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THE RELATIONSHIPS AMONG VIGILANT COPING STYLE, RACE, AND DEPRESSION

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Abstract

Although Black-white differences in depression are well documented, vigilant coping style as an explanation for the observed inequalities in depression is less understood. Using data from 718 adults in the Exploring Health Disparities in Integrated Communities (EHDIC) Study, we estimated logistic regression models to examine the cross sectional relationship between race, vigilant coping style, and depression. After controlling for demographic variables, white adults were more likely to report depression than Black adults. Moreover, when accounting for coping style, the Black-white difference in depression widened. This association persisted even with the addition of the covariates. While high rates of depression among whites compared with Blacks are well documented, the degree of the differences appears to be greater than previously reported once vigilance is accounted for. This finding suggests that if it were not for the high prevalence of vigilant coping in blacks, the well-documented black advantage regarding depression compared to whites would likely be even greater.

Keywords

race disparities; depression; anticipatory coping; coping; stress

Several studies have found that African Americans report lower prevalence of depression and some other mental conditions compared with whites (Breslau et al. 2005, 2006; Centers for Disease Control and Prevention 2004; Dunlop et al. 2003; Kessler et al. 2003, 2005; US Department of Health and Human Services 2001). This may be unexpected as African Americans have higher prevalence of most of the conditions. Several lines of evidence point to race-related stressors and coping patterns as contributors to the elevated rates of disease among socially disadvantaged populations (Williams et al., 2003; Krieger et al., 1993;

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Krieger, 1999; Cooper, 1993). Particularly, vigilant anticipatory coping is one potential response that may be damaging to health. Vigilant anticipatory coping refers to dealing with an ensuing situation attentively through greater alertness and preparation in expectation of what may occur. More specifically, it entails taking sometimes extraordinary steps to prevent or reduce the likelihood of being targeted for racial discrimination or other forms of mistreatment.

Most prior studies of coping focus on how individuals cope with problems once they occur, particularly around onset of disease (Cano et al., 2006; Jaser et al., 2013; Plummer et al., 1996; Szymanski, 2012). There have been fewer investigations of steps that people take to mitigate subsequent stressors (anticipatory coping). For example, concerns about safety in high-crime neighborhoods or exposure to low quality residential conditions may lead some to live, chronically, in a state of heightened vigilance, anticipating exposure to racially discriminatory treatment. This treatment can occur in the form of greater policing and stereotyping in high crime neighborhoods, or differential resource allocation and maltreatment towards those in low quality residential conditions. This may take a toll on health and social functioning (Essed, 1991; Taylor & Wald, 2003). The expectation of negative social events is associated with increased social anxiety and depression (Taylor & Wald, 2003).

A meta-analytic review by Pascoe and Richman (2009) documented associations between perceived discrimination and physical and mental health outcomes. This research suggests that perceived discrimination has a negative effect on mental health, particularly depressive symptoms, psychiatric distress, and general well-being. In addition, several studies have documented the detrimental effect that depressive symptoms have on physical health over time (Turner & Noh, 1988; Moussavi et al., 2007). Moussavi and colleagues (2007) found that depression produces the greatest decrement in physical health compared with other chronic diseases.

While most past studies of vigilant anticipatory coping have been confined to the social context of the United States, there is every reason to suspect that it would be universal among members of stigmatized groups (Averill, 1972; Schneiderman & McCabe, 1989; Williams, 1986). It is likely that groups who experience discrimination could adopt vigilant anticipatory coping as a strategy to manage unexpected life events.

Although the research literature on vigilant anticipatory coping is small, there are some suggestive findings. For example, one study using ambulatory blood pressure measurements found that although the daytime levels of blood pressure were similar for Black and white Americans, Blacks had a smaller nocturnal decline in blood pressure than whites such that they maintained higher levels of blood pressure even when they were asleep (Harshfield et al., 1989; James 1991; Murphy et al., 1988; Smith, Ruiz & Uchino 2000). If blacks are more likely to employ vigilant anticipatory coping, this may account for such findings. Moreover, stressful life events, or negative emotional states such as hostility are associated with race differences in blood pressure (Ituarte et al., 1999; Thomas et al., 2004; Kamarck et al., 1998; Clark et al. 2006). Higher levels of arousal may reflect an attempt to cope with the perceived presence of racial bias or other environmental stressors.

The purpose of this study is to examine the relationships between vigilant anticipatory coping, race, and depression. We expect that blacks will display higher rates of vigilant anticipatory coping compared to whites, and that vigilant anticipatory coping will be associated with higher risk of depression. Finally, we hypothesize that adjusting for vigilant copying will account for race difference in depression.

Methods

Subjects and Survey Design

We conduct this study using the Exploring Health Disparities in Integrated Communities (EHDIC) database. EHDIC is an ongoing multisite study of race disparities within communities where Blacks and whites live together and have similar socioeconomic statuses (SES) as measured by median income and high school graduation rates (LaVeist et al., 2007). EHDIC addresses confounding of race with SES and segregation by examining white and Blacks living in similar socio-environmental conditions. This design also allows us to account for race differences in the social context in which Black and white Americans usually live, as the United States remains highly segregated by race. The primary purpose of the EHDIC study was to examine whether patterns of health-related racial disparities are different within an environment which accounts for racial segregation and SES, as compared with national data typically used to describe racial disparities in health. The first EHDIC study site was in Southwest Baltimore, Maryland (EHDIC-SWB). Further EHDIC locations are planned.

EHDIC-SWB is a cross-sectional face-to-face survey of the adult population (age 18 and older) of two neighboring census tracts. In addition to being economically homogenous, the study site was also racially balanced and well integrated, with almost equal proportions of Black and non-Hispanic white residents. In the two census tracts, the racial distribution was 51% Black and 44% white, and the median income for the study area was \$24,002, with no significant difference in income by race. The census tracts were block listed to identify every occupied dwelling in the study area. During block listing, we identified 2,618 structures. Of those, 1,636 structures were determined to be occupied residential housing units (excluding commercial and vacant residential structures). After no more than five attempts, contact was made with an eligible adult in 1,244 occupied residential housing units. Of that number, 65.8% were enrolled in the study resulting in 1,489 study participants (41.9% of the 3,555 adults living in these two census tracts recorded in the 2000 U.S. Census). Because our survey covered each census block in the study area comparably, the bias to geographic locale and its relationship with socioeconomic status should be minimal (LaVeist et al., 2007).

Comparisons to the 2000 U.S. Census for the study area indicated that the EHDIC-SWB sample included a higher proportion of Blacks and women, but was otherwise similar with respect to other demographic and socioeconomic indicators. For instance, our sample was 59.3% Black and 44.4% male, whereas the 2000 U.S. Census data showed the population was 51% Black and 49.7% male. Age distributions in our sample and 2000 U.S. Census data were similar with the median age for both samples between 35–44 years. The lack of race difference in median income in the U.S. Census, \$23,500 (Black) vs. \$24,100 (non-Hispanic

whites) was replicated in EHDIC, where the median income was \$23,400 for Blacks vs. \$24,900 for whites (LaVeist et al., 2007). These median income levels are 127% (Blacks) vs. 135% (whites) higher than the federal poverty threshold in 2003 for a family of four (U.S. Department of Health and Human Services, 2003).

The survey was administered in person by a trained interviewer and consisted of a structured questionnaire, which included demographic and socioeconomic information, self-reported health behaviors and chronic conditions, and three blood pressure (BP) measurements. The EHDIC study is described in greater detail elsewhere (Casagrande, Gary, LaVeist, Gaskin, & Cooper, 2006; Gary, Stark, & LaVeist, 2007; LaVeist et al., 2007; LaVeist et al., 2007).

Sample—Because of the length of the questionnaire, some questions such as vigilance were only administered to a subset of respondents. Consequently, 718 respondents who were administered the vigilance scale were included in this study. Institutional review board approval was obtained and all respondents gave informed consent.

Measures

Depression was measured by the Patient Health Questionnaire (PHQ-9), a 9-item, self-administered scale with scores on each item ranging from “0” (not at all) to “3” (nearly every day). The total possible score ranges from 0 to 27 (Kroekke et al., 2001). The PHQ-9 is a reliable and valid measure of depression severity and has the potential to establish depressive disorder diagnoses and well as grade symptom severity (Kroekke et al., 2001). It has been determined that scores of 5, 10, 15 and 20 represent valid thresholds indicating lower limits of mild, moderate, moderately severe, and severe depression (Kroekke et al., 2001). In addition, individuals with major depression have 2.6 greater odds of having a score of 10 or more compared to those without major depression (Kroekke et al., 2001). Therefore, we specified the PHQ-9 as a binary variable and labeled those with a score of 10 or more as depressed. Previous studies have also dichotomized the PHQ-9 in this way (Ludman et al., 2010; Mohr et al., 2006).

Vigilance was assessed using a modified version of the 6-item vigilance anticipatory coping scale developed for the 1995 Detroit Area Study at the University of Michigan-Institute for Social Research (Clark et al., 2006). The modified version of the scale was 5-items, with response categories for the scale being: 0= never, 1=sometimes, 2=often, and 3=always. The scoring range was 0–15. Respondents were asked to indicate the extent to which they: prepare in advance for the kind of problems they are likely to experience, try to prepare for possible insults before leaving home, feel that they always have to be careful about their appearance to get good service or avoid being harassed, carefully watch what they say and how they say it, and carefully observe what happens around them (Clark et al, 2006)). We computed the average score across the five items and dichotomized the summary score at the median. Cronbach’s alpha was computed to assess the overall scale reliability for the vigilance scale (alpha = .69).

Covariates were chosen based on previous research that explored the relationship between racial differences in depression (Khan et al, 2006). All dichotomous variables in the model are coded 0 (no) and 1 (yes). Covariates in study included age, gender, race, marital status,

health status, education, and family income. Age was specified as a continuous variable. Gender and race were entered as dichotomous variables indicating female and white. Marital status was specified as a series of binary variables: married (married and living as married), formerly married (widowed, separated, and divorced), and never married. Subjective health status was treated as a dichotomous variable, with “excellent”, “very good”, and “good” responses combined into a single category and compared to a category composed of combined “fair” and “poor” responses. Education was specified as a series of binary variables: less than a high school diploma, a high school graduate or equivalent, some college, and college graduate or more. Binary variables for family income included: less than \$20,000 per year, \$20,000 – 34,000 per year, \$35 – 55,000 per year, and greater than \$55,000 per year.

Results

Statistical Analysis

In the first set of analysis we conduct a univariate description of the sample followed by a series of logistic regression models to assess the associations among race, vigilant coping, and depression. Sample characteristics are described using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. We then conduct bivariate analysis using chi-square and t-tests were conducted to assess whether race differences existed within the sample.

For the logistic regression models, we first tested for an unadjusted effect of race on depression. Next we assessed the association between race and depression controlling for demographic variables and indicators of health status factors. The third model tested the unadjusted association of vigilant coping on depression. The effect of vigilance on depression was adjusted for demographic and health factors in model 4. Model 5 tested the unadjusted effect of race and vigilant coping on depression. Model 6 assessed the effect of race and vigilant coping controlling for demographic and health status factors. All analyses were conducted using Stata version 11 (StataCorp, 2009)

Descriptive Statistics

Table 1 shows a description of the sample by race. The sample was 61.6% ($n=442$) Black, 38.4% white ($n=276$), and ranged in age from 18 to 101 years. There were similar proportions of women among Blacks (52.9%) and whites (54.4%). Whites were older, with an average age of 42.9, compared to an average age of 38.2 for Blacks. Whites were more likely to report being married (24.6% vs. 14.9% for Blacks) or formerly married (36.6% vs. 22.2% for Blacks). By contrast, Blacks were more likely to report never having married (62.9%) than whites (38.8%). Blacks were more likely than whites to have a high school diploma (43.8% vs. 30.1% for whites) as well as some college education (15.5% vs. 7.6% for whites). There were no differences by race in family income. Blacks are more likely to report excellent or good health (76.5%) compared to whites (64.1%).

Table 2 shows race differences in vigilance and the mean score of Blacks and whites on each item of the vigilance scale, as well as differences in depression severity. The total

vigilance scale mean was 6.5 with a range of 0 to 15. As hypothesized, Blacks had significantly higher mean scores for Vigilance than whites (Blacks = 7.1 vs. whites = 5.7, $p < .001$). Each of the five items on the vigilance scale were scored as 0 (never), 1 (often), 2 (sometimes) and 3 (always). Blacks scored significantly higher on each of the vigilant coping strategies except for “thinking in advance about problems” – where there were no significant race differences. Compared to whites, Blacks were more likely to report “always prepare for insults” (.71 for Blacks vs. .55 for whites) and “always being careful about their appearance to avoid harassment” (1.12 for Blacks vs. .64 for whites). Moreover, Blacks were more likely to “always watch what they say and how they say it” than whites (1.64 vs. 1.22); and more likely to “always observe what happens around you” (2.34 vs. 2.09). In addition, whites were more likely to score 10 or more on the PhQ-9 depression scale (27.2% vs. 15.8%). Finally, Blacks (54.5%) were more likely to score above the median on the vigilance scale than whites (38.0%).

The results of multivariate analyses are shown in Table 3. Model 1, assessed the unadjusted effect of race on depression. Whites had nearly twice the odds of screening as depressed compared to Blacks (odds ratio (OR) = 1.98; 95% confidence interval (CI) = 1.37–2.87). In Model 2 we adjusted for demographic characteristics and self-reported health which resulted in a small decrease in the association between race and depression. However, the race effect remained significant (OR = 1.85; 95% CI = 1.22–2.83).

In Model 3 we assessed the unadjusted association between vigilance with depression. As hypothesized, the model found that vigilance is associated with depression whereby persons with high vigilance scores have more than two and half times greater odds of depression (OR = 2.63; 95% CI = 1.79–3.86) compared to those with low vigilance scores. After adjusting for demographic factors and physical health status in Model 4, we found a slight reduction in the association. However, vigilant anticipatory coping remained significantly associated with depression (OR = 2.35; 95% CI = 1.56–3.53).

Model 5 tested whether there were independent association between vigilance and race with depression. In this analysis we found an independent effect for both predictors. Comparing the odds ratio for vigilance from Models 1 and 5, we found a nearly 26.3% increase in the odds of white respondents screening positive for depression after adjusting for vigilance (OR = 1.98 vs. 2.50). Comparison of Models 3 and 5 found a 20.2% elevation of the vigilance odds ratio (OR = 2.63 vs. 3.16). These findings were contrary to our initial hypothesis that adjusting for vigilant coping would account for race differences in depression. In Model 6 we added a set of demographic factors, which resulted in some reduction of the odds ratios for race (OR = 2.24; 95% CI = 1.44–3.48) and vigilance (OR = 2.70; 95% CI = 1.77–4.11). This model helps to confirm the robustness of the findings. We also examined the interaction of race and vigilance in a reduced model (only race and vigilance) and the full model; however, the interactions failed to reach significance in both models. In addition, these models were also run with depression and vigilance considered as continuous variables and the results were analogous to those presented here.

Discussion

This study examined the associations among race, vigilant anticipatory coping, and depression. Our analysis found that race was associated with depression in bivariate analyses, such that whites have increased odds of depression compared to Blacks (OR=1.98; 95% CI = 1.37–2.87). Additionally, vigilance was found to be associated with increased odds of depression (OR=2.63; 95% CI=1.79–3.86). More specifically, Blacks in this study displayed greater likelihood of reporting vigilance compared to their white counterparts (54.5% for Blacks vs. 38.0% for whites). Although vigilance contributed significantly to depression and Blacks reported higher levels of vigilance, we still found higher prevalence of depression among whites compared with blacks (27.2% for whites vs. 15.8% for Blacks). After adjusting for vigilance we found that the racial disparity in depression was greater (OR=2.24 in Model 6 compared to OR=1.85 in Model 2). Thus, were it not for the high prevalence of vigilant coping in blacks, the well-documented black advantage regarding depression compared to whites, would likely be an even greater advantage.

This work represents an important extension of previous work concerning coping and health outcomes (Robins & Regier, 1991; Williams et al., 2003; Krieger et al., 1993; Krieger et al., 1999; Cooper, 1993), and indicates that vigilant coping may be an important risk factor for mental health, particularly depression. This study also elaborates on the association between coping and depression (Wilhelm et al., 2002; Murberg & Bru, 2005). The findings suggest that prolonged heightened arousal associated with vigilant coping is not only associated with poor physical health, but poor mental health outcomes as well. Vigilant coping may be an important pathway which mediates health risks to produce ill health.

Further study of vigilant coping has the potential to advance knowledge about the mechanisms of racial disparities in health outcomes. In addition, these analyses were conducted in a unique community sample without race difference in socioeconomic status and where black and white respondents are exposed to similar socio-environmental risks due to the racially integrated nature of the study population. The EHDIC study design allows us to account for race differences in the social context in which Black and white Americans usually live, as the United States remains highly racially segregated.

There are, however, some limitations. Black and white respondents of EHDIC-SWB have similar socio-environmental health risk exposures at home, but other exposures (occupational) are not known. Also, generalizability of the results may be limited somewhat given that the study was conducted in only two census tracts. However, work from our research group compared disparities in chronic conditions in the EHDIC-SWB sample with results from the National Health Interview Survey and determined that the EHDIC-SWB sample yielded similar outcomes to those of low income persons nationally (LaVeist et al., 2007) Also, the analyses in this manuscript are cross-sectional so we cannot make conclusions regarding causation. It may be that people or are more vigilant are more likely to be depressed. However, it is possible that people with depression are more vigilant. Future research can assess this issue. The EHDIC study only included data from Black and white participants. Therefore, we have no information concerning the relationships among these factors in other racial or ethnic groups. Future research would benefit by the

examination of vigilant anticipatory coping in other racial/ethnic groups and the translation of the vigilance scale into other languages. Despite these limitations we believe these analyses offer unique insights into the relationships among coping, race and depression.

Vigilant anticipatory coping appears to conceal racial disparity in depression that is greater than previously documented. In this regard it may be seen as productive. It may be a characteristic of African American culture which evolved as a protective mechanism against centuries-long discrimination and racism. If this is so, vigilant coping may be used to intervene in the health destroying aspects of discrimination, assuming an appropriate programmatic mechanism for dissemination of this message can be developed.

Implications for Public Health Policy

Current interventions may be targeting social and environmental stressors in addressing mental health disparities, but the problem spans beyond these factors alone. This paper reveals that vigilant coping is associated with increased odds of depression and widens the black-white disparity in depression, even after adjusting for potential confounders. Depression treatment strategies must balance the fine line of ensuring that vigilance is not stimulating and perpetuating ill health among stigmatized populations, but that these groups are able to continue to use vigilant coping appropriately as a protective factor. Public health researchers, policy makers, and practitioners must work together to eliminate disparities through a multidisciplinary approach that accounts for social and environmental exposures, as well as cultural expectations and norms.

In addition, our work reveals the need for additional research on the relationships between vigilance and health care outcomes. This paper explores relationships as they relate to depression, but coping style may also impact other physical and mental health care outcomes.

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Biographies

Thomas A. LaVeist is the William C. and Nancy F. Richardson Professor in Health Policy and director of the Hopkins Center for Health Disparities Solutions at the Johns Hopkins Bloomberg School of Public Health. He has been on the Johns Hopkins faculty since 1990. His research focuses on health inequalities and health policy. Dr. LaVeist is recipient of the

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Table 1

Description of EHDIC Participants (n=718), by Race

	Black (n=442)	White (n=276)	Test Statistic	p-value
Age (mean, SD)	38.22 (12.67)	42.92 (15.09)	T = -4.49	<0.001
Female Gender (%)	234 (52.9)	150 (54.4)	Chi2 = 0.14	0.71
Marital Status (%)			Chi2 = 39.77	<0.001
Married	66 (14.9)	68 (24.6)		
Formerly Married	98 (22.2)	101 (36.6)		
Never Married	278 (62.9)	107 (38.8)		
Health Status (%)			Chi2 = 12.76	<0.001
Excellent / Very Good/Good	338 (76.5)	177 (64.1)		
Fair/ Poor	104 (23.5)	99 (35.9)		
Education (%)				<0.001
Less than Diploma	156 (35.5)	146 (52.9)		
HS Grad or Equiv.	193 (43.8)	83 (30.1)		
Some College	68 (15.5)	21 (7.6)		
College Grad or Higher	23 (5.2)	26 (9.4)		
Family Income (%)			Chi2 = 2.23	0.53
\$0 – \$19,999	260 (58.8)	147 (53.3)		
\$20,000 – 34,999	89 (20.1)	61 (22.1)		
\$35,000 – 54,999	50 (11.3)	37 (13.4)		
\$55,000 and above	43 (9.7)	31 (11.2)		

Note. P-values for Education and Family Income indicate overall Chi-square significance for all categories

Table 2

Vigilance Item	Black	White	T-test Statistic, p-value
Think in advance about problems	1.31	1.24	-0.84 p = 0.68
Prepare for insults	0.71	0.55	-2.04 p < 0.05
Careful of appearance	1.12	0.64	-5.60 p < 0.001
Watch what and how you say	1.64	1.22	-4.86 p < 0.001
Observe what happens around you	2.34	2.09	3.31 p = 0.001
Mean total vigilance score	mean=7.10	mean=5.73	p < 0.05
PHQ-9 score of 10 or more (%)	70 (15.8)	75 (27.2)	Chi2 = 13.5 p < 0.001
Vigilance score above median (%)	241 (54.5)	105 (38.0)	Chi2 = 18.5 p < 0.001

Note. Scoring: 0 (never), 1 (often), 2 (sometimes), 3 (always).
 Vigilance Scale: median score = 6; mean = 6.6; range 0 to 15;
 Cronbach's alpha = .69

Table 3

Association Between Race, Vigilant Coping Style, and Depression

Variable	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)	Model 6 OR (95% CI)
White Race	1.98 (1.37–2.87)	1.85 (1.22–2.83)			2.50 (1.69–3.68)	2.24 (1.44–3.48)
Vigilance			2.63 (1.79–3.86)	2.35 (1.56–3.53)	3.16 (2.12–4.72)	2.70 (1.77–4.11)
Age		0.99 (0.97–1.01)		0.99 (0.98–1.01)		0.99 (0.98–1.01)
Female Gender		1.27 (0.85–1.90)		1.31 (0.87–1.96)		1.29 (0.86–1.94)
Formerly Married		1.49 (0.78–2.81)		1.33 (0.70–2.54)		1.35 (0.70–2.58)
Never Married		1.53 (0.82–2.84)		1.19 (0.64–2.19)		1.42 (0.76–2.66)
Fair/Poor Health Status		3.54 (2.34–5.38)		3.64 (2.40–5.51)		3.38 (2.21–5.16)
Some HS or Less		1.65 (1.05–2.59)		1.86 (1.19–2.91)		1.59 (1.00–2.51)
Some College		1.51 (0.76–3.00)		1.34 (0.67–2.68)		1.44 (0.71–2.89)
College Grad or Higher		0.67 (0.18–2.44)		0.82 (0.22–3.00)		0.67 (0.18–2.49)
Under \$20,000		1.13 (0.68–1.90)		1.05 (0.62–1.76)		1.13 (0.67–1.91)
\$35,000 – \$54,000		0.65 (0.29–1.47)		0.68 (0.30–1.55)		0.68 (0.30–1.55)
Over \$55,000		0.47 (0.16–1.35)		0.51 (0.17–1.50)		0.48 (0.16–1.42)

Note: OR= Odds ratio; CI= Confidence Interval