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Urban vs Rural Residence and the Prevalence of Depression and Mood Disorder Among African American Women and Non-Hispanic White Women

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Abstract

IMPORTANCE—There is a paucity of research among African Americans and rural residents. Little is known about the association between urbanicity and depression or about the interaction of urbanicity, race/ethnicity, and sex on depression and mood disorder prevalence.

OBJECTIVE—To examine the interaction of urbanicity and race/ethnicity on lifetime and 12-month major depressive disorder (MDD) and mood disorder prevalence for African American women and non-Hispanic white women.

DESIGN, SETTING, AND PARTICIPANTS—The US National Survey of American Life data were used to examine the interaction of urbanicity and race/ethnicity on lifetime and 12-month diagnoses of DSM-IV MDD and mood disorder among female respondents, who included noninstitutionalized African American, Caribbean black, and non-Hispanic white women in the United States between February 2001 and June 2003. Participants included 1462 African American women and 341 non-Hispanic white women recruited from the South because all suburban and rural National Survey of American Life respondents resided in this region. Bivariate multiple logistic regression and adjusted prevalence analyses were performed. Urban, suburban, or rural location (assessed via Rural-Urban Continuum Codes), self-reported race/ethnicity, and sociodemographic factors (age, education, household income, and marital status) were included in the analysis.

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Study concept and design: Weaver, Abelson.
Acquisition, analysis, or interpretation of data: Weaver, Taylor, Matusko, Abelson.
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Statistical analysis: Weaver, Himle, Taylor, Matusko.
Administrative, technical, or material support: Himle, Abelson.
Study supervision: Himle, Taylor.

MAIN OUTCOMES AND MEASURES—Lifetime and 12-month MDD and mood disorder assessed via the World Mental Health Composite International Diagnostic Interview.

RESULTS—Compared with urban African American women, rural African American women had a significantly lower odds of meeting criteria for lifetime (odds ratio [OR], 0.39; 95% CI, 0.23–0.65) and 12-month (OR, 0.29; 95% CI, 0.18–0.46) MDD and for lifetime (F = 0.46; 95% CI, 0.29–0.73) and 12-month (F = 0.42; 95% CI, 0.26–0.66) mood disorder. However, the interaction of urbanicity and race/ethnicity suggested that rural non-Hispanic white women had a significantly higher odds of meeting criteria for lifetime (OR, 2.76; 95% CI, 1.22–6.24) and 12-month (OR, 9.48; 95% CI, 4.65–19.34) MDD and for lifetime (OR, 2.27; 95% CI, 1.06–4.87) and 12-month (OR, 5.99; 95% CI, 3.01–11.94) mood disorder than rural African American women. Adjusted prevalence analyses revealed significantly lower rates of lifetime (4.2%) and 12-month (1.5%) MDD among rural African American women than their urban counterparts (10.4% vs 5.3%; P< .01). The same pattern was found for mood disorder, with rural African American women experiencing significantly lower rates of lifetime (6.7%) and 12-month (3.3%) mood disorder when compared to urban African American women (13.9% vs 7.6%; P< .01) Conversely, rural non-Hispanic white women had significantly higher rates of 12–month MDD (10.3%) and mood disorder (10.3%) than their urban counterparts (3.7% vs 3.8%; P< .01).

CONCLUSIONS AND RELEVANCE—Rural residence differentially influences MDD and mood disorder prevalence among African American women and non-Hispanic white women. These findings offer a first step toward understanding the cumulative effect of rural residence and race/ethnicity on women's depression prevalence, suggesting the need for further research in this area.

Although major depressive disorder (MDD) is one of the most common [1,2] and debilitating[3] mental illnesses in the United States, depression prevalence among both African Americans and rural residents is understudied.[4–7] The mental health of African Americans living in rural communities has been largely ignored,[8] which is of concern because African Americans and rural residents are more likely than their non-Hispanic white and urban counterparts to experience circumstances and conditions that may increase risk for depression, including living in poverty, having lower levels of educational attainment, and reporting fair or poor health.[9–12]

Despite greater likelihood of risk factors for depression, epidemiological surveys consistently indicate that African Americans have lower lifetime rates of MDD and equivalent or lower rates of 12-month MDD compared with non-Hispanic whites.[1,2,13–16] However, when African Americans experience depression, it is often more persistent and manifests with greater severity.[15]

National surveys examining urbanicity differences in depression prevalence indicate that rural Americans experience MDD at similar or greater rates than their urban counterparts.[1,2,17,18] In addition, suicide rates in rural America are higher than those in urban and suburban areas of the country,[19] suggesting that depression may be more severe in rural communities. It is unclear whether rural Americans' depression is associated with rural residence itself[17] or with health and resource disparities common in rural areas.[18]

African Americans, one of the largest minority groups in rural America, comprise approximately 8% of the rural population.[9,12] However, only 2 known studies[18,20] used national data to examine depression among rural African Americans. The results of this research are inconsistent. One study[18] found that while rural adults experienced a significantly higher depression prevalence compared with urban adults, rural residents' depression prevalence did not vary significantly by race/ethnicity. The other study[20] identified rural residence as protective against suicide among African Americans.

The lack of attention to African Americans' and rural residents' depression is of particular concern among women.[4–6,21–23] Despite the literature indicating that women's depression prevalence is 1.5 to 3 times higher than men's,[1,2,24] epidemiological research seldom reports within-group differences in depression prevalence among African American or rural respondents by sex.[15,21–23] Although some literature suggests that rural women experience particularly high levels of depressive symptoms,[25–29] a pattern found among African American women and non-Hispanic white women,[27,29] other research suggests that African American women in the rural South share unique strengths and coping strategies that positively affect well-being.[30] However, the interaction of urbanicity and race/ethnicity on MDD prevalence among women has not been examined, to our knowledge.

Another important factor related to depression in the United States, especially among African Americans, is the region of residence. Research suggests significant differences in depression prevalence by region ,with lower prevalence among southern residents.[1,15,31] Because almost 60% of African Americans and 90% of rural African Americans reside in the southern United States,[32] the association between region and depression among this population should be considered.

Epidemiological research conducted in the South found a significantly lower MDD prevalence among rural residents compared with urban residents, with no variation by race/ethnicity.[33] Other literature identified southern residence as protective against African Americans' suicide risk [34,36] but did not assess urbanicity differences. Given the seasonal effect on depression, research suggests that a southern climate, particularly exposure to sunlight, may relate to lower depression prevalence. However, the results of studies [30,34,37] suggest that for African Americans the protective nature of southern residence may be due to a higher population density of African Americans in the region, ties to extended family and kinship networks, and the African American church.

The present study investigated the interaction of urbanicity and race/ethnicity on lifetime and 12-month MDD and mood disorder prevalence among female respondents from the National Survey of American Life (NSAL). The NSAL sample includes a substantial proportion of rural and suburban respondents, all of whom were recruited from the southern United States. Regional concentration of rural and suburban respondents is important to account for given the geographic distribution of the African American population[12,32] and the identification of southern residence as protective against for depression.[1,15] Therefore, the analytic sample of this study was restricted to female NSAL respondents from the South.

Methods

The NSAL, a nationally representative household survey of English- speaking noninstitutionalized adults 18 years or older, was conducted by the Program for Research on Black Americans at the University of Michigan's Institute for Social Research.[38] Data were collected from February 2001 to June 2003. The NSAL focused on physical, emotional, structural, and economic conditions of African Americans, with emphasis on mental health and mental illness. The University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board approved all study procedures. All participants provided oral informed consent.

The NSAL used a 4-stage national area probability sample,[39] adapted to be optimal and precise for a national study of African Americans. A primary sampling stage of metropolitan statistical areas (MSAs), single counties, or groupings of contiguous counties with small populations was followed by a second sampling stage of area segments and by a third sampling stage of housing units within selected area segments and concluded with random selection of eligible respondents from selected housing units. Primary sampling units were selected from strata representing the northeastern, mid western, western, and southern regions of the country. Regional strata followed the US Census Bureau's well-established system for classifying states into regions. Most primary sampling units were selected from MSA and non-MSA strata in the South, where more than half of the African American population resides. The primary stage sample allocation for urban and rural areas of the South was increased to improve the sample precision for national estimates derived from the African American sample.

The full NSAL sample includes 3570 African Americans, 1621 Caribbean blacks, and 891 non-Hispanic whites. Respondents self-identifying as blackwith no ancestral ties to the Caribbean are described as African American. The response rates were 72.3% overall and 70.7% for African Americans. Most respondents (86%) completed face-to-face interviews in their homes, with the remaining interviews conducted by telephone. This study's analytic sample was restricted to 1462 African American women and 341 non-Hispanic white women recruited from the South because all suburban and rural NSAL respondents resided in this region. Because of the lack of variability in urbanicity among Caribbean black respondents (ie, all urban residents), they were not included in these analyses. Most respondents in the analytic sample were between 30 and 59 years old (59.8%) and had 12 years of education or more (79.4%).

Measures

MDD and Mood Disorder

The World Health Organization Composite International Diagnostic Interview 3.0 used in the National Comorbidity Survey Replication and World Mental Health Surveys was also used to assess DSM-IV MDD and mood disorder among NSAL respondents.[15,40,41] Mood disorder was defined as meeting criteria for MDD, dysthymia, or bipolar disorder. The diagnostic interview was used to create dichotomous variables indicating whether respondents did (coded as 1) or did not (coded as 0) meet criteria for MDD and mood

disorder. Clinical reappraisal studies[42,43] generally report moderate to good concordance between Composite International Diagnostic Interview 3.0–generated diagnoses and clinician-administered Structured Clinical Interview for DSM-IV diagnoses.

Urbanicity

Urbanicity was assessed using Rural-Urban Continuum Codes (RUCCs), a county-level classification scheme developed by the US Department of Agriculture to measure rurality by population size and adjacency to metropolitan area. The RUCCs contain 9 categories that distinguish counties by population size and adjacency to metropolitan areas.[44] These analyses collapse RUCCs into the following 3 categories: urban (coded as 1), suburban (coded as 2), and rural (coded as 3). The urban category includes counties with RUCCs of 1 through 3. Counties with RUCCs of 4 through 6 were categorized as suburban, and those with RUCCS of 7 through 9 were considered rural.

Race/Ethnicity

Race/ethnicity was assessed via respondent self-report. Respondents self-identified as African American (coded as 1) or as non-Hispanic white (coded as 2).

Sociodemographic Correlates

Sociodemographic correlates shown to influence depression, including age, education, household income, and marital status, were controlled for in these analyses.[1,2,15] Age, education in years, and household income were continuous variables, whereas marital status included the 3 categories of married or partnered (coded as 1), previously married (coded as 2), and never married (coded as 3).

Statistical Analysis

Data were adjusted for disproportionate sampling probabilities, nonresponse, and sociodemographic differences between the sample and the 2000 US Census Bureau population.[39,45] Standard errors, CIs, and significance tests were adjusted for the NSAL's complex sample design. Cross-tabulations were initially used to examine the association of urbanicity and race/ethnicity, as well as the interaction of urbanicity and race/ethnicity, on lifetime and 12-month MDD and mood disorder for African American women and non-Hispanic white women. Percentages represent weighted proportions based on the sample's race/ethnicity-adjusted weight measure. Standard errors reflect the recalculation of variance using the study's complex design. F scores represent a complex design–based measure of association. The interaction of urbanicity and race race/ethnicity on MDD and mood disorder among women was tested via logistic regression analyses. Adjusted predictions at the mean (calculated via the margins command in STATA; StataCorp LP46) assessed within-group urbanicity differences in African American women's and non- Hispanic white women's lifetime and 12-month MDD and mood disorder prevalence, adjusting for age, education, household income, and marital status. $P \leq .05$ on a 2-sided design–based test of significance indicates statistical significance throughout the analyses. Analyses were conducted using statistical software (STATA, version 12; StataCorp LP47).

Results

Prevalence of MDD and Mood Disorder

Compared with African American women, non-Hispanic white women had significantly higher lifetime prevalences of MDD (21.3% vs 10.1%, F = 22.62, P < .001) and mood disorder (21.8% vs 13.6%, F = 9.33, P = .004) (Table 1). Non-Hispanic white women also had a significantly higher prevalence of 12- month MDD than African American women (8.8% vs 5.5%, F = 4.38, P = .05).

MDD and Mood Disorder Prevalence and Urbanicity by Race/Ethnicity

Bivariate comparisons of the interaction of urbanicity and race/ ethnicity demonstrated that rural African American women (4.2%) had lower rates of lifetime MDD than urban (10.9%) and suburban (13.6%) African American women, as well as non- Hispanic white women, across urbanicity levels (F = 7.24, P < .001) (Table 1). The pattern was similar for 12-month MDD (F = 7.38, P < .001) and for lifetime (F = 3.88, P = .01) and 12- month (F = 4.82, P = .003) mood disorder. Conversely, compared with urban non-Hispanic white women, rural non- Hispanic white women had higher rates of 12-month MDD (12.3% vs 6.0%) and mood disorder (12.3% vs 6.3%).

Multiple Logistic Regression

Overall, African American women residing in rural areas had a significantly lower odds of meeting diagnostic criteria for lifetime(odds ratio [OR], 0.39;95% CI, 0.23–0.65)and 12-month (OR, 0.29; 95% CI, 0.18–0.46) MDD than urban African American women (Table 2). However, the interaction of urbanicity and race/ethnicity indicated that non-Hispanic white women living in rural areas had a significantly higher odds of meeting criteria for lifetime (OR, 2.76; 95% CI, 1.22–6.24)and 12-month (OR, 9.48; 95% CI, 4.65–19.34) MDD compared with rural African American women (Figure 1 and Figure 2). The interaction effect persisted for lifetime (OR, 2.27; 95% CI, 1.06–4.87) and 12-month (OR, 5.99; 95% CI, 3.01–11.94) mood disorder.

Adjusted Predictions of MDD Prevalence

African American women's adjusted lifetime MDD prevalence was significantly lower among rural residents compared with urban residents (4.2% vs 10.4%, P < .01) (Table 3). Similarly, African American women's adjusted 12-month MDD prevalence was significantly lower among rural residents compared with urban residents (1.5% vs 5.3%,P <01), whereas non-Hispanic white women's adjusted 12-month MDD prevalence was significantly higher among rural residents compared with urban residents (10.3% vs 3.7%, P < .01). This pattern remained for mood disorder.

Discussion

The present study examined the interaction of urbanicity and race/ethnicity on MDD and mood disorder prevalence for female NSAL respondents residing in the South. Findings suggest a significant interaction of urbanicity and race/ethnicity on lifetime and 12-month MDD and mood disorder among women in this sample. While African American women

living in rural areas overall have lower odds of meeting criteria for MDD and mood disorder compared with urban African American women, rural non-Hispanic white women have a significantly higher odds of meeting criteria than rural African American women. Adjusted prediction analyses suggest that rural African American women have significantly lower prevalences of depression and mood disorder than their urban counterparts, while rural non-Hispanic white women experience higher 12-month MDD and 12-month mood disorder prevalence compared with their urban peers. Given the substantial barriers to mental health treatment in rural America (eg, the limited availability of health care professionals, as well as cost, transportation, and acceptability issues related to stigma and a lack of anonymity), these results shed light on important subgroup differences and may help inform mental health interventions and strategies to increase access to care.

The significantly higher odds of meeting criteria for MDD and mood disorder found among rural non-Hispanic white women (as well as their significantly higher adjusted 12-month MDD and mood disorder prevalence compared with their urban peers) is consistent with community samples demonstrating high rates of depressive symptoms among rural women. [25–29] Although this study does not assess which aspects of rural life may increase non-Hispanic white women's risk for depression, other research points to factors present in the rural context such as high poverty rates, social isolation, and limited access to resources and services.[5,27] Substantial change in economic opportunity and family structure within rural communities may also influence women's emotional well being. Furthermore, evidence suggests that rural cultural values emphasizing independence and self-reliance and deeply entrenched traditional sex roles may relate to rural women's depression.[5,27]

Rural women face increased pressure to enter the labor force and have done so at a faster rate than urban women.[48] This is influenced by financial pressure that is exacerbated by declines in traditionally male-dominated industries, including farming, fishing, forestry, and mining. Consequently, rural women may experience stress due to role overload resulting from multiple roles and responsibilities.[49] As is true for women across the country, rural women have primary responsibility for housework and childcare. The literature suggests that many rural women also experience a third shift because they are responsible for farm work in addition to employment outside the home(first shift) and household and child care responsibilities (second shift), leaving little time to address their own needs or seek social support.[50] Furthermore, because traditional sex roles and conservative values are more commonly held by rural residents than by urbandwellers,[51,52] conventional views of motherhood are prevalent among rural women, who may struggle to reconcile the ideal of the stay-at-home mom with the financial need to enter the labor market.[52] It is likely that the stress of juggling multiple roles and responsibilities contributes to depressive symptoms among rural women.

Despite the literature asserting that aspects of the rural context may leave women at risk for depression,[5,27,48–52] our results suggest that rural residence is associated with lower odds of meeting criteria for MDD and mood disorder for African American women. Most research on rural life does not consider experiences of women of color. Therefore, investigations of the relationship between rural residence and women's depression likely do not generalize to the African American experience. African American women's strengths have not been

adequately considered.[53] Of particular relevance, the literature suggests that African American women in the rural South share a history and context that structures their experiences, including unique strengths that affect quality of life and well-being.[30,54]

Evidence suggests that African American women have developed resources and coping strategies to deal with stressful circumstances and subjugation, including supportive social ties, high levels of religious participation, group identity and consciousness, and perceptions of mastery or control and self-esteem.[53] Many of these coping resources are deeply entrenched within African American culture in the rural South and may inform why rural residence is associated with lower rates of depression and mood disorders among African American women.

For instance, black adults report higher levels of religiosity, which can serve as a buffer against mental health problems.[55] Higher levels of religious participation among African Americans compared with non-Hispanic whites are well documented.[37,56] Research indicates that religious participation is protective against MDD among African Americans[57] and is positively associated with psychological well-being among African American women.[58] Furthermore, research among older adults suggests that religious participation may have stronger protective effects for African Americans than for non-Hispanic whites.[59,60] However, it remains unclear whether higher rates of religious participation differentially protect rural African American women against MDD. This requires further research.

Furthermore, although rural environments often lack formal sources of social support, African Americans in the South demonstrate greater flexibility with respect to familial caretaking responsibilities and reliance on co-caregivers, usually grandmothers.[54,61,62] This may result in higher levels of informal social support and the presence of natural helpers in rural African American communities, which act as a buffer against emotional distress, including depression.[63] This may in part account for the low rates of depression among rural African American women in this study.

This study has limitations that must be addressed. First, while the NSAL included one of the best rural samples available (with 20.1% of female respondents recruited from rural areas), the number of rural cases was still somewhat small, and the results are based on few respondents who met criteria for MDD and mood disorders. In an attempt to increase the number of non-Hispanic white respondents in this study, we also considered using data from the National Comorbidity Survey Replication. However, the National Comorbidity Survey Replication contained a limited number of rural cases, precluding our ability to meaningfully assess urbanicity differences in MDD using a larger non-Hispanic white sample. Future research investigating depression among African Americans and rural residents with national and regional samples is needed.

Second, trained interviewers used structured diagnostic questionnaires. However, we do not know whether factors related to African American or rural culture may have affected respondents' willingness to admit or recall the presence of symptoms.

Third, while the NSAL non-Hispanic white sample is nationally representative in the strictest sense, it is not optimal for descriptive analysis of the non-Hispanic white population in the United States. Instead, the stratified, disproportionate sampling of non-Hispanic whites was selected to offer the most meaningful comparison with black Americans.

Fourth, the analytic sample was restricted to female NSAL respondents residing in the South. As such, the demonstrated interaction of urbanicity and race/ethnicity on depression prevalence cannot be generalized to other regions of the country.

Fifth, the NSAL is the largest study of African Americans' mental health conducted to date in the United States and represents the only data on African Americans' mental health based on a national probability sample. However, the timeliness of the data (collected between 2001 and 2003) is a limitation.

Conclusions

These limitations notwithstanding, our findings indicate important urbanicity and race/ethnicity differences in MDD and mood disorder among women in this sample. This study is the only known work to date to consider the interaction of urbanicity and race/ethnicity on MDD and mood disorder prevalence among women. Our results suggest that while rural residence is associated with lower prevalences of MDD and mood disorder among African American women, it is a risk factor for non-Hispanic white women. These findings offer an important first step toward understanding the cumulative effect of rural residence and race/ethnicity on MDD among African American women and non-Hispanic white women and suggest the need for further research in this area. This study adds to the small, emerging body of research[15,16,64,65] on the correlates of MDD among African Americans.

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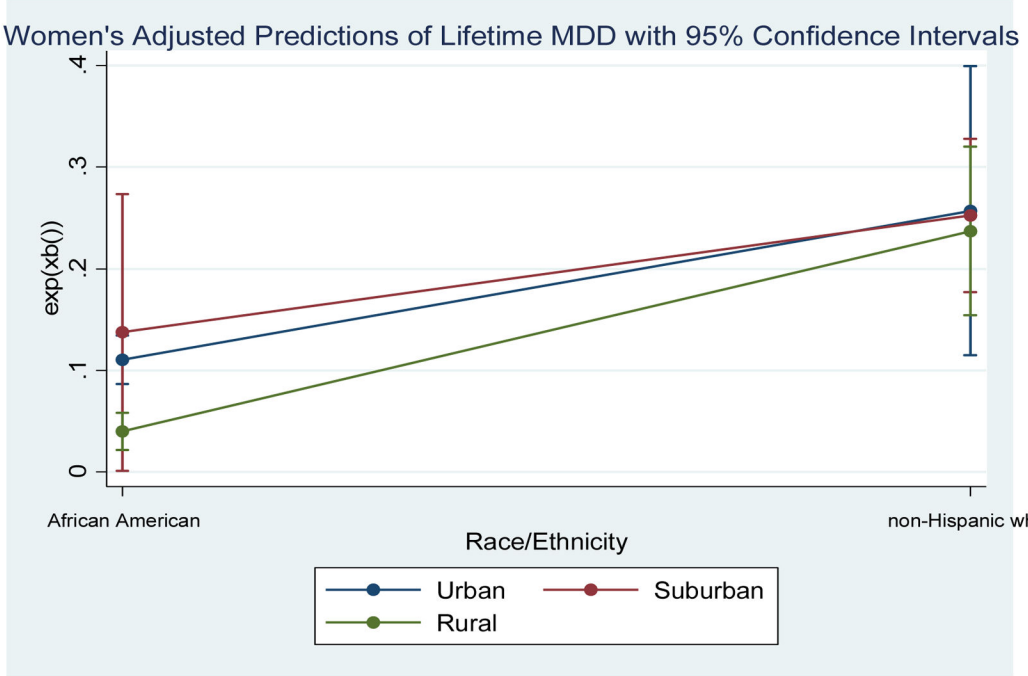

Figure 1.

Women's adjusted lifetime MDD odds ratios by race and urbanicity. *Note:* Analyses were adjusted for age, education level, household income, and marital status.

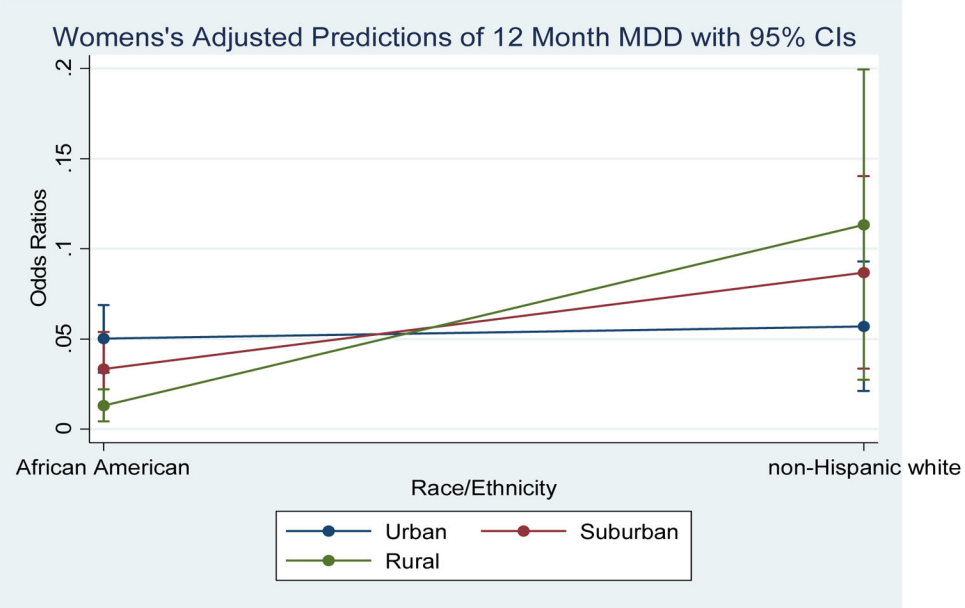

Figure 2.

Women's adjusted 12-month MDD odds ratios by race and urbanicity. *Note:* Analyses were adjusted for age, education level, household income, and marital status.

Table 1

Lifetime and 12-month prevalence of *DSM-IV*/CIDI-defined MDD and mood disorder by urbanicity and race among women in the National Survey of American Life sample recruited from the southern United States

	Sample Characteristics (N=1857)				Lifetime MDD (N=1803)				12-month MDD (N=1803)				Lifetime Mood Disorder (N=1800)				12-month Mood Disorder (N=1800)			
	N	**%**	***SE***	**F-statistic**	**N**	**%**	***SE***	**F-statistic**	**N**	**%**	***SE***	**F-statistic**	**N**	**%**	***SE***	**F-statistic**	**N**	**%**	***SE***	**F-statistic**
Overall	NA	NA	NA	NA	228	15.7	*1.62*	NA	114	7.13	*.880*	NA	285	17.7	1.59	NA	148	8.29	*.900*	NA
Urbanicity																				
Urban	1354	69.2	*4.98*	NA	176	15.7	*2.07*	NA	85	6.06	*.760*	NA	218	17.9	*1.98*	NA	111	7.42	*.810*	NA
Suburban	171	10.7	*3.46*	NA	21	19.1	3.11	NA	12	11.9	*2.19*	NA	29	21.5	*3.24*	NA	15	12.5	*2.04*	NA
Rural	332	20.1	*4.74*	NA	31	13.9	*2.20*	NA	17	8.26	1.91	NA	38	14.9	*2.16*	NA	22	8.98	*1.89*	NA
F-statistic	NA	NA	NA	NA	NA	NA	NA	0.75	NA	NA	NA	3.96*	NA	NA	NA	1.28	NA	NA	NA	2.93
Race																				
African American	1508	50.2	*3.94*	NA	154	10.1	*.960*	NA	83	5.51	*.610*	NA	209	13.6	*1.34*	NA	116	7.61	*.770*	NA
Non-Hispanic white	349	49.9	*3.94*	NA	74	21.3	*.264*	NA	31	8.75	*1.67*	NA	76	21.8	*2.58*	NA	32	8.96	*1.63*	NA
F-statistic	NA	NA	NA	NA	NA	NA	NA	22.6***	NA	NA	NA	4.38*	NA	NA	NA	9.31**	NA	NA	NA	.608
Urbanicity X Race																				
Urban African American	1135	37.9	*3.69*	NA	127	10.9	*.870*	NA	68	6.13	*.760*	NA	168	14.4	*1.25*	NA	93	8.33	*.890*	NA
Suburban African American	134	4.19	*0.68*	NA	14	13.6	*5.91*	NA	8	6.52	*1.33*	NA	21	18.1	*6.87*	NA	11	8.16	*1.67*	NA
Rural African American	239	8.07	*2.30*	NA	13	4.24	*.910*	NA	7	1.90	*.440*	NA	20	6.75	*1.26*	NA	12	3.76	*.830*	NA
Urban Non-Hispanic white	219	31.3	*5.26*	NA	49	21.6	*3.78*	NA	17	5.98	*1.41*	NA	50	22.1	*3.63*	NA	18	6.29	*1.33*	NA
Suburban Non-Hispanic white	37	6.53	*3.42*	NA	7	22.5	*1.81*	NA	4	15.2	*2.41*	NA	8	23.6	*2.41*	NA	4	15.2	*2.41*	NA
Rural Non-Hispanic white	93	12.1	*4.26*	NA	18	20.0	*2.92*	NA	10	12.3	*2.81*	NA	18	20.0	*2.92*	NA	10	12.3	*2.81*	NA
F-statistic	NA	NA	NA	NA	NA	NA	NA	7.24**	NA	NA	NA	7.38**	NA	NA	NA	3.88**	NA	NA	NA	4.82**

Note:

*Significant at $p<=.05$;

**Significant at $p<=.01$;

***Significant at $p<=.001$

All percentages are weighted

Table 2

Weighted multiple logistic regression analyses predicting lifetime and 12-month major depressive disorder and lifetime and 12-month mood disorder among female NSAL respondents residing in the South.

	Lifetime MDD (N=1803)	12-month MDD (N=1803)	Lifetime Mood Disorder (N=1800)	12-month Mood Disorder (N=1800)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Urbanicity				
Urban	1.00	1.00	1.00	1.00
Suburban	1.30 (0.46–3.73)	0.99 (0.57–1.74)	1.34 (0.52–0.73)	0.92 (0.52–1.62)
Rural	0.39 (0.23–0.65)*	0.29 (0.18–0.46)*	0.46 (0.29–0.73)*	0.42 (0.26–0.66)*
Race				
American	1.0	1.00	1.00	1.00
Non-Hispanic white	2.27 (1.38–3.71)*	1.13 (0.59–2.14)	1.69 (1.03–2.78)*	0.86 (0.49–1.53)
Race X Urbanicity				
Suburban non-Hispanic White	0.86 (0.26–2.82)	3.08 (1.34–7.09)	0.86 (0.29–2.56)	3.12 (1.36–7.21)*
Rural non-Hispanic White	2.76 (1.22–6.24)*	9.48 (4.65–19.3)*	2.27 (1.06–4.87)*	5.99 (3.01–11.94)*
Age	0.98 (0.97–.099)*	0.97 (0.95–0.99)*	0.98 (0.96–1.15)*	0.97 (0.95–0.99)*
Education (in years)	1.08 (0.98–1.18)	1.09 (0.92–1.29)	1.06 (0.98–1.15)	1.05 (0.90–1.22)
Household Income	1.00 (0.99–1.00)	1.00 (0.99–1.00)	1.00 (0.99–1.00)	1.00 (0.99–1.00)
Marital Status				
Married/Partnered	1.00	1.00	1.00	1.00
Separated, Divorced, Widowed	1.87 (1.14–3.07)*	1.80 (1.12–2.52)*	1.83 (1.15–2.90)*	1.79 (1.19–2.69)*
Never Married	0.93 (0.47–1.83)	0.92 (0.33–2.52)	0.87 (0.46–1.62)	0.93 (0.40–2.13)

Note: Results observed of a given variable are net of the effects of the other variables in the models. All model estimates are weighted to be nationally representative of the given population and subpopulations in the conterminous 48 states of the U.S. Confidence intervals are adjusted for the sampling stratification, clustering, and weighting of the data.

Abbreviations: OR, odds ratio; CI, confidence interval.

*Indicates an odds ratio significantly different from 1.0, $p <= 0.05$

Table 3

Adjusted prevalence rates of MDD by urbanicity and race among African American and non-Hispanic white women

	Lifetime MDD (N=1803)		12-month MDD (N=1803)		Lifetime Mood Disorder (N=1800)		12-month Mood Disorder (N=1800)	
	%	*SE*	%	*SE*	%	*SE*	%	*SE*
African American								
Urban	10.4	*1.0*	5.26	*1.0*	13.9	*1.3*	7.57	*1.0*
Suburban	13.1	*5.6*	5.17	*1.4*	18.2	*6.7*	7.2	*1.8*
Rural	4.18[1]	.90	1.54[1]	*.30*	6.66[1]	*1.3*	3.3[1]	*.80*
Non-Hispanic White								
Urban	19.1	*4.9*	3.66	*1.7*	19.3	*4.9*	3.81	*1.7*
Suburban	20.9	*3.3*	10.6	*3.8*	21.8	*3.5*	10.5	*3.9*
Rural	21.2	*2.8*	10.3[1]	*3.8*	22.1	*2.9*	10.3[1]	*3.9*

Note:

[*] Depression prevalence rates by urbanicity level have been adjusted for age, education level, household income, and marital status

[1] Rural vs Urban at p<=0.01