The Role of County Characteristics in Mental Health Service Use by Older African Americans

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Objective: Older African Americans may underutilize mental health services, although they experience mental health problems at rates comparable with those of whites. Untreated mental disorders contribute to increased risk of morbidity and mortality and decreased quality of life, and therefore, understanding the factors that influence racial disparities in service use is critical. This study examined whether county characteristics were associated with mental health service use by older African Americans after the analyses adjusted for individual characteristics.

Methods: This study combined individual-level data from the 2008-2012 Medical Expenditure Panel Survey with county-level data for 2008-2012 from the 2013-2014 Area Health Resources Files and county-level data from the 2008-2012 Chronic Conditions Report of the Chronic Conditions Data Warehouse for 1,567 community-dwelling African Americans ages 60 and older. Multilevel logistic regressions were used to examine the role of county

characteristics on mental health services use with adjustment for individual-level risk factors.

Results: At the county level, individuals living in a county with a higher proportion of African Americans were less likely to use mental health services. At the individual level, higher income and mental health status were associated with mental health service utilization.

Conclusions: Among older African Americans, the racial composition of one's county of residence played a role in mental health service use, indicating the need for future research focusing on the relationship between an area's racial composition and mental health service use. Programs may be able to ameliorate racial disparities in mental health care by targeting areas with a higher percentage of African Americans.

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Underutilization of mental health services by older African Americans is a growing concern (1, 2). Previous research indicates that older African-American adults may underutilize mental health services even when they are experiencing a diagnosable mental health condition. In a national study of older Americans with a diagnosed psychiatric disorder, only 14.5% of African Americans received mental health care compared with 34.8% of whites (3). Another study using the 2001-2003 Collaborative Psychiatric Epidemiology Surveys found that the percentage of older African Americans who used mental health services was smaller (13.2%) compared with older whites (19.6%) (1). Untreated mental health problems among older adults contribute to disability and disease burden (4) as well as to increased rates of mortality and suicide (5). The purpose of this study was to examine whether there was an association between countylevel characteristics and mental health service use by older African Americans after the analyses adjusted for individual characteristics.

The empirical literature has documented the association between individual-level characteristics and mental health

services utilization by older African Americans, including sociodemographic and health characteristics, social support, trust in medical providers, and religious network (1, 6-9). However, previous research has not extensively explored the environmental context in which this population accesses mental health services. Understanding the context in which people reside is important because access to mental health

HIGHLIGHTS

- This study found that counties with a higher percentage of African-American residents were associated with decreased use of mental health services among older African Americans.
- Individual income and mental health status were also associated with the use of mental health services.
- Findings provide evidence that local programs and policies can improve mental health equity by targeting areas with a higher percentage of African Americans.

care occurs within a geographic area (e.g., neighborhood, community, or county), and geographic factors may explain mental health service utilization by African Americans.

For example, in the United States, there are geographic differences in mental health service use by region (1), state (1), county (10–12), Census tract (11), zip code (13), and home address (14). The environmental context may be particularly important in later life, given that older adults tend to spend more time in the area surrounding their home because of retirement and declines in physical functioning (15). Furthermore, African Americans are more likely than whites to live in economically disadvantaged areas that have fewer health care resources and, therefore, fewer opportunities to access mental health care (10). Health care resources, including presence of a community mental health center, are associated with the use of mental health services by African Americans (10).

Research investigating the effects of the environment on mental health care utilization has increased in recent years, but most studies continue to focus on examining the impact of individual characteristics. Gaps remain in understanding how mental health service use among older African Americans is shaped by the environment, specifically the characteristics of the counties in which they reside (e.g., sociodemographic characteristics, health care resources, and mental health needs).

Understanding the relationship between county characteristics and mental health service utilization is necessary because counties are generally the smallest administrative unit that plans and provides social and health care services (16). In addition, most research in this area has focused on African-American adults in general, not exclusively older African Americans. By incorporating individual- and countylevel influences, this study offers a more complete picture of mental health service utilization by older African Americans, can inform efforts to target mental health service provision at the county level (including programs offered by area agencies on aging), and suggests strategies for designing mental health policies that promote greater access to mental health services. In this study, we examined whether county characteristics were associated with mental health service use by older African Americans, controlling for individual characteristics that could affect service use.

METHODS

Data Source

This study used three national data sets: the 2008–2012 Medical Expenditure Panel Survey (MEPS), which is a nationally representative study of health service use, access to health care, and quality of care of the U.S. civilian noninstitutionalized population (17); the 2013–2014 Area Health Resources Files (AHRF), which provide information on county characteristics between 2008 and 2012, such as demographic data, socioeconomic status, and health care resources (e.g., number of mental health care professionals); and the 2008–2012 Chronic Conditions Report (CCR) of the

Chronic Conditions Data Warehouse, which provides information on mood disorder diagnosis rates at the county level. We used 5-year MEPS individual-level data to obtain a sufficient sample size of older African Americans. In addition, most county-level data from the AHRF and the CCR were from 2010 census data or 2008–2012 averages. We merged the MEPS, the AHRF, and the CCR using the Federal Information Processing Standard (FIPS) county code.

Participants

The study sample included 1,567 older African Americans (level 1 sample) ages 60 or older who completed the survey by themselves from the MEPS. On the basis of the data linkage, we determined that the county-level sample size (level 2 sample) was 237 counties. This study employed restricted geocoded data (i.e., FIPS codes) through a proposal approved by the Agency for Healthcare Research and Quality (AHRQ) as well as an institutional review board at University of Maryland, Baltimore. Data analyses using the restricted data were conducted at the AHRQ Data Center in Rockville, Maryland.

Measures

Mental health service use. For the dependent variable, the study defined mental health service use as visits for mental health care obtained from the Hospital Outpatient Visit Files and the Office-Based Medical Provider Visits Files of MEPS. Mental health service use included any of the following conditions: a psychiatrist, a psychologist, or a social worker provided a service; the type of treatment received was psychotherapy or mental health counseling; and a provider visit was related to a primary clinical classification code (CCC) associated with mental health conditions. The CCCs were created by aggregating the *ICD-9* codes for clinically meaningful categories, and CCCs of 650 through 670 refer to mental health conditions (e.g., mood, psychotic, or anxiety disorders). Mental health service utilization was coded as 1 (yes) or 0 (no).

County characteristics. County characteristics included demographic indicators, including the percentage of adults ages 60 and older, percentage of African Americans, metropolitan area (yes/no), percentage of residents with a high school diploma, and unemployment rate. We also examined county resources, including the existence of a community mental health center (yes/no), designation as a primary care physician and mental health professional shortage area (none, ≥1 parts, or the whole county), number of mental health professionals per 100,000 residents (i.e., number of psychiatrists and psychologists), and median home value (in increments of \$10,000) drawn from the AHRF. The study also included rate of mood disorder diagnoses at the county level from the CCR.

Individual characteristics. At the individual level, we adjusted for demographic characteristics (i.e., age in years, sex

[female/male], marital status [yes/no], high school diploma [yes/no], and foreign born [yes/no]). We measured attitudes about health with four items: "do not need health insurance," "health insurance is not worth the money it costs," "more likely to take risks than the average person," and "can overcome illness without help from a medically trained person" (17). The items used a 5-point Likert scale, with 1 indicating strongly disagree and 5 indicating strongly agree. We used averaged scores ranging from 1 to 5, with a higher score indicating more negative attitudes toward health care. We also included health insurance (insured/uninsured), and poverty status (poor [<100% of the federal poverty level, or FPL], near poor [from ≥100% to <125% of FPL], low income [from ≥125% to <200% of FPL], middle income [from $\geq 200\%$ to < 400%], and high income [$\geq 400\%$]).

The 12-Item Short-Form Health Survey, Version 2 (SF-12v2), assesses physical functioning and mental health in the past 4 weeks (18). A higher score indicates better physical health and mental health status. In addition, the Kessler Psychological Distress Scale (K6) evaluates nonspecific psychological distress during the past 30 days (19). The six items include, "How often did you feel nervous, feel hopeless, feel restless or fidgety, feel so sad that nothing could cheer you up, feel that everything was an effort, feel worthless?" The answers are 0, none of the time; 1, a little of the time; 2, some of the time; 3, most of the time; and 4, all of the time. A higher score indicates a higher level of psychological distress. We obtained all individual-level data from the MEPS.

Data Analysis

The study employed multilevel modeling analysis using Stata 14 software (20) to examine the role of county characteristics on mental health services utilization by older African Americans while controlling for individual characteristics. First, to examine the county-to-county variability in mental health service utilization, we tested the null model and calculated the intraclass correlation (ICC). Second, we added individual-level characteristics to the null model to examine the relationships between individual-level variables and mental health service utilization. Third, we added countylevel characteristics to the model to examine whether the county characteristics were associated with mental health service utilization by older African Americans after the analysis controlled for individual characteristics.

RESULTS

Table 1 presents individual-level sample characteristics. Over half of participants were women (61%) and over onethird were married (38%); the average age was 69 years (age above 85 was coded as 85). Two-thirds of the respondents (67%) had a high school diploma. Half of the respondents were low income (<200% of FPL), and about 6% were uninsured during the previous year. About 5% of this sample of African Americans had at least one mental health service visit during the data collection period.

TABLE 1. Individual-level characteristics of a sample of 1,567 older African Americans^a

Characteristic	N	%
Age (M±SD) ^b Attitudes about health	69.4±11.1 1.7±1.1	
(M±SD) ^c SF-12v2 (M±SD) ^d Physical health ^e Mental health ^f	41.7±17.1 51.4±15.0	
K6 (M±SD) ⁹ Mental health service visit Gender	3.4±6.3 75	5
Female Male	1,000 567	61 39
Married High school diploma Foreign born Income (percentage of federal poverty level)	560 966 123	38 67 8
Poor (<100%) Near poor (100% to 124%) Low income (125% to 199%) Middle income (200% to 399%)	396 137 317 444	22 8 20 28
High income (>400%)	273	23
Uninsured	104	6

^a Weighted numbers are presented for continuous variables, and unweighted numbers and weighted percentages are presented for categorical variables.

Table 2 presents county-level characteristics for the 237 counties where the 1,567 older African-American respondents resided. An average of one in five county residents were ages 60 and older, and 19% of residents were African American. Over half of county residents (57%) had a high school diploma, and 13.6% (range 7.4%-28.0%), on average, had received a mood disorder diagnosis. Less than half of counties (41%) had a community mental health center, and each county had an average of 40 mental health professionals per 100,000 county residents. Part or all of over 80% of counties were health practitioner shortage areas; only a small number of counties had no shortage in primary care practitioners (16%) or mental health professionals (18%).

Table 3 presents results from multilevel logistic regression analyses examining whether county-level characteristics were associated with mental health service utilization by older African Americans after the analyses controlled for

 $^{^{\}mathrm{b}}$ All participants were age 60 or older. Age for everyone $\geq \! 85$ was coded as 85 to maintain the confidentiality of the data.

^c Possible scores range from 1 to 5, with higher scores indicating more negative attitudes toward health care

d SF-12v2, 12-Item Short-Form Physical and Mental Health Summary Scales, Version 2

e Possible scores are computed using the scores of 12 questions ranging from 0 to 100, and subscale scores are standardized to have a mean of 50 and a standard deviation of 10, with higher scores indicating better physical health status.

f Possible scores are computed using the scores of 12 questions ranging from 0 to 100, and subscale scores are standardized to have a mean of 50 and a standard deviation of 10, with higher scores indicating better mental health status.

^g Possible scores range from 0 to 24, with higher scores indicating a higher level of psychological distress.

TABLE 2. County-level characteristics of 237 counties linked with a sample of 1,567 older African Americans^a

Characteristic	N	%
Ages ≥60 (M±SD %)	18.8±5.3	
African American (M±SD %)	19.0±15.4	
High school diploma (M±SD %)	56.8±5.4	
Unemployment rate (M±SD %)	8.6±2.8	
Mental health professionals per 100,000 population (M±SD)	40.4±40.1	
Median home value (\$10,000 increments) (M±SD)	20.6±12.5	
Mood disorder diagnosis (M±SD %)	13.6±2.8	
Metropolitan county	204	86
Community mental health center	98	41
Primary care physician		
shortage area		
None	38	16
≥1 part	123	52
Whole county	76	32
Mental health professional		
shortage area		
None	42	18
≥1 part	119	50
Whole county	76	32

^a All participants were age 60 or older.

individual characteristics. First, we tested the null model to examine county-to-county variability in mental health service utilization. The ICC was 0.004, indicating that only 0.4% of mental health service utilization by older African Americans can be explained by county residence. Although the ICC of the null model was small, this study found significant variables to explain mental health service use. Even a small ICC may influence standard errors in regression analyses (21). Multilevel modeling analyses not only can explain observed differences between geographic areas but also can account for the nonindependence of observations.

Second, we added individual-level characteristics (level 1) to the null model to examine the relationships between individual-level variables and mental health service utilization (Table 3). In model 1, there was improvement in the model fit compared with the null model (Akaike Information Criteria [AIC]=606.262 versus 497.029), but adding the individual-level variables increased the ICC to 0.084. Model 1 identified two individual variables that were significantly associated with mental health service utilization by older African Americans: income and SF-12 mental health score. A higher level of income increased the odds of using mental health services (odds ratio [OR]=1.25), whereas having better mental health status decreased the odds of mental health service utilization (OR=0.93). However, age, female sex, being married, having a high school diploma, being foreign born, attitude toward health care, being uninsured, SF-12 physical health score, and K6 score were not associated with mental health service utilization.

In model 2, we added 11 county-level characteristics to determine whether they were associated with mental health service utilization by older African Americans after the analyses controlled for individual characteristics. Compared with model 1, the fit in model 2 did not show improvement (AIC=497.165), but adding county-level variables reduced the ICC to nearly 0. Model 2 identified three significant variables that explained mental health service utilization by older African Americans. The two individual variables that were associated with mental health service utilization in model 1 remained significant in model 2. Higher income increased the odds of using mental health services (OR=1.26), whereas having better mental health decreased the odds of mental health service utilization (OR=0.93). Only one county-level characteristic, county racial composition, was predictive of mental health service utilization. Older African Americans had lower odds of mental health services utilization in counties with a higher percentage of African Americans (OR=0.97).

DISCUSSION

This study found decreased odds of mental health service use among older African Americans living in counties with a higher percentage of African-American residents, a finding consistent with other population-based studies (22). Older African-American adults are more likely than older adults from other racial and ethnic backgrounds to live in disadvantaged areas with limited access to mental health care, which may result in lower service utilization compared with older adults from other groups (10, 13, 23). In addition, mental health professionals may avoid providing services in neighborhoods with lower socioeconomic status because these neighborhoods are believed to be associated with violence and other forms of social disorder (24). Although we were unable to examine whether this perception played a role in this study, this finding raises questions about the role of provider attitudes and potential biases in utilization rates of mental health services by African Americans.

It is also possible that older African Americans living in counties with a higher percentage of African Americans are less likely to seek out mental health care because of historical and contemporaneous discrimination by the health care system and mistrust of medical professionals. Because of the legacy of mistreatment by the medical establishment (e.g., the Tuskegee syphilis study), older African Americans may underutilize formal mental health services because of mistrust of medical professionals (6). In a study using data from the Chicago Health and Aging Project, African Americans had lower health care trust scores compared with non-Hispanic whites (25). Reduction in access to mental health care among older African Americans may be further exacerbated by a tendency among these individuals to prefer health care professionals who understand African-American

culture (26). African-American mental health care professionals make up only 2% to 4% of the mental health workforce, much lower than the percentage of African Americans in the U.S. population (27).

Alternatively, African Americans living in a county with a higher percentage of African Americans may be more likely to discuss their mental health problems with nonmedical professionals, such as pastors, rather than with mental health professionals (6, 28). Historically, religious institutions have provided support and resources for African Americans to improve their personal and social circumstances (29). African Americans have built an ongoing relationship with and have received help from clergy (30). In fact, research has shown that congregational support is a protective factor against depressive symptoms (7).

At the individual level, our findings regarding the influence of income and poor mental health support previous findings. In our study, older African Americans with higher incomes were more likely to use mental health services compared with those with lower incomes. The finding is similar to previous empirical work reporting that those with a lower income are less likely to access mental health care (11, 31) and is consistent with theoretical work proposing that economic resources play a major role in initiating a health care service because they determine people's ability to pay for services (32,

33). In our study, older African Americans with better mental health status (SF-12 score) were less likely to use mental health services, consistent with previous literature examining the relationship between mental health needs and service utilization (1, 34).

County-level factors may also influence use of mental health services among older African-American adults. Policy makers should collaborate with health and mental health professionals to improve access to mental health care and the mental health status of older African Americans through policy and program initiatives that increase outreach and access to care. For example, in a randomized trial, an intervention called Beat the Blues targeting older

TABLE 3. Association between individual- and county-level variables and odds of using mental health services among older African Americans^a

Variable	Model 1			Model 2		
	OR	95% CI	р	OR	95% CI	р
Individual level (level 1)						
Age	.98	.94-1.02	.243	.97	.94-1.01	.203
Female (reference: male)	1.60	.88-2.93	.123	1.70	.93-3.11	.087
Married (reference: not married)	.99	.55–1.78	.968	.97	.54–1.73	.910
High school diploma (reference: no high school diploma)	.86	.48–1.53	.603	.74	.42–1.32	.309
Foreign born (reference: U.S. born)	.41	.09-1.81	.242	.33	.07–1.47	.145
Attitudes about health	1.25	.90-1.74	.188	1.24	.89-1.73	.210
Income	1.25	1.02-1.54	.034	1.26	1.02-1.55	.032
Uninsured (reference: insured)	.65	.21–2.01	.454	.78	.26-2.39	.667
SF-12v2 ^b						
Physical health	1.00	.97–1.02	.944	1.00	.98-1.03	.934
Mental health	.93	.9096	<.001	.93	.9096	<.001
K-6	.99	.92-1.07	.837	.99	.92–1.07	.792
County level (level 2)						
Age ≥60 (%)				.94	.87-1.03	.199
African American (%)				.97	.9599	.006
Metropolitan county (reference: no)				.42	.14–1.25	.118
High school diploma (%)				1.04	.95-1.13	.374
Unemployment rate				1.02	.92-1.13	.734
Community mental health center (reference: no community mental health center)				1.02	.57–1.83	.948
Primary care provider shortage area				1.54	.95–2.52	.082
Mental health professional shortage area				.99	.60-1.65	.980
Mental health professionals per 100,000 population				1.00	.99–1.01	.395
Median home value				1.02	.99-1.05	.183
Mood disorder (%)				.97	.86-1.09	.565

^a Mental health service utilization was defined as having at least 1 visit for mental health care from a mental health or primary provider during the data collection period. All participants were age 60 or older. Results are from a multilevel logistic regression. Residual variance of random parameters was .55 (model 1) and 1.92e-08 (model 2). For model fit. Akaike Information Criteria were 497 029 (model 1) and 497 165 (model 2). Intraclass correlations were .084 for model 1 and 1.12e-16 for model 2.

African Americans improved access to mental health services and treatment outcomes for depression by providing free mental health screening, depression education, and behavioral activation approaches (35).

This study had limitations. First, we used an actual mental health professional visit to measure mental health service utilization. However, we were unable to identify older adults with a mental disorder who would benefit from mental health treatment and were unable to capture psychotropic medication as a type of mental health treatment. Therefore, we cannot assume that not receiving formal mental health services reflects an unmet need for treatment. Future research should quantify the extent to which mental

^b SF-12v2, 12-Item Short-Form Physical and Mental Health Summary Scales, Version 2.

health services from psychotropic medications and providers other than health care providers close the utilization gap between African-American and white older adults with psychiatric diagnoses.

Another limitation was that the percentage of African Americans in a county can be interpreted in various ways. Previous research has used county racial composition as a proxy measure of residential segregation (36), but future research should employ formal residential segregation measures to examine whether interactions among racial groups affect mental health service utilization. Future research should also include other measures related to help seeking among older African Americans, such as cultural beliefs toward mental health and help seeking, treatment preferences, and stigma (26). In light of prior work indicating that African Americans prefer to receive treatment from members of the same racial background (26), future research should also consider racial concordance between patients and clinicians. In addition, this study used counties as a unit of analysis because counties are usually the smallest unit for planning health and social services (16). However, residential segregation within a different geographic unit (e.g., neighborhood) may have a larger influence on care utilization (36). Future research should use a variety of geographic areas (e.g., census tracts, central cities, metropolitan areas) to compare whether the findings are consistent across units of analysis.

CONCLUSIONS

This study extends research on county-level factors in mental health utilization to African-American older adults (10, 11, 14). On the basis of our findings, we conclude that future research should further examine contextual factors that influence utilization of mental health services among older African Americans. These factors include systemiclevel and provider-level factors and racial differences in help-seeking behaviors and engagement with formal mental health care.

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