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Microaggressions and Psychological Functioning among High Achieving African-Americans: A Mixed-Methods Approach

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Racial microaggressions and their influence on mental health were examined among African American doctoral students and graduates of doctoral programs. Using a mixed-methods approach, the current study first identified the types of microaggressions reported by African American participants ($N = 97$) and then investigated the mechanism by which these experiences influence mental health over time with a separate sample of African

Americans ($N = 107$). The qualitative findings revealed three categories of microaggressions including Assumption of Criminality/Second-Class Citizen, Underestimation of Personal Ability, and Cultural/Racial Isolation. The quantitative analyses found support for a moderated-mediational model by which Underestimation of Personal Ability was associated with greater perceived stress at one-year follow-up, which in turn was related to greater depressive symptoms. Active coping was found to moderate the racial microaggression-perceived stress link such that individuals who endorse active coping behaviors reported lower perceived stress. These findings are discussed in terms of practical and theoretical implications regarding the role of racial microaggressions in the lives of high-achieving African Americans and the mechanisms by which these experiences contribute to mental health problems.

Continued research efforts have investigated the role of race-related stressors on mental health among African Americans. Perceived discrimination has been consistently linked to poor psychological outcomes (Clark, Anderson, Clark, & Williams, 1999) and has been implicated as a major contributor to the mental and physical health disparities evident among racial minorities living in the U.S. (see Williams & Mohammed, 2009 for review). Kessler, Mickelson, and Williams (1999) indicated a lifetime prevalence rate for reporting some major form of discrimination to be approximately 50% among African Americans. They also found that 25% of African Americans reported day-to-day discrimination as an often occurrence. This research suggests that discrimination is a salient aspect of the daily experience of many African Americans and that it has a significant influence on their psychological functioning.

Recently, *racial microaggressions*, a modern form of racism comprised of subtle daily racial slights and insults, have received increased empirical attention (Sue et al., 2007). It has been suggested that these everyday disparaging messages, which are often ambiguous, carry with them more severe psychological consequences than overt forms of discrimination (Solorzano, Ceja, & Yosso, 2000). However, the potential mechanisms by which racial microaggressions impact mental health, along with the coping skills that can serve as protective factors, are not well understood. Transactional stress and coping models posit that race-related stressors, including racial microaggressions, are likely to increase perceptions of general stress which in turn contributes to mental health problems (Berry 2006; Clark et al., 1999). The stress and coping perspective also suggests

that these stress pathways can be moderated by the level of active coping skills. The current study sought to corroborate and expand upon the previous work on racial microaggressions by using a mixed-methods design to first identify the types of microaggressions reported by African American graduate students and professionals and then to investigate the mechanism by which these experiences influence mental health over time. African American doctoral students and graduates of doctoral programs represent an important group of individuals who, in order to succeed, must overcome the daily challenges of interacting in an environment in which they are traditionally underrepresented.

Racial Microaggressions and Mental Health

Racial microaggressions are brief and commonplace, interpersonal exchanges—intentional and unintentional—that communicate denigrating and disparaging messages to ethnic minority individuals (Solorzano et al., 2000; Sue et al., 2007). These exchanges may be manifested behaviorally or verbally and have been theorized to occur in three distinct forms: *microassaults*, *microinsults*, and *microinvalidations* (Sue et al., 2007). Microassaults refer to explicit, racially derogatory statements or actions intended to hurt the victim; they may or may not be violent, but are motivated by the conscious and purposeful intentions of their perpetrator. Microinsults convey rudeness, insensitivity, or otherwise demean the victim's racial or cultural heritage, though they need not be enacted explicitly. For example, microinsults include ascription of intelligence, assumption of criminal status, pathologizing cultural values/communication styles, and second-class citizenship. Microinvalidations exclude, negate, or minimize the perceptions, thoughts, feelings, or other experiential components of targets' realities. Types of microinvalidations have involved being made to feel like an alien in one's own land, perpetrator racial color blindness, denial of personal racism, and endorsement of the myth of meritocracy (cf., Sue et al., 2007). Unlike microassaults that involve overt behavior, microinsults and microinvalidations include subtle and ambiguous discriminatory situations. It has been suggested that the uncertainty and potential ambiguity associated with these types of microaggressions contributes

to experiencing psychological problems (Solorzano et al., 2000; Sue, Capodilupo, & Holder, 2008).

The relationship between perceived racial discrimination and adverse mental health outcomes among African Americans is well-documented (Carter, 2007; Clark et al., 1999; Williams, Neighbors, & Jackson, 2003). Recent findings have suggested that, for African Americans, the impact of racism-related stress on psychological distress is greater relative to that of life stress (Utsey, Giesbrecht, Hook, & Stanard, 2008). The empirical literature examining the influence of racial discrimination on self-esteem among African Americans, and other stigmatized groups, is equivocal as some research shows that individuals internalize negative images associated with their group while other studies report the opposite relationship (cf., Major & O'Brien, 2005). As pointed out by Major and O'Brien, these inconsistencies could be the result of measurement issues in the assessment of self-esteem. With respect to the relationship between discrimination and mental health outcomes, researchers have primarily used instruments that measure more direct and overt forms of discrimination, thus largely overlooking the more subtle racial microaggressions. As an exception, Sellers and colleagues have used a measure of racial microaggressions and found that this type of discrimination was related to poorer mental health among African American adolescents (Sellers, Copeland-Linder, Martin, & L'Heureux Lewis, 2006) and first-year college students (Sellers & Shelton, 2003).

Sue and colleagues (2007) have argued that the adverse impact of racial microaggressions on ethnic minority individual's psychological functioning may be due to the pervasiveness and chronicity of these negative everyday interethnic encounters. Ong, Fuller-Rowell, and Burrow (2009) reported that chronic discrimination not only had damaging effects on psychological distress but that such exposure could "lead to an accumulation or bundling of daily negative events across multiple domains" (p. 1267). However, there remains a lack of understanding regarding the different types of racial microaggressions and their differential impact on mental health. The perception of life as more stressful can be a natural corollary to experiencing racial microaggressions as they are indicative of added hurdles that an ethnic minority individual must manage.

Perceived Stress and Coping with Discrimination

As suggested by the stress-and-coping literature, the appraisal of racial microaggressions as threatening and stressful may contribute to the onset of negative mental health outcomes (Broudy et al., 2007). Similarly, subjective meaning prescribed to adverse life experiences may augment the actual potential threat engendered by an event (Brown, 1989). Indeed, in a review of the empirical research on racial discrimination and stress, Clark and colleagues (1999) identified a consistent link between discrimination and elevated psychological and physiological stress responses. *Perceived stress*, or the appraisal of one's life as stressful, can be viewed as the experienced level of general stress as a function of discrete events and/or coping variables (Cohen, Kamarck, & Mermelstein, 1983). Generally, findings suggest that perceived stress may be a mechanism by which racial discrimination influences mental health outcomes. For example, in a study with African American college students, Chang, Watkins, and Hudson Banks (2004) found that perceived stress mediated the relationship between maladaptive perfectionism, life satisfaction, negative affect, and suicide ideation. Perceived stress has also been implicated as a mediator in the relationship between racial discrimination and psychological distress among African Americans (Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). Thus, it would be expected that experiences of racial discrimination would be associated with deeming one's life to be generally stressful, thus, resulting in an exacerbation of depressive symptoms.

Racial discrimination has been described as a complex stressor to the extent that individuals must cope with physiological, psychological, emotional, and environmental consequences of experiencing such an adverse interpersonal interaction (Brondolo, ver Halen, Pencille, Beatty, & Contrada, 2009). The coping skills an individual uses in response to racial discrimination is likely to influence their appraisal of the event and their level of perceived stress (Clark et al., 1999; Lazarus & Folkman, 1984). Clark and colleagues (1999) have suggested that the "magnitude and duration of these stress responses will depend on the availability and use of coping responses" (p. 809). Research with African Americans provides promising evidence of the role of active coping behaviors in mitigating the impact

of stress (Utsey et al., 2008). Recent findings suggest that the ambiguous nature of modern racial discrimination contributes to psychopathology development through decreased general coping abilities which, in turn, contributes to increases in psychological distress (Torres, 2009). Tyler, Broome, and Williams (1991) describe an active coping orientation as a component of general competence by which an individual takes proactive agency and initiative in their lives. As such, these characteristics facilitate acclimating to and mastering the immediate environment. Therefore, it is important to examine the role of active coping in moderating the link between racial microaggressions and perceived stress as it pertains to predicting depressive symptomatology.

Present Study

Taken together, previous research suggests that racial microaggressions constitute pervasive, subtle, and covert forms of racism that have deleterious effects for African Americans' mental health. While there is evidence that the coping strategies employed by individuals in response to racial discrimination may moderate its impact on mental health, no research to date has examined this potential by specific forms of racial microaggressions. The current research was designed to address this gap in knowledge by identifying the types of racial microaggressions experienced by high achieving African Americans and delineate the mechanism by which racial microaggressions influences mental health through perceived stress.

To this end, the current research entailed a mixed-methods approach in which both qualitative and quantitative data were analyzed. An advantage to a mixed-methodology is that the findings allow researchers to gather a deeper understanding of complex cultural processes being investigated by triangulating data from various methodological strategies (Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005). The present mixed-methods study utilized a sequential design in which both qualitative and quantitative data were given equal priority (QUAL → QUAN). The qualitative portion of the project was conducted first to address the initial project objective of identifying the types of racial microaggressions reported by high-achieving African Americans. Briefly, the emergent themes included

Assumptions of Criminality/Second-Class Citizen, Underestimation of Personal Ability, and Cultural/Racial Isolation. As a way of bridging or providing a thread between methodologies, an exploratory factor analysis of a racial microaggressions scale was conducted to quantitatively corroborate the themes that emerged from the qualitative narratives. The domains of racial microaggressions identified were then used in a longitudinal analysis. The multiple time points (T1 baseline and T2 one year follow-up) of the quantitative data provided information regarding the process by which different types of racial microaggressions influenced mental health. As such, it was expected that data would support a moderated-mediation model in which (a) perceived stress mediates the relationship between racial microaggressions and depression at one year follow-up and (b) active coping moderates the racial microaggression-perceived stress link such that individuals who endorse active coping behaviors would report lower perceived stress.

Method

Qualitative Participants

For the qualitative analyses, the sample consisted of 97 African Americans (76% women) averaging 36 years of age (range = 23–56). Slightly over one-half of participants reported they were single (51.1%) while 36.2% reported that they were married. Most participants did not have children (63.2%). Of those participants with children, most ($n = 16$) had one child. Of the total sample, 47% ($n = 46$) had obtained their doctoral degree (date of completion range = 1992–2007). Of those individuals currently enrolled in a doctoral program, 55% ($n = 28$) were in their first or second year of graduate studies. Participants' reported graduate degrees were among the physical sciences (e.g., biological oceanography, material science and engineering), health sciences (e.g., biomedical sciences, pharmacology), social sciences (e.g., clinical psychology, sociology), arts (e.g., music), and humanities (e.g., anthropology, history).

Quantitative Participants

For the quantitative analyses, 174 African American doctoral students and recent graduates were recruited to participate in a longitudinal study. Among these participants, 107 (61%) provided complete data at both T1 and T2. All demographic data was collected at T1. Most participants were women (84.9%). Participants' mean reported age was 30.44 ($SD = 7.05$; Range = 18–52). Approximately 70% of participants indicated that they were single, while 24.5% reported that they were married. Most (80.2%) did not have children; those participants with children ($n = 22$) reported having only one child, although 11 reported having two or more children. Slightly more than one-third of participants (34.6%) indicated that their primary doctoral advisor was of the same ethnic background, that is, African American. The majority of participants (69.2%) reported that their degrees was in progress; of those who reported their doctoral degree had been conferred, the earliest reported year of graduation was 1993 and the most recent year of graduation was 2007. Almost all participants (92.4%) reported that they were attending or had attended a predominantly White institution for their doctoral training, 5.7% reported that they were attending or had attended a predominantly African American institution, and 1.9% reported that were attending or had a attended an institution that was neither predominantly White nor predominantly African American.

Procedure

Both the qualitative and quantitative study data were collected via a secure Web site. Participants were recruited from academic fellowship programs, associations, and organizations supporting or networking African American doctoral students. The individuals who participated in the qualitative portion of the study, who were recruited in the fall 2006, had attended or were currently enrolled in graduate programs at universities across the state of Florida. These participants were asked to describe the challenges and successes they experienced while attending graduate school through several open-ended questions. The qualitative analysis of the current project was conducted based on responses to the question "What obstacles,

if any, did you have to overcome to earn your doctorate degree?" Participants were able to type in their responses which ranged from several words to several sentences. All participants were compensated with a \$10 gift certificate to an address they specified.

The participant responses were examined via strategies associated with grounded theory (Strauss & Corbin, 1990). Specifically, the process of *open coding* was utilized in which "data are broken down into discrete parts, closely examined, and compared for similarities and differences" (p. 102). Initially, meaningful units of information, typically several sentences long, were identified that described discrete ideas or events. These units were then compared to each other, based on a process known as *comparative analysis*, and gradually grouped together based on shared characteristics to develop *concepts*. Related concepts were merged into *category* themes.

The research team that was involved in analyzing the qualitative data consisted of one Latino (the first author), an African American, and two European Americans. The worldview and perspectives of the investigators play an important role in the analysis of qualitative data. Therefore, before the analysis process, the researchers discussed their values, biases, and assumptions. Although the researchers were interested in identifying race-specific factors, the focus at the onset of data analysis was to identify any potential barriers experienced by African-American doctoral students and doctoral graduates. The initial open coding process was conducted by a collaborative research team including the Latino principal investigator and two European American research assistants (one graduate and one undergraduate student). The research team worked together to identify the thematic concepts. An African American graduate student served as an auditor by independently reviewing the emergent themes. The entire research team then discussed potential disagreements until a consensus was reached.

The quantitative portion of the project was conducted in the Spring of 2007 (T1) and 2008 (T2). These participants were recruited via national academic fellowship programs and organizations that functioned to provide support to African American doctoral students and alumni. Some of these recruitment sources included those used during the qualitative study, which resulted in a small number of individuals ($n = 23$) who participated in both the qualitative portion

of the project and the quantitative longitudinal waves. Based on the location of the college or university where the participants had attended or were currently enrolled, all major geographic regions of the United States were represented including over 45 different colleges and universities. The majority of participants indicated that they had attended or were currently attending a university that was located in the East Coast (41.7%), the second most commonly reported geographic region was the South (20.8%), followed by the Midwest (19.4%), and then the West Coast/Pacific Northwest (16.4%). Approximately 30% of participants did not report which college or university they attended or had attended. The internet-based platform allowed the research team to (a) send electronic invitations to doctoral students to complete an online questionnaire during T1 and (b) invite those students who completed the first wave to complete a one-year follow-up questionnaire during T2. At both measurement occasions, participants completed the online questionnaires in less than 30 minutes, on average, as indicated by electronic time-stamps recording the time each participant spent accessing the questionnaire. To compensate participants for their involvement in the study, two raffles of \$50 were conducted for those who had completed the first questionnaire. At the one-year follow up, all participants who completed the questionnaire were sent a \$10 gift certificate to an address they specified.

Quantitative Measures

Racial Microaggressions. Racial microaggressions were assessed using the Daily Life Experience-Frequency Scale (DLE-FS) subscale of the Racism and Life Experience scale (Harrell, 1994). The DLEFS is a self-report measure that assesses the frequency and impact of experiencing 20 racial microaggressions. The measure is based conceptually on Lazarus and Folkman's (1984) model of stress and coping and has been employed in a number of studies involving perceptions of racial discrimination (e.g., Scott, 2003; Sellers et al., 2006). For the current study, participants reported how frequently they had encountered each racial microaggression during the past year. Sample items include, "Being ignored, overlooked, or not given service," "Others expecting your work to be inferior," and "Being

mistaken for someone who servers others (i.e., janitor).” Response formats ranged from 1 (*never*) to 6 (*once a week or more*). Reliability analyses of the DLE-FS at T1 found excellent internal consistency, Cronbach’s alpha = .90.

Active Coping. The Behavioral Attributes of Psychosocial Competence–Condensed Form (BAPC-C; Zea, Reisen, & Tyler, 1996) was used to assess participant coping styles at T1. The BAPC-C is a 13-item self-report questionnaire of psychosocial competence culturally specific to the mainstream United States. To assess behavioral coping strategies, participants select from a series of dichotomous forced-choice items the statement that more closely describes their typical actions. Each forced-choice item contains one active behavioral coping strategy (e.g., I usually think ahead and organize my thoughts or ideas about future situations) and one passive behavioral coping strategy (e.g., I generally prefer to live my life as I go). Active behavioral coping strategies receive a score of 1; passive behavioral coping strategies receive a score of 0. BAPC-C items are summed to obtain a single measure of behavioral coping strategies with scores ranging from 0 to 13. Higher scores indicate greater use of active coping. The BAPC-C has been found to be a reliable and valid measure of coping behaviors among several ethnic groups including African Americans, Asian Americans, Latinos, and non-Latino European Americans (Zea, Belgrave, Townsend, Jamara, & Banks, 1996; Zea, Riesen, 1996). In the present study, analysis of BAPC-C internal consistency found evidence of lower but acceptable reliability, Cronbach’s alpha = .62.

Perceived Stress. Stress at T2 was measured with the Perceived Stress Scale (PSS; Cohen et al., 1983; Cohen & Williamson, 1988). The PSS, a 10-item, self-report questionnaire of subjective global stress, assesses individuals’ appraisal of their lives as unpredictable, uncontrollable, and overloaded. Respondents rate the degree to which they have experienced stress with respect to various psychosocial domains on a Likert scale from 1 (*never*) to 5 (*very often*). The PSS has been found to be associated with self-reported impact of stressful life events and with frequency of negative life events, suggesting concurrent validity, and to evince a stronger relationship with depression symptoms relative to life event checklists, suggesting incremental validity (Cohen et al., 1983). In a national probability

sample, the PSS was found to be significantly associated with health behaviors, health concerns, life satisfaction, and help-seeking behaviors (Cohen & Williamson, 1988). Reliability analysis of the PSS found evidence of marginally acceptable internal consistency, Cronbach's alpha = .64.

Depression Symptoms. The Center for Epidemiological Studies–Depression scale (CES-D; Radloff, 1977), a 20-item self-report questionnaire, assessed participants' severity of depressive symptoms at both measurement occasions. The CESD has been used extensively with ethnic minority samples including African Americans (e.g., Constantine, Okazaki, & Utsey, 2004; Williams et al., 2007) and Latinos (e.g., Crockett et al., 2007; Torres & Rollock, 2007). CES-D items instruct respondents to indicate how frequently they have experienced depression symptoms during the past week rated on a Likert scale from 0 (rarely or none of the time, less than 1 day) to 3 (most of the time—5 to 7 days). Ratings are summed to obtain a total score ranging from 0 to 60. Although not designed as a diagnostic instrument, the CES-D is sensitive to clinically severe depression symptoms; a CES-D total score of 16 or greater is considered to reflect clinical significance, with higher scores reflecting more severe symptomatology (Nezu, Maguth Nezu, McClure, & Zwick, 2002; Radloff, 1977). In the present study, the CES-D demonstrated evidence of strong internal consistency at both measurement occasions, Cronbach's alpha = .90 (T1) and .91 (T2).

Results

Qualitative Analyses

A major category that emerged during the qualitative analysis included race-related barriers. The concepts identified within the race-related barriers category included assumptions of criminality or being treated like a second-class citizen, underestimation of personal ability, and cultural/racial isolation. *Assumption of Criminality/Second-Class Citizen* entailed racially motivated negative events in which the individual of color was thought to be doing something illegal or was treated as a lesser person. As an example, one participant stated: “. . . I suppose that getting past peoples'

expectations and perceptions of what it is to be a young black man. For some people, image means a lot. Once while working towards my masters I was told by a woman that worked at the university that I should not shave my head because I looked like a criminal and looked like 'other' black people." Another individual stated "getting harassed by campus police or others while you're walking around in a building late at night because they don't believe you're in graduate school or studying at 2:30 am on a Saturday night in the Engineering School." Both passages speak to disparaging interactions which conveyed the message that these individuals were somehow deviant because of their race.

Underestimation of Personal Ability involved stereotypes and negative perceptions regarding one's capacity to succeed in academia. Particularly, this included the sense of having to constantly prove one's ability. For instance, one individual indicated "having to prove myself and 'surprise' faculty who may have had initial assumptions about my competence based on my appearance." Another participant stated, "most of the time, I get the feeling that others do not feel that I belong. That the only reason I am there is to fill a quota. I have overheard comments about the concern for my lack of ability to perform as others. This is nothing new. When I finish this degree and get in the real world this mess will continue to exist." Both statements convey the notion that African American doctoral students are receiving the message, whether verbally or not, that they are intellectually inferior or incapable of performing at the same level as others. The quote of the second participant also communicates the idea that being underestimated is a chronic or persistent experience that occurs across multiple contexts.

Cultural/Racial Isolation dealt with being singled out because of race or marginalization due to lack of same-race peers. For example, "I'm in a department that has very few blacks and sometimes I feel so alienated—like no one knows what I'm going through." Also, "By being [one of] only a few of the 'minority' or black students in my program I have had the increasing paranoia over the years about people's perceptions of my academic performance. My anxiety and stress levels have hindered my performance in classes and in my research production." These quotes illustrate how cultural/racial

isolation can overlap with other stressors and directly influence psychological health.

Quantitative Analyses

Preliminary Analyses. To address the impact that attrition may have had on study outcomes, several one-way analyses of variance (ANOVAs) were conducted to determine if there were systematic differences between the 107 participants who sufficiently completed both measurement occasions and the 67 who dropped out or did not provide sufficient T2 data. Results suggested that the two groups differed in age, $F(1, 172) = 7.04, p < .05$, with participants who dropped out being older ($M = 33.53, SD = 9.16$) than those who were retained ($M = 30.71, SD = 6.51$). However, no other significant differences emerged for frequency of reported racial microaggressions, depressive symptoms, or active coping. Similar analyses were conducted to investigate whether there were significant gender variations for the major study variables. No statistically significant differences between male and female participants were found.

Factor Analysis. A Principal Components Analysis using Maximum Likelihood Rotation was conducted with the DLE-FS item responses collected during the baseline (T1) data point. To determine the preliminary factor structure, only factor loadings of .40 or greater were retained and factors required a minimum of three items. Items that loaded on two factors were excluded from the interpretation of findings. The analysis revealed a three-factor solution with Eigenvalues greater than 2.46 that accounted for 51.60% of the scale variance. Table 1 presents scale items, factor loadings, Eigenvalues, and the percent variance explained by each factor. Subscales derived by factor analysis were akin to the themes found in the qualitative analysis of the present project. The first factor, *Underestimation of Personal Ability*, explained 22.17% of variance with an Eigenvalue of 4.21 after rotation, and contained items that corresponded to having one's ability minimized, ignored, and/or underestimated. The second factor accounted for 16.45% of the variance with an Eigenvalue of 3.12 after rotation, and contained items that reflected individuals experiencing a physical and/or emotional separation from others and was termed *Cultural/ Racial Isolation*. The third factor explained 12.92% of

variance with an Eigenvalue of 2.46 after rotation, and contained items that involved being insulted, harassed, and/or treated as a second-class citizen. This factor was thus named *Assumption of Criminality/Second-Class Citizen*. The reliability of all subscales ranged from acceptable to excellent, with coefficient alphas of .69 for Assumption of Criminality/Second-Class Citizen, .74 for Cultural/Racial Isolation, and .88 for Underestimation of Personal Ability.

Moderated Mediation Analyses. Preliminary quantitative analyses revealed that the CES-D and the BAPC-C distributions were significantly skewed. These variable distributions were transformed using linear transformations, as recommended by Tabachnick and Fidell (2001), resulting in an approximation of normality. For ease of interpretation, all descriptive statistics and correlations presented use untransformed data; all inferential statistics use transformed data. Table 2 presents untransformed means and standard deviations for the main variables in the quantitative portion of the study. Participants' mean BAPC-C scores at T1 suggested that participants typically employed active behavioral coping strategies to deal with life events. The PSS mean scores indicated that individuals reported moderate levels of perceived stress during the previous month when assessed at T2. Across the three racial microaggression subscales, participants endorsed, in the form DLE-FS mean scores, at T1 more than a few times per year but less than monthly which is consistent with previous reports (Sellers & Shelton, 2003). The most frequently endorsed DLE-FS items included being treated rudely or disrespectfully (37.7%); having their ideas or opinions minimized, ignored, or devalued (30.2%); being ignored, overlooked, or not given service (26.4%); not being taken seriously (24.8%); and being considered fancy or exotic by others (22.6%). As shown in Table 2, all three racial microaggression subscales were positively correlated with perceived stress and depression at T2. Active coping was negatively associated with perceived stress, depression, and Underestimation of Personal Ability, but not the other racial microaggression subscales.

Participants reported varied levels of depressive symptomatology at both T1 and T2 measurement occasions. At T1 29.5% of participants reported depression symptoms above a commonly used clinical cut-off (i.e., a CES-D score of 16 or greater); at T2, 26.7% of the sample indicated symptomatology above the cut-

off. Of those participants sample indicated symptomatology above the cut-off. Of those participants who reported clinically elevated T1 CES-D scores, 42.9% reported clinically elevated T2 CES-D scores; of those participants who reported nonclinically elevated T1 CES-D scores (i.e., a CES-D score of less than 16), 19.4% had clinically elevated CES-D scores at T2. There was no significant change in participants' overall reported CES-D scores from T1 to T2, $t(99) = 1.37, p = .17$.

Multiple regressions were conducted as recommended by Preacher, Rucker, and Hayes (2007) to test for a moderated-mediation relationship of racial microaggressions, perceived stress, active coping, and depression. Depression assessed at T1 was covaried in all analyses. Based on the subscales of the qualitative study and subsequent factor analysis, Underestimation of Personal Ability, Cultural/Racial Isolation, and Assumption of Criminality/Second-Class Citizen scale scores were examined separately as predictors of T2 depression. As shown in Figure 1, Underestimation of Personal Ability at T1 significantly predicted T2 depression, $t = 2.41, p = .018$, as well as perceived stress, $t = 2.76, p = .007$. Furthermore, T2 perceived stress significantly predicted T2 depression, $t = 4.66, p < .001$. After accounting for the indirect effect of T1 Underestimation of Personal Ability on T2 depression through T2 perceived stress, the direct effect T1 Underestimation of Personal Ability on T2 depression scores was not significant, $t = 1.26, p = .52$. A Sobel z-test indicated a significant reduction in the relationship between T1 Underestimation of Personal Ability and T2 depression after accounting for the indirect effects of microaggressions on depression through perceived stress, $z = 2.37, p = .02$. The interaction of T1 Underestimation of Personal Ability and T1 active coping was significant, $t = -2.25, p = .02$, suggesting the effect of T1 Underestimation of Personal Ability on T2 perceived stress is dependent on the level of coping behaviors exhibited by an individual.

Figure 2 illustrates the ability of T1 active coping to moderate the relationship between T1 Underestimation of Personal Ability and T2 perceived stress. T1 Underestimation of Personal Ability and T1 active coping were categorized into high and low scores based on median splits. This interaction suggests that the combination of high active coping and low Underestimation of Personal Ability was associated with the lowest perceived stress scores at one year followup. High experiences of Underestimation of Personal Ability were

related to elevated levels of perceived stress one year later with high active coping showing some benefit compared to low active coping. In general, low active coping was linked to greater perceived stress regardless of level of microaggressions reported.

No statistically significant findings were observed when Cultural/Racial Isolation and Assumption of Criminality/Second-Class Citizen scores were entered into the moderated-meditational model. Cultural/Racial Isolation significantly predicted T2 depression, $\beta = .21$, $SE = .08$, $t = 2.32$, $p = .02$, but did not predict T2 perceived stress, $\beta = .25$, $SE = .09$, $t = 1.53$, $p = .12$. T1 active coping failed to moderate the relationship between Cultural/Racial Isolation and T2 Perceived Stress, $\beta = -.07$, $SE = .09$, $t = -.80$, $p = .42$. Assumption of Criminality/Second-Class Citizens scores significantly predicted neither T2 depression, $\beta = .07$, $SE = .08$, $t = 0.88$, $p = .37$, nor T2 perceived stress, $\beta = .16$, $SE = .09$, $t = 0.46$, $p = .64$. T1 active coping did not significantly moderate the relationship between Assumption of Criminality/Second-Class Citizen and T2 perceived stress $\beta = .001$, $SE = .10$, $t = 0.01$, $p = .98$.

Discussion

The main objective of the current project was to examine the role of racial microaggressions in the lives of African American doctoral students and graduates of doctoral programs. This was accomplished via a mixed-methodology which (1) used qualitative responses to determine the types of microaggressions or race-related barriers experienced by these individuals and (2) employed quantitative methodologies to corroborate the forms of microaggressions and the mechanism by which these stressors have a prolonged mental health impact. Importantly, the present results employed a longitudinal design to provide evidence that racial microaggressions constitute a valid predictor of mental health outcomes. Overall, the findings provided an abundance of information regarding the role of racial microaggressions in the lives of African Americans and the person-environment interactions by which these experiences contribute to psychological functioning.

The qualitative analyses demonstrated that African Americans who had successfully entered or completed graduate studies endorsed

a variety of race-related barriers including being treated like a criminal or a second-class citizen, having one's personal ability underestimated or ignored, and feelings of isolation. These types of microaggressions corroborate previous reports which indicated that an assumption of intellectual inferiority was a major theme endorsed by ethnic minority individuals (Sue et al., 2008) and that the experience of cultural and racial isolation was a key challenge for African American doctoral students (Lewis, Ginsber, Davies, & Smith, 2004). Racial microaggressions which involve ascriptions of intelligence may be particularly salient for the current sample of high-achieving individuals given that this negative event occurs in an important domain of professional functioning and academic success. Furthermore, interacting in an environment that is not culturally diverse, as is the experience of many ethnic minorities in academia, significantly limits the availability of social supports which have been thought to be a key resource in ameliorating psychological distress (Utsey et al., 2008). Overall, the personal accounts of racial microaggressions reviewed suggests that managing various forms of subtle and covert discrimination places an added strain on coping resources and mental health.

Furthermore, the longitudinal and quantitative analyses substantiate the qualitative findings and provide evidence for the prolonged negative influence of racial microaggressions on African Americans' mental health. An important contribution of this study involves the validation of the specific racial microaggression themes that emerged in the qualitative analyses in the quantitative analysis. The results of the factor analysis of the DLE-FS supported three domains of racial microaggressions experienced by high achieving African Americans: Assumptions of Criminality/Second-Class Citizen, Underestimation of Personal Ability, and Cultural/Racial Isolation. These results are in contrast to Sellers and Shelton (2003) who reported that the underlying factor structure of the DLE-FS consisted of a single factor. The differences in sample characteristics (e.g., age and classification; undergraduate students vs. graduate students and professionals) may help to explain these differences. It is conceivable that reports of racial discrimination become more differentiated across the lifespan, as individuals increase their ability to compartmentalize negative experiences (Showers, Zeigler-Hill, & Limke, 2006).

Based on the moderated-mediational model proposed in the quantitative analyses, it was predicted that perceived stress would mediate the relationship between racial microaggressions and depressive symptoms one year later. Furthermore, it was expected that active coping would moderate the link between microaggressions and perceived stress. The findings provided partial support for these predictions, such that, after controlling for trait levels of depression, reports of Underestimation of Personal Ability were associated with an increased perception of one's life as stressful at the one-year follow-up, which in turn was related to greater depressive symptoms. The notion of *stereotype threat*, or the awareness that one may be judged or treated based on negative stereotypes of one's ethnic/racial group (Steele & Aranson, 1995), may help to explain the significant results with Underestimation of Personal Ability and not Assumptions of Criminality/Second-Class Citizen or Cultural/Racial Isolation in the moderated-mediational model. Stereotype threat has been thought to be most impactful when individuals care about or are invested in the domain where the stereotype applies (Crocker, Major, & Steele, 1998). Thus, experiencing racial microaggressions of Underestimation of Personal Ability, as opposed to Assumptions of Criminality/Second-Class Citizen or Cultural/Racial Isolation, may be more salient and carry a higher mental health risk for African American graduate students and professionals because of the underlying message or stereotype that these events communicate and the potential threat to the individual's goals. Conversely, Assumptions of Criminality/Second-Class Citizen and Cultural/Racial Isolation may have less severe psychological consequences because individuals may have a higher degree of social resources and/or place less emphasis on the influence of these experiences on their self-identification (Crocker & Major, 1989).

Research on major life stressors has revealed that chronic, persistent life difficulties play a significant role in the onset and recurrence of depressive episodes (Hammen, 2005; Monroe, Slavich, Torres, & Gotlib, 2007). Given that racial microaggressions contribute to perceived stress, African-Americans have the added burden of managing these race-related events, which ultimately puts them at greater risk for experiencing depressive symptoms. These findings support the idea posited by Sue and colleagues (2007) that racial

microaggressions constitute a legitimate strain on African-Americans' psychosocial functioning and identify the mechanism by which such a psychological toll takes place. That is, racial microaggressions are ambiguous (Sue et al., 2008); targets of microaggressions are often forced to ascertain whether another individual, in fact, perpetrated a discriminatory act. This state of *attributional ambiguity*, or the uncertainty that negative interactions are due to personal factors or to prejudices against one's group (Major, Quinton, & McCoy, 2002), is inherently stressful and differs from overt discriminatory acts which provide some explanation for the cause of the event. As such, the influence of racial microaggressions on perceived stress may lie at the uncertainty that emerges from such race-related interactions. As suggested in previous reports (Ong et al., 2009), this overall pattern of results is indicative of the role of stress proliferation as a key contributor to ethnic minority mental health.

The ability of racial microaggressions to increase the perception of greater life stress is particularly noteworthy and may explain the persistence of racial disparities in mental health. These quantitative findings corroborate previous notions that perceived racial discrimination and general stress contribute to depressive symptomatology but also advance the understanding of these processes by demonstrating the deleterious and long-term consequences of experiencing racial microaggressions. It should be noted that the relatively high correlations between perceived stress and depression can influence this mediating pathway. In addressing the potential overlap of these two constructs, Cohen and colleagues (1983) acknowledged that perceived stress may be indicative of a mental health problem but that the PSS was not a measure of symptomatology and, in fact, had independent effects on health outcomes.

The major quantitative findings also showed that active coping served to ameliorate the experience of having one's personal ability underestimated or ignored on the later appraisal of a stressful life. That is, the combination of high Underestimation of Personal Ability and high active coping was associated with less perceived stress when compared to low active coping. Active coping appears to function as an important protective factor in the context of experiencing racial microaggressions that involve ascriptions of intelligence or having

one's ability underestimated. Among African American doctoral students and graduates of doctoral program, the set of skills that allow individuals to take initiative appear to be a good match in counterbalancing the stress associated with this type of discrimination. The ability to take a proactive stance facilitates person-environment interactions and likely gives individuals a sense of competence in dealing with discrimination-related stressors, thus, reducing general levels of stress.

The strengths of the current research should be noted alongside its limitations. Unlike interview-based studies, the qualitative portion of the present project was conducted online which could have influenced the length and depth of the participant responses. However, the qualitative analyses and mixed-methods approach was a major advantage in helping to understand a complex cultural and racial process. Broadly speaking, the integration of qualitative and quantitative strategies informs clinical research and the development of effective intervention and prevention programs. As a specific example, Barg and colleagues (2006) conducted a mixed-methods study with older adults and discovered that loneliness was a key aspect of their understanding of depression but was a feature that was not commonly given diagnostic or treatment consideration. The implications for treatment and prevention of the current project involve the importance of addressing the unique influence of having one's ability underestimated or minimized on the psychological health of high achieving African Americans.

The generalizability of the findings may be limited given the sample characteristics and may apply primarily to female African American graduate students and professionals. Nevertheless, the major findings continue to highlight the negative psychological consequences of racial discrimination for African Americans and identify the specific category of microaggressions that are most salient for this group of successful individuals. Future research should continue to investigate the influence of specific types of racial microaggressions on ethnic minority individuals' mental health, as well as examine important processes that contribute to individual adjustment in the face of modern forms of racism.

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TABLE 1. Factor Loadings of DLE-FS Items using Principal Components Analysis

Scale Item	DLE-FS	DLE-FS	DLE-FS
	Underestimation	Isolation	Assumption
Others expecting your work to be inferior	.79	.04	.17
Not being taken seriously	.73	.17	-.06
Your ideas or opinions being minimized, ignored, or devalued	.72	.30	.18
Being treated as if you were "stupid," being "talked down to"	.70	.37	.20
Being left out of conversations or activities	.68	.18	.23
Being treated rudely or disrespectfully	.61	.36	.40
Being avoided, others moving away from you physically	.15	.82	.01
Others reacting to you as if they were afraid or intimidated	.28	.68	-.10
Being observed or followed while in public places	.28	.58	.28
Being stared at by strangers	.08	.57	.27
Overhearing or being told an offensive joke, story, or comment	.08	.04	.68
Being mistaken for someone else of your same race (who may not look like you at all)	.08	.24	.65
Being insulted, called a name, or harassed	.41	-.11	.63
Being mistaken for someone who serves others (i.e., janitor, bellboy, maid)	.22	.26	.63
Eigenvalue	4.21	3.12	2.46
% Variance Explained	22.17	16.45	12.92

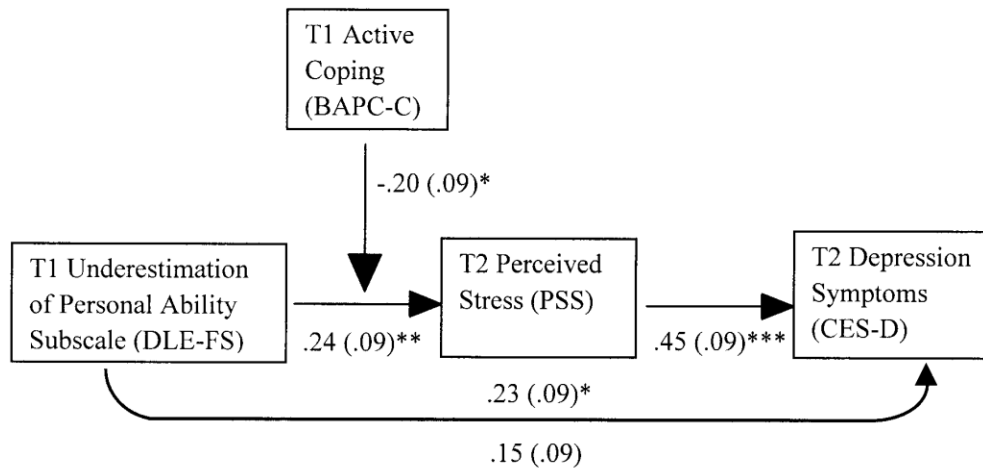
Note. Factor loadings > .40 are in boldface type. Scale items that loaded onto more than one factor at the .40 level were excluded from further analysis. DLE-FS Underestimation = Underestimation of Personal Ability Subscale; DLE-FS Isolation = Cultural/Racial Isolation Subscale; DLE-FS Assumption = Assumption of Criminality/Second-Class Citizen Subscale. Permission to reprint DLE-FS items granted from S. P. Harrell.

TABLE 2. Correlations, Means, and Standard Deviations for Major Variables

	1	2	3	4	5	6	7	8
1. Age	—	-.12	-.27**	.14	-.25**	-.05	-.09	.09
2. T1 CES-D		—	.45**	-.42**	.44**	.45**	.09	.37**
3. T2 CES-D			—	-.21*	.58**	.14**	.35**	.34**
4. T1 BAPC-C				—	-.37**	-.25*	-.08	-.13
5. T2 PSS					—	.38**	.33**	.27**
6. T1 DLE-FS Underestimation						—	.57**	.54**
7. T1 DLE-FS Isolation							—	.37**
8. T1 DLE-FS Assumption								—
<i>M</i>	30.44	12.39	10.94	10.36	2.65	2.73	2.10	2.29
<i>SD</i>	7.05	8.99	8.79	2.20	0.60	1.09	0.92	0.78

Note. CES-D = Center for Epidemiological Studies—Depression; BAPC-C = Behavioral Attributes of Psychosocial Coping; PSS = Perceived Stress Scale; DLE-FS Underestimation = DLE-FS Underestimation of Personal Ability Subscale; DLE-FS Isolation = DLE-FS Cultural/Racial Isolation Subscale; DLE-FS Assumption = DLE-FS Assumption of Criminality/Second-Class Citizen Subscale. * $p < .05$; ** $p < .01$.

Figure 1. Results of Moderated Mediation Analysis for T1 Underestimation of Abilities, T1 Active Coping, T2 Perceived Stress, and T2 Depression



Note. Standardized beta coefficients shown; enclosed parentheses contain standard error terms. The total effect of T1 Underestimation of Personal Ability on T2 depression is above the curved arrow. The direct effect of T1 Underestimation of Personal Ability on T2 depression after accounting for the indirect effect of T1 Underestimation of Personal Ability on T2 depression through T2 perceived stress is below the curved arrow. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2. Interaction Effect of T1 Underestimation of Ability and T1 Active Coping on T2 Perceived Stress.

