

Racial Identity as a Moderator of Daily Exposure and Reactivity to Racial Discrimination

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The role of racial identity in the stress process was examined in a sample (N = 174) of African American doctoral students and graduates of doctoral programs. Racial discrimination and psychological distress (negative affect, depression, and anxiety) were assessed each day for a period of two weeks. Multilevel random coefficient modeling analyses revealed that unique dimensions of racial identity were associated with greater exposure to daily racial discrimination. Individuals higher in racial centrality were more likely to report daily encounters of racial discrimination than those lower in racial centrality. In contrast, individuals higher in private regard were less likely to report these encounters than those lower in private regard. Finally, the daily association between racial discrimination and psychological distress was stronger for individuals high in racial centrality. Specifically, racial centrality exacerbated the effects of daily racial discrimination on negative affect and depression. Implications of these findings are discussed in terms of the daily experiences of African Americans in doctoral contexts.

Keywords: African American; Racial identity; Racial discrimination; Stress.

Racial identity may play an important role in the stress process. Indeed, studies with African Americans have consistently found that certain dimensions of racial identity are related to increased exposure and vulnerability to major and chronic forms of racial discrimination (Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003; Sellers, Copeland-Linder, Martin, & Lewis, 2006; Sellers & Shelton, 2003). However, very little research has examined how racial identity shapes the experience of daily stress, a form of stress that can be differentiated from major or chronic stress because of its unique effects on physical and mental health (Serido, Almeida, & Wethington, 2004; Wheaton, 1994). In this study, we take a micro-level perspective on the interconnections among racial identity, stress, and mental health. We test differential vulnerability hypotheses linking individual differences in racial identity to daily psychological distress. In particular, we examine: (a) whether individual differences

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in racial identity are linked to differential exposure to daily racial discrimination; (b) the impact of differential exposure on daily distress; and (c) the moderating effect of racial identity.

Racial Discrimination and Psychological Distress

Racial discrimination, defined as unfair, differential treatment on the basis of race, is a relatively common occurrence for racial minorities in the United States, particularly for African Americans (see Williams & Williams-Morris, 2000, for a review). To date, much of the literature on racial discrimination has focused on major life events (e.g., being denied a job due to race) and chronic strains (e.g., racial segregation). Although major and chronic forms of racial discrimination occur, subtle and covert forms are pervasive in the experiences of African Americans (Feagin, 2001; Harrell, 2000; Pierce, 1995; Sue et al., 2008). In a large-scale national survey, Kessler, Mickelson, and Williams (1999) found that over 90% of African-American adults reported experiencing some form of day-to-day discrimination, with a majority (89.7%) of these respondents attributing these encounters to race or ethnicity. Similarly, Klonoff and Landrine (1999) reported that 96% of African Americans ranging in age from 18 to 79 reported racial discrimination during the past year. Taken together, these prior investigations indicate that racial discrimination is ubiquitous in the lives of African Americans.

In addition to the documented prevalence of racial discrimination, there is evidence that for African Americans, exposure to racial discrimination contributes to psychological distress beyond that which can be accounted for by general life stress (Pieterse & Carter, 2007). In several studies, experiences of everyday racial discrimination have been linked with greater psychological distress (Sellers & Shelton, 2003), depression and anxiety (Banks & Kohn-Wood, 2007; Klonoff, Landrine, & Ullman, 1999), physical health problems (Gyull, Matthews, & Bromberger, 2001) as well as greater negative mood and lower self-esteem (Broudy et al., 2007; Greene, Way, & Pahl, 2006). In a review of 32 population-based studies, Williams, Neighbors, and Jackson (2003) found that all but one study reported a positive association between perceptions of racial discrimination and mental illness.

The Role of Racial Identity in the Stress Process

Although exposure to racial discrimination can have serious consequences for mental health, race-related stressors may be experienced to varying degrees among African Americans. One account for this differential vulnerability is that racial-majority group members may view strongly identified minorities as rejecting traditional status hierarchy beliefs, and thus as more threatening. In several experiments, Kaiser and Pratt-Hyatt (2009) showed that Whites enacted greater prejudice toward highly identified African Americans when they were perceived as challenging status-legitimizing worldviews. Thus, examining how within-group differences in racial identity relate to differential vulnerability to racial discrimination is important as it may yield insights into key factors that shape the daily stress process for those at greater risk. Bolger and Zuckerman (1995) provided a conceptual framework highlighting two fundamental mechanisms through which individual differences may operate to affect mental health: differences in *exposure* and *reactivity* to stressful experiences. In the current study, we apply this framework to investigate how differences in racial identity may contribute to distinct experiences

of race-related stress among African Americans. According to the *differential-exposure hypothesis*, individual differences in racial identity may account for disparities in the likelihood of encountering race-related stressors. More vulnerable identity statuses would be those associated with increased exposure to such stressors. On the other hand, the *differential-reactivity hypothesis* posits that individual differences in racial identity may account for how individuals respond to race-related stressors when they occur, where more vulnerable identity statuses would show heightened negative reactivity.

Through their multidimensional model of racial identity (MMRI), Sellers, Smith, Shelton, Rowley, and Chavous (1998) theorized racial identity as a multifaceted construct that frames the significance and meaning individuals place on their race. While traditional models emphasize how a single aspect of racial identity develops over time, the MMRI captures the overall status of African Americans' sense of themselves racially at a given point in time via distinct dimensions (Marks, Settles, Cooke, Morgan, & Sellers, 2004). In this model, racial identity is characterized by three stable dimensions: *centrality*, *regard*, and *ideology*; and a fourth dynamic dimension: *salience*. While centrality refers to the extent to which race is a principle component of one's identity, regard refers to both the value that one ascribes to belonging to their racial group (i.e., private regard) and their perceptions of how members of their group are typically viewed by others (i.e., public regard). Ideology concerns the attitudinal and behavioral expectations one ascribes to membership in their racial group. Salience taps the prominence of race for an individual in a given situation or context. The Multidimensional Inventory of Black Identity (MIBI; Sellers et al., 1997) assesses the three stable dimensions of the MMRI, and thus enables researchers to capture significant within-group heterogeneity in African-American racial identity not feasible in traditional global approaches.

Several researchers have argued that racial identity may play a role in increased exposure to racial discrimination (Williams, Spencer, & Jackson, 1999). For example, Sellers and Shelton (2003) found that racial centrality among college students was positively associated with perceiving greater racial discrimination at a one-year follow-up, after controlling for participants' initial reports of racial discrimination. Additionally, Sellers et al. (2006) found that reported racial discrimination was consistently more prevalent for adolescents with low public racial regard (i.e., those who felt other groups viewed African Americans more negatively). Across much of the existing research on perceived discrimination, however, perceptions of racial discrimination have been assessed retrospectively by asking respondents to indicate the frequency of exposure to events that occurred during the previous year. In contrast, daily process methodologies may offer a complementary approach to investigating how individual differences in racial identity may place certain African Americans at lesser or greater risk of exposure to daily racial discrimination.

With regard to stress reactivity, several studies have shown that individual differences in racial identity may moderate the relationship between stressful events and psychological distress. Sellers and Shelton (2003) found that African-American undergraduate students high in public regard showed greater negative emotional reactivity to racial discrimination. Similarly, Sellers et al. (2006) found that although adolescents exhibiting lower public regard reported greater exposure to racial discrimination, they were buffered from the deleterious impact of those encounters on well-being. Interestingly, there is conflicting evidence among African-American adolescents and emerging adults with respect to how racial centrality can influence stress reactivity. Studies have shown that higher levels of racial centrality can be both

protective against the impact of racial discrimination on distress (e.g., Neblett, Shelton, & Sellers, 2004; Sellers et al., 2003) as well as a risk factor for more negative reactivity (e.g., Operario & Fiske, 2001).

On one hand, social identity theory (Tajfel & Turner, 1986) supports the prediction that exposure to racial discrimination enhances the salience and importance of individuals' racial group membership, which in turn may alleviate the deleterious effects of such encounters. Branscombe, Schmitt, and Harvey (1999), for example, found that among African Americans, perceiving racial prejudice directly diminished well-being but had an indirect positive influence that was mediated by increased racial group identification. On the other hand, the extent to which individuals internalize their racial group identity is likely to inform how they will react to racial threats. For example, McCoy and Major (2003) demonstrated that highly identified members of stigmatized groups fared worse when they perceived discrimination than did their less-identified counterparts. Thus, when viewed as a moderator of the relationship between discrimination and well-being, there is evidence that individuals' level of racial identification predicts how harmful racial stressors will be.

Furthermore, recent findings suggest that the buffering potential of centrality may be weaker during developmental periods in which identities are thought to be more firmly established. In a study conducted by Yip, Gee, and Takeuchi (2008), higher levels of centrality among individuals in their 30s and 50s were shown to intensify the negative influence of discrimination on mental health. These researchers concluded that perhaps as individuals age, racial identity becomes a more stable and established component of their self-concept, thereby heightening reactivity to race-related stress. In addition, Mendoza-Denton, Downey, Purdie, Davis, and Pietrzak (2002) reported that African Americans who were more likely to anticipate race-based rejection reacted more intensely to discrimination when it occurred. To the extent that highly identified African Americans are more likely to report racial discrimination, repeated exposure to race-related stressors may elevate levels of rejection sensitivity and psychological distress.

The Current Study

The purpose of this study was to extend the research on the role of racial identity in the stress process. Despite increasing evidence that racial identity may play a role in exposure and reactivity to everyday forms of racial discrimination, empirical assessments of these stressors in the daily lives of African Americans have been rare. To delineate how these encounters impact health, analytic strategies are needed in racial discrimination research that reduce recall biases and enhance detection of the onset of specific stressors (Sellers, Morgan, & Brown, 2001; Williams et al., 2003). Thus, we utilized a daily diary approach to examine experiences of racial discrimination and their association with psychological distress. In addition, we examined the ways in which racial identity modifies the daily relationship between racial discrimination and psychological distress. Our hypotheses regarding exposure were that higher levels of racial centrality and lower levels of racial public regard would be related to greater reports of daily racial discrimination. Our hypotheses regarding reactivity were that both racial centrality and regard would be related to greater distress reactivity to daily racial discrimination. Specifically, it was predicted that racial centrality would exacerbate the effects of daily racial discrimination on distress while public regard would mitigate these effects.

Methods

Participants

Study participants were 174 African-American doctoral students and graduates (142 women, 32 men) from over 70 US colleges and universities. The majority of the sample were women (81.1%) and ages ranged from 22 to 67 ($M = 31.84$, $SD = 7.74$). Most were single and never married (65%), followed by married (28%), divorced (6%), or widowed (1%). Of these participants 32% had their doctorate, and 68% were currently matriculating through a doctoral program. Of the 214 individuals who initially enrolled into the study, 40 did not complete the daily diary procedure to criterion (i.e., they did not complete a minimum of 7/14 diary records), resulting in a survey response rate of 81.3% ($N = 174$). Comparisons between the group of 174 and those omitted from analysis for incomplete data showed no differences in baseline demographics of gender, age, marital status, or level of educational attainment.

Procedure

Participants were recruited from national academic fellowship programs, associations, and organizations supporting African-American doctoral students and recent graduates via invitations posted on listservs and message boards. Study data were collected through a secure website to which participants were granted access.¹ First, participants completed a baseline questionnaire that assessed demographic information, racial identity, positive and negative affect, and depressive symptoms. Following baseline assessments, participants received daily e-mail messages inviting them to complete a brief questionnaire each evening. To minimize variation in daily reporting times, participants could only log on between 7:00 p.m. and 12 midnight. For 14 consecutive days, participants completed measures assessing their daily life events, stressors, and mood. After completing the study, participants were compensated up to \$25: \$1 dollar for each diary completed, with an \$11 bonus if they completed all 14 diaries. Of a possible 2436 diary days, participants completed the time-stamped diary on 1791 days (74%).

Person-level Measures

Racial identity. The Multidimensional Inventory of Black Identity (MIBI; Sellers, Rowley, Chavous, Shelton, & Smith, 1997) was used to assess racial identity. Only the Centrality and Regard dimensions were investigated because of their demonstrated associations with racial discrimination in previous research (Sellers & Shelton, 2003; Sellers et al., 2006). The 8-item Centrality subscale ($\alpha = .74$) measured the extent to which being Black² is a central component of a self-concept. A sample item was, "Being Black is an important reflection of who I am". The Regard dimension is captured through two aspects of being Black: Public and Private. Public Regard ($\alpha = .75$) was captured using six items concerning the extent to which participants believe others hold African Americans in a positive regard. A sample item was, "Society views Black people as valuable". Private Regard ($\alpha = .82$) was assessed through six items assessing the degree to which respondents hold African Americans in a positive regard. A sample item

was, "I feel that the Black community has made valuable contributions to this society". Responses to each subscale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

Depressive symptoms. Depressive symptoms were assessed using the Center for Epidemiological Studies—Depression scale (CES-D; Radloff, 1977). Participants were asked to indicate the extent to which they felt 20 depressive symptoms during the past week. Sample items included, "I felt sad" and "I felt depressed". Response formats ranged from 1 (*never*) to 4 (*most of the time*) and scores were summed such that higher scores indicate greater depressive symptoms. Cronbach's alpha for CES-Depression was .82.

Daily-level Measures

Daily racial discrimination. Daily racial discrimination was assessed using a modified version of the Daily Life Experience (DLE) subscale of the Racism and Life Experience scale (Harrell, 1994). The DLE is a self-report measure that assesses the frequency and impact of experiencing 20 racism-related events and has been validated and employed in studies with African Americans (e.g., Banks & Kohn-Wood, 2007; Caldwell et al., 2004; Sellers & Shelton, 2003). Instructions for each of the 20 events were worded to refer to whether the event had occurred that day *specifically due to race or racism* (e.g., "Today, I was ignored, overlooked, or not given service due to my race or racism"). Responses were collected using a *Yes-No* format, and participants were given a score of 1 if they reported at least one racial discrimination event on a particular day and a score of 0 if they did not.³ Other examples of events included, "Being treated rudely or disrespectfully", "Others expecting your work to be inferior", and "Being treated as if you were stupid or being talked down to". Within-person estimates of reliability were computed by transforming item scores into *z*-scores within each participant. Cronbach's alpha for daily racial discrimination was .81.

Negative affect. Daily negative affect was measured by asking participants to rate how they felt during the day using a range of terms describing negative emotions (Feldman-Barrett & Russell, 1998). Each day participants rated how guilty, nervous, afraid, angry, ashamed, embarrassed, upset and disgusted as well as how sluggish, sad, tired and bored they felt. Participants responded using a 5-point Likert-type scale, ranging from 1 (*very slightly or not at all*) to 5 (*extremely*), such that higher scores indicated greater negative affect. Cronbach's alpha for the 12-item scale was .86.

Anxiety and depression. Daily anxiety and depressive symptoms were measured with subscales from the Mental Health Inventory (Veit & Ware, 1983), a widely used mental-health assessment inventory sensitive to within-person change (e.g., McHorney & Ware, 1995). Participants were asked to indicate the extent to which they experienced a range of anxiety and depressive symptoms on a daily basis using a 4-point scale, ranging from 1 (*not at all true*) to 4 (*completely true*), such that higher scores indicate greater levels of each variable. These distinct emotional states were assessed using the 9-item anxiety and 4-item depression MHI subscales, respectively. Cronbach's alpha was .90 for anxiety and .87 for depression.

Results

Descriptive Analyses

Table 1 summarizes the intercorrelations, means, and standard deviations of all study variables. Daily-level summaries were computed by averaging across participants' 14-day reporting period. The mean for daily exposure is presented as the average number of racially discriminatory encounters participants reported on a given day. Across the entire sample, 989 encounters of daily racial discrimination were reported over the 14-day assessment period. Thus, the average participant reported nearly six ($M = 5.68$, $SD = 11.24$) encounters or an average of roughly one encounter every other day. It is noteworthy that individuals experienced, on average, at least one racially discriminatory encounter on 25% of the study days. In addition, all 20 of the encounters assessed were reported during the study, each being reported a minimum of 11 times. As shown in Table 2, the two most frequently reported encounters were "Being treated rudely or disrespectfully" (reported 102 times) and "Your ideas or opinions being minimized or ignored" (reported 103 times). Each of these encounters represented 10% of the total number of reported encounters, respectively. The most infrequently experienced encounters were "Being laughed at, made fun of, or taunted" (reported 17 times) and "Being mistaken for someone of your same race who may not look like you at all" (reported 11 times). Each of these encounters represented 1% of the total number of reported encounters, respectively. A concern of the repeated-measures study design was that asking participants to report racial discrimination each day may artificially increase their awareness or sensitivity to such encounters, and thereby inflate the likelihood of reports over time. A model was tested to examine participants' likelihood of reporting racial discrimination on a given day as a function of day of the study (Day 1 through Day 14). Results suggested that there was no statistically significant trend in reporting racial discrimination across study days ($\beta = -.005$, $SE = 0.002$, $p > .05$).

At the person-level, participants reported levels of racial centrality and private regard well above the midpoint for these subscales. In contrast, mean levels of public regard were below the midpoint for that subscale (see Table 1), a pattern that is consistent with previous studies involving African-American participants (cf. Caldwell et al., 2004; Sellers & Shelton, 2003). Intercorrelation analyses revealed that public regard was negatively associated with exposure to daily racial discrimination ($r = .17$, $p < .05$) and both private and public regard were negatively related to trait-level depression ($r = .23$, $p < .01$ and $r = .20$, $p < .01$, respectively). In addition, daily racial discrimination was associated with increased levels of daily anxiety ($r = .26$, $p < .01$) and trait-level depression ($r = .26$, $p < .01$). Relations between daily distress variables showed that negative affect, depression, and anxiety were positively correlated with each other.

Analysis of Daily Diary Data

Hypotheses were tested using multilevel random coefficient modeling (MRCM; Raudenbush & Bryk, 2002). MRCM is appropriate for diary data for several reasons. First, in the current study, the data have a hierarchical structure with up to 14 daily observations nested within each of 174 participants. Second, MRCM does not require that all individuals be measured on all occasions. Data can be used from participants who entered the study after it began and from participants who have

TABLE 1 Intercorrelations, Means, and Standard Deviations for Study Variables

Variable	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Centrality	.02	1							
3. Private regard	.15*	.51**	1						
4. Public regard	.04	-.35**	-.08	1					
5. Daily discrimination Exposure	-.08	.11	-.04	-.17*	1				
6. Avg. daily negative affect	-.22**	-.02	-.14	-.17*	.06	1			
7. Avg. daily depression (MHI)	-.15*	-.04	-.12	-.12	.14	.78**	1		
8. Avg. daily anxiety (MHI)	-.14	-.04	-.12	-.16	.17*	.72**	.81**	1	
9. Trait-level depression	-.21**	-.04	-.23**	-.20**	.26**	.50**	.54**	.55**	1
Mean	31.84	0.41	6.38	2.91	5.68	1.54	1.04	2.05	12.40
Standard Deviation	7.75	0.99	0.70	1.08	11.25	0.41	1.16	2.62	8.60

Notes: Avg. = Average. Exposure refers to daily racial discrimination. * $p < .05$; ** $p < .01$.

TABLE 2 The Four Most and Least Frequently Reported Racial Discrimination Events by Total Number of Reports across 14-Day Period and Percentage of Sample Reporting Each Event at Least Once

Racial discrimination	Total number of reports	Participants reporting event (%)
Your ideas or opinions being minimized or ignored	103	28.7
Being treated rudely or disrespectfully	102	23.6
Not being taken seriously	81	21.8
Being treated as if you were “stupid” or being “talked down to”	78	33.9
Being considered fascinating or exotic by others	24	8.6
Being mistaken for someone who serves others (i.e., janitor)	17	6.9
Being laughed at, made fun of, or taunted	17	6.9
Being mistaken for someone else of your same race (who may not look like you at all)	11	4.0

missing data for some occasions. Third, in MRCM, participants contributing more data contribute more to the estimation of parameters, a process known as precision weighting (see Bryk & Raudenbush, 1992, pp. 32–57, for a discussion). By separating true and error variance, MRCM provides more accurate and robust estimates of parameters than ordinary least squares analyses. Finally, a multilevel-modeling approach allows for the simultaneous estimation of within- and between-person effects. Within-person analyses address the question of *when*. For example, when individuals experience racial discrimination, do they also report high levels of depression? Between-person equations address the question of *who*. Do people who experience more racial discrimination also have higher depression?

The first set of analyses examined the variability among individuals in average levels of daily negative affect, depression, and anxiety symptoms. These analyses are referred to as *totally unconditional* (Singer & Willett, 2003) because daily symptoms were not modeled as a function of day- or person-level variables. The basic day-level (within-person or Level 1) model was:

$$\text{Daily Distress}_{ij} = \beta_{0j} + r_{ij}.$$

In this model, β_{0j} is a random coefficient representing the mean of daily distress for person j (across the i days for which each person provided data), r_{ij} represents the error associated with each measure of negative affect, depression, or anxiety, and the variance of r_{ij} constitutes the day-level residual (or error) variance. The basic person-level (between-person or Level 2) model was:

$$\beta_{0j} = \gamma_{00} + u_{0j}.$$

where γ_{00} is the grand mean of the person-level means (β_{0j} s) from the day-level model; u_{0j} represents the error of β_{0j} , and the variance of u_{0j} constitutes the person-level residual variance.

The nature of daily negative affect, depression, and anxiety was explored by estimating between and within-person sources of variance in these indices from the unconditional model. Findings suggest that differences within persons figure more prominently in the experience of daily negative affect, depression, and anxiety with within-person variance accounting for 63%, 75%, and 64%, respectively. Taken together, daily ratings of each measure of psychological distress showed sufficient variability at the day level to allow for the possibility of modeling additional between- and within-person relations.

Racial Identity and Daily Exposure to Racial Discrimination

The first analysis investigated whether racial identity would predict daily exposure to racial discrimination across the 14-day diary period. It was hypothesized that higher racial centrality would be associated with greater exposure to racial discrimination. The model used to test this prediction involved a daily-level (Level 1) and person-level (Level 2) equation. Level 1 was modeled as:

$$\text{Discrimination}_{ij} = \beta_{0j} + r_{ij}.$$

In this model, β_{0j} is a random coefficient representing the mean level of racial discrimination for participant j across the i days for which they provided data, and r_{ij} refers to the error associated with measurement of each participant's daily experience of racial discrimination. To construct our dependent variable, experiences of racial discrimination on a given day were aggregated. The intercept β_{0j} can be interpreted as the average number of encounters a participant reported across the study period. Level 2 was modeled as:

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01}\text{Age}_i + \gamma_{02}\text{Gender}_i + \gamma_{03}\text{Marital Status}_i + \gamma_{04}\text{Graduate Status}_i \\ & + \gamma_{05}\text{Centrality}_i + \gamma_{06}\text{Private Regard}_i + \gamma_{07}\text{Public Regard}_i + u_{0j}. \end{aligned}$$

Here, individuals' Level-1 coefficients (β_{0j} or average number of discriminatory encounters) are regressed on the between-person demographic variables and Centrality (γ_{05}), Private Regard (γ_{06}), Public Regard (γ_{07}), and a between-persons error term (u_{0j}).

As shown in Table 3, results indicated that reports of daily racial discrimination increased as a function of racial centrality (marginally significant: $\beta = .161$, $SE = 0.090$, $p < .10$) and decreased as a function of private regard ($\beta = -.275$, $SE = 0.126$, $p < .05$). Across the 14-day period, participants for whom race was more central to their self-concept were more likely to report daily racial discrimination than were participants for whom race was less central. In addition, participants who placed greater value on their race were less likely to report discrimination than were participants who valued their race less. However, neither public regard nor any of the demographic variables⁴ were shown to be related to reporting daily racial discrimination.

Racial Identity as a Moderator between Daily Racial Discrimination and Distress

A second set of analyses investigated the role of racial identity in individuals' reactivity to daily racial discrimination. It was hypothesized that higher centrality

TABLE 3 Racial Identity Dimensions as Predictors of Exposure to Daily Racial Discrimination

Predictor	Exposure	
	β (SE)	<i>t</i>
Intercept		
Age	-.010 (0.011)	-0.97
Gender	-.253 (0.201)	-1.26
Graduate status	-.004 (0.218)	-0.02
Marital status	-.043 (0.087)	0.50
Centrality	.161 (0.090)	1.79 [†]
Private regard	-.275 (0.126)	-2.18*
Public regard	-.152 (0.127)	-1.20

Notes: Degrees of freedom for all analyses were 166. Unstandardized coefficients are shown.
[†] $p < .10$; * $p < .05$.

would exacerbate the negative relationship between racial discrimination and daily negative affect and depression, while lower public regard would mitigate this association. First, relations between racial discrimination and indicators of distress were examined after accounting for the previous day's level of distress. Separate models were run for negative affect, depression and anxiety. This within-day equation was modeled as:

$$\text{Daily Distress}_{ij} = \beta_{0j} + \beta_{1j}\text{Discrimination}_{ij} + \beta_{2j}\text{Daily Distress}_{ij-1} + r_{ij}$$

where $\text{Daily Distress}_{ij}$ represents the average level of negative affect (or depression or anxiety) on a given day for person j . Because we centered our day-level variables, β_{0j} represents person j 's predicted level of distress on a day when no discriminatory encounters were reported; β_{1j} is the within-person slope of the discrimination-mental health relationship for person j , β_{2j-1} is the within-person slope for the previous days' distress for person j and r_{ij} is a within-person error or residual term.

As shown in Table 4, exposure to daily racial discrimination was a significant predictor of psychological distress. Specifically, when racial discriminatory encounters occurred, they were systematically associated with increased (above previous day) levels of negative affect ($\beta = .062$, $SE = 0.014$, $p < .01$), depression ($\beta = .196$, $SE = 0.055$, $p < .01$), and anxiety ($\beta = .359$, $SE = 0.089$, $p < .01$).

To assess the moderating influence of racial identity on the within-person associations between racial discrimination and the daily distress variables, Level-1 intercepts and slopes were regressed on the Level-2 racial identity variables using the following equations:

$$\begin{aligned} B_{0j} &= \gamma_{00} + \gamma_{01}\text{Depression}_i + u_{0j} \\ B_{1j} &= \gamma_{10} + \gamma_{11}\text{Age}_i + \gamma_{12}\text{Gender}_i + \gamma_{13}\text{Marital Status}_i + \gamma_{14}\text{Graduate Status}_i \\ &\quad + \gamma_{15}\text{Centrality}_i + \gamma_{16}\text{Private Regard}_i + \gamma_{17}\text{Public Regard}_i + u_{1j}. \end{aligned}$$

In these equations (γ_{01}) is the predicted level of average daily distress controlling for mean levels of depression (γ_{10}) is the predicted value of the discrimination-distress

TABLE 4 Multi-level Model Estimates for Negative Affect and Depression

Predictor	Negative affect		Depression		Anxiety	
	β	<i>SE</i>	β	<i>SE</i>	β	<i>SE</i>
Intercept						
	1.506**	0.112	1.109**	0.281	2.183**	0.281
CES-D	.019**	0.003	.055**	0.099	.129**	0.020
Level 1 (daily) predictors:						
Racial discrimination	.062**	0.014	.196**	0.055	.359**	0.089
Level 2 (trait) predictors:						
Centrality	-.001	0.035	-.081	0.109	-.189	0.303
Private regard	-.069	0.050	-.042	0.135	-.213	0.362
Public regard	-.070*	0.029	-.167*	0.073	-.488*	0.215
Cross-level interactions:						
Racial discrimination \times centrality	.065*	0.031	.268*	0.109	.257	0.164
Racial discrimination \times private regard	-.027	0.029	-.102	0.102	.137	0.144
Racial discrimination \times public regard	.030	0.030	.070	0.070	-.086	0.097

Notes: Day, Age, Gender, Marital Status, and Graduate Status, were included as a controls in both models. Prior day mental health was included at level 1 in each model. CES-D = Trait depression. All level-2 predictors were grand mean centered. * $p < .05$; ** $p < .01$.

association at average levels of demographic variables and racial identity; ($\gamma_{11} - \gamma_{17}$) is the partial relationship between demographic variables, racial identity and the discrimination–distress relationship. Three separate models were conducted for negative affect, depression and anxiety. As shown in Table 4, after controlling for participants' overall level of depression and the previous day's levels of each distress variable, centrality was found to moderate the daily relationships between racial discrimination and negative affect ($\beta = .065$, $SE = 0.031$, $p < .05$) and depression ($\beta = .268$, $SE = 0.109$, $p < .01$). Specifically, for those participants reporting higher levels of racial centrality, experiencing daily racially discriminatory encounters was associated with significantly greater elevations in negative affect (see Figure 1) and depressive symptoms (see Figure 2) than for those reporting lower levels of racial centrality. Finally, neither private nor public regard were found to significantly moderate these relations.

Discussion

This study investigated African Americans' daily exposure and reactivity to racial discrimination and the role of racial identity as a moderator. The daily diary methodology offered a within-person characterization of exposure and reactivity to racial discrimination that has been obscured by studies that have used cross-sectional or long-term retrospective accounts. Namely, the current findings allowed for more precise estimations of the frequency of racial discrimination and the impact of these encounters on psychological distress. Overall, results indicate the unique role of

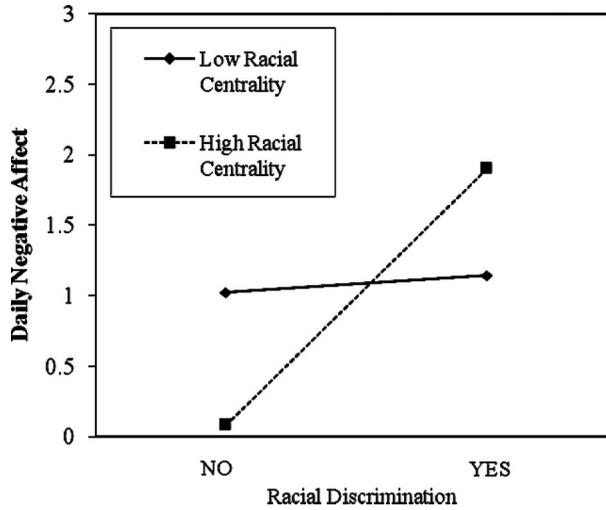


FIGURE 1 Racial centrality as a moderator of the relationship between racial discrimination and negative affect.

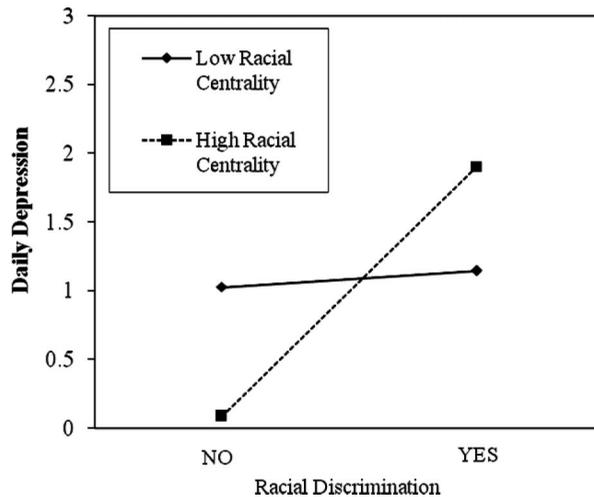


FIGURE 2 Racial centrality as a moderator of the relationship between racial discrimination and depression.

racial identity in patterns of exposure to racial discrimination and the extent to which these experiences relate to daily distress.

The number of racially discriminatory encounters reported by participants over the course of this study suggests that these encounters were by no means rare. The average individual reported almost six encounters during their two-week involvement. Interestingly, at the daily level, the proportion of study days on which participants reported at least one racial discriminatory encounter was approximately 25%, which translates to roughly three or four days during the two-week diary period. Together, these findings suggest that although racial

discrimination was not literally a daily experience for most participants, they were reported fairly frequently, with many participants reporting multiple occurrences within a single day. Perhaps, these results point to a priming effect wherein experiencing one racially discriminatory encounter on a given day increases the likelihood of attributing racism to other negative encounters occurring that day. It may also be that individuals spend more time in racially hostile environments on some days than on others. Supportive evidence for this has been documented in qualitative studies of African-American college students' experiences (Solorzano, Ceja, & Yosso, 2000). In addition, the implications of these findings may be particularly relevant for African-American women in the academy as they may also be challenged with gender-based discrimination and exclusion (Cokley, 2006; Evans & Cokley, 2008).

It should be noted that the frequencies of encounters reported by the doctoral students and graduates in the current study are roughly three-times higher than those found by Swim, Hyers, Cohen, Fitzgerald, and Bylsma (2003) in a study involving undergraduate students. Perhaps differences in sample characteristics explain the discrepancies in findings. It has been shown that feelings of racial isolation may be greater for doctoral students than for undergraduates due to the smaller numbers of African-American students in graduate programs. Lewis, Ginsberg, Davies, and Smith (2004), for example, suggest that some African-American doctoral students may perceive barriers to interacting with others students as many supportive organizations and programs on campuses are designed solely for the undergraduate experience. There may also be an external account for the elevated frequency of stressors reported. Consistent with Kaiser and Pratt-Hyatt's (2009) findings, White classmates or instructors who subscribe to traditional hierarchy worldviews may treat more harshly highly identified African Americans who by striving to obtain doctoral degrees may inherently challenge such views. This possibility has implications for African Americans working in high-status social roles or in contexts, beyond educational environments, in which they may be traditionally underrepresented.

Consistent with previous research (Sellers et al., 2006), the most blatant or transparent racial discriminatory encounters were among the least reported by study participants. Specifically, the combined offenses of: (a) being insulted, called a name, or harassed; (b) being laughed at, made fun of, or taunted; and (c) overhearing or being told a racist joke were reported substantially less than the single offense of having one's ideas minimized or ignored. This offense may be particularly dispiriting for African Americans matriculating through academic and professional contexts as the ability to develop and exchange ideas that are respected and considered valid is fundamental to generating academic products and being accepted among professional peers. While academic and social integration, motivation, and support are important for the success of all students, they are critical for African Americans in doctoral programs given their greater isolation on many university campuses (Foster, 2005; Maton & Hrabowski, 2004).

Exposure to Racial Daily Racial Discrimination

As predicted, African Americans with higher racial centrality showed trends of reporting greater exposure to racial discrimination than those with lower racial centrality. This is consistent with previous findings (e.g., Sellers & Shelton, 2003; Sellers et al., 2003) suggesting that African Americans for whom race is central may

attribute racism to a broader range of negative daily encounters. In addition, for study participants, placing a greater value on their race (i.e., high private regard) was related to a decreased likelihood of reporting racial discrimination. Although not predicted, this finding is in line with Caldwell, Zimmerman, Bernat, Sellers, and Notaro (2002), who found that African-American youth who endorsed higher private regard attitudes also perceived less stress. Several reasons could account for the negative relation between private regard and exposure to daily racial discrimination found in the current study. Perhaps individuals who value being African American spend more of their time with other members of their racial group or engage in activities that foster racial and cultural pride, thereby shielding exposure to racial discrimination. It is also possible that African Americans with low private regard perceive their race as a burden and therefore more readily attribute the negative experiences they have to their race. Given their strong intercorrelation in the current study, private regard may be especially protective when it is coupled with high levels of centrality. Using cluster analytic techniques, Seaton (2009) found that racial identity profiles emphasizing the centrality of race as well as the value of group belonging (e.g., high private regard) were protected from the deleterious effects of perceived discrimination. These possibilities lend support for the multidimensionality and complexity of African-American racial identity: while racial centrality was a positive indicator of exposure to daily racial discrimination, racial private regard was a negative indicator of these experiences.

Reactivity to Daily Racial Discrimination

As expected, negative affect and depressive symptoms were elevated when daily racial discrimination was reported. This finding parallels previous studies suggesting that everyday forms of racial discrimination can have a devastating toll on mental health (Klonoff et al., 1999; Williams et al., 2003). Counter to predictions, however, public regard was not found to significantly moderate daily relations between exposure to racial discrimination and distress. Previous research (e.g., Sellers & Shelton, 2003; Sellers et al., 2006) has shown that those individuals who believe that others hold negative views of African Americans are less negatively impacted by racial stressors. This finding, however, was not replicated in the current study. Perhaps this is suggestive of the role of racial identity at the daily level investigated in the current analyses in contrast to long-term patterns of adjustment. Whereas public regard has been shown to interact with discrimination in studies where African Americans are asked to summarize or aggregate all past-year encounters of discrimination (e.g., Caldwell et al., 2004; Sellers & Shelton, 2003), it does not appear to be a significant factor during daily encounters. One methodological explanation for this discrepancy may be that the protective value of low public regard found in previous work may result from individuals engaging in effective coping strategies over broader periods of time that are not captured in a within-day time frame (Scott & House, 2005; Sellers et al., 2003). Additional research is needed to elucidate the necessary conditions under which public regard shapes how African Americans respond to racial discrimination.

Consistent with previous research (e.g., McCoy & Major, 2003; Yip et al., 2008), racial centrality appeared to exacerbate reactivity to experiences racial discrimination. This finding is in line with the *centrality hypothesis*, which holds that race-related stressors will be significantly more damaging for individuals for whom race is a central aspect of their self-concept (Yip et al., 2008). As previously noted, however,

testing this hypothesis positioned racial identity as a *moderator* of the discrimination–adjustment relationship. This analytic approach is unique from tests of *mediation* that have shown exposure to discrimination to increase well-being indirectly through group identification (e.g., Branscombe et al., 1999). In addition, broad generalizations of the centrality hypothesis are qualified by evidence suggesting that during adolescence and emerging adulthood, higher levels of group identity can be protective in the face of discrimination (e.g., Ashburn-Nardo, Monteith, Arthur, & Bain, 2007; Sellers et al., 2003). That the majority of the current sample were in their 30s may further support developmental differences in how racial identity functions in daily life. An alternative explanation for the exacerbating influence of centrality may lie in the limited opportunities for in-group interaction afforded to participants in the current study. Given the disproportionately low percentages of African Americans enrolled in doctoral programs (Maton, Kohout, Wicherski, Leary, & Vinokurov, 2006), these participants may matriculate in environments where they are racially isolated. To the extent that greater in-group identities foster resilience by allowing individuals to interact with others and discuss strategies for overcoming adversity, individuals who have limited opportunities to interact with in-group members may be forced to internalize such challenges.

Limitations and Future Directions

While these findings provide a glimpse into the daily race-related stress processes among African Americans, several limitations should be noted. It is important to note that while previous days' distress was controlled for in our analyses, relationships between daily racial discrimination and distress were concurrent, and thus causal directionality cannot be established. In addition, failure to find differences between genders in some analyses may have been due to the smaller numbers of men included. Although the current sample, comprised of mostly women, offers a close resemblance to the larger academic landscape at the doctoral level (Cross & Slater, 2000), the racial stressors reported and their relationship to negative affect and depressive symptoms may be more indicative of the doctoral experience of African-American women than men. An important next step would be to examine gender differences, along with other important demographic characteristics, in the specific types of racial discrimination individuals are likely to report (Smith, Allen, & Danley, 2007). Furthermore, the encounters most frequently endorsed may be those particularly salient to individuals in doctoral contexts and not generalize to a broader group of African Americans.

The combination of within-person and between-person analyses provides a framework for investigating daily vulnerability to daily racial discrimination. Clearly, exposure to subtle forms of racism can erode the quality of individuals' day-to-day mental health, and do so differentially as a function of racial identity. It remains important to further elucidate how specific aspects of racial identity (e.g., centrality) relate to the experiences of African Americans, both positive and negative. For example, it may be that aspects of racial identity that increase exposure to race-related stress in one context can bolster opportunities to experience race-related uplifts in another. Given the normative challenges afforded by most doctoral programs and early career environments, future research might investigate what resources African Americans rely on to successfully navigate these settings.

Notes

1. The internet-based platform used allowed the research team to: (a) routinely access and download completed questionnaires; (b) regulate when participants could access daily questionnaires; (c) resolve logistical field problems immediately (e.g., resend a survey link that was accidentally deleted by a participant); and (d) monitor which participants had completed daily surveys in real-time.
2. Because the racial classification of *Black* could refer to all individuals of African descent, we use the term African American throughout this paper unless paraphrasing other sources. Here, Black denotes the phrasing of specific items used in the Multidimensional Inventory of Black Identity (MIBI; Sellers et al., 1997).
3. We thank Professor Shelly P. Harrell for granting permission to use and modify this measure for daily use.
4. Given the relatively small number of male participants, we reanalyzed our data with only female participants. Although data from these analyses is not shown, results were statistically similar in direction and significance to findings that included both men and women.

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