31 (0.11, 0.84)	0.45 (0.21, .998)	0.53 (0.14, 1.94)
p-value[c]	<0.001	0.022	0.0495	0.337
Sex (reference=Male)				
Female	1.64 (0.77, 3.52)	1.27 (0.46, 3.50)	0.79 (0.26, 2.36)	1.02 (0.34, 3.13)
p-value[c]	0.203	0.644	0.672	0.967
Work (reference=Employed)				
Unemployed/Not in Labor Force	2.05 (0.79, 5.33)	1.63 (0.62, 4.30)	2.84 (0.82, 9.82)	0.76 (0.19, 3.09)
p-value[c]	0.141	0.323	0.099	0.705
Education (reference=0–11 years)				
12 years	0.97 (0.34, 2.77)	5.66 (1.16, 27.48)	1.23 (0.26, 5.79)	0.41 (0.18, 0.94)
p-value[c]	0.954	0.032	0.793	0.034
Income (reference = $21,000)				
<$21,000	2.22 (0.81, 6.04)	2.68 (0.88, 8.25)	2.91 (0.59, 14.44)	0.31 (0.10, 1.01)
p-value[c]	0.119	0.083	0.192	0.052
Marital Status (reference= Married/Partner)				
Never Married/Separated/divorced	0.41 (0.18, 0.92)	0.40 (0.12, 1.33)	0.28 (0.08, 1.03)	12.40 (2.02, 76.18)
Widowed	0.36 (0.16, 0.83)	0.29 (0.06, 1.36)	0.45 (0.14, 1.48)	7.25 (0.91, 58.06)
p-value[d]	0.021	0.198	0.159	0.019
Region (reference=South)				
Non-South	2.99 (1.42, 6.32)	2.94 (0.88, 9.80)	2.74 (1.11, 6.75)	2.43 (0.74, 7.96)
p-value[c]	0.004	0.079	0.029	0.144
Any Disorder (reference=No)				
Yes	27.69 (11.39, 67.28)	20.38 (6.64, 62.51)	44.02 (11.69, 165.82)	12.77 (3.56, 45.74)
p-value[c]	<0.001	<0.001	<0.001	<0.001
- 2 Log Likelihood	299.68	160.60	217.95	102.41
Likelihood Ratio χ^2 df=9	102.51	51.13	88.08	25.40

	Any Service Use OR (95%CI)	Any Mental Health OR (95%CI)	General Medical OR (95%CI)	Any Non-Health OR (95%CI)
Pr > Likelihood Ratio	<0.001	<0.001	<0.001	0.003

[a] Twelve-month service use within a particular treatment sector was defined as making at least one visit to a member of the treatment sector within the 12 months prior to the respondent's interview for problems with their emotions, nerves, mental health, or use of alcohol or drugs.

[b] Sample size=779, as 51 African American respondents 55 years and older did not answer the WHO-CIDI items in the questionnaire, and an additional 7 cases had missing values on at least one of the covariates.

[c] The p-value is based on the design-corrected Wald chi-square test with 1 degree of freedom.

[d] The p-value is based on the design-corrected Wald chi-square test with 2 degrees of freedom.

DSM-IV: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; WMH-CIDI: World Mental Health Composite International Diagnostic Interview; OR: Odds Ratio; CI: Confidence Interval