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The Double Burden of Racial Discrimination in Daily-Life Moments: Increases in Negative Emotions and Depletion of Psychosocial Resources among Emerging-Adult African Americans

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Abstract

Objective: Racial discrimination is a common experience for African Americans, but no research has examined how discrimination reported in daily-life moments influences concurrent negative emotions and psychosocial resources.

Method: Emerging adult African Americans (N = 54) reported hourly on momentary racial discrimination, negative emotions, and psychosocial resources across two days.

Results: Controlling for past discrimination and trait emotion, momentary racial discrimination was associated with greater negative emotions and lower psychosocial resources ($p < .05$). The relationship between momentary racial discrimination and negative emotions was stronger among individuals residing in areas with fewer African Americans (simple slope $p < .0001$). The relationship between momentary racial discrimination and psychosocial resources was stronger among individuals reporting greater past discrimination (simple slope $p < .0001$). Vicarious discrimination (exposure to discrimination experienced by another person) was associated with higher negative emotions, $p < .01$, but not with psychosocial resources.

Conclusion: These results are the first to demonstrate that personal and vicarious racial discrimination are associated with negative emotions and lower coping resources in daily-life moments and that contextual factors modify these associations. Results refine our understanding of the immediate sequelae of discrimination in daily life and point to possible targets for ecological momentary interventions.

Keywords

discrimination; ecological momentary assessment; emerging adulthood; psychosocial resources; negative affect

Racial discrimination is experienced disproportionately by African Americans compared to other racial and ethnic groups in the United States (Borrell et al., 2010). Greater experiences of interpersonal discrimination, perceived unfair treatment in social interactions due to one's membership in a group (Brondolo, Blair, & Kaur, 2018), can erode African Americans' mental health (Lewis, Cogburn, & Williams, 2015; Paradies et al., 2015; Pascoe & Smart Richman, 2009). Longitudinally, exposure to racial discrimination is related to negative mental health outcomes among African American adults (Brown et al., 2000) and depressive symptomatology among African American males transitioning to emerging adulthood (Assari, Moazen-Zadeh, Caldwell, & Zimmerman, 2017; Kogan, Yu, Allen, & Brody, 2015). Experiments corroborate longitudinal findings, demonstrating acute negative emotional outcomes among emerging adult African Americans (Stock, Peterson, Molloy, & Lambert, 2016). Vicarious racial discrimination, exposure to discrimination experienced by another person, also influences health outcomes for individuals who share the victim's identity (e.g., Smart Richman & Jonassaint, 2008). In the current sociopolitical climate, exposure to discrimination is becoming more ubiquitous (e.g., news coverage, racism on social networking sites), increasing the importance of examining effects of both personal and vicarious discrimination (Williams & Medlock, 2017).

Discrimination presents unique challenges for African Americans during emerging adulthood (defined as 18–30), a period of life rich with identity development, exploration of social roles, and transitions into greater autonomy (Arnett, 2000; Hope, Hoggard, & Thomas, 2015). Racial discrimination may disrupt the very developmental processes with which emerging adults are already grappling, i.e., discrimination may challenge positive self-schemas, confidence in the worth of personal social groups in the overall society, and a sense of autonomy or control over life (Harrell et al., 2011). More research is needed to understand how racial discrimination affects this critical period of development.

Much of the research on racial discrimination examines its impact on negative emotional outcomes. The Reserve Capacity Model (RCM) suggests that coping demands of discrimination can deplete psychosocial resources and that it is important to examine depletion of psychological wellbeing alongside increases in negative emotions (Broudy et al., 2007). Psychosocial resources include positive beliefs, coping tendencies, abilities, healthy emotion regulation, and positive interpersonal connections that allow individuals to function in adaptive ways (Taylor, 2011). The relationships between discrimination and psychosocial resources have been explored in a variety of studies. For example, reviews of longitudinal studies suggest that perceived racial discrimination predicts declines in positive mental health (Paradies et al., 2015; Pascoe & Smart Richman, 2009). Among African Americans, greater racial discrimination is associated cross-sectionally with lower levels of perceived mastery (Broman, Mavaddat, & Hsu, 2000), prospectively with lower racial self-esteem among adolescent males transitioning to emerging adulthood (Kogan et al., 2015),

and with lower self-control among children transitioning to adolescence (Gibbons et al., 2012). Acute experiences of racial discrimination in the lab also deplete feelings of meaningful existence, control (Stock et al., 2016), and positive emotions (Jones, Lee, Gaskin, & Neblett, 2014) among African American emerging adults.

Much of the racial discrimination literature examines individual measures of psychosocial resources in isolation (e.g., mastery, Broman et al., 2000). Research that examines the impact of discrimination on collective psychosocial resources is needed given that the RCM proposes that each psychosocial resource serves a similar function in contributing to an overall “reserve” from which individuals may pull from to maintain positive wellbeing, especially in times of adversity (Gallo, Espinosa de los Monteros, & Shivpuri, 2009). Work on the RCM suggests that depletion of psychosocial resources is an important, but understudied, contributor to health disparities (Gallo, 2009). Cultural factors such as racial identity constitute an important dimension of psychosocial resources that contribute to this mental reserve among marginalized groups (Gallo, Penedo, Espinosa de los Monteros, & Arguelles, 2009).

Discrimination and Psychological Wellbeing in Daily Life

Together, lab and longitudinal research provide insight into the relationship between racial discrimination and psychological wellbeing, but these methodologies cannot capture how daily-lived discrimination impacts psychological wellbeing. Cross-sectional and longitudinal research on racial discrimination and wellbeing typically use timeframe referent scales that capture past discrimination (Lewis et al., 2015). A review by Pascoe and Smart Richman (2009) found that scales conditioned on *recent* discrimination associated more strongly to negative mental health outcomes than *lifetime* discrimination scales. However, racial discrimination is a common experience for African Americans and may happen up to fourteen times in one week (Potter, Brondolo, & Smyth, 2017). Therefore, it is important to expand methodologies beyond past discrimination scales to examine how discrimination influences psychological wellbeing during a timeframe more proximal to the experience.

Relationship between daily-discrimination and daily-psychological wellbeing.

A handful of studies have investigated daily-discrimination using a daily-diary approach, with participants reporting ongoing discriminatory events using either an event-based or end-of-day format (i.e., participants are reporting experiences in-the-field outside the lab). Research in this area demonstrates that effects of daily-discrimination occur as early as adolescence, with students reporting greater negative feelings on days when they reported experiencing racial or ethnic teasing in diverse (Douglass, Mirpuri, English, & Yip, 2016) and Black (Seaton & Douglass, 2014) high school student samples. Research on college and graduate students has uncovered similar effects. African American students retrospectively reported higher feelings of threat and lower feelings of comfort associated with discriminatory experiences (Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003). Among African American doctoral students and graduates, a discriminatory event (Burrow & Ong, 2010) and past racial discrimination (Ong, Fuller-Rowell, & Burrow, 2009) independently associated with daily negative emotion. While these findings suggest that daily-

discrimination associates with daily negative emotion independent of past discrimination, research has not examined the relationship between daily-discrimination and daily-negative emotions while controlling for *both* past racial discrimination and trait negative emotion. Trait negative emotion involves an overall tendency to experience various distressing emotions, including but not limited to anger, anxiety, and sadness. Future research could contribute to this area by examining whether the emotional pain of discrimination in daily life manifests separately from past discrimination and trait emotion.

While most research examining daily-discrimination has been conducted on student samples, a handful of studies have examined community samples. Past racial discrimination associated with greater daily negative emotions among older adult African Americans (Taylor, Kamarck, & Shiffman, 2004) and Black and Latino adults (Broudy et al., 2007), but neither of these studies captured discrimination experienced at the day-level. In a sample of Hispanic and/or Latino adults, experiencing ethnic discrimination on a particular day associated with an increase in the next day's depressive symptoms (Torres & Ong, 2010). For African American emerging adults, racial discrimination is often experienced in new societal contexts both in and out of college (Hope et al., 2015). To enhance generalizability for this developmental period, daily-discrimination research should be expanded to include community samples of African American emerging adults with more diverse educational experiences.

While previous research has examined day-level associations between discrimination and emotions, the lag-time on reporting these experiences has been unclear. Research on daily-discrimination has revealed that racial discrimination can occur once a week or substantially more often, but the frequency of these occurrences cannot be reliably specified without higher resolution methods for reporting. Ecological momentary assessment, a method that involves repeated psychosocial data collection over the course of the day (rather than just once a day), could enhance our understanding of how discrimination influences the daily-lived wellbeing by capturing reports in the environment in which events occur and by reducing the time lag in these reports, thereby increasing our ability to capture true variability across and within individuals (Potter et al., 2017). Moreover, increased research is needed on the multiple effects associated with momentary discrimination; almost all daily-discrimination studies focus solely on negative emotional outcomes, and little research examines the influence of daily-discrimination on momentary perception of psychosocial resources. Ecological momentary assessment could also provide insight into how momentary reactions to discrimination unfold in relation to background variables (e.g., trait emotion; Wilhelm, Perez, & Pawlik, 2012). This is especially important to examine given research on stereotypes demonstrating Whites' overinterpretation of African Americans' anger (Hugenberg & Bodenhausen, 2003), which can lead to perceptions of African Americans as oversensitive to individual discriminatory events.

Contextual factors influencing daily-discrimination.

Capturing discrimination in lived experience allows for a richer understanding of how life context, such as past discrimination or the racial density of neighborhoods, may moderate acute emotional responses to discrimination. Over time, experiences of discrimination may

heighten the emotional intensity of future experiences of discrimination (Brondolo et al., 2018; Williams & Mohammed, 2009). Laboratory research indicates that past discrimination relates to stronger negative reactions to acute experiences of discrimination (Stock et al., 2016). In a daily-diary study of discrimination among African American doctoral students and graduates, the effects of past and daily-discrimination were additive and not multiplicative; both contributed independently to daily negative emotion, but past discrimination did not exacerbate the influence of daily-discrimination (Ong et al., 2009). Research is needed to bridge existing theoretical, laboratory, and day-level research to examine whether past discrimination exacerbates responses to *momentary* racial discrimination.

Neighborhood racial composition is also an important contextual factor when considering daily-lived experiences of racial discrimination, as neighborhood characteristics influence racial socialization among African American families (Caughy, Nettles, O'Campo, & Lohrfink, 2006). For example, neighborhoods where African American families are the minority may involve greater "racialization" of these families and require greater vigilance in daily interactions, affecting both experiences of and emotional responses to racial discrimination. Research in a large sample of Black women indicates that those living in neighborhoods with higher Black representation report fewer experiences of racial discrimination (Hunt, Wise, Jiguep, Cozier, & Rosenberg, 2007). This may lead to improved wellbeing, as Black neighborhood racial density at non-extreme levels serves as a protective factor for Black mental health (Bécares, Nazroo, & Jackson, 2014). While exclusionary residential segregation is a form of systemic disenfranchisement against African Americans, African American representation in neighborhoods may serve as a resource, helping African Americans to feel a sense of inclusion that buffers against the feelings of marginalization and distress that may come along with acute, lived discrimination.

The Present Study

Research in community samples demonstrates that past discrimination is associated with increased negative emotions during daily life (Broudy et al., 2007; Taylor et al., 2004) and research on African American student samples indicates that racial discrimination relates to day-level negative emotion (Burrow & Ong, 2010; Seaton & Douglass, 2014; Swim et al., 2003). Past discrimination is related more strongly to negative mental health outcomes than lifetime discrimination (Pascoe & Smart Richman, 2009), but effects of past discrimination have not been analyzed alongside daily-lived momentary discrimination. Certain questions remain unanswered. First, broader assessment of psychological wellbeing is needed to better understand the acute effects of discriminatory events on both negative emotional states and psychosocial resources. Second, research is needed to investigate discrimination's emotional impact at a point more proximal to its occurrence, while controlling for past discrimination and trait emotion. Third, momentary discrimination should capture both personal and vicarious discriminatory experiences. Fourth, research is needed to explore the moderating influence of past discrimination and neighborhood contexts on the association between momentary discrimination and psychological wellbeing. Finally, it is important to explore

the experience of momentary discrimination among African American emerging adults both in and out of college.

The present study sought to address these gaps by examining *momentary* experiences of racial discrimination and momentary psychological wellbeing in a community sample of African American emerging adults. We tested the following three hypotheses:

1. Momentary racial discrimination will associate with higher momentary negative emotion.
2. Momentary racial discrimination will associate with lower momentary psychosocial resources.
3. (Exploratory) Past racial discrimination and neighborhood racial density will moderate these associations. These associations will hold for both personal and vicarious discrimination.

Method

Participants

Participants were 60 African American emerging adults recruited from the Pittsburgh metropolitan area via convenience sampling (e.g., online and public transportation advertisements, university participant research registry). Interested individuals were excluded if they (a) were outside the age range of 18–30; (b) identified themselves or their biological parents as a race other than solely Black/African American; (c) did not have regular access to a telephone or computer experience; or (d) were non-native English speakers. Due to other study aims not relevant to the present report, we also excluded individuals who (e) were pregnant or attempting to conceive; (f) had abstained completely from any substance use (alcohol, tobacco, or marijuana) within the past year; (g) worked overnight shifts or reported a history of severe mental disorders; or (h) had a history of or were medicated for cardiovascular disease.

Among those who were eligible, 11 were unable to attend a baseline appointment. The remaining 60 persons (41.7% of the 144 screened) participated in the study. The final analytic sample included 54 participants because six participants only completed between 0 and 2 ecological momentary interviews. Participants were on average 23 years old and the majority were female (74%), never married (85.2%), and employed full or part time (77.7%). Participants represented various levels of education (21.6% were high school graduates or below, 60.8% had attended and/or graduated college, and 18.5% had sought some graduate education) and approximately half (53.7%) were enrolled in school full or part time. More than half of participants (63.0%) lived in neighborhoods where less than a third of the population was African American.

The study was approved by the Institutional Review Board of the University of Pittsburgh. All participants provided informed consent and were paid up to \$135 for their participation. All participants completed the study between January and June of 2014.

Procedure

Participants completed a baseline, in-person research appointment, two full days of in-the-field ecological momentary assessment, and a final in-person appointment. At the baseline appointment, participants first engaged in informed consent. Next, participants completed an electronic questionnaire (MediaLab software, n.d.) assessing baseline variables (e.g., demographics, past racial discrimination) and were oriented to the ecological momentary assessment electronic diary (Google Nexus S, Gingerbread Operating System).

Participants engaged in field practice for the rest of the day following their baseline appointment. The morning after the baseline appointment marked the beginning of the monitoring period, with participants responding to the electronic diary for two full days. The beginning-of-day and end-of-day interviews were completed at participants' natural times for awakening and falling asleep. Participants self-initiated an electronic diary interview upon awakening (beginning-of-day interview), were prompted to complete hourly electronic diary interviews assessing momentary constructs (e.g., momentary discrimination) throughout their day, and self-initiated a final interview before going to sleep (end-of-day interview).

Research assistants called participants to check in during their first day of monitoring and remained on-call 24 hours a day to respond to any issues. After two days of monitoring, participants returned their equipment to the lab, completed a brief electronic questionnaire, were debriefed and provided with monetary compensation.

Measures

Demographics.—Participants reported their age, gender, and years of education completed (0 = 6th grade or lower to 12 = 17 years or more, graduate school), which was recoded to three values (*high school graduate or below, some college or college completion, and some graduate training or higher*) to reflect meaningful distinctions in educational status. Participants reported their 5-digit zip codes, which were matched with 2010 United States Census Bureau Data to assess neighborhood racial density.

Past racial discrimination.—Frequency of discrimination in participants' day-to-day lives was assessed with a 10-item version of the Detroit Area Study Everyday Unfair Treatment Scale (Williams, Yu, Jackson, & Anderson, 1997). The phrase "because of your race" was added to the beginning of each statement to distinguish race attribution; for example, "Because of your race, you are treated with less respect than other people." The items were scored along a 4-point scale (1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*). A factor analysis based on maximum likelihood extraction demonstrated that the 10 items loaded together onto one strong unidimensional factor (item loadings between .48 and .88) and had high internal reliability ($\alpha = .90$). Items were averaged into a single past racial discrimination score, with higher numbers indicating greater discrimination.

Trait negative emotion.—A measure of trait negative emotion was assessed with the negative affect subscale of the Positive and Negative Affect Scale (Thompson, 2007). Participants reported how strongly they had experienced 10 negative emotions in the past

week; “How strongly have you experienced this feeling in the past week...Guilty [Afraid, Nervous, Disinterested, Upset, Scared, Hostile, Irritable, Ashamed, Jittery]?” Participants responded on a Likert-scale from 1 (*very slightly or not at all*) to 5 (*extremely*). A factor analysis based on maximum likelihood extraction demonstrated that the 10 items loaded together onto one strong unidimensional factor (item loadings between .45 and .82). Responses to the 10 negative emotion items had high internal reliability ($\alpha = .84$) and item scores were averaged together, with higher numbers indicative of greater negative trait emotion.

Trait positive emotion.—A measure of trait positive emotion was assessed with the positive affect subscale of the Positive and Negative Affect Scale (Thompson, 2007). Participants reported how strongly they had experienced 10 positive emotions in the past week; “How strongly have you experienced this feeling in the past week...Determined [Inspired, Strong, Interested, Excited, Enthusiastic, Proud, Alert, Attentive, Active]?” Participants responded on a Likert-scale from 1 (*very slightly or not at all*) to 5 (*extremely*). A factor analysis based on maximum likelihood extraction demonstrated that the 10 items loaded together onto one strong unidimensional factor (item loadings between .44 and .76). Responses to the 10 positive emotion items had high internal reliability ($\alpha = .86$) and items were averaged together, with higher numbers indicative of greater positive trait emotion.

Momentary racial discrimination.—A measure of momentary unfair treatment was adapted from the Everyday Unfair Treatment Scale (Williams et al., 1997). Participants were asked hourly to report whether they had experienced discrimination since the last time they reported on a monitoring session across 10 items, such as, “Because of your race, you are treated with less respect than other people” and “Because of your race, you are threatened or harassed.” Informed by Index of Race-Related Stress - Brief Version (Utsey, 1999), we included two author-created items to broadly capture momentary experiences of vicarious racial discrimination in the overall assessment of momentary discrimination, “Did you witness [hear about] someone treated unfairly because he/she is Black?” Participants endorsed whether they had each experience (0 = *No*; 1 = *Yes*), the 12 items were summed within each moment (possible range 0 – 12), and, due to a positive skew, were recoded to represent whether the participant had endorsed no (0) or any (1) personal or vicarious racial discrimination in the particular momentary assessment.

Momentary negative emotions.—Participants were presented with the following screen prompts capturing momentary negative emotions, “How feeling? Upset [Hostile, Nervous, Afraid, Angry, Lonely, Sad]?”, and responded by selecting a response option (NO!, No, no, yes, Yes, YES!), which was converted to a 1–6 numeric scale, e.g., a “NO!” response was a 1 and a “YES!” response was a 6 (Kamarck et al., 1998). A factor analysis based on maximum likelihood extraction demonstrated that the seven items loaded together onto one strong unidimensional factor (item loadings between .79 and .89). Responses to the seven negative emotion items had high internal reliability across momentary assessments ($\alpha = .94$) and were averaged together, with higher numbers indicative of greater momentary negative emotions. An intraclass correlation (ICC) indicated that within-participant variation accounted for approximately 40% of the total variance in momentary negative emotions.

Momentary psychosocial resources.—Replicating past adaptations of psychosocial resource scales for an ecological momentary assessment context, participants completed eight items assessing momentary psychosocial resources (Lachman & Weaver, 1998; Sanchez & Garcia, 2009). Items included momentary: control/autonomy (2 items, e.g., “Right now, I feel free to be who I am”), self-esteem (2 items, e.g., “Right now, I feel that I have a number of good qualities”), connectedness (2 items, e.g., “Right now, I feel that people care about me”), and racial identity (2 items adapted from the Private Regard Subscale of the Multidimensional Inventory of Black Identity, e.g., “Right now, I am proud to be Black”; Sellers, Smith, Shelton, Rowley, & Chavous, 1998).

Participants reported their responses on a scale (NO!, No, no, yes, Yes, YES!) which was converted to a 1–6 numerical rating. A factor analysis based on maximum likelihood extraction demonstrated that the eight psychosocial resource items loaded together onto one strong unidimensional factor (item loadings between .59 and .80), had high internal reliability across momentary assessments ($\alpha = .88$), and were averaged together, with higher numbers indicative of greater momentary psychosocial resources. An ICC indicated that within-participant variation accounted for approximately 19% of the total variance in momentary psychosocial resources.

Momentary work status.—Within each momentary interview, participants were asked to report whether they were currently at work.

Statistical Analyses

Demographic variables (age, gender, education level) were assessed for inclusion as covariates using multilevel linear regressions (SPSS MIXED Procedure). Demographic variables were not associated with either momentary negative emotions or momentary psychosocial resources ($p > .30$), and therefore, none were included as covariates. Multilevel linear regressions (SPSS MIXED Procedure) were used for primary analyses. The covariance structure was specified as autoregressive and the restricted maximum likelihood (REML) method was used to ensure unbiased parameter estimates. Past racial discrimination was included¹ along with trait negative and positive emotion as covariates in the momentary negative emotions and psychosocial resources primary analyses, respectively. Primary analyses were conducted to explore momentary racial discrimination (any indication of personal or vicarious discrimination) and were replicated to isolate personal discrimination and vicarious discrimination. Additional exploratory analyses were conducted to determine whether past racial discrimination and neighborhood racial density moderated any relationships between momentary racial discrimination and either momentary negative emotions or momentary psychosocial resources.

¹We reexamined primary analyses controlling for different measures of past discrimination (i.e., past year racism and lifetime racism according to the Schedule of Racist Events; Landrine & Klonoff, 1996). Functional results (i.e., significance and direction of primary hypothesized relationships) were the same across all analyses when substituting either past year racism or lifetime racism, so we kept the results with the Detroit Area Study Everyday Unfair Treatment Scale in the manuscript.

Results

Mean scores for past racial discrimination were 25.28 (5.87 *SD*). There were 1637 valid moments of momentary data across the 54 participants in the analytic sample, i.e. an average of approximately 30 moments per person (5 participants had less than 20 moments, with a minimum of reporting on 12 moments). On average, participants were awake for approximately 16.44 hours each day (median = 17). Participants reported discriminatory events in 10.4% of assessed moments (i.e., 170 moments). Participants were 62% more likely to report racial discrimination while at work than while not at work ($\chi^2(1, N = 1637) = 8.20, p < .01$). The most frequent form of discrimination that participants reported experiencing was others behaving as though they were superior to them (5.8% of moments), vicarious discrimination, e.g., hearing about racial discrimination experienced by others (5.5% of moments), and others behaving as though they were not intelligent (5.2% of moments).

Momentary Negative Emotions

Controlling for past racial discrimination and trait negative emotion, momentary racial discrimination was associated with higher levels of momentary negative emotions ($b = 1.81, F(1,1060) = 16.70, p < .0001$). Past racial discrimination was not associated with momentary negative emotions ($F(1,180) = .48, p = .49$), whereas trait negative emotion was associated with greater momentary negative emotions ($b = .37, F(1,175) = 48.38, p < .0001$). Replicating the analyses, both personal and vicarious momentary discrimination were associated with higher levels of momentary negative emotions, $b = 1.43, F(1,939) = 6.71, p = .01$ and $b = 2.18, F(1,1207) = 9.75, p < .01$, respectively.

Controlling for trait negative emotion and main effects of primary variables, the association between momentary racial discrimination and momentary negative emotions was not moderated by past racial discrimination ($b = .10, F(1,1044) = 2.47, p = .12$). However, the association between momentary racial discrimination and momentary negative emotions was moderated by neighborhood racial density ($F(1,1078) = 4.32, p < .05$), such that momentary racial discrimination was associated with significantly higher levels of momentary negative emotions among those residing in areas with lower proportions of African Americans (-1 SD below mean and at the mean; $t(1631) = 4.44, p < .0001$ and $t(1631) = 4.43, p < .0001$, respectively) but not among those residing in areas with high proportions of African Americans ($+1$ SD above mean; $t(1631) = 1.77, p = .08$). Please see Figure 1.

Momentary psychosocial resources.

Controlling for past racial discrimination and trait positive emotion, momentary racial discrimination was associated with lower levels of momentary psychosocial resources ($b = -.59, F(1,1041) = 3.92, p < .05$). Past racial discrimination was not associated with momentary psychosocial resources ($F(1,117) = .94, p = .33$) whereas trait positive emotion was associated with greater momentary psychosocial resources ($b = .49, F(1,118) = 64.39, p < .0001$). Replicating the analyses, momentary personal discrimination was associated with lower levels of momentary psychosocial resources ($b = -.88, F(1,993) = 5.88, p < .05$) and momentary vicarious discrimination was not ($b = .01, F(1,1119) = .00, p = .99$).

Controlling for trait positive emotion and main effects of primary variables, the association between momentary racial discrimination and momentary psychosocial resources was moderated by past racial discrimination ($F(1,1038) = 4.85, p < .05$), such that momentary racial discrimination was associated with significantly lower levels of momentary psychosocial resources among those with higher levels of past racial discrimination (+1 SD above mean and at the mean; $t(1632) = -6.13, p < .0001$ and $t(1632) = -3.24, p = .001$, respectively) but not among those with lower levels of past racial discrimination (-1 SD below mean; $t(1632) = -.10, p = .92$). Please see Figure 2. Neighborhood racial density did not moderate the association between momentary racial discrimination and momentary psychosocial resources ($F(1,1050) = .01, p = .91$).²

Discussion

This study is among the first to use ecological momentary assessment to demonstrate that the experience of racial discrimination increases negative emotions and depletes psychosocial resources in the moment discrimination occurs. This suggests that racial discrimination can be doubly burdensome, both through increases in negative emotions and reductions in psychosocial resources known to aid in coping. Although daily-diary studies have suggested that discrimination is associated with higher day-level psychological distress (Potter et al., 2017; Seaton & Douglass, 2014), this study is one of the first to explore: both factors on a momentary (rather than daily) basis, depletion of psychosocial resources on a momentary basis, both personal and vicarious discrimination, and the impact of neighborhood racial density.

Additionally, this is one of the first studies to demonstrate that ecological momentary-assessed psychosocial resources fluctuate within individuals (see also Sanchez & Garcia, 2009). By demonstrating acute effects of each personal and vicarious racial discrimination exposure using fine resolution momentary assessments, the present study has both conceptual and applied implications, including richer descriptions of patterns of discrimination exposure among emerging adults, more intricate understanding of the sequelae of racial discrimination within the context of the RCM framework, and support for exploring the usefulness of mobile-based ecological momentary interventions (EMIs).

Conceptual Implications

These findings demonstrate subtleties that can enrich the principles of the RCM and outline more comprehensively the perceived racial discrimination experiences of emerging adults. Our findings that psychosocial resources may fluctuate across moments supports that reserve capacity is not a static phenomenon and is impacted by race-based stressors. Vicarious discrimination was only associated with individuals' acute feelings and not their psychosocial resources, which suggests that reserve capacity is more powerfully impacted

²For primary analyses, gender, age, and education were not included as covariates because they were not significantly associated with either momentary negative emotions or momentary positive resources in preliminary analyses. Given that gender, age, and education are often considered standard controls, we reexamined the primary analyses including them as controls. Functional results were the same across all analyses when including age, gender, and education as controls and thus, results are reported without these demographic variables.

by stressors that directly threaten one's personal and social identity rather than solely their social identity based on racial group membership.

It is noteworthy that having a history of exposure to racial discrimination was not associated with momentary negative emotions or psychosocial resources, whereas momentary exposure to racial discrimination was. This finding affirms a previous meta-analysis showing that recent discrimination may be more impactful on psychological wellbeing than lifetime discrimination (Pascoe & Smart Richman, 2009). Interestingly, though, those with a more salient history of racial discrimination experienced a larger stifling of psychosocial resources in moments of exposure to racial discrimination. Although momentary negative emotions were not significantly predicted by this same interaction, the pattern of associations was the same, i.e., those with the highest background racial discrimination and who experienced momentary discrimination had the highest momentary negative emotions. The literature is mixed with respect to whether there is an interaction between historical exposures and acute exposures to discrimination in predicting psychological wellbeing (Potter et al., 2017), with some studies suggesting that acute exposures mediate rather than moderate the association between background discrimination and psychological wellbeing (Ong et al., 2009). The methodological innovation of this study may have allowed more precise illumination of this interaction pattern, as previous studies did not examine the acute, momentary discrimination exposures outside of the laboratory.

Placed in a developmental context, these findings demonstrate that racial discrimination is salient among African American emerging adults. Emerging adulthood is a period in which individuals are still refining their self-concept and are transitioning into more autonomy and new social roles (e.g., employment, Arnett, 2000; Hope et al., 2015). It is noteworthy that the current study demonstrated that, even among emerging adults, racial discrimination is perceived more often at work than in other settings. To the best of our knowledge, this is the first study to demonstrate this pattern using momentary assessments of racial discrimination. Studies suggest that workplace racial discrimination is associated with lower job satisfaction and commitment (Triana, Jayasinghe, & Pieper, 2015). The current study did not assess occupation type, but it is conceivable that those emerging adults working in specific types of jobs might perceive more racial discrimination. Previous research suggests that those in higher status occupations (e.g., professional careers or supervisory positions) tend to report more workplace racial discrimination but less of other types of racial discrimination (Brondolo et al., 2009). These questions would be important to consider among African American emerging adults.

The present study spanned two days of emerging adults' lived experience. Previous studies suggest that African American adult research participants find multiple day ecological assessment periods like ours acceptable and that repeated ecological momentary assessment questions about a particular behavior do not necessarily prime them to alter their behavior (Jones, Zenk, McDonald, & Corte, 2016). In the current study, participants reported exposure to racial discrimination during only a small percentage of the moments assessed. Given that previous work suggests that racial and/or ethnic minorities may experience up to fourteen exposures to racial discrimination in a week (Potter et al., 2017), it is not likely that repeatedly asking participants about racial discrimination significantly and artificially

inflated participants' perceptions about racial discrimination in the current study. Alternatively, it would be interesting to examine whether repeated assessments of racial discrimination prevent later recall problems or enhance accuracy of racial discrimination recall.

Applied Implications

Research on community interventions demonstrates that racial identity enhancement can buffer the effects of discrimination for Black youth (for a critical review see Jones & Neblett, 2016). Our finding that racial discrimination in the moment relates to diminished psychosocial resources (including racial identity) and that racial identity can fluctuate over the course of the day suggests that it may be worthwhile to pursue research on interventions to enhance *momentary* racial identity. Experimental research has shown promise using brief racial-affirmation exercises to buffer the impact of acute discrimination on anger (Stock et al., 2018) and exploring whether racial-affirmation could be applied in vivo is an area for future work. These exercises and others like them could be incorporated into EMIs, an intervention methodology effective at changing psychological states (Heron & Smyth, 2010).

Limitations

This study is not without limitations. First, given that the sample was a small convenience sample, we cannot assume that these results would generalize to other samples. Although the sample has greater educational diversity than other samples in this literature that have been collected within this age group, the sample is still rather highly educated (79.3% of participants reported having education after high school compared to approximately 54.1% of Blacks and African Americans nationally; United States Census Bureau, 2017). The sample was predominantly female, so we did not have the power to examine potential gender differences in our findings. Further, because we focused on African Americans and racial discrimination, we cannot assume that these results generalize to other groups and other types of discrimination.

On a separate note, discrimination was assessed by self-report which has the possibility of reporting bias, but multiple research designs corroborate the influence of discrimination assessed using methods beyond the participant's reports. For example, experimental paradigms of acute social-exclusion by White peers (Stock et al., 2016) and county-level indicators of White-reported explicit discrimination (Leitner, Hehman, Ayduk, & Mendoza-Denton, 2016) both associate with negative outcomes for African Americans. Although the current findings are cross-sectional during specified moments and cannot specify causality, our statistical controls for trait emotion and background discrimination helped address the possibility of reverse causality. Additionally, longitudinal studies do not typically find that negative psychological states predict later reports of racial discrimination (Brown et al., 2000). Nevertheless, we cannot entirely rule out reverse causality.

Reliability could have been further strengthened by using a more rigorous ecological momentary assessment design, i.e., sampling 4 or 5 days rather than 2 days or randomly sampling times of the day rather than sampling fixed hourly moments. Additionally,

although hourly assessments provide finer resolution than daily assessments, they were still not conducted exactly at the moment of discriminatory experience. Hourly assessments strike a balance between reducing recall errors while not overly burdening participants. Finally, although the influence of neighborhood residence was illuminating, the measure captured racial density as a background environmental factor, rather than as a momentary ecological effect, as we did not track participants' geographical location during the field phase of the study. Future research could explore the question of how daily-experienced neighborhood integration influences momentary discrimination using emerging methodologies in geographic ecological momentary assessment, a method that embeds global positioning software tagging participants' objective geography as they respond to electronic diary questionnaires (Mennis, Mason, & Ambrus, 2018).

Future Directions

Despite limitations, the current study contributes methodological and conceptual advances to the body of literature examining the impacts of discrimination on the wellbeing of emerging adults. It builds on the longitudinal, cross-sectional, and laboratory studies that have examined the association between discriminatory experiences, negative emotions, and individual psychosocial resources by examining these associations using momentary assessment and demonstrating that an individual's overall reserve of psychosocial resources is also influenced by these experiences. Future research could expand this investigation to physiological health outcomes, and studies in this series will explore the impact of momentary discrimination exposures on daily cortisol patterns, ambulatory blood pressure, and objective markers of sleep.

This is a particularly important future direction because negative emotion and depletions in psychosocial resources may mediate the associations between racial discrimination and biomarkers like cortisol (Lee et al., 2018; Peterson, Stock, Monroe, Molloy, & Lambert, under review). More work is needed to solidify the connections between momentary exposures to racial discrimination, concomitant negative emotion, psychosocial resource depletion in daily life, and acute physiological reactivity.

Future studies should continue to examine contextual effects and their mechanisms. Are certain neighborhood compositions associated with more cohesiveness, racial socialization, or access to social support resources that aid residents in coping with discrimination exposures? Further, research has demonstrated that cross-race interactions, without racial discrimination even occurring, are associated with less positive emotions (but not more negative emotions) and feeling less understood than same-race interactions (Mallett, Akimoto, & Oishi, 2016). Neighborhood context, as well as workplace racial integration, may shape the frequency of cross-race and same-race interactions.

Future studies could also expand on the present research by exploring momentary coping strategies. Individuals vary in how they cope with racial discrimination (Potter et al., 2017) and using active coping strategies rather than rumination buffers individuals from psychological sequelae of discrimination exposure (Borders & Liang, 2011; Polanco-Roman, Danies, & Anglin, 2016; Sanchez, Himmelstein, Young, Albuja, & Garcia, 2016). For example, confronting racial discrimination helps an individual retain a sense of

autonomy (which we conceptualize as a psychosocial resource) and ultimately, better psychological well-being (Sanchez et al., 2016). Future research on momentary coping strategies could also inform EMI interventions.

Conclusion

The current study provides methodological and conceptual contribution as researchers across disciplines seek to better understand the complex biopsychosocial mechanisms connecting exposure to discrimination and wellbeing. Importantly, our results demonstrate a double burden of racial discrimination experienced in the moment. While the responsibility for dismantling discrimination rests on the perpetrators, understanding the nuance of discrimination's impact on African American emerging adults will provide useful insight for interventions to modify these effects, broadening and building essential opportunities for resiliency among African Americans emerging into adulthood.

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Public significance statement:

Personal and vicarious exposure to discrimination are becoming more ubiquitous, but little is known about how emerging adult (18–30 years old) African Americans feel when discrimination happens to them during their daily lives. Across two days, instances of discrimination were common and were more likely to occur at work. Personal and vicarious discrimination associated with both negative emotions and lower coping resources in daily-life moments. Results suggest a double burden of discrimination when experienced in the moment and provide insight into how discrimination may impact physical health and future interventions to reduce the emotional impact of discrimination in the moment it occurs.

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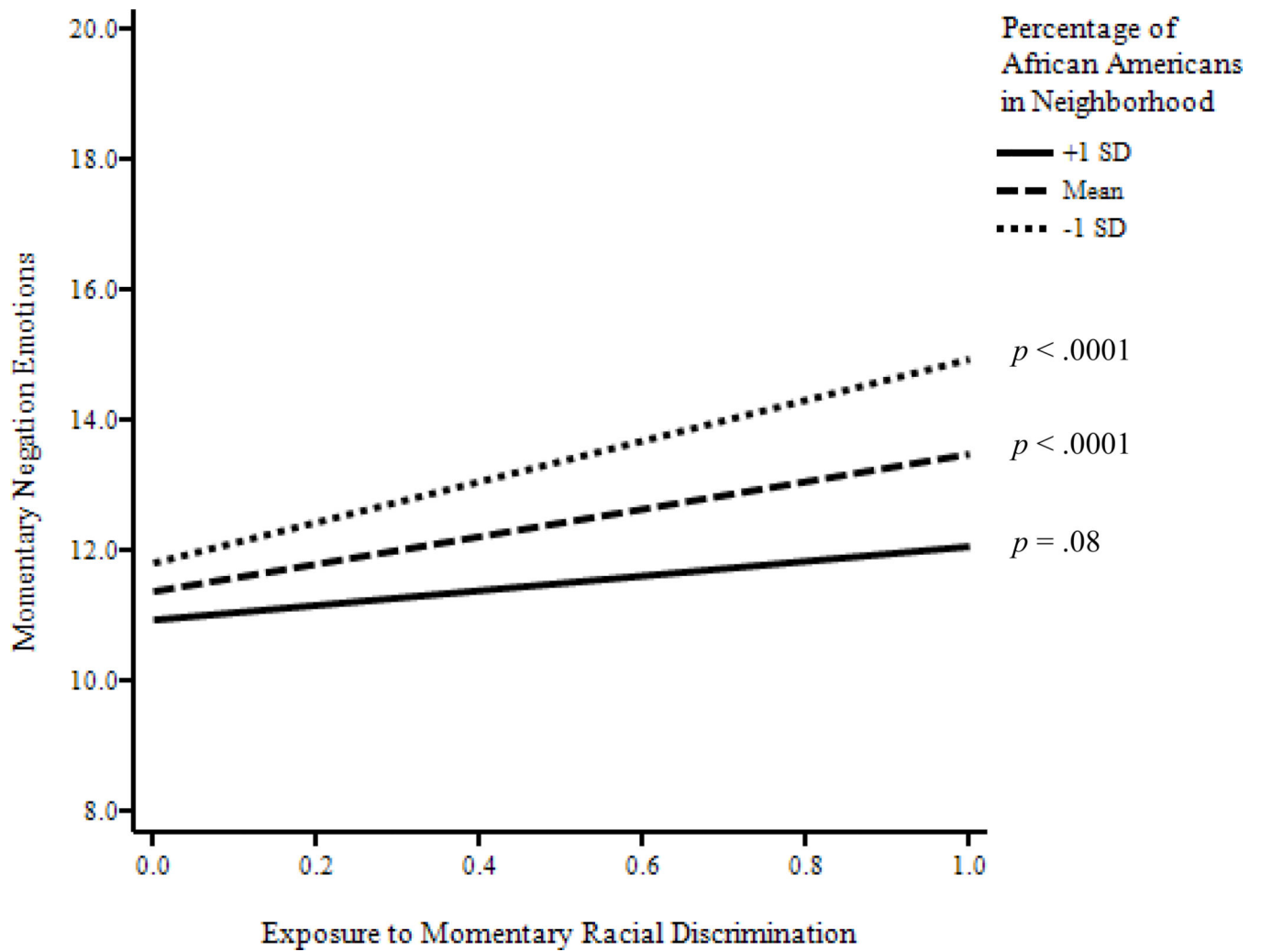


Figure 1. Interaction between momentary racial discrimination and neighborhood racial density in association with momentary negative emotions. Results from simple slopes analyses included. SD = standard deviation.

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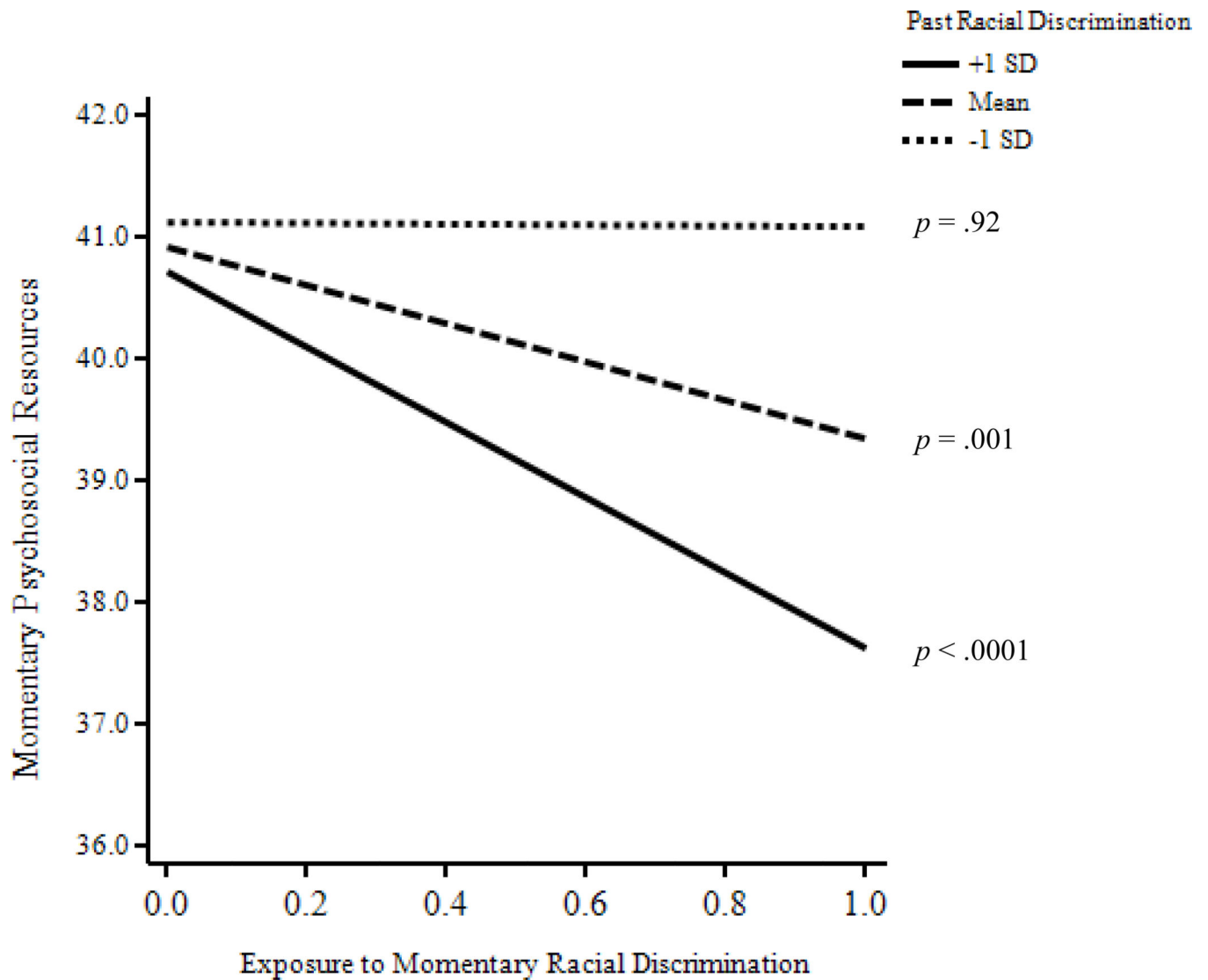


Figure 2. Interaction between past and momentary racial discrimination in association with momentary psychosocial resources. Results from simple slopes analyses included. SD = standard deviation.