

## **Elevated Depressive Symptoms In A Community Sample Of African-Americans And Whites**

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### **Abstract**

This study examined demographic and psychosocial correlates of elevated depressive symptoms among African-Americans and Whites from comparable socioeconomic and neighborhood backgrounds. 851 African-Americans and 597 Whites from adjacent census tracts were interviewed using previously validated indicators of depressive symptoms, social support, religious practices and various demographic characteristics. More Whites than African-Americans reported elevated depressive symptoms and the groups also differed on several demographic variables and psychosocial variables. Employment, marital status and age were salient demographic covariates for African Americans, while income was for Whites. For both groups, social support and church attendance were inversely associated with depressive symptoms. Prayer was positively associated with depressive symptoms. Future research should explore within racial/ethnic group variations in depressive symptoms. Insights also are needed into possible changes over time in the relationship between religious variables and depressive symptoms, and how social support limits depressive symptoms in diverse populations.

Key words: depressive symptoms, racial differences, community sample, demographic and psychosocial correlates

### **Introduction**

Comparative research on African-American and White mental health outcomes, including depressive symptoms, has produced mixed results (Wilson & Williams, 2001). Some studies have found no racial/ethnic differences in mental health outcomes. Other research indicates African-Americans have a greater prevalence of mental disorders than Whites, while some studies

report mental disorders to be more prevalent among Whites (DHHS, 2001; Kessler, et al, 2003; Plant & Sachs-Ericsson, 2004; Riolo et al, 2005; Zhang & Snowden, 1999). Within this and other health disparities literature, racial/ethnic group membership is often confounded with socioeconomic status, culture and related contextual factors (Griffith, Moy, Reischl & Dayton, 2006). The present paper seeks to address this limitation by examining demographic and psychosocial covariates of elevated depressive symptoms in a community sample of urban-dwelling African-American and White adults who are similar in terms of neighborhood and socioeconomic characteristics.

### ***Sociodemographic factors***

African-Americans tend to experience greater poverty, a key risk factor for depression and anxiety (Riolo et al, 2005). Thus findings of no racial/ethnic difference or greater depression among Whites seem counterintuitive. More systematic research on this apparent paradox is needed. One possibility is that common indicators of socioeconomic status like employment status and income are differentially related to mental health outcomes for African-Americans and Whites. Unemployment has deleterious effects on psychological well-being (Kessler, et al., 2003; Prause & Dooley, 2001), but may be particularly relevant to the mental health outcomes of African-Americans given their persistent social disenfranchisement (Jackson & Stewart, 2003). In addition, a recent study found low income status to be associated with elevated depressive symptoms for Whites, but not for African-Americans or Mexican Americans (Riolo et al, 2005).

Other potentially relevant demographic factors for explaining variations in depressive symptoms within and between racial/ethnic groups include being a female (Andrade, et al, 2001; Kessler, et al, 2003), having lower levels of education (Miech & Shanahan, 2000), having never married or being divorced (Kessler, et al, 2003) and increased age (Miller, et al, 2004). This study examined the associations of these various demographic factors with depressive symptoms among African-Americans and Whites from comparable backgrounds.

### ***Psychosocial factors***

The psychosocial factors of religiousness and social support are construed as cultural resources for the African-American population and thus might help explain racial/ethnic patterns in depressive symptoms (DHHS, 2001; Neighbors, Jackson, Bowman & Gurin, 1983). Greater social support appears to be a salient covariate of lower depressive symptoms among African-Americans (Ennis, Hobfoll, & Schroder, 2000; Miller et al, 2004; Plant & Sachs-Ericsson, 2004). However, church attendance and prayer, two key indicators of religiousness, appear to be differentially associated with depressive symp-

toms, at least among African-Americans. For example, church attendance was inversely related to psychological distress, while more frequent prayer was associated with greater psychological distress (Ellison, et al, 2001). This study examined ways in which prayer, church attendance and social support are associated with depressive symptoms among African-Americans and Whites from comparable neighborhoods.

The present study used a sample of African-American and White adults drawn from two adjacent census tracts to examine demographic and selected psychosocial correlates of elevated depressive symptoms. Accessing comparable samples of African-Americans and Whites provided a unique opportunity to discern the influences of these correlates, while holding constant community and other related factors.

Two primary research questions guide this study. These are:

- 1) Are there racial/ethnic differences in elevated depressive symptoms in socially and economically comparable samples of African-Americans and Whites?
- 2) Do associations of demographic and psychosocial factors with elevated depressive symptoms vary by race/ethnicity?

It was hypothesized that unemployment is associated with elevated depressive symptoms among African Americans, while low income status is associated with depressive symptoms among Whites. Further, it was assumed that frequent prayer is associated with elevated depressive symptoms, but that more frequent church attendance will be associated with lower levels of depressive symptoms for both African-Americans and Whites.

## Methods

The data are from the Community Health Urban Project (CHUP), a community-based study designed to examine health behaviors and related attitudes, beliefs and values, health service and prescription drug utilization, mental health problems, including alcohol use and depression, medical history, and quality of personal and community life among African-American and Whites from comparable demographic backgrounds.

*Sample.* Census tract data were used to identify a middle and low-income community with African-American and White residents of similar socioeconomic status and neighborhood characteristics. Forty two percent (1498) of the 3555 adults, 18 years and older, estimated to be living in the target area were recruited into the study. The respondents who self-identified as either African-American (n=851) or White (n=597) were included in this investigation.

*Interviewer recruitment and training.* Interviewers were recruited from three local universities and trained on the purpose of the study, team building and interviewing skills, research methods and ethics, taking blood pressure, and signs of depression.

*Participant recruitment and data collection procedure.* Introductory letters describing the purpose and start date of the study were mailed to each address in the target census tracts. Door to door recruitment screenings of the entire population were then conducted. Participant recruitment also occurred at a community health fair put on each month during the three-month data collection period. Residents who gave written consent were interviewed. Interviews were conducted at the initial contact, if possible. Otherwise, appointments were set up to conduct the interview at a later time. Interviews took roughly 45 minutes and were conducted at the respondent's home or at the health fair. Each participant was given a list of available health resources, a thank-you card, and \$20 at the conclusion of the interview session.

*Measures.* The interview used a structured questionnaire with previously validated questions to assess demographic characteristics and targeted physical and mental health behaviors and related attitudes, beliefs and values. The following measurements were used for the present study.

*Depressive symptoms.* An adapted version of the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001) asked participants to indicate, on a four-point scale, how often, they experienced any of nine symptoms of depression over the past two weeks. Response options ranged from 0 (not at all) to 3 (nearly every day). The suicide ideation item was excluded from this study for ethical reasons. Cronbach's alpha coefficients were 0.86, 0.84 and 0.86 for the total sample, African-American and White sub-samples, respectively, indicating good reliability. A dichotomous variable was created to reflect no depression and major depression (elevated depressive symptoms). Elevated depressive symptoms reflected at least five symptoms were experienced more than half the days in the past two weeks and one of the symptoms consisted of dysphoria or anhedonia (Kroenke, et al, 2001).

*Perceived social support.* An eight-item adaptation of the Duke-UNC Functional Social Support Questionnaire (FSSQ; Broadhead, Gehlbach, De Gruy, and Kaplan, 1988) was used to measure perceived confidant, affective and instrumental support dimensions. Items were responded to on a five-point scale, ranging from 1 (much less than you would like) to 5 (as much as you would like). A Cronbach alpha of 0.89 was obtained for the total sample in this study. Alpha coefficients of 0.84 and 0.78 were generated for African-Americans and Whites, respectively. Scale scores were dichotomized to reflect low (0) and high (1) social support.

*Prayer* was assessed using participants' responses indicating how frequently they prayed privately. The eight response options ranged from 1 (never) to 8 (more than once a day). Two response options were created for data analytic purposes: 0 (never/infrequent) and 1 (frequent/very frequent) prayer. Church attendance was assessed using six response options ranging from 1 (never) to 6 (more than once a day). These responses were collapsed into two categories: 0 (infrequent) and 1 (frequent) church attendance.

A variety of demographic data were gathered. Employment status was assessed using eight response options: working full time, working part time, retired, attending school, maintaining a home, unemployed and disabled. Responses were reduced to three categories for the present investigation: 1 (unemployed); 2 (out of the workforce - retired, in school, homemaker or disabled) and; 3 (full/part-time employed). Annual household income was determined by asking respondents to check one of eight income ranges: less than \$5,000, \$5,000-\$9,999, \$10,000-\$14,999, \$15,000-\$24,999, \$25,000-\$34,999, \$35,000-\$49,999, \$50,000-\$59,999, \$60,000 or more. These were collapsed into three income categories: 1 (less than \$15,000), 2 (\$15,000-\$34,000), 3 (\$35,000 and above). Educational attainment was assessed by asking respondents to indicate the highest grade or year in school they had completed. Responses options ranged from 0 to 17 years with labels corresponding to grade 12 (high school graduate), 13-16 (college) and 17 (graduate school). Four categories were created for this investigation: 1 (less than high school), 2 (high school graduate), 3 (college), and 4 (graduate school). Marital status was assessed by responses to six options: married, living as married, widowed, divorced, separated, and never married. These responses were reduced to three categories for the present analysis: 1 (never married); 2 (widowed, divorced or separated); and 3 (married/living as married). Age was calculated from participant's reported date of birth. Four categories were constructed: 1 (18-29 years); 2 (30-44 years); 3 (45-59 years); and 4 (60 years and above).

*Data preparation and analyses.* Hot-deck imputation was used to replace the suicide ideation item of the PHQ-9 (Mander & Clayton, 1999). Preliminary analyses were conducted to examine possible racial/ethnic group differences on the various demographic and psychosocial variables. General Estimating Equation models (GEE) were generated to accommodate clustering of respondents within households when estimating unadjusted and adjusted associations between demographic or psychosocial variables with elevated depressive symptoms. Separate analyses were performed for the total sample, African Americans, and Whites. Models with and without imputed data led to similar inferences.

## Results

As Table 1 shows, there were differences between African-Americans and Whites. Roughly 11% of the sample had elevated depressive symptoms, but depressive symptoms were less frequent among African-Americans (9%) compared to Whites (14%) ( $\chi^2(1) = 9.23, p < .001$ ). Almost half of the sample had not completed high school, and only 34% were high-school graduates. In this sample, there were more African-Americans than Whites who were high school or college graduates ( $\chi^2(3) = 39.75, p < .001$ ). Better than 50% of the sample was out of the workforce, with more than one quarter being unemployed. African-Americans were more likely to be employed full time and unemployed than their White counterparts ( $\chi^2(2) = 35.07, p = .001$ ). Overall, in excess of 75% of the sample earned \$35,000 or less. Racial/ethnic groups did not differ in terms of income. More than half of participants had never been married, with around 20% being married or living as married, and almost 30% were previously, but not currently married (widowed, divorced or separated). Significantly more African-Americans than Whites had never been married ( $\chi^2(2) = 80.36, p = .001$ ). Most of the participants were 44 years of age or younger (40 years of age on average). Whites tended to be slightly older than African-Americans ( $\chi^2(3) = 43.12, p = .001$ ). Roughly 46% of African-American and 43% of White respondents were male. Among the psychosocial variables, more African-Americans reported more frequent prayer ( $\chi^2(1) = 40.54, p = 0.001$ ), and church attendance ( $\chi^2(1) = 71.19, p < .001$ ) than did Whites. In addition, African-Americans were more likely than Whites to report a high degree of social support ( $\chi^2(1) = 16.89, p = 0.001$ ).

Table 2 displays the number of respondents, the percent reporting elevated depressive symptoms, unadjusted (uOR) and adjusted odds ratios (aOR), and associated confidence intervals (95% CI) for each variable for the total sample. Two models were fit. Model 1 featured only demographic variables, while Model 2 added psychosocial variables to Model 1.

There was some evidence of confounding by demographic and psychosocial variables in the association of race/ethnicity with depression. The adjusted odds ratios indicated that, after controlling for the various demographic and psychosocial variables, the association between race and elevated depressive symptoms was of smaller magnitude. The odds of elevated depressive symptoms were lower for those who were employed compared to those who were unemployed (aOR=0.4; 95% CI: 0.2, 0.7). Compared to those in the lowest income group, the odds of elevated depressive symptoms were lower among those with an income of 35k or more (aOR=0.5; 95% CI: 0.2, 0.7). In addition, the odds of depression were twice as high among respondents 45-59 years of age compared to those 18-29 years of age (aOR=2.6; 95% CI: 1.3, 4.9).



However, Model 2 revealed that an additional reduction in racial/ethnic differences occurred when the psychosocial variables were included. The odds of depressive symptoms were higher among respondents reporting frequent prayer when compared to those who prayed infrequently (aOR=1.7; 95% CI: 1.0, 2.9). On the other hand, those who attended church more frequently had lower odds of reporting depressive symptoms than those who attended church infrequently (aOR=0.7; 95% CI: 0.4, 1.0). Having high, as compared to low social support was negatively associated with elevated depressive symptoms (aOR=0.3; 95% CI: 0.2, 0.5).

Table 3 conveys results from stratified analyses for African-Americans and Whites. The odds of elevated of depressive symptoms were lower for employed African-Americans than their unemployed counterparts (aOR=0.3; 95% CI: 0.1, 0.6). This relationship was similar, yet less precise among Whites. Being out of the workforce was associated with higher odds of depressive symptoms for both groups. An association between income and depression was found for Whites. Whites with a household income of 35k or more had lower odds of elevated depressive symptoms than did low-income Whites (aOR=0.3; 95% CI: 0.1, 0.8). This relationship was similar, but less precise for African Americans. The odds of depression among African-American respondents who were married or living as such were lower relative to the odds for their never married counterparts (aOR= 0.3; 95% CI: 0.1, 1.0). However, Whites who were married (aOR=1.4; 95% CI: 0.6, 3.3) and previously married (aOR=1.7; 95% CI: 0.8, 3.6) had greater odds of elevated depressive symptoms than their non-married counterparts. African-Americans 45-59 years of age had odds of depressive symptoms three times higher than 18-29 year olds (aOR=3.5; 95% CI: 1.5, 8.1).

Associations between the religion variables and depressive symptoms were similar for both racial/ethnic groups. Compared to those who prayed infrequently, those who prayed frequently were more likely to report elevated depressive symptoms (aOR=2.1; 95% CI: 0.8, 5.5 for African Americans, and aOR=1.4; 95% CI: 0.7, 2.9 for Whites). On the other hand, those who reported frequent church attendance, compared to infrequent attendance, had lower odds of depressive symptoms (for African-Americans aOR=0.8; 95% CI: 0.5, 0.6 and Whites aOR=0.5; 95% CI: 0.3, 1.1).

Both African-Americans (aOR=0.4; 95% CI: 0.2, 1.4) and Whites (aOR=0.3; 95% CI: 0.1, 0.5) reporting high social support had lower odds of elevated depressive symptoms than counterparts with low social support.



**Table 2. The association of sociodemographic and psychosocial characteristics with elevated depressive symptoms among participants in CHUP project (n= 1448).**

Variable	n	%	Unadjusted	Model 1	Model 2
		Depressed	OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)
<b>Race</b>					
White	595	13.6	1.0 (ref)	1.0 (ref)	1.0 (ref)
African American	849	8.6	0.6 (0.4,0.9)	0.7 (0.5,1.2)	0.8 (0.6,1.3)
<b>Education</b>					
< High school	685	14.5	1.0 (ref)	1.0 (ref)	1.0 (ref)
High school	475	7.2	0.5 (0.3,0.7)	0.7 (0.5,1.2)	0.8 (0.5,1.4)
College	227	7.9	0.5 (0.3,0.9)	0.8 (0.5,1.6)	0.9 (0.5,1.7)
Graduate school	55	5.5	0.4 (0.1,1.1)	0.8 (0.2,3.7)	1.0 (0.2,4.4)
<b>Employment</b>					
Unemployed	383	13.3	1.0 (ref)	1.0 (ref)	1.0 (ref)
Out of workforce	407	18.7	1.4 (1.0,2.1)	1.5 (0.9,2.4)	1.5 (0.9,2.5)
Full/part time employed	634	3.8	0.3(0.2,0.4)	0.4 (0.2,0.7)	0.4 (0.2,0.7)
<b>Income</b>					
<15K	597	15.1	1.0 (ref)	1.0 (ref)	1.0 (ref)
15-34.9K	372	8.6	0.6 (0.4,0.8)	0.8 (0.5,1.2)	0.8 (0.5,1.3)
>35K	286	3.9	0.2 (0.1,0.4)	0.4 (0.2, 0.8)	0.5 (0.2,0.7)
<b>Marital status</b>					
Never married	741	9.5	1.0 (ref)	1.0 (ref)	1.0 (ref)
Divorced/separated/ widowed	422	14.5	1.6 (1.1-2.3)	0.9 (0.6,1.5)	0.9 (0.6,1.6)
Married/living as	270	7.8	0.8 (0.5,1.3)	0.6 (0.3,1.0)	0.6 (0.4,1.2)
<b>Age</b>					
18-29	379	6.9	1.0 (ref)	1.0 (ref)	1.0 (ref)
30-44	547	10.2	1.6 (1.0,2.6)	1.7 (0.9,3.0)	1.5 (0.8,2.6)
45-59	389	15.9	2.5 (1.5,4.0)	2.6 (1.3,4.9)	2.3 (1.2,4.0)
> 60	146	8.2	1.2 (0.6,2.4)	0.6 (0.2,1.5)	0.5 (0.2,1.2)
<b>Gender</b>					
Female	801	12	1.0 (ref)	1.0 (ref)	1.0 (ref)
Male	643	9	0.7 (0.5,1.0)	0.8 (0.5,1.2)	0.7 (0.5,1.0)
<b>Prayer</b>					
Infrequent	296	8.5	1.0 (ref)		1.0 (ref)
Frequent	1,143	11.1	1.3 (0.9,2.0)		1.7 (1.0,2.9)
<b>Church attendance</b>					
Infrequent	754	13.5	1.0 (ref)		1.0 (ref)
Frequent	677	7.2	0.5 (0.4,0.7)		0.7 (0.4,1.0)
<b>Social support</b>					
Low	688	16.9	1.0 (ref)		1.0 (ref)
High	751	5.1	0.3 (0.2,0.4)		0.3 (0.2,0.5)

**Table 3. Elevated depressive symptoms by race and covariates**

Variable	African Americans n=851		Whites n=597	
	%	Adjusted	%	Adjusted
	Depressed	OR (95% CI)	Depressed	OR (95% CI)
<b>Education</b>				
< High school	12.4	1.0 (ref)	16.6	1.0 (ref)
High school	5.2	0.7 (0.4, 1.3)	11.1	1.1 (0.5, 2.3)
College	6.8	0.8 (0.3, 1.7)	10.1	1.3 (0.5, 3.5)
Graduate school	8.7	1.3 (0.2, 9.5)	3.1	0.8 (0.1, 8.9)
<b>Employment</b>				
Unemployed	12.5	1.0 (ref)	14.7	1.0 (ref)
Out of workforce	16.8	1.6 (0.8, 3.1)	20.4	1.4 (0.7, 2.8)
Full/part time				
employed	2.9	0.3 (0.1, 0.6)	5.4	0.6 (0.2, 1.3)
<b>Income</b>				
<15K	11.1	1.0 (ref)	21.0	1.0 (ref)
15-34.9K	7.9	1.2 (0.6, 2.4)	9.5	0.5 (0.2, 1.1)
>35K	3.7	0.8 (0.3, 2.1)	4.0	0.3 (0.1, 0.8)
<b>Marital status</b>				
Never married	8.9	1.0 (ref)	11	1.0 (ref)
Divorced/separated/ Widowed	11.4	0.6 (0.3, 1.3)	17.2	1.7 (0.8, 3.6)
Married/living as	3.3	0.3 (0.1, 1.0)	11.6	1.4 (0.6, 3.3)
<b>Age</b>				
18-29	5.6	1.0 (ref)	9.3	1.0 (ref)
30-44	8	1.8 (0.9, 3.9)	13.9	1.0 (0.4, 2.6)
45-59	13.7	3.5 (1.5, 8.1)	18.8	1.2 (0.4, 3.2)
> 60	5.8	0.7 (0.2, 3.4)	9.6	0.3 (0.1, 1.2)
<b>Gender</b>				
Female	10.2	1.0 (ref)	14.5	1.0 (ref)
Male	6.7	0.7 (0.4, 1.3)	12.5	0.9 (0.5, 1.7)
<b>Prayer</b>				
Infrequent	4.8	1.0 (ref)	11.2	1.0 (ref)
Frequent	9.2	2.1 (0.8, 5.5)	14.5	1.4 (0.7, 2.9)
<b>Church attendance</b>				
Infrequent	10.6	1.0 (ref)	16.3	1.0 (ref)
Frequent	6.7	0.8 (0.5, 1.4)	8.5	0.5 (0.3, 1.1)
<b>Social support</b>				
Low	13.7	1.0 (ref)	20.5	1.0 (ref)
High	4.8	0.4 (0.2, 0.6)	5.5	0.3 (0.1, 0.5)

## Discussion

This study of elevated depressive symptoms attempted to reduce possible confounding of race and socioeconomic status by deliberately sampling adult African-Americans and Whites residing in two adjacent census tracts who share similar SES and other socio-environmental conditions. Consistent with previous research, Whites were more likely than African-Americans to report elevated depressive symptoms. This apparent racial/ethnic difference in elevated depressive symptoms was reduced by other factors, especially psychosocial variables. Many of these associations were more robust among African-Americans than Whites, however. A number of demographic factors have been associated with elevated depressive symptoms. As hypothesized, gainful employment was associated with a reduced occurrence of elevated depressive symptoms among African Americans. Contrary to media portrayals, in the absence of elevated depressive symptoms, African-Americans might pursue and maintain a job more so than their White counterparts. Alternatively, being employed may buffer African-Americans from experiencing depression.

Consistent with previous research, marriage appeared to be inversely associated with occurrence of depressive symptoms among African Americans. Marriage can provide a degree of economic, financial and/or social stability that buffer against prolonged negative mood. This was not the case for Whites. Age also emerged as a significant covariate for African Americans. Middle aged respondents (45-59 years of age) were more likely than younger participants to report elevated depressive symptoms. Persons in this age range are in their generative years and have associated family and work-related roles. Further research is needed to explore possible mechanisms that inform these associations.

Greater household income was associated with lower occurrence of depressive symptoms, especially for Whites. This is particularly relevant since this study analyzed this association in African-Americans and Whites with similar socioeconomic backgrounds. Women in this study did not report greater levels of depressive symptoms than men.

Religiousness and social support have been construed as cultural resources that might help explain racial/ethnic differences in depressive symptoms. More frequent religious practices and higher levels of social support may suggest the cultural primacy of these dimensions among African Americans. However, similar patterns of association with depressive symptoms emerged for African-Americans and Whites. As in other studies, the more social support participants perceived, the less likely they were to have elevated depressive symptoms. These findings were anticipated. Surprisingly, the associations of religious variables with depressive symptoms were not robust. The positive

relationship between prayer and depressive symptoms may reflect the use of prayer as a coping mechanism. Attending church likely reflects the absence of impaired functioning. More insight is needed into the association between religion and depression, especially among African-Americans.

## Limitations

The most important limitation of this study is that its cross-sectional nature prohibits casual inferences. For example, it is possible that the association between prayer and elevated depressive symptoms is related to coping mechanisms once depression symptoms are prominent, rather than an indication that frequent prayer increases the risk of depression.

Incomplete specification of a conceptual model also limited the study. Most notably, the models in the present study did not adequately consider the intersection of depression, anxiety and stress, which often co-occur (Reiger, Rae, Narrow, Kaelber & Schatzberg, 1998). In addition, stress/anxiety may be the primary mechanism through which demographic and other factors contribute to depressive symptoms. Further longitudinal data collection efforts are warranted in this area.

In addition, several analyses were statistically underpowered given the distribution of demographic and psychosocial characteristics in relation to elevated depression symptoms. Finally, future work might also examine more closely depressive symptoms and the implications of prayer and specific forms of social support for daily functioning and the utilization of health services. Attention should also be given to the need of a developmental perspective in the study of personal and contextual factors.

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