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DISCRIMINATION AND SYMPTOMS OF DEPRESSION IN PREGNANCY AMONG AFRICAN AMERICAN AND WHITE WOMEN

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Abstract

Purpose—Depressive symptomatology during pregnancy has been associated with negative health outcomes for both the mother and child. This study examines the potential associations between depression and depressive symptoms in poor women and African-American women and their lifelong experiences of discrimination.

Methods—Data from 2,731 African-American and White participants in the Pregnancy Outcomes and Community Health (POUCH) Study were analyzed. Multiple regression analyses were used to investigate relations between depressive symptoms and total discrimination, and between depressive symptoms and three discrimination types (gender, race, and socioeconomic).

Main Findings—Initial results showed that African-American women had greater levels of depressive symptoms than White women. Self-reported total discrimination and discrimination types were each positively associated with depressive symptomatology in all women. After adjusting for sociodemographic characteristics (maternal age, education, employment status, partner status, and Medicaid status) and examining significant interactions, the race difference in depressive symptomatology was evident only in employed women. The addition of total discrimination to the multi-covariate model eliminated race differences in the adjusted mean level of depressive symptoms. When the three discrimination types were modeled simultaneously with all other covariates, only

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gender and economic discrimination remained positively associated with depressive symptoms in African-American and White women.

Conclusions—These results should be cautiously interpreted due to: 1) the study design; i.e., ascertainment of maternal discrimination and depressive symptoms at a single time point; and 2) limitations of the discrimination measure. Despite these limitations, the study points to potential links between lifetime discrimination and depressive symptoms in pregnancy.

Keywords

depression; depressive symptoms; discrimination; race; pregnancy; race comparison; mental health

INTRODUCTION AND BACKGROUND

Mental health disorders such as depression appear to be common during pregnancy (Lovisi, Lopez, Coutinho, & Patel, 2005; Bowen & Muhajarine, 2006; Faisal-Cury & Menezes, 2007), although most research on depression and pregnancy focuses on postpartum depression. Antenatal depression has been implicated as one of several risk factors for postpartum depression (Hobfoll, Ritter, Lavin, Hulsizer, & Cameron, 1995; Da Costa, Larouch, Dritsa, & Brender, 2000), and a recent review reports several studies finding associations between untreated antenatal depression and such pregnancy outcomes as preterm delivery, fetal growth retardation, pre-eclampsia, and miscarriage (Bonari, Pinto, Ahn, Einarson, Steiner, & Koren, 2004). Other reviews suggest that behavioral and physiological changes in women with antenatal depression may contribute to negative emotional, cognitive, and physical consequences for the infants born to these women (Sohr-Preston & Scaramella, 2006; Hollins, K., 2007).

The causes of depressive symptoms in pregnancy are likely multifaceted and may vary by maternal characteristics such as race and socioeconomic status. Overall, depression and depressive symptomatology in African-Americans has not been adequately studied. The prevalence of depression in African-Americans has been reported as lower than in Whites (Somervell, Leaf, Weissman, Blazer, & Bruce, 1989; Williams, Gonzalez, Neighbors, Nesse, Abelson, Sweetman, & Jackson, 2007); however, at least one study found no difference in the rate of depression between financially impoverished African-American and White pregnant women (Hobfoll, *et al.*, 1995). Further, it has been suggested that depression in African-Americans is of greater severity, more disabling and more often untreated than in Whites (Williams, *et al.*, 2007). A recent review of the literature suggests that the lower prevalence in African-Americans may be due to under-diagnosis (Simpson, Krishnan, Kunik, & Ruiz, 2007).

Discrimination is an experience that does not accrue equally across race, gender, or socioeconomic status, and may contribute to disparities in prevalence of depression and other adverse health outcomes. Although not all studies have found an association between racial/ethnic discrimination and health (Broman, 1996), reviews of the literature suggest that such discrimination is associated with poorer physical and mental health (Williams, Yu, Jackson & Anderson, 1997; Williams, Neighbors, & Jackson, 2003). Perceived racial/ethnic discrimination has been associated with a lower self-rating of physical health and well-being (Jackson, Brown, Williams, Torres, Sellers, & Brown, 1996) and with higher scores on measures for depressive symptomatology (Schulz, Gravelle, Williams, Israel, Mentz, & Rowe, 2006). Perceptions of other types of discrimination, such as socioeconomic and workplace discrimination, have also been associated with poorer health perception and outcomes (Ren, Amick, & Williams, 1999; Pavalko, Mossakowski, & Hamilton, 2003). Poverty's negative

impact on health is well-known, but studies of socioeconomic discrimination and health outcomes are few (Belle & Doucet, 2003).

Positive associations between experiences of discrimination and depression or depressive symptoms have been reported in African-American women (Schulz, *et al.*, 2006; Banks, Kohn-Wood, & Spencer, 2006), Southeast Asian refugees (Noh, Beiser, Kaspar, Hou, & Rummens, 1999), adults of Mexican-origin (Finch, Kolody, & Vega, 2000), and American Indians in the upper Midwest (Whitbeck, McMorris, Hoyt, Stubben, & Lafromboise, 2002). Research focused on discrimination and pregnancy outcomes has reported associations with low birth weight and preterm delivery. (Mustillo, Krieger, Gunderson, Sidney, McCreath, & Kiefe, 2004; Collins, David, Handler, Wall, & Andes, 2004), but it is unclear whether these associations are mediated by factors related to depression. Thus, the consideration of discrimination in a study of antenatal depression seems warranted.

In the following analyses the authors address three research questions using a sample of African-American and White pregnant women: 1) Is race related to levels of depressive symptoms in pregnancy?, 2) Is there an association between experiences of discrimination and depressive symptomatology in pregnant women?, and 3) Is the relation between discrimination and depressive symptoms similar for African-Americans and Whites? The overall goals were to contribute to a better understanding of the relation between discrimination and the psychological well-being of pregnant women, and to highlight the need for additional research into this aspect of women's health.

METHODS

Study Sample

Women in this analysis were participants in the Pregnancy Outcomes and Community Health (POUCH) Study (Holzman, Bullen, Fisher, Paneth, & Reuss, 2001). To be eligible for the POUCH Study, woman had to be 1) over 15 years of age, 2) proficient in understanding and speaking English, 3) a patient at one of 52 participating prenatal practices in five Michigan communities, 4) screened for maternal serum alpha-fetoprotein (MSAFP) between 15 and 22 weeks gestation, 5) carrying a singleton pregnancy with no known fetal anomalies, and 6) free of diabetes when not pregnant. Generalizability of the POUCH Study sample was demonstrated through ethnic-specific analyses comparing demographic factors from POUCH Study participants with maternal data from birth certificates in the five study communities (Holzman, Eyster, Tiedje, Roman, Seagull, & Rahbar, 2006). The analyses showed that POUCH Study participants were very similar to women who delivered infants in the communities on most of the factors measured (age, parity, education, Medicaid status, preterm delivery, and previous pregnancy outcomes). However, the percentage of African-American women over 30 years of age was lower in the POUCH Study (14%) than in the communities (21%).

Eligible women enrolled in the POUCH Study between 15 and 27 weeks gestation, at which time a trained study nurse conducted an in-depth maternal interview, oversaw completion of a self-recorded questionnaire, and collected various biologic specimens. Sociodemographic characteristics (race, education, maternal age, partner status, employment status, and Medicaid status) were recorded by the study nurse as part of the maternal interview. Responses to psychosocial instruments, such as those measuring depressive symptoms and self-reported discrimination, were recorded by the participants in the self-recorded questionnaire.

The POUCH Study enrolled a total of 3,038 women between September 1998 and June 2004. Of these, 19 were lost to follow-up, resulting in a final cohort of 3,019 pregnant women. The majority of participants (91%) self-identified as either Non-Hispanic Black/African-American (hereafter African-American) or Non-Hispanic White/Caucasian (hereafter White). The

number of participants identifying with other racial/ethnic groups was too low to allow meaningful analysis of each group individually, or to determine comparability for combining these groups with either the African-American or White groups. Therefore, to limit inter-ethnic variation and to allow for investigation of fundamental race-specific effects, the analysis reported here was restricted to the 2,761 women who self-identified as African-American or White. Another 30 women were excluded from this analysis because they did not respond to the questionnaire items measuring depressive symptoms, and/or did not respond to the discrimination scale items. Thus, this analysis included 2,731 African-American and White pregnant women.

Measures

Depressive Symptoms—Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item instrument originally developed for the measurement of depressive symptomatology in the general population. Validation and reliability studies have demonstrated that this instrument is a suitable screening tool for use across population subgroups of age, sex, race, and socioeconomic status (Radloff, 1977; Roberts & Vernon, 1983; Devins & Orne, 1985; Williams, Taylor, Makambi, Harrell, Palmer, Rosenberg, & Adams-Campbell, 2007). The CES-D has been widely used in clinical and population-based studies of depressive symptoms, including studies of pregnancy and race (Orr, James, and Blackmore-Prince, 2002; Orr, Blazer, James, & Reiter, 2007). Items were scored on the four-point response scale (0 to 3) and included such constructs as hopelessness, restless sleep, loneliness, fear, sadness, and changes in appetite. CES-D scores have a potential range of 0 to 60, with scores of 16 or above generally considered indicative of depressive symptoms. In this analysis, CES-D scores ranged from 0 to 57 with a Cronbach's alpha of 0.76 indicating acceptable internal consistency of responses.

Discrimination—Self-reported discrimination measurement was based on the discrimination scale from the Coronary Artery Risk Development in Young Adults (CARDIA) Study (Krieger, 1990; Krieger and Sidney, 1996). Several other studies have used variations on the CARDIA measure to investigate relations between discrimination and pregnancy outcomes (Mustillo, *et al.*, 2004; Dole, Savitz, Siega-Riz, Hertz-Picciotto, McMahon, & Buekens, 2004; Collins, *et al.*, 2004). For this analysis, a 21-item instrument was used to measure three types of self-reported discrimination (gender, race, and socioeconomic status) in any of seven settings (at school, getting a job, at work, at home, getting medical care, from the police or courts, and on the street or in public). For each discrimination type, respondents were asked to indicate whether or not they have “ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior” in any of the settings. A score for each discrimination type was created by counting the number of affirmative responses within each type (range 0 to 7), and a score for total discrimination was created by counting the number of affirmative responses across all three types (range 0 to 21). Cronbach's alpha for the total discrimination score was 0.83, indicating good internal consistency of responses.

Sociodemographic Characteristics—Demographic characteristics included race, maternal age, education, partner status, employment status, and Medicaid status. Categorical variables were maternal age (less than 20 years, 20 to 29 years, and over 29 years of age), education (less than 12 years of education, exactly 12 years of education, and more than 12 years of education) and partner status (married and living with husband, not married and living with partner, and not living with husband or partner). Dichotomous variables were race, employment status, and Medicaid status. As described earlier, race was limited to White or African-American. Employment status was divided into those women who were working at the time of enrollment in the POUCH Study, and those who were not working at that time.

Medicaid is the United States program providing health coverage for families with low incomes or limited resources. The program is jointly funded by Federal and State governments, and is managed at the State level. Under the Michigan Medicaid eligibility guidelines, women who became eligible for Medicaid as a result of the pregnancy were more similar to women enrolled in Medicaid prior to pregnancy than to women who were not previously Medicaid-eligible. Therefore, a positive Medicaid status was assigned to those women who were enrolled in Medicaid prior to the pregnancy and to those whose pregnancy established Medicaid eligibility.

Analysis

Race differences in the distributions of the sociodemographic characteristics and of the discrimination variables were assessed using the Chi-square test. Differences in unadjusted CES-D means were tested across race by T-tests, and within race by T-tests (2-level variable) and Analysis of Variance (ANOVA) (3-level variable).

Multiple regression analyses produced Least Square Means (LSMeans) of CES-D scores as the outcome. Sociodemographic variables were tested for interactions with race using $p < 0.05$ as the criterion for significant interaction. A model assessing the contribution of the sociodemographic characteristics to CES-D scores was constructed first, followed by models adding total discrimination and each discrimination type individually. Correlations between the three discrimination types were assessed using the Kappa correlation test and, based on the low correlations a final model was constructed adding all three discrimination types simultaneously. All analyses were conducted using SAS version 9.1 (2002-2003).

RESULTS

In this sample, 27% of the women self-identified as African-American and 73% as White (Table 1). As expected in a study of women of childbearing age, the women in this sample were relatively young with a mean age of 26.5 years. Most of the women had completed at least 12 years of school (82%), were over the age of 20 years (85%), were employed at the time of enrollment (60%), or scored below the cut point (< 16) for elevated depressive symptoms on the CES-D measure (66%). About half of the women were married and living with her husband (50%), and slightly less than half were enrolled in Medicaid (47%).

Comparisons across race revealed statistically significant differences in the distribution for all of the sociodemographic characteristics (Table 1). Although most of the African-American women reported completing 12 years of school (64%), more African-Americans than Whites had less than 12 years of education (36% vs. 11%) and fewer reported any post-secondary education (33% vs. 62%). The African-American women were younger (mean age 23.8 years) than the White women (mean age 27.5 years), with more African-American women under the age of 20 years (28% vs. 10%). African-American women were less likely to be married and living with her husband than White women (13% vs. 64%), and more likely to not be living with any partner (60% vs. 16%). The African-American women were also more likely to be unemployed (57% vs. 33%), enrolled in Medicaid (81% vs. 35%) and score 16 or higher on the CES-D measure for depressive symptoms (49% vs. 28%).

Race differences were also found in self-reported discrimination (Table 2). For total discrimination and each of the three discrimination types (gender, race, and socioeconomic), African-American women reported experiencing discrimination in more settings than White women. Further, the distributions within each type suggest that these differences were greatest in race discrimination and socioeconomic discrimination.

In the unadjusted model (Table 3), the mean CES-D score in African-American women was significantly higher than in White women. Among Whites, younger women and unemployed

women had higher CES-D scores. Although the direction of the effect of maternal age and employment status on CES-D scores was the same in African-Americans, it was not statistically significant. Unadjusted mean CES-D scores varied by education, partner status, and Medicaid status in both races, with higher CES-D scores found in women with lower education, women who were not married or not living with a husband or partner, and women enrolled in Medicaid. Significant differences across race were found in each level of each sociodemographic characteristic, with the exception of partner status where a race difference was apparent only for woman who were not married but living with a partner.

Multiple regression analysis revealed an interaction ($p=0.02$) between race and employment status (Table 4). No interaction with race was found with maternal age, education, partner status, or Medicaid status. In Model 1, the mean CES-D score in employed African-American women was significantly higher than in employed White women ($p<0.05$), but there was no race difference in women who were not employed. The within race difference between employed and unemployed White women noted in the unadjusted model remained ($p<0.05$). With the exception of maternal age, all sociodemographic characteristics remained related to the mean CES-D scores as they were in the unadjusted model (Table 3). Thus, for all women, education, partner status, and Medicaid status were associated with the CES-D score.

In Model 2 (Table 4), total discrimination was positively related to mean CES-D after adjusting for the sociodemographic characteristics. Race differences disappeared after the addition of total discrimination, as did the interaction between race and employment status. No significant interaction between race and total discrimination was found.

In Models 3 through 5 (Table 5), each discrimination type showed the same positive relation to CES-D as total discrimination. There were no significant interactions between race and any of the three discrimination types. In Model 6 (Table 5), all three discrimination types were added simultaneously. This approach was valid since the Kappa correlations for gender discrimination, race discrimination, and socioeconomic discrimination were not extremely high (0.23, 0.26, and 0.32, respectively). In this model, gender and socioeconomic discrimination remained strongly related to mean CES-D scores, but the relation with race discrimination was attenuated and not statistically significant.

CONCLUSIONS AND DISCUSSION

Initial analyses showed that African-American women demonstrated a higher level of depressive symptoms (mean CES-D) than White women at mid-pregnancy. After adjusting for maternal sociodemographic characteristics, the adjusted mean CES-D score for African-American women was higher than that of Whites only among employed women. This race difference disappeared when self-reported discrimination was added to the model. Gender, race, and socioeconomic discrimination were each positively associated with depressive symptoms, but the strongest relation was with gender and socioeconomic discrimination when all three types were included in the model.

This investigation contributes to the literature first by offering a direct comparison of depressive symptomatology in a sample of pregnant African-American and White women. Very few studies have examined racial differences in depressive symptoms in pregnant women. However, this study's finding that African-American women have a higher level of depressive symptoms than White women was similar to findings reported elsewhere (Orr, Blazer, & James, 2006).

The interaction between employment status and race suggests that African-American women do not benefit from employment in the same way as White women. Depressive symptoms remained high in African-Americans regardless of employment status, while employed White

women scored lower on the CES-D scale than unemployed White women. Lower workplace control, fewer workplace promotion opportunities, and lower salaries may help explain the persistently higher CES-D scores in employed African-American women. Prior research suggests that the advantages of educational and economic attainment do not accrue equally across race, with African-American women with higher levels of education and income more likely to live in poor neighborhoods or to earn lower salaries than their White counterparts (Krieger, Rowley, Herman, Avery & Phillips, 1993; Williams, *et al.*, 1997). However, the elimination of race differences in depressive symptoms with the addition of self-reported discrimination to the model may suggest that self-reported discrimination mediates some of the race difference in depressive symptoms among pregnant, working women. These explanations are speculative but point to an area of research in need of more detailed investigation. A better understanding of the role of employment in women's psychological well-being during pregnancy could inform public health policy to the benefit of all women.

The positive association between discrimination and depressive symptoms noted in this study is consistent with findings from studies in non-pregnant populations of various racial/ethnic groups (Noh, *et al.*, 1999; Finch, *et al.*, 2000; Whitbeck, *et al.*, 2002; Banks, *et al.*, 2006; Schulz, *et al.*, 2006). However, the design of this study; i.e., simultaneous ascertainment of maternal discrimination and depressive symptoms at a single time point, precludes postulating any causal relation between discrimination and depressive symptoms. Although it does not seem counterintuitive that experiences of discrimination could contribute to depression and depressive symptoms, it is also possible that the presence of depressive symptoms could lead to over-reporting of experiences of discrimination. Our findings, along with the known associations of both discrimination (Williams, *et al.*, 2003) and depression (Prince, Saxena, Maj, Maselko, Phillips, & Rahman, 2007) with poor health outcomes argue for research that carefully considers: 1) the temporal relation between experiences of discrimination and onset of depressive symptoms, and 2) various measures of discrimination at both personal and institutional levels.

Although each discrimination type was positively associated with depressive symptomatology, the statistical significance of race discrimination was lost when gender and socioeconomic discrimination were present in the same model. This result is difficult to interpret. African-American women reported discrimination in more settings than White women, but the reduced significance of race discrimination was confirmed in both races using race-specific analyses (data not shown). Since White women report fewer experiences of race discrimination, it is not surprising that race discrimination is not significant in White-specific models that take gender and socioeconomic discrimination into account. However, this result is surprising in African-American women, and perhaps points toward different coping styles, resiliency (Mullings & Wali, 2000), or other sociocultural assests in African-Americans that may modify the effects of encounters with race discrimination. This is clearly an area that deserves further study.

A major strength of this study lies in its large, generalizable sample of pregnant women from five Michigan communities. The study also used a reliable, validated instrument for the measurement of depressive symptoms; however, the instrument is not diagnostic and so any extension of results to clinical depression must be viewed with caution. In addition, this study did not consider other factors known to be strongly associated with depression and depressive symptomatology in pregnant women, such as a history of pre-pregnancy depression or intimate partner violence (Barbee, 1992; Lovisi, *et al.*, 2005).

Measurement of multiple types of discrimination was a strength of this study (Krieger & Sidney, 1996), allowing us to assess the varying association of different types of discrimination with depressive symptoms. The open timeframe for experiences of discrimination also allowed

us to consider the chronic nature of discrimination (Williams & Williams-Morris, 2000). However, the discrimination measure in this study also presented several limitations to the interpretation of results. First, the instrument did not standardize the definition of discrimination for the respondent, allowing each respondent to determine within her own cultural reference whether an experience of limitation, hassles, or unfair treatment constituted an instance of discrimination. Second, the measure assessed reported experiences of discrimination in various settings, but not the number of incidences within each setting. Third, the measure did not provide a timeframe for the reported discrimination, which may have occurred at any time from the woman's childhood into her current pregnancy.

This study highlights several avenues for future research. While African-American women had higher levels of depressive symptoms than their White counterparts at mid-pregnancy, it remains unclear how this race difference is related to the pregnancy experience in African-Americans, and this needs further exploration. The results also argue for the development and validation of a variety of tools that can measure discrimination in all its forms. Paradies (2006) recently identified more than 150 instruments used to measure self-reported racism and found that most lacked psychometric validation and a clear definition of racism. A better understanding of the nature of discrimination, the number and frequency of experiences, and its temporal relation to health outcomes, will help to elaborate the role discrimination may play in health outcomes and health disparities. In addition, the confluence of discrimination, work, pregnancy, and mental health needs to be examined further in the context of social class and race, as these appear to be related and complex factors.

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Table 1

Distribution of Sociodemographic Characteristics and Depressive Symptoms (CES-D) among African-American and White Women

	Total Sample N (%)	White Women N (%)	African-American Women N (%)
Race	2731	1999 (73%)	732 (27%)
Maternal Age *			
< 20 years	411 (15%)	206 (10%)	205 (28%)
20-29 years	1538 (56%)	1114 (56%)	424 (58%)
≥ 30 years	782 (29%)	679 (34%)	103 (14%)
Education *			
< 12 years	481 (18%)	218 (11%)	263 (36%)
12 years	777 (28%)	549 (27%)	228 (31%)
> 12 years	1473 (54%)	1232 (62%)	241 (33%)
Partner Status ‡ *			
Married and living with husband	1369 (50%)	1274 (64%)	95 (13%)
Not married but living with partner	604 (22%)	404 (20%)	200 (27%)
Not living with husband or partner	752 (28%)	318 (16%)	434 (60%)
Employment Status # *			
Employed	1644 (60%)	1329 (67%)	315 (43%)
Not employed	1084 (40%)	668 (33%)	416 (57%)
Medicaid Status † *			
Enrolled	1291 (47%)	703 (35%)	588 (81%)
Not enrolled	1438 (53%)	1296 (65%)	142 (19%)
CES-D *			
≥ 16	918 (34%)	556 (28%)	362 (49%)
< 16	1813 (66%)	1443 (72%)	370 (51%)

* p< .001 for comparison test across race.

‡ 6 women missing for Partner Status data.

3 women missing for Employed data.

† 2 women missing for Medicaid Status data.

Table 2**Total Discrimination and Discrimination Types by Race**

	White Women N (%)	African-American Women N (%)
Total Discrimination * (range 0-21)		
None (0 settings)	874 (44%)	255 (35%)
Some (1-6 settings)	1007 (50%)	326 (44%)
High (>6 settings)	118 (6%)	151 (21%)
Gender Discrimination * (range 0-7)		
None (0 settings)	1030 (51%)	354 (48%)
Some (1-2 settings)	694 (35%)	231 (32%)
High (>2 settings)	275 (14%)	147 (20%)
Race Discrimination * (range 0-7)		
None (0 settings)	1717 (86%)	359 (49%)
Some (1-2 settings)	242 (12%)	194 (27%)
High (>2 settings)	40 (2%)	179 (24%)
Socioeconomic Discrimination * (range 0-7)		
None (0 settings)	1505 (75%)	496 (68%)
Some (1-2 settings)	363 (18%)	135 (18%)
High (> 2 settings)	131 (7%)	101 (14%)

*
p<.001 for chi-square test across race.

Table 3

Unadjusted CES-D Means by Sociodemographic Characteristics and Race

	Total Sample	White Women	African-American Women
	<u>Mean ± SD (N)</u>	<u>Mean ± SD (N)</u>	<u>Mean ± SD (N)</u>
CES-D *	13.8 ± 10.1 (2731)	12.4 ± 10.6 (1999)	17.4 ± 9.6 (732)
	<u>Mean ± SE (N)</u>	<u>Mean ± SE (N)</u>	<u>Mean ± SE (N)</u>
Maternal Age			
< 20 years *	17.6 ±.49 (411)	16.5 ±.66 (206)(ref.)	18.7 ±.74 (205)
20-29 years *	14.1 ±.25 (1538)	13.0 ±.28 (1114) [†]	17.0 ±.51 (424)
≥ 30 years *	11.1 ±.35 (782)	10.2 ±.36 (679) [†]	16.5 ±1.04 (103)
Education			
< 12 years *	18.4 ±.44 (481)	17.2 ±.63 (218)(ref.)	19.4 ±.64 (263)(ref.)
12 years *	15.5 ±.35 (777)	14.5 ±.40 (549) [†]	18.0 ±.69 (228)
> 12 years *	11.3 ±.25 (1473)	10.7 ±.27 (1232) [†]	14.8 ±.67 (241) [†]
Partner status [‡]			
Married and living with husband	10.1 ±.26 (1369)	10.1 ±.25 (1274)(ref.)	11.1 ±1.06 (95)(ref.)
Not married but living with partner *	16.2 ±.38 (604)	15.4 ±.45 (404) [†]	17.9 ±.73 (200) [†]
Not living with husband or partner	18.3 ±.34 (752)	17.9 ±.51 (318) [†]	18.6 ±.50 (434) [†]
Employment Status [#]			
Employed *	12.3 ±.23 (1644)	11.2 ±.24 (1329) [†]	16.6 ±.59 (315)
Not employed *	16.0 ±.33 (1084)	14.8 ±.42 (668)	18.0 ±.52 (416)
Medicaid Status [§]			
Enrolled *	17.1 ±.29 (1291)	16.1 ±.40 (703) [†]	18.3 ±.44 (588) [†]
Not enrolled *	10.7 ±.23 (1438)	10.4 ±.24 (1296)	13.8 ±.84 (142)

* p<.05 for comparison test of means across race;

[†] p<.05 for test of means, ANOVA, and group pairwise comparison within race.

[‡] 6 women missing for Partner Status.

[#] 3 women missing for Employment Status.

[§] 2 women missing for Medicaid Status data.

Table 4

Multiple Regression of Depressive Symptoms (CES-D) on Total Discrimination and Sociodemographic Characteristics

	Model 1 LSMean (SE)	Model 2 LSMean (SE)
Race §		
Employed		
White	13.9 (.33) [†]	16.0 (.36) [†]
African-American	15.4 (.56) [‡]	16.2 (.54)
Not employed		
White	15.9 (.39)	17.5 (.40)
African-American	15.5 (.50)	16.7 (.49)
Maternal Age		
< 20 years (ref.)	14.7 (.51)	16.3 (.51)
20-29 years	15.5 (.29)	16.9 (.31)
≥ 30 years	15.3 (.42)	16.6 (.42)
Education		
< 12 years (ref.)	16.2 (.48)	18.1 (.49)
12 years	15.3 (.38)	16.8 (.38) [*]
>12 years	14.0 (.35) ^{**}	14.9 (.36) ^{***}
Partner Status		
Married and living with husband (ref.)	12.1 (.39)	13.7 (.40)
Not married but living with partner	15.9 (.43) ^{***}	17.2 (.43) ^{***}
Not living with husband or partner	17.6 (.37) ^{***}	18.9 (.38) ^{***}
Medicaid Status		
Enrolled	16.3 (.30) ^{***}	17.4 (.30) ^{***}
Not enrolled	14.1 (.38)	15.8 (.39)
Total Discrimination		
None (0 settings) (ref.)		12.3 (.31)
Some (1-6 settings)		16.1 (.30) ^{***}
High (> 6 settings)		21.4 (.57) ^{***}

*
p<.05

**
p<.01

p<.001.

[†]
p<.05 for comparison test of LSMmeans across employment status within race.

[‡]
p<.05 for comparison test of LSMmeans across race for employed women.

§
The interaction between race and employment status is statistically significant (p=0.02).

Table 5

Multiple Regressions of Depressive Symptoms (CES-D) on Self-Reported Discrimination Measures

	Model 3 LSMean (SE)	Model 4 LSMean (SE)	Model 5 LSMean (SE)	Model 6 LSMean (SE)
Race				
Employed				
White	15.4(.33) [†]	16.7(.43) [†]	16.9(.37) [†]	17.3(.42) [†]
African-American	16.5(.55)	16.0(.55)	17.9(.56)	17.8(.36)
Not employed				
White	17.0(.38)	18.5(.46)	18.5(.41)	18.8(.45)
African-American	16.7(.49)	16.6(.51) [‡]	18.1(.51)	18.2(.36)
Maternal Age				
< 20 years (ref.)	16.1(.51)	16.6(.54)	17.6(.53)	17.8 (.54)
20-29 years	16.8(.30)	17.2(.34)	18.0(.33)	18.3(.34)
≥ 30 years	16.3(.42)	17.1(.45)	17.9(.44)	18.0(.45)
Education				
< 12 years (ref.)	17.8(.48)	18.3(.52)	19.2(.51)	19.6(.52)
12 years	16.7(.38)	17.0(.41)	17.8(.40) [*]	18.1(.41) [*]
>12 years	14.8(.35) ^{***}	15.5(.38) ^{***}	16.5(.38) ^{***}	16.4(.39) ^{***}
Partner Status				
Married and living with husband (ref.)	13.5(.39)	13.9(.43)	14.9(.42)	15.2(.43)
Not married but living with partner	17.1(.42) ^{***}	17.5(.45) ^{***}	18.5(.45) ^{***}	18.7(.45) ^{***}
Not living with husband or partner	18.7(.37) ^{***}	19.4(.41) ^{***}	20.1(.40) ^{***}	20.3(.41) ^{***}
Medicaid Status				
Enrolled	17.2(.30) ^{***}	17.9(.34) ^{***}	18.5(.33) ^{**}	18.7(.56) ^{**}
Not Enrolled	15.6(.38)	16.0(.42)	17.1(.42)	17.4(.51)
Gender Discrimination				
None (0 settings) (ref.)	13.0(.29)			15.9(.43)
Some (1-2 settings)	16.3(.34) ^{***}			18.3(.41) ^{***}
High (> 2 settings)	19.9(.47) ^{***}			19.9(.46) ^{***}
Race Discrimination				
None (0 settings) (ref.)		13.9(.28)		17.5(.38)
Some (1-2 settings)		16.6(.46) ^{***}		17.8(.47)
High (> 2 settings)		20.4(.66) ^{***}		18.8(.66)
Socioeconomic Discrimination				
None (0 settings) (ref.)			13.7(.25)	15.2(.36)
Some (1-2 settings)			18.0(.44) ^{***}	18.2(.45) ^{***}
High (> 2 settings)			21.8(.61) ^{***}	20.6(.64) ^{***}

*
p<.05**
p<.01

p<.001.

[†]
p<.05 for comparison test of LSMeans across employment status within race

[‡]
p<.05 for comparison test of LSMeans across race for not employed women.