

# The Protective Role of Racial Identity and Africentric Worldview in the Association Between Racial Discrimination and Blood Pressure

ENRIQUE W. NEBLETT, JR, PhD AND SIERRA E. CARTER, BS

**Objective:** To examine the protective effects of racial identity and Africentric worldview on the association between racial discrimination and blood pressure (BP). **Methods:** Two hundred ten African American young adults completed questionnaires assessing demographic characteristics, prior racial discrimination experiences, racial identity, and Africentric worldview. Resting BP was assessed before and after completion of the study measures. **Results:** Racial discrimination was unrelated to BP in the overall sample (systolic BP,  $p = .444$ ; diastolic BP [DBP],  $p = .915$ ; mean arterial pressure,  $p = .774$ ). However, racial identity and Africentric worldview moderated the association between racial discrimination and BP. Racial discrimination was *negatively* related to DBP for participants who felt that others viewed African Americans less favorably and who endorsed the uniqueness of the African American experience ( $B = -2.59$ , standard error [SE] = 1.29,  $p = .046$ ). These individuals also had the lowest DBP at high levels of racial discrimination. Racial discrimination was positively associated with DBP for individuals with low levels of Africentric orientation ( $B = 1.43$ , SE = 0.72,  $p = .048$ ) but was unrelated to DBP at moderate ( $B = 0.24$ , SE = 0.65,  $p = .718$ ) and high ( $B = -0.96$ , SE = 1.01,  $p = .341$ ) levels of Africentric worldview. **Conclusions:** Racial and cultural personal characteristics such as racial identity and Africentric orientation may serve an important protective function for BP in African American young adults. **Key words:** racial discrimination, racial identity, Africentric worldview, blood pressure, resilience, African Americans.

**SBP** = systolic blood pressure; **DBP** = diastolic blood pressure; **MAP** = mean arterial pressure; **HBCU** = historically black college/university; **PWU** = predominately white university; **SES** = socioeconomic status; **BSAS** = Belief Systems Analysis Scale; **BMI** = body mass index.

## INTRODUCTION

The elevated rates of high blood pressure (BP) among African Americans are well known (1,2). In addition to traditional cardiovascular risk factors such as obesity and smoking, race-related stress may play a contributing role. Studies have found that perceived racial discrimination is linked with elevated BP (3) and have suggested that perceived racism is a chronic, stressful stimulus that negatively influences health outcomes by chronic overactivity of cardiovascular regulatory systems (4,5).

Whereas many studies of psychological outcomes have identified racial, ethnic, and cultural protective factors that reduce the impact of racism and discrimination (6,7), few published physiological studies have done the same. In the present study, we examined the protective nature of racial identity and Africentric worldview in the relationship between racial discrimination and BP. Both factors have been identified as important protective factors for African Americans in the context of general and race-related stress and health outcomes such as depressive symptoms (7) and psychological distress (8).

## RACIAL DISCRIMINATION AND BP

Several studies have reported an association between discrimination and BP (9–12), whereas others have not (e.g., Brown et al. (13)). In these studies, the findings are essentially null for almost all studies using measures of resting BP and are positive

for most using measures of ambulatory BP (14). A third class of studies has reported conditional findings that suggest that the association between discrimination and BP depends on individual difference variables such as place of birth (15), coping (10,16), or trait anger (17). The inconsistency of findings as a function of methodology and/or individual variables reveals the need for additional research to study this association.

## RACIAL, ETHNIC, AND CULTURAL PROTECTIVE FACTORS AND BP

### Racial Identity

A growing number of studies has suggested that racial, ethnic, and cultural personal characteristics moderate the effects of racism on psychological health (e.g., Neblett et al. (6), Sellers et al. (18)). One such characteristic is *racial identity* or the significance and qualitative meaning that individuals ascribe to their racial group membership (19). Recent studies have revealed the importance of racial identity as a psychosocial protective factor in mental health functioning (e.g., depressive symptoms (6,20)) and health risk behaviors (e.g., alcohol use) (21). This research found that poorly defined racial identity is related to poorer outcomes, whereas a strong and positive group connection is related to more positive outcomes. Two studies specifically examined racial identity as a buffer of cardiovascular reactivity to race-related stress (16,22) but yielded inconclusive findings because of interpretive limitations of the data (see Brondolo et al. (23) for a fuller discussion). In light of these shortcomings, more studies are needed to examine the effectiveness of racial identity as a buffer of the relationship between racism and BP or BP reactivity. Although it is true that experiencing more discrimination might overtax coping resources and have a detrimental effect on health including BP, the personal importance of race and/or beliefs about what it means to be African American may buffer the physical health impacts of racial discrimination.

### Africentric Worldview

A second protective factor that may be relevant to BP is *Africentric worldview*—defined as a structure of philosophical

From the Department of Psychology, The University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

Address correspondence and reprint requests to Enrique W. Neblett, Jr, PhD, 250 Davie Hall, Department of Psychology, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3270. E-mail: eneblett@unc.edu

This research was supported, in part, by funds from the National Science Foundation (SES-0932268) awarded to Dr. Enrique W. Neblett, Jr.

Received for publication July 14, 2010; revision received February 6, 2012  
DOI: 10.1097/PSY.0b013e3182583a50

assumptions, values, and principles, which guides the perceptions and behaviors of people of African descent (24). In contrast to a European worldview that has been argued to emphasize values of materialism versus spirituality, separateness and independence versus corporateness and interdependence, and individualism versus groupness (25), an optimal Africentric belief system is characterized by a nonmaterialistic, holistic, and communal orientation in persons (26). Although we are unaware of any studies to formally examine the relationship between Africentric worldview and BP, we might expect that individuals who endorse Africentric worldview cope more effectively and experience normal levels of BP. Jackson and Sears (27) suggested that an Africentric worldview enhances effective coping by offering knowledge and understanding about oneself and one's culture. Knowledge and understanding, in turn, affect one's appraisal of self-efficacy by countering the negative images about African Americans that are perpetuated by racism and by offering a sense of group togetherness that translates into a natural support system. A second possibility is that Africentric worldview may influence BP through its effects on stress (28). Although stress is not the same as BP, the two are correlated, with higher levels of stress being linked with higher BP (29,30). The research on the buffering effects of Africentric worldview as it relates to stress suggests that Africentric worldview can enable African Americans to perceive challenging situations as less stressful, counterbalance negative race-related stress experiences, and transform stressful events into positive growth experiences (7).

## THE PRESENT STUDY

The present study is among the first to explicitly examine the protective role of racial identity and Africentric worldview in the context of racial discrimination and BP. We used the multidimensional model of racial identity by Sellers et al. (19) to examine how racial identity moderates the association between racism and BP. The cultural relevance of Africentric worldview will also be examined in the context of racial discrimination and BP. Consistent with prior theory (4,5) and existing studies (e.g., Ryan et al. (9), Steffen et al. (12)), we expect to find a positive relationship between racial discrimination and BP. With regard to racial identity and consistent with several studies to report a buffering effect of racial identity on the association between racial discrimination and psychological adjustment, we hypothesize that specific patterns of racial identity will moderate the association between racial discrimination and BP. Finally, consistent with prior studies suggesting the protective effects of Africentric worldview in the context of stress and psychological adjustment (7,28), we predict that participants with higher levels of Africentric worldview will be less vulnerable to the deleterious association between racial discrimination and BP.

## METHODS

### Participants

Sociodemographic characteristics of the sample are summarized in Table 1. The final sample included 210 (150 females and 60 males) African American students. Thirty-five percent ( $n = 73$ ) of the participants completed the study at

**TABLE 1. Summary of Sociodemographic Characteristics and BP Levels ( $n = 210$ )**

Variable	
Age, M (SD), yr	20.2 (2.0)
Sex (male), $n$ (%)	60 (29.0)
Family SES, $n$ (%)	
Very poor	5 (2.9)
Working class	53 (25.2)
Middle class	105 (50.0)
Upper middle class	46 (21.9)
Wealthy	1 (0.6)
Self-reported physical health status, $n$ (%)	
Poor	1 (0.5)
Fair	24 (11.4)
Good	67 (32.4)
Very good	98 (46.7)
Excellent	20 (9.0)
Self-reported mental health status, $n$ (%)	
Fair	8 (3.8)
Good	45 (21.4)
Very good	87 (41.4)
Excellent	70 (33.3)
BMI, M (SD), kg/m <sup>2</sup>	25.51 (5.4)
Prequestionnaire BP levels, M (SD), mm Hg	
SBP	118.24 (11.62)
DBP	64.61 (8.72)
MAP	82.35 (7.96)
Postquestionnaire BP levels, M (SD), mm Hg	
SBP	114.29 (11.70)
DBP	63.65 (9.40)
MAP	80.53 (8.56)

BP = blood pressure; M = mean; SD = standard deviation; SES = socioeconomic status; BMI = body mass index; SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure.

a historically black college/university (HBCU) in the southeastern United States. Sixty-five percent ( $n = 137$ ) of the participants completed the study at a predominately white university (PWU) in the southeastern United States. Study participants ranged in age from 17 to 30 years (mean [standard deviation {SD}] = 20.17 [2.03] years). Most participants identified their family's socioeconomic status (SES) as middle to upper middle class (71.9%), with a sizable minority also indicating their family's SES as working class (25.2%). Most participants reported their physical health as very good or excellent (57.5%), and the remainder reported their physical health as good (31.9%) or fair (10.2%). Lastly, most participants reported their mental health as excellent (33.7%) or very good (40%), with the remainder reporting their mental health as good (22.4%) or fair (3.9%).

### Procedure

The current study was approved by the appropriate institutional review boards at both institutions where the research was conducted. On arrival, the participants toured the laboratory, listened to a summary of the experiment, and completed a screening form to determine if specific symptoms, diseases, or medication known to affect cardiovascular reactivity precluded participation. Screening criteria were evaluated on a case-by-case basis; however, participants with the history of cardiovascular disease or medication use known to affect cardiovascular reactivity were excluded from the study. After the participants completed the consent form, we assessed their height, weight, resting pulse, and

## RACIAL IDENTITY, WORLDVIEW, AND BLOOD PRESSURE

BP. Next, the participants completed several surveys that assessed demographic variables, racial identity, Africentric worldview, and prior racial discrimination experiences. The surveys took approximately 20 to 30 minutes to complete. After completion of the surveys, BP was assessed a second time; thus, two BP readings were obtained in the study.

### Measures

#### *Sociodemographic Questionnaire*

This questionnaire was designed for the present study and assesses socio-demographic characteristics and other covariates of physiological outcomes (e.g., physical and mental health status). SES was assessed by self-reported family SES and two questions regarding mother's and father's educational attainment. Physical health status and mental health status were assessed using two one-item questions asking participants to rate their physical and mental health status (1 = poor to 5 = excellent). Participants' weight and height were also obtained in the laboratory to calculate their body mass index (BMI) (weight [kg] / height [m<sup>2</sup>]).

#### *Racial Discrimination*

The Daily Life Experience Scale of the Racism and Life Experience Scales (31) measures experiences with discrimination during the past year. The Daily Life Experience Scale consists of 17 items ( $\alpha = 0.90$ ) measuring how often participants were discriminated against because of their race. A sample item includes "In the past year, how often have you been ignored, overlooked, or not given service because of your race?" The participants were asked to respond on a 6-point scale regarding the frequency with which they experienced the event (0 = never to 5 = once a week or more). Mean scale scores were used as indices of racial discrimination frequency, with higher scores corresponding to higher levels of experiences with discrimination.

#### *Racial Identity*

The Multidimensional Inventory of Black Identity—Short Form is a 27-item measure of the three stable dimensions of racial identity proposed by the multidimensional model of racial identity (19). The participants indicate the extent to which they agree or disagree with the items on a 7-point Likert scale. The centrality scale consists of four items ( $\alpha = 0.80$ ) measuring the extent to which being African American is central to the respondents' definition of themselves (e.g., "I have a strong sense of belonging to [black] people"). The regard scale is composed of two subscales, private and public regard. The private regard subscale consists of three items ( $\alpha = 0.84$ ) measuring the extent to which respondents possess positive feelings toward African Americans in general (e.g., "I am happy that I am [black]"). The public regard subscale consists of four items ( $\alpha = 0.81$ ) measuring the extent to which respondents feel that other groups have positive feelings toward African Americans (e.g., "In general, others respect [black] people"). The ideology scale is composed of four subscales. The assimilationist subscale consists of four items ( $\alpha = 0.68$ ) measuring the extent to which respondents emphasize the similarities between African Americans and mainstream Americans. The humanist subscale consists of four items ( $\alpha = 0.64$ ) measuring the extent to which respondents emphasize the similarities among individuals of all races. The minority subscale consists of four items ( $\alpha = 0.63$ ) measuring the extent to which respondents emphasize the similarities between African Americans and other minority groups. The nationalist subscale consists of four items ( $\alpha = 0.63$ ) measuring the extent to which respondents emphasize the uniqueness of being African American. Higher scores correspond to greater endorsement of the corresponding identity subscale.

#### *Africentric Worldview*

The Belief Systems Analysis Scale (BSAS) (24) measures participants' commitment to an Africentric worldview characterized by "holistic, non-materialistic, and communalistic orientations." The measure consists of 31 items ( $\alpha = 0.71$ ) reflecting hypothetical behaviors or situations characterized as Africentric/optimal (e.g., "It is easy for me to see how the entire human race is really part of my extended family") or non-Africentric/suboptimal (e.g., "English should be the only national language. If one wants to live in this country, one should learn to speak the language"). In addition to the total scale

score, the BSAS also consists of a subscale score for nonmaterial-based satisfaction (five items;  $\alpha = 0.65$ ) that assesses "the degree to which well-being [is] not based solely upon material occurrences" (32). Sample items are "If I just had more money, my life would be more satisfying," "If I were better looking, my relationships with others would be more satisfying," and "I feel badly when I see friends from high school who have better cars, clothes, or homes than I do." All items from the BSAS are rated on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree), and summed to create a composite score after reverse coding the non-Africentric/suboptimal items. Lower scores on this scale reflect lesser adherence to the optimal Africentric belief system, whereas higher scores reflect a greater adherence to the belief system. In the present study, we used only the nonmaterial-based satisfaction score to conduct a more focused examination of Africentric worldview and examine which specific aspects of Africentric worldview are most influential in the context of discrimination and BP.

#### *Blood Pressure*

BP was assessed by a trained graduate or undergraduate research assistant using a Dinamap 8100 BP (Tampa, FL) monitor. The research assistant placed the BP cuff over the brachial artery of the participant's nondominant arm while the participant sat upright in a chair. Resting systolic BP (SBP) and diastolic BP (DBP) were assessed before and after completing the study questionnaires. Mean arterial pressure (MAP) was calculated from SBP and DBP using the formula:  $(2DBP / 3) + (1SBP / 3)$ .

#### *Statistical Approach*

Latent class analysis implemented by the Latent GOLD program (33) was used to identify racial identity cluster groups in the sample. In contrast to prior studies that examined the independent contributions of various dimensions of racial identity, we chose this approach to capture racial identity because it is conceptualized theoretically (i.e., as a multidimensional construct). Latent class analysis is a model-based cluster analysis that provides statistical criteria for selecting a plausible cluster solution among alternatives (34). These criteria include the likelihood ratio  $\chi^2$  statistic or  $L^2$ , percent reduction in  $L^2$ , and the Bayesian information criterion—an index of model fit and parsimony. In general, a model with the largest association explained (i.e., the greatest reduction in  $L^2$ ) and the lowest Bayesian information criterion value is preferred.

To investigate the role of racial discrimination as a risk factor and racial identity and Africentric worldview as protective factors for African American BP, a combination of general linear model analyses of variance and multiple regression analyses was conducted with each of the three BP outcomes (SBP, DBP, and MAP) as dependent variables for each of the potential protective factors. For all analyses, unstandardized regression weights and standard errors (SEs) are reported. To control for Type I error, we evaluated all models against a  $p$  value of  $.05/6 = .008$ . Age, sex, location of study, BMI, parental educational attainment, family SES, and physical and mental health status were evaluated as covariates because of prior studies suggesting that these variables might influence BP. The prequestionnaire measure of resting BP was also entered as a covariate in each model to control for differences in initial levels of resting BP. Thus, analyses focus on the second BP measurement controlling for the first. For each model, discrimination and the relevant protective factor (i.e., racial identity and Africentric worldview—nonmaterial-based satisfaction) were included as main effects. Finally, interaction terms were created between discrimination experiences and the relevant protective factor to examine the potential protective role of each factor in the context of racial discrimination. All continuous variables were mean centered, and the interaction term was the cross-product term of the centered variables.

## RESULTS

Mean BMI and baseline BP levels are summarized in Table 1, whereas the means, SDs, and bivariate correlations for key study variables are summarized in Table 2. BMI (mean [SD] = 25.51 [5.4] kg/m<sup>2</sup>) was positively related to SBP ( $r = 0.28$ ,  $p < .001$ ). Several sociodemographic variables (Table 1) were also related to BP. For example, males were more likely to

TABLE 2. Means, Standard Deviations, and Zero-Order Correlations Among Key Study Variables ( $n = 210$ )

	1	2	3	4	5	6	7	8	9	10	11	12
1. Racial discrimination	—											
2. Racial centrality	0.06	—										
3. Private regard	0.07	0.63**	—									
4. Public regard	-0.11	0.12 <sup>†</sup>	0.17*	—								
5. Assimilationist	0.07	0.17*	0.26**	0.11	—							
6. Humanist	-0.06	-0.07	-0.01	0.12 <sup>†</sup>	0.30**	—						
7. Oppressed minority	-0.01	-0.04	0.03	0.11	0.14*	0.12	—					
8. Nationalist	0.09	0.30**	0.23**	0.03	-0.09	-0.46**	-0.04	—				
9. Nonmaterial satisfaction	-0.33**	0.06	0.08	0.11	0.01	-0.07	0.02	0.00	—			
10. Systolic blood pressure	-0.02	-0.10	-0.05	-0.01	0.01	-0.01	0.03	-0.17*	0.05	—		
11. Diastolic blood pressure	0.04	-0.11	0.01	-0.03	0.01	-0.04	0.08	-0.07	0.03	0.39**	—	
12. Mean arterial pressure	0.02	-0.13 <sup>†</sup>	-0.01	-0.02	0.02	-0.03	0.07	-0.13 <sup>†</sup>	0.05	0.74**	0.91**	—
Mean	1.4	5.59	6.16	3.35	5.97	5.23	4.72	4.40	3.51	114.29	63.65	80.53
Standard deviation	0.83	1.10	0.96	1.02	0.87	1.10	1.14	1.03	0.70	11.70	9.40	8.56

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ .

have higher SBP ( $r = 0.45$ ,  $p < .001$ ) and MAP ( $r = 0.17$ ,  $p = .19$ ) than females. HBCU participants had lower SBP but higher DBP than PWU participants. SBP increases with age. Racial discrimination frequency, racial identity, and Africentric nonmaterial-based satisfaction were unrelated to BP, with one exception. Nationalist ideology was negatively related to SBP ( $r = -0.17$ ,  $p = .012$ ). Parental educational attainment, family SES, and self-reported physical and mental health status were unrelated to BP at the bivariate level.

### Racial Identity Profiles

On the basis of statistical criteria, we adopted a three-class model as our final cluster solution. The raw and standardized means of each racial identity variable were used to describe the clusters (Table 3). The largest cluster was labeled integrationist ( $n = 101$ , 48% of the sample). This cluster was characterized by scores near the sample mean on most of the racial identity scales, but individuals in this cluster strongly endorsed racial identity attitudes emphasizing the similarities between blacks and all humans while de-emphasizing the uniqueness of the African American experience. The second cluster was labeled race-focused optimist ( $n = 62$ , 30% of the sample). Individuals in this cluster reported that race was a central part of their identity, felt positively about African Americans, felt that others saw African Americans favorably, and strongly endorsed attitudes emphasizing similarities between blacks and mainstream Americans. The third cluster was labeled low regard/nationalist ( $n = 47$ , 22% of the sample). In contrast to individuals in the other two clusters, this cluster was characterized by individuals who endorsed views highlighting the uniqueness of the African American experience and felt that others did not view African Americans favorably. Figure 1 represents a graphic summary of the three racial identity clusters using standardized means of the racial identity subscales.

### Cluster Group Differences in Demographic, Control, Racial Discrimination, and BP Variables

We conducted a series of analyses to determine whether cluster groups differed with respect to age, sex, site of data collection, caregiver's educational attainment, family SES, physical and mental health status, racial discrimination experiences, and BP. The results indicated no significant cluster differences except for physical ( $F(2,207) = 3.50$ ,  $p = .032$ ) and mental ( $F(2,207) = 3.96$ ,  $p = .021$ ) health status. The individuals in the race-focused optimist group endorsed significantly higher levels of overall

TABLE 3. Raw Means, Standardized Means, and Standard Deviations of Racial Identity Subscales by Racial Identity Cluster Group ( $n = 210$ )

Variable	Integrationist ( $n = 101$ )	Race-Focused Optimist ( $n = 62$ )	Low Regard/ Nationalist ( $n = 47$ )
Raw means			
Centrality	5.08 (0.99)	6.55 (0.43)	5.42 (1.10)
Private regard	5.80 (0.97)	6.91 (0.15)	5.96 (1.00)
Public regard	3.28 (0.96)	3.86 (1.02)	2.84 (0.83)
Assimilationist	6.04 (0.83)	6.35 (0.59)	5.33 (0.93)
Humanist	5.79 (0.78)	5.21 (1.06)	4.06 (0.79)
Oppressed minority	4.89 (1.14)	4.74 (1.08)	4.31 (1.15)
Nationalist	3.75 (0.78)	4.82 (0.85)	5.22 (0.85)
Standardized means			
Centrality	-0.46 (0.89)	0.87 (0.39)	-0.15 (1.04)
Private regard	-0.38 (1.01)	0.78 (0.16)	-0.21 (1.04)
Public regard	-0.07 (0.94)	0.49 (1.01)	-0.50 (0.82)
Assimilationist	0.08 (0.96)	0.44 (0.67)	-0.74 (1.06)
Humanist	0.51 (0.71)	-0.02 (0.96)	-1.06 (0.72)
Oppressed minority	0.15 (0.99)	0.02 (0.94)	-0.35 (1.01)
Nationalist	-0.63 (0.75)	0.41 (0.81)	0.80 (0.82)

Data are presented as mean (standard deviation).

# RACIAL IDENTITY, WORLDVIEW, AND BLOOD PRESSURE

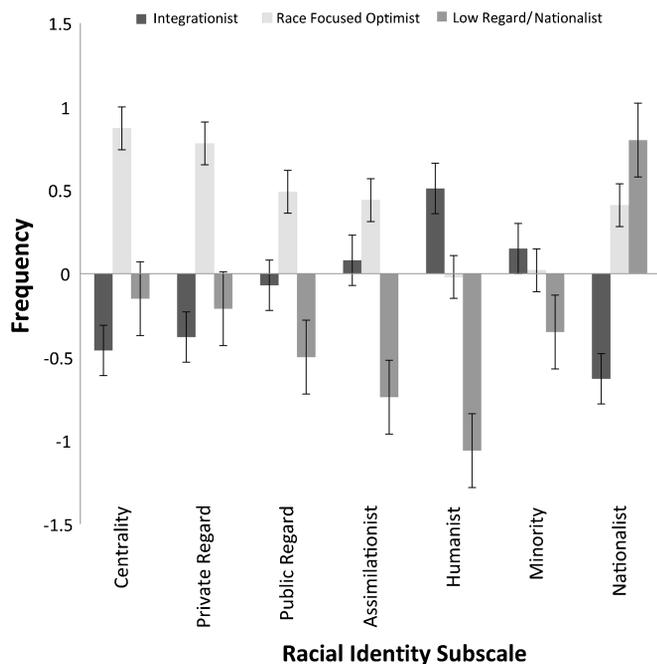


Figure 1. Standardized mean frequencies of racial identity subscales by racial identity class. Error bars represent standard errors.

physical (mean = 3.6) and mental (mean = 4.2) health compared with the individuals in the low regard/nationalist cluster group (means = 3.2 and 3.77, respectively).

## Hypothesis Testing Covariates of BP

Sex ( $B = 4.60, SE = 1.52, p = .003$ ) was related to SBP such that males had higher SBP than females. Presurvey SBP ( $B = 0.57, SE = 0.06, p < .001$ ) was also related to SBP. Location of study ( $B = -4.39, SE = 1.32, p = .001$ ) was related to DBP such that the participants at the HBCU had higher DBP than the participants at the PWU. Presurvey DBP ( $B = 0.72, SE = 0.06, p < .001$ ) was also related to DBP. Location of study ( $B = -3.16, SE = 1.20, p = .009$ ) was related to MAP such that the participants at the HBCU had higher MAP than the participants at the PWU. Presurvey MAP ( $B = 0.73, SE = 0.06, p < .001$ ) was also related to MAP. No other significant coefficients were found.

## Racial Discrimination and BP

In all of the models tested, racial discrimination was unrelated to BP.

## Racial Identity as a Protective Factor

In the general linear models examining racial discrimination, racial identity, and BP, the discrimination–racial identity interaction term was significant for DBP ( $F(2,183) = 3.42, p = .035$ ). Figure 2 depicts the relationship between racial discrimination and DBP by cluster group. Racial discrimination was *negatively* related to DBP for the participants in the low regard/nationalist cluster ( $B = -2.59, SE = 1.29, p = .046$ ). Of the participants who experienced higher levels of racial discrimination, individuals in the low regard/nationalist cluster

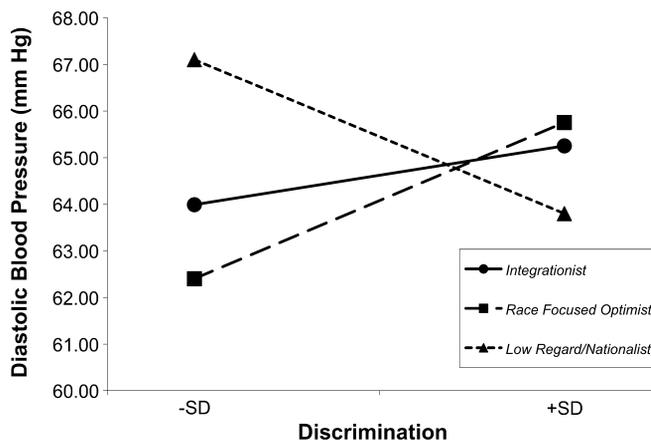


Figure 2. Racial discrimination and diastolic blood pressure (DBP) by racial identity cluster group membership. This plot represents the relationship between racial discrimination and DBP by cluster group membership. Racial discrimination was negatively related to DBP in the low regard/nationalist cluster but unrelated to DBP in the integrationist and race-focused optimist clusters.

also had the lowest DBP. The relationship between racial discrimination and DBP was nonsignificant for individuals in the integrationist ( $B = 0.13, SE = 0.77, p = .864$ ) and race-focused optimist clusters ( $B = 2.24, SE = 1.37, p = .103$ ). Neither the racial discrimination–racial identity interaction term nor the racial identity main effects were significant for SBP or MAP.

## Africentric Worldview as a Protective Factor

Examination of the racial discrimination–by–nonmaterial-based satisfaction interaction term also revealed a significant interaction for DBP ( $B = -1.71, SE = 0.83, p = .041$ ) such that the relationship between racial discrimination and DBP varied as a function of the level of nonmaterial-based satisfaction (Fig. 3). Racial discrimination was positively associated with DBP ( $B = 1.43, SE = 0.72, p = .048$ ) for individuals who endorsed low levels of nonmaterial-based satisfaction (i.e., 1 SD below the mean). In other words, greater prior racial

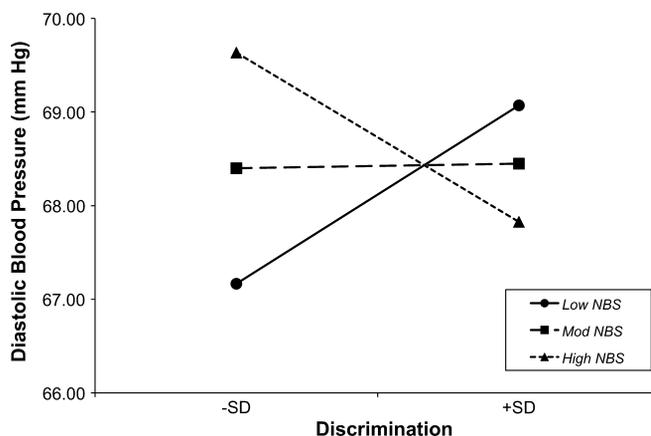


Figure 3. Racial discrimination and diastolic blood pressure (DBP) by level of Africentric nonmaterial-based satisfaction (NBS). This plot represents the relationship between racial discrimination and DBP by level of Africentric NBS. Racial discrimination was positively associated with DBP at low levels of NBS but unrelated to DBP at higher levels of NBS.

discrimination experiences were associated with greater DBP for individuals whose positive well-being was based on material possessions such as money, appearance, and clothing. At moderate (i.e., mean) and high levels of Africentric worldview (i.e., 1 SD above the mean), however, racial discrimination was unrelated to DBP ( $B = 0.24$ ,  $SE = 0.65$ ,  $p = .718$  and  $B = -0.96$ ,  $SE = 1.01$ ,  $p = .341$ , respectively). Africentric worldview did not moderate the association between racial discrimination and SBP or MAP.

## DISCUSSION

### Racial Discrimination and BP

Consistent with several prior studies, preliminary findings did not reveal a link between racial discrimination and BP (e.g., Brown et al. (13), Barksdale et al. (35)). However, our study is consistent with a growing number of studies in suggesting that the relationship between racial discrimination and BP may depend on the consideration of additional factors (e.g., references (15–17)). In a series of studies examining the relationship between perceived racism and BP in African adolescents (17) and young women (36), Clark and colleagues reported that social support and low trait anger, respectively, moderated the association between racism and BP. Our findings suggest that racial, ethnic, and cultural factors such as racial identity and Africentric worldview are also important to consider in our understanding of the impact of stress on BP and add to the body of literature examining the ways in which psychosocial factors may influence physiological functioning.

### Racial Identity as a Protective Factor

We were interested in whether patterns of racial identity would moderate the association between racial discrimination and BP. A strength of the present study was the use of a person-centered approach to the measurement of racial identity. In contrast to variable-centered studies, which have examined the protective effect of specific dimensions of racial identity in isolation, we examined patterns of racial identity, representing a more holistic view of racial identity. We found three patterns of racial identity. The largest cluster—integrationist—was distinguished by its relatively higher endorsement of humanist ideology (i.e., attitudes emphasizing the similarities among all humans) and modest endorsement of the nationalist subscale (attitudes stressing the uniqueness of being black). Our second largest cluster—race-focused optimist—saw race as extremely central to their self-concepts and felt very positively about African Americans relative to their counterparts in the other two groups. They also provided the most favorable rating of how others saw African Americans (i.e., public regard) and rated significantly higher than the other two groups with regard to assimilationist ideology (i.e., attitudes emphasizing similarities between African Americans and the rest of the American society). Our third cluster—low regard/nationalist—consisted of individuals who saw race as central to their self-concepts and felt positively about being African American but stood out because of their more negative views of how others see African Americans, relatively lower endorsement of views emphasizing

similarities among all humans, and higher endorsement of views emphasizing the uniqueness of the African American experience. These results suggest that there is heterogeneity with regard to how African Americans define themselves with respect to race. In addition, this within-group variation in racial identity and the relative proportion of the clusters are consistent with other racial identity cluster analytic work using the Multidimensional Inventory of Black Identity (e.g., references (37–39)).

The results suggest that the ways in which African Americans define the significance and meaning of race have implications for the association between racial discrimination and BP. We found that the low regard/nationalist pattern of racial identity conveyed a protective effect such that racial discrimination was inversely related to DBP. In addition, individuals in this cluster experienced the lowest levels of DBP at high levels of racial discrimination. Interestingly, however, individuals in this cluster also reported significantly lower (but still good) physical and mental health than individuals in the race-focused optimist group. This apparent discrepancy suggests that the association between racial identity and health status may vary as a function of how health status is assessed (i.e., self-report versus physiological measurement) and whether the relationship between racial identity and health is examined in the context of prior racial discrimination experiences.

Despite the discrepancy between the self-report and physiological data, the protective effect of the low regard/nationalist cluster group membership in the context of prior discrimination experiences can be understood in several ways. First, it is interesting to note that the low regard/nationalist cluster encapsulates several dimensions of racial identity that have previously been identified as protective factors in the relationship between racial discrimination and psychological adjustment. Sellers and colleagues (18), for example, found that low public regard buffered the impact of racial discrimination on depressive symptoms, perceived stress, and well-being. In a sample of African American young adults, Sellers and Shelton (32) found that nationalist ideology and public regard beliefs independently buffered the relationship between discrimination experiences and subsequent distress. In light of the evidence that nationalist ideology and low public regard positively predict racial hassles (8), it may be that individuals in the low regard/nationalist cluster experience more racial discrimination experiences, which, in turn, provides more opportunities for honing effective coping responses to discrimination and leads to decreased susceptibility to racial discrimination. For example, the conscious awareness that others do not view African Americans favorably (low regard) may, over time (and numerous experiences), lead individuals to develop positive compensatory coping strategies that counteract being seen in an unfavorable light. One such coping strategy might be challenging and speaking up about racism. As noted previously, Krieger and Sidney (10) and others (e.g., references (15,40,41)) have suggested that actively coping and confronting racism may confer protective effects on BP and cardiovascular function, whereas emotion-focused, avoidant, passive, and defensive coping (e.g., wishful thinking, minimization of threat, anger suppression)

## RACIAL IDENTITY, WORLDVIEW, AND BLOOD PRESSURE

may exacerbate the association between stress appraisal and cardiovascular disease. Future research will be necessary to determine whether the protective effects of the low regard/nationalist racial identity cluster observed in the present study are indeed mediated by more proactive, problem-focused coping strategies (e.g., confrontive coping) developed by individuals because of their numerous experiences with chronic racial hassles.

Another intriguing but as yet untested hypothesis is the notion that personality variables may partially account for the association between racial identity and health. Several studies of psychosocial factors that may influence physiological responses to stress implicate personality factors such as Type A (aggressive, controlling, competitive, and impatient), Type B (patient, relaxed, and easygoing), and Type D personalities (negative affect and social inhibition); hardiness (involvement in activities in life and curiosity about the surrounding world, belief that one can control events with one's own effort, and the view that change is necessary for personal growth) (e.g., references (42–44)); and general personality predispositions such as defensiveness (45) and detachment (46) as important determinants of stress responses. Thus, it may be that membership in the low regard/nationalist cluster is associated with personality traits that are likely to be favorable in the context of coping with discrimination (e.g., positive affect, positive self-efficacy). Moreover, the relationship between racial identity and health outcomes may be mediated by personality and coping behaviors that are associated with particular personality dispositions.

### Africentric Worldview as a Protective Factor

We were also interested in whether Africentric worldview would moderate the association between racial discrimination and BP. In line with our prediction, we found that racial discrimination was positively related to DBP for individuals whose well-being was tied to material elements such as money, clothing, and appearance but was unrelated to DBP for individuals whose well-being was less linked to material possessions (i.e., moderate to high levels of nonmaterial-based satisfaction). Unlike prior studies that examined Africentric worldview as a composite scale and all encompassing construct, our results suggest that nonmaterial-based satisfaction (i.e., basing well-being on nonmaterial elements), in particular, protects against the positive association between racial discrimination and DBP. Interestingly, Dressler (47) found higher arterial BP in individuals who consumed material goods in a manner discrepant with their actual occupational class. Consistent with our prior discussion of the mediating roles of coping and personality, it could be that materialist striving is reflective of maladaptive efforts to control uncontrollable situations (e.g., how attractive you are, how much money you have when the amount you want is really beyond your reach) or personality behavioral dimensions (e.g., Type A traits such as aggression, controlling, competitiveness, and impatience), both of which have been found to be associated with greater reactivity and negative stress responses (44). Having more intrinsic valuing and self-awareness as an African American (i.e., moderate to

high levels of nonmaterial-based satisfaction), on the other hand, might bolster self-esteem and enhance other coping strategies that protect BP. Although they did not explicitly measure nonmaterial-based satisfaction, Neblett and colleagues (7) found that individuals endorsing an Africentric perspective were less likely to engage in avoidant coping strategies, which were more likely to be associated with depressive symptoms. It might be that the endorsement of Africentric values decreases the likelihood of using coping strategies that are more likely to be associated with negative cardiovascular outcomes.

### Study Limitations and Future Directions

Although this study makes several important contributions, there are some limitations to the present findings. First, with respect to the sample, limited variability with regard to socio-demographic variables and some of the study variables of interest may compromise the generalizability of the findings. Future studies should attempt to include more males and examine the relationships of interest with a broader age range of adults (e.g., in a community sample) who may have had a wider range of experiences with discrimination. Second, the internal reliability for the nationalist subscale was fair, which could reflect the low number of subscale items. This modest reliability could result in higher measurement error and decrease power. Third, we measured BP using a “snapshot” approach. However, such an approach may not fully capture the true nature of the relationships examined in the present study. The future use of ambulatory BP monitoring, diary methodology (48), and ecological momentary assessment (49) approaches may prove useful in elaborating how racial discrimination and various racial and cultural factors interact at a given moment in time to influence BP and other important health indices. Fourth, it may have been beneficial to include a measure of the level of effort or engagement (23) while completing the questionnaires because it is possible that decreases in DBP in the low regard/nationalist group are reflective of less engagement while completing the questionnaires. Finally, more work is necessary to determine *how* racial identity and Africentric worldview convey their effects (i.e., mediating influences). In the present study, we did not fully measure psychological variables (e.g., anger, frustration, coping, personality) that may play an important mediating role in the relationship between racial discrimination and BP. As we have previously stated, examining mediating influences may yet play an important role in our understanding of underlying process in the link between race-related stress experiences and health.

### CONCLUSIONS

In the present study, we examined the protective nature of racial identity and Africentric worldview on the relationship between racial discrimination and BP. The results are among the first to extend the protective effects of racial identity and Africentric worldview to physical health outcomes in the context of racial discrimination. Moreover, the results highlight the potential significance of racial identity in our understanding of the impact of stress on BP. We encourage scholars to identify

additional racial, ethnic, and cultural protective factors with the potential to protect against the negative health effects of racism-related stress. Such efforts may enhance our ability to tackle hypertension and other troubling health disparities in the African American community.

*We thank Camara Jules P. Harrell for his direction and mentorship in conducting the initial phase of this study at Howard University. We also thank the students for their participation.*

## REFERENCES

- Hajjar I, Kotchen JM, Kotchen TA. Hypertension: trends in prevalence, incidence, and control. *Annu Rev Public Health* 2006;27:465–90.
- Yoon S, Ostchega Y, Louis T. Recent Trends in the Prevalence of High Blood Pressure and Its Treatment and Control, 1999–2008. NCHS data brief, no 48. Hyattsville, MD: National Center for Health Statistics; 2010.
- Hill LK, Kobayashi I, Hughes JW. Perceived racism and ambulatory blood pressure in African American college students. *J Black Psychol* 2007;33:404–21.
- Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: a biopsychosocial model. *Am Psychol* 1999;54:805–16.
- Mays VM, Cochran SD, Barnes NW. Race, race-based discrimination, and health outcomes among African Americans. *Annu Rev Psychol* 2007;58:201–25.
- Neblett EW, Shelton JN, Sellers RM. The role of racial identity in managing daily racial hassles. *Racial Identity in Context: The Legacy of Kenneth B. Clark*. Washington, DC: American Psychological Association; 2004:77–90.
- Neblett EW, Hammond WP, Seaton EK, Townsend TG. Underlying mechanisms in the relationship between Africentric worldview and depressive symptoms. *J Couns Psychol* 2010;57:105–13.
- Sellers RM, Caldwell CH, Schmeelk-Cone KH, Zimmerman MA. Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *J Health Soc Behav* 2003;44:302–17.
- Ryan AM, Gee GC, Laflamme DF. The association between self-reported discrimination, physical health and blood pressure: findings from African Americans, black immigrants, and Latino immigrants in New Hampshire. *J Health Care Poor Underserved* 2006;17(suppl 2):116–32.
- Krieger N, Sidney S. Racial discrimination and blood pressure: the CARDIA Study of young black and white adults. *Am J Public Health* 1996;86:1370–8.
- Peters RM. The relationship of racism, chronic stress emotions, and blood pressure. *J Nurs Scholarsh* 2006;38:234–40.
- Steffen PR, McNeilly M, Anderson N, Sherwood A. Effects of perceived racism and anger inhibition on ambulatory blood pressure in African Americans. *Psychosom Med* 2003;65:746–50.
- Brown C, Matthews KA, Bromberger JT, Chang YF. The relation between perceived unfair treatment and blood pressure in a racially/ethnically diverse sample of women. *Am J Epidemiol* 2006;164:257–62.
- Brondolo E, Love EE, Pencille M, Schoenthaler A, Ogedegbe G. A review of the empirical evidence and implications for clinical practice. *Am J Hypertens* 2011;24:1015–21.
- Cozier Y, Palmer JR, Horton NJ, Freman L, Wise LA, Rosenber L. Racial discrimination and the incidence of hypertension in US black women. *Ann Epidemiol* 2006;16:681–7.
- Clark R, Gochett P. Interactive effects of perceived racism and coping responses predict a school-based assessment of blood pressure in black youth. *Ann Behav Med* 2006;32:1–9.
- Clark R. Interactive but not direct effects of perceived racism and trait anger predict resting systolic and diastolic blood pressure in black adolescents. *Health Psychol* 2006;25:580–5.
- Sellers RM, Copeland-Linder N, Martin PP, Lewis RL. Racial identity matters: the relationship between racial discrimination and psychological functioning in African American adolescents. *J Res Adolesc* 2006;16:187–216.
- Sellers RM, Smith MA, Shelton JN, Rowley SAJ, Chavous TM. Multidimensional model of racial identity: a reconceptualization of African American racial identity. *Pers Soc Psychol Rev* 1998;2:18–39.
- Yip T, Seaton EK, Sellers RM. African American racial identity across the lifespan: identity status, identity content, and depressive symptoms. *Child Dev* 2006;77:1504–17.
- Caldwell CH, Zimmerman MA, Bernat DH, Sellers RM, Notaro PC. Racial identity, maternal support, and psychological distress among African American adolescents. *Child Dev* 2002;73:1322–36.
- Torres A, Bowens L. Correlation between the internalization theme of racial identity attitude survey-B and systolic blood pressure. *Ethn Dis* 2000;10:375–83.
- Brondolo E, verHalen NB, Pencille M, Beatty D, Contrada RJ. Coping with racism: a selective review of the literature and a theoretical and methodological critique. *J Behav Med* 2009;32:64–88.
- Montgomery DE, Fine MA, James-Myers L. The development and validation of an instrument to assess an optimal Africentric world view. *J Black Psychol* 1990;17:37–54.
- Ani M. *Let the Circle Be Unbroken: African Spirituality in the Diaspora*. New York, NY: Nkonimfo Publications; 1997.
- Kambon KK. The worldviews paradigm as the conceptual framework for African/black psychology. In: Jones RL, editor. *Black Psychology*. 4th ed. Hampton, VA: Cobb & Henry; 2004:73–92.
- Jackson AP, Sears SJ. Implications of an Africentric worldview in reducing stress for African American women. *J Couns Dev* 1992;71:184–90.
- Hatter DY, Ottens AJ. Africentric world view and black students' adjustment to a predominantly white university: does worldview matter? *Coll Stud J* 1998;32:472–80.
- Carroll D, Smith GD, Shipley MJ, Stepoe A, Brunner EJ, Marmot MG. Blood pressure reactions to acute psychological stress and future blood pressure status: a 10-year follow-up of men in the Whitehall II study. *Psychosom Med* 2001;63:737–43.
- Matthews K, Woodall K, Allen M. Cardiovascular reactivity to stress predicts future blood pressure status. *Hypertension* 1993;22:479–85.
- Harrell SP. A multidimensional conceptualization of racism-related stress: implications for the well-being of people of color. *Am J Orthopsychiatry* 2000;70:42–57.
- Sellers RM, Shelton JN. The role of racial identity in perceived racial discrimination. *J Pers Soc Psychol* 2003;84:1079–92.
- Vermunt J, Magidson J. *Latent GOLD 4.0 User's Guide*. Belmont, MA: Statistical Innovations Inc; 2005.
- Vermunt JK, Magidson J. Factor analysis with categorical indicators: a comparison between traditional and latent class approaches. *New Developments in Categorical Data Analysis for the Social and Behavioral Sciences*. Mahwah, NJ: L. Erlbaum Associates; 2005:41–62.
- Barksdale DJ, Farrug ER, Harkness K. Racial discrimination and blood pressure: perceptions, emotions, and behaviors of black American adults. *Issues Ment Health Nurs* 2009;30:104–11.
- Clark R. Perceived racism and vascular reactivity in black college women: moderating effects of seeking social support. *Health Psychol* 2006;25:20–5.
- Banks KH, Kohn-Wood LP. The influence of racial identity profiles on the relationship between racial discrimination and depressive symptoms. *J Black Psychol* 2007;33:331–54.
- Chavous TM, Bernat DH, Schmeelk-Cone K, Caldwell CH, Kohn-Wood L, Zimmerman MA. Racial identity and academic attainment among African American adolescents. *Child Dev* 2003;74:1076–90.
- Rowley SJ, Chavous TC, Cooke DY. A person-centered approach to African American gender differences in racial ideology. *Self Identity* 2003;2:287–306.
- Nyklicek I, Vingerhoets AJJM, Van Heck GL. Stress, coping, and cardiovascular disease. *Stress and Coping*. Mahwah, NJ: L. Erlbaum Associates; 2000:113–130.
- Schwerdtfeger A, Schmulke SC, Egloff B. Interactive effects of avoidant coping and parental hypertension on rate pressure product hyperactivity. *Ann Behav Med* 2005;29:106–15.
- Fichera LV, Andreassi JL. Stress and personality as factors in women's cardiovascular reactivity. *Int J Psychophysiol* 1998;28:143–55.
- Howard S, Hughes BM, James JE. Type D personality and hemodynamic reactivity to laboratory stress in women. *Int J Psychophysiol* 2011;80:96–102.
- Contrada R. Type A behavior, personality, hardiness, and cardiovascular responses to stress. *J Pers Soc Psychol* 1989;57:895–903.
- Rutledge T. Defensive personality effects on cardiovascular health: a review of the evidence. *Stress and Its Impact on Society*. New York, NY: Nova Science Publishers; 2006:1–21.
- Flaa A, Ekebert O, Kjeldsen SE, Rostrup M. Personality may influence reactivity to stress. *Biopsychosoc Med* 2007;1:1–8.
- Dressler WW. Lifestyle, stress, and blood pressure in a southern black community. *Psychosom Med* 1990;52:182–98.
- Swim JK, Hyers LL, Cohen LL, Fitzgerald DC, Bylsma WH. African American college students' experiences with everyday racism: characteristics of and responses to these incidents. *J Black Psychol* 2003;29:38–67.
- Shiffman S, Stone AA, Hufford MR. Ecological momentary assessment. *Annu Rev Clin Psychol* 2008;4:1–32.