



## Report

## Examining the consequences of exposure to racism for the executive functioning of Black students

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## ABSTRACT

Recent research has demonstrated that interracial interactions, reminders of stigmatized identities, and exposure to ambiguous racism can deplete the self-control resources of minority group members. In the current study we examined whether hearing blatant racism expressed in an interracial context would deplete the self-control of Black participants and whether this depletion would be moderated by participants' level of racial centrality. After listening to a Black or a White confederate express either support for racial profiling (racist condition) or increased campus parking fees (neutral condition), Black participants completed a Stroop color-naming task to assess self-control depletion. Participants experienced self-control depletion following interracial encounters, regardless of whether the views expressed were racist. As expected, however, racial centrality moderated the depletion effect when racism was involved, with participants higher in centrality showing greater depletion following an encounter with racism from a White partner.

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## Introduction

Race continues to be a barrier to the success of minority group members (Dovidio & Gaertner, 1998). Despite interventions that have been implemented to address racial issues, such as civil rights legislation, affirmative action programs, and multicultural policies, racial tensions persist. Research has demonstrated, for example, that both the targets and perpetrators of discrimination often feel misunderstood and anxious in interracial contexts (Shelton, 2000; Vorauer, Hunter, Main, & Roy, 2000). Evidence suggests that interracial interactions evoke concerns about appearing prejudiced in Whites (Devine & Vasquez, 1998; Richeson & Shelton, 2003, 2007), and may heighten concerns about being the target of prejudice for Blacks (Inzlicht, McKay, & Aronson, 2006; Richeson, Trawalter, & Shelton, 2005).

Although negative racial attitudes are often unspoken and subtly conveyed (Gaertner & Dovidio, 2005), members of racial minority groups maintain that blatant racism is still present in their lives (D'Augelli & Hershberger, 1993; Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003). Early research examining the academic success of African-American undergraduates found that 89% had heard disparaging comments about Blacks on campus, often in the form of direct verbal insults from other undergraduates (D'Augelli & Hershberger). More recent research found that African-American students at

predominantly White colleges reported experiencing racist incidents about once every 2 weeks; one quarter were comments or jokes directed at the target and/or the target's racial group and the majority of comments came from peers (Swim et al.). In the present study we build on these findings by examining the immediate consequences of encountering racist comments from either a White or a Black peer on the self-control resources of Black undergraduates, with a particular focus on the potential moderating effect of racial centrality.

## Cognitive depletion

According to the resource model of executive functioning, self-control is a limited, but renewable, resource. When self-control resources are used to control thoughts, behaviors or emotions, performance on subsequent tasks requiring self-control can be diminished, leading to a state known as ego depletion (Muraven & Baumeister, 2000). Several studies have provided evidence that concerns around being the target of prejudice can decrease the self-control resources of stigmatized minority group members. For example, building on previous studies with White participants (Richeson & Shelton, 2003; Richeson & Trawalter, 2005), Richeson and her colleagues found that Black participants were cognitively depleted following interracial interactions; however this finding emerged only for participants higher in implicit pro-Black bias (Richeson et al., 2005). The researchers argued that Blacks' self-control depletion in interracial interactions may stem from concerns

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about being the target of anti-Black prejudice (see also Inzlicht et al., 2006; Monteith & Spicer, 2000) and that those with greater concerns may make more of an effort to smooth over relations when interacting with a White partner, resulting in self-control depletion (Richeson et al.).

Inzlicht et al. (2006, Study 1) similarly found that Blacks who reported greater sensitivity to race-based rejection reported less ability to chronically exert self-control. In a follow-up experiment, Inzlicht et al. (Study 2) experimentally activated stigma through a stereotype threat manipulation and found that Black participants in a threat condition showed reduced self-control when compared with Black participants in a no-threat condition or White participants in either condition. Taken together, these findings suggest that concerns around experiencing or being the target of prejudice and negative stereotypes can deplete the self-control resources of Black-Americans.

#### *Exposure to prejudice and self-control depletion*

More recent research has specifically examined whether reading about a potentially racist experience can lead to depletion among Black participants (Salvatore & Shelton, 2007). In one study, Black participants read fictional hiring recommendations that had been purportedly written by a Black or White evaluator, that were either clearly prejudiced, ambiguously prejudiced or apparently non-prejudiced. They found that ambiguous racism produced the highest level of depletion for Black participants, and attributed this finding to the cognitive effort needed to disentangle the attributional ambiguity inherent in this scenario. This interpretation suggests that at least in some cases it is not racism itself, but the effort involved in detecting racism, that can produce depletion in Blacks.

In the present study we extend this previous body of research by specifically examining the cognitive consequences of exposure to racism in an interpersonal context. Due to the fact that Black students continue to report experiences with blatant racism on university campuses (D'Augelli & Hershberger, 1993; Swim et al., 2003), in the present study we investigated the effect of exposure to racist statements, in the form of expressed support for racial profiling on campus, from either a White or a Black peer. Although Salvatore and Shelton (2007) found little evidence that reading about blatant racism was cognitively depleting, we felt that exposure to a peer directly expressing racism might have a different effect due to the very personal and intimate nature of such an encounter. In addition, unlike previous research (cf. Richeson et al., 2005), we examined whether individual differences in racial identification might moderate these effects, particularly when racism from a White peer was involved.

#### *Racial centrality as a moderator of depletion in the face of racism*

Research suggests that racism is not identified and experienced in the same way for all Blacks. For example, individuals higher in racial centrality are more likely to make attributions to discrimination in ambiguous situations (Operario & Fiske, 2001; Shelton & Sellers, 2000), to anticipate discrimination in the future (Sellers & Shelton, 2003), to respond to a racist event (Sanders, 1990), and somewhat surprisingly, to be the target of negative racial attitudes from Whites (Kaiser & Pratt-Hyatt, 2009). Based on these findings, one might expect Blacks high in centrality to have more concern or distress around being the target of prejudice. Yet in spite of this, there is also research to suggest that in the long-term racial centrality can provide psychological benefits, with those high in racial centrality demonstrating greater levels of psychological well-being than those low in racial centrality (Neblett, Shelton, & Sellers, 2004; Rowley, Sellers, Chavous, & Smith, 1998; Smith & Lalonde, 2003). It has been suggested that this psychological benefit results

from a commitment among highly identified individuals to maintain positive feelings about their group membership in spite of external stigma. Racial attacks on their self-concept may produce distress however this distress is counteracted by their positive racial identity (Tajfel & Turner, 2001).

While it is possible that being high in racial centrality would therefore help to protect individuals against the potentially depleting effects of exposure to racism in an interpersonal context (Sellers, Morgan, & Brown, 2001), for several reasons we suspected that hearing disparaging racial comments from a White partner might be more depleting for Blacks higher in racial centrality, at least in the short-term. Those with strong ingroup identification may feel that disparaging comments about members of their ingroup are more self-relevant than those with weaker ingroup identification (McCoy & Major, 2003), and might therefore expend more resources resisting stigmatizing messages, controlling arousal in response to unjust social rejection, maintaining a positive ingroup identity by suppressing negative stereotypes elicited by the comments, engaging in impression management to counteract negative stereotypes, and considering whether and how to respond. Accordingly, in the present study we examined racial centrality as a potential moderator of cognitive depletion in interracial settings.

#### *Present study*

To summarize, in the present study we investigated the impact of exposure to racism on the cognitive functioning of Black undergraduates, and whether this would be moderated by the extent to which race was a central aspect of our participants' identities. We hypothesized that Black participants would experience greater depletion following an interracial versus a same-race encounter, regardless of the topic expressed. If, as previous research would suggest, stigmatized group members consume cognitive resources as they scan the environment for prejudice (Crocker, Voelkl, Testa, & Major, 1991), then we would expect that *listening* to a White interaction partner might be particularly depleting for Black participants. Furthermore, building on previous findings, we hypothesized that this effect would be moderated by the topic and participants' levels of racial centrality, with greater depletion occurring for participants in the White racist condition who reported higher levels of racial centrality.

## **Methods**

### *Participants and design*

Seventy-eight Black students (62 female) participated in a study ostensibly designed "to validate a number of psychological measures with a Black-Canadian population". Two participants declined to participate in the "second study" that included our dependent variable (the Stroop task), one participant did not understand the instructions for our dependent measure, one participant's computer malfunctioned, and the data for two participants were inadvertently overwritten, leaving us with a final sample consisting of 72 Black students ( $M_{age} = 21.36$ ,  $SD = 2.68$ ) who were assigned to one of four conditions within a 2 (Race of Partner: Black or White)  $\times$  2 (Topic: racist or neutral) between-subjects design. Participants received either \$20 or course credit for participating.

### *Procedure*

Participants were asked to take part in two separate and unrelated experiments being conducted in the lab. The "first

experiment” was described as the validation study for which they had been recruited. Participants were asked by a Black experimenter to complete a series of randomly ordered questionnaires and computer tasks. Embedded within these measures was our moderator, the Racial Centrality subscale of the Multidimensional Inventory of Black Identity (MIBI; Sellers, Smith, Shelton, Rowley, & Chavous, 1998).

Upon completion of these measures, participants were invited to participate in a purportedly unrelated “second study” to fill their remaining time. The described goal of this study was to examine virtual versus face-to-face communication. To bolster the story that this study was in no way related to the experiment that they had just completed, participants were led to another room and were asked by a second, non-Black experimenter to sign a separate consent form. Participants were then individually seated in front of a computer and were told that they would first *listen* to a partner speak on a randomly chosen topic via webcam and would later be asked to speak face-to-face on a different topic while their partner listened. They were informed that their partner had already randomly selected an envelope from a basket containing potential topics, and the participant was given the opportunity to read their partner’s topic. At this point the topic manipulation was introduced. In addition, participants were led to believe that during the webcam encounter both a visual and an auditory connection would exist, however the participant was instructed to remain silent and not to attempt to communicate with the other participant.

After reading their partner’s topic, participants randomly selected an envelope from the basket, and read the topic on which they expected to subsequently speak in the face-to-face encounter; unbeknownst to the participants, all of the envelopes contained the non-race-related topic “Increasing the Landscaping Budget at York University”. This design created an expectation of speaking to the partner, but allowed no opportunity to address the points raised in the webcam encounter. In reality, there was no second participant. Participants were instead shown a pre-recorded video of a Black or a White same-sex confederate who gave a scripted response that was racist or neutral in content, depending on the condition.

Following exposure to the manipulations, the main dependent measure, the Stroop color-naming task, appeared automatically on the screen. After completing this task, participants filled out a demographic questionnaire as well as a manipulation check containing questions about their partner and topic, and then received a full verbal debriefing.

### Manipulations

Participants were presented with a “partner” who was either a Black or a White same-sex confederate. Although participants were led to believe that they were hearing a live partner, in reality confederates provided a pre-recorded scripted response to either a question about whether racial profiling should be introduced on the university campus to address a recent rash of thefts (racist condition) or whether the university should increase parking fees (neutral condition). Confederates were trained to use relatively neutral facial expressions and similar levels of conviction, to maximize consistency between confederates and conditions.

In the racist condition, confederates expressed support for racial profiling on campus and made blatant and unmistakable references to negative characteristics stereotypically associated with Blacks (e.g., “I’m in favour of racial profiling on campus . . . especially these guys in the baggy jeans and that whole gangster look. We all know they don’t come to this school . . . They can’t even afford to come to this school”). In the neutral condition, confederates expressed support for increased parking fees on campus (e.g., “. . . If we increase the parking rates, then less people will drive and then

there won’t be a space problem. Plus we can continue earning the same revenue from parking lots”).

### Measures

#### Depletion measure

The dependent measure was the Stroop color-naming task (Stroop, 1935), which was presented in a computerized format; participants’ voice response times were recorded via microphone. There was a series of 20 practice trials and seven blocks of real trials with 12 trials per block. Each trial contained either a stimulus word (Red, Blue, Green or Yellow) or a string of Xs. The stimuli were presented for a maximum of 2000 ms with an inter-trial interval of 1500 ms. The participant was asked to name the color of the font in which the word or string of Xs was presented as quickly as possible. In compatible trials, the string of Xs was presented in one of four font colors. In incompatible trials, a color name was presented in a font color which was different from the color name. The difference in reaction time between compatible and incompatible trials represents the extent of Stroop interference (Stroop).

#### Racial centrality subscale (MIBI)

The Racial Centrality subscale of the Multidimensional Inventory of Black Identity (Sellers et al., 1998) was designed to measure the importance of race to one’s self-definition and features items such as “In general, being Black is an important part of my self-image” and “Overall, being Black has very little to do with how I feel about myself” (reverse scored). Responses were given on a Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree) (Cronbach’s  $\alpha = .83$ ).

#### Manipulation checks

To confirm that participants perceived the racist manipulation as racist, we asked them to respond to the question “Do you think your partner is racially biased?” on a seven-point scale ranging from 1 (Not at all) to 7 (Very much). In addition, to ensure that participants perceived the stigmatized target group as Black, we asked participants to respond to the open ended question: “If you heard the racial profiling topic, which racial group do you think your partner was talking about?”

## Results

### Preliminary analysis

#### Manipulation checks

As expected, all of our retained participants in the racist condition identified the referenced group as either Blacks or Blacks and some other racial group, despite a lack of explicit reference to a specific racial group in the script.

In order to determine whether participants also found their partner to be racially biased in the racist condition, and to ensure that this perception was not moderated by participants’ level of racial centrality (e.g., that Black participants with greater ingroup identification were not perceiving the comments as more biased than participants with lower levels of racial identification), we entered three main effects (effect coded variables for Race of Partner and Topic along with the continuous measure of racial centrality), and all possible higher order interaction terms into a simultaneous regression model with responses to the question “Do you think your partner is racially biased?” as the dependent variable. The overall model was significant,  $F(7, 65) = 19.58$ ,  $p < .001$ , and revealed the predicted main effect of topic,  $\beta = .80$ ,  $t(65) = 11.31$ ,  $p < .001$ , with participants in the racist conditions ( $M = 5.74$ ,

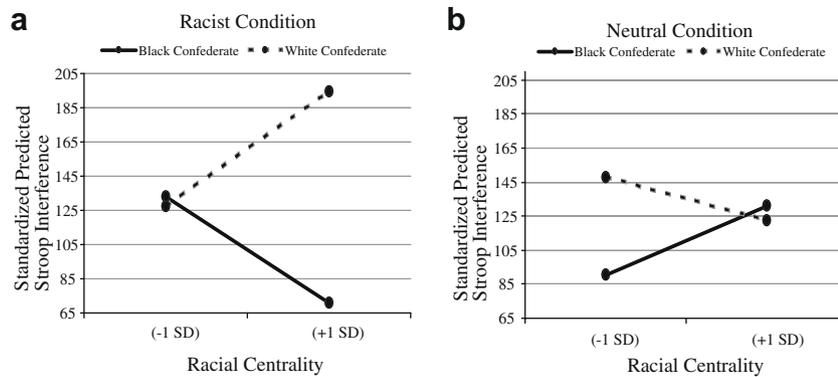


Fig. 1. Standardized predicted Stroop interference scores by centrality (graphed at 1 standard deviation above and below the mean) in the racist and neutral conditions.

$SD = 1.70$ ) perceiving more bias than participants in the neutral conditions ( $M = 1.82, SD = 1.25$ ). As expected, no other main effects emerged and none of the two-way interactions or the three-way interaction were significant (all  $\beta$ s < .08;  $p$ s > .23).

#### Stroop latencies

The Stroop response latencies were scored according to procedures outlined by Richeson and Shelton (2003). For trials with incorrect responses where the participant self-corrected, the response latency required to give the correct response was recorded. Trials with no response (6%), an incorrect response (2%), or response latencies greater than 1800 ms (0.6%; two standard deviations above the mean) were recoded to 1800 ms. Response latencies less than 200 ms (0.3%) were recoded to 200 ms. The mean trimmed response latencies for compatible trials were then subtracted from the mean trimmed response latencies for incompatible trials for each participant. This final score represents a measure of Stroop interference, with higher scores indicating more interference.

#### Primary analyses

To examine the effect of our manipulated variables and proposed moderator on self-control depletion, we entered the three main effects (effect coded variables for Race of Partner and Topic along with the continuous measure of racial centrality), and all possible higher order interaction terms into a simultaneous regression model with the trimmed Stroop difference score as the dependent variable.<sup>1</sup>

The overall model was significant  $R^2 = .30, F(7, 61) = 3.75, p = .002$  and revealed the predicted main effect of Race of Partner,  $\beta = .36, t(61) = 3.32, p = .002$ , with participants showing more self-control depletion after having listened to a White ( $M = 143.39, SD = 64.58$ ) versus a Black ( $M = 114.05, SD = 54.22$ ) confederate. Importantly, this was qualified by the anticipated three-way interaction between race of partner, topic, and centrality,  $\beta = -.38, t(61) = 3.36, p = .001$ .

To decompose this three-way interaction, simple two-way interaction effects were examined within each topic condition. As expected, for participants in the racist condition, an interaction between centrality and race of partner emerged,  $\beta = .80, t(61) = 3.32, p = .002$ . Simple slopes analyses, conducted as outlined by Aiken and West (1991; Preacher, Curran, & Bauer, 2006) revealed that, in line with our hypotheses, higher levels of centrality predicted

greater levels of self-control depletion when the source of the racism was a White confederate,  $\beta = .53, t(61) = 2.47, p = .02$ . Interestingly higher levels of centrality also predicted lower levels of self-control depletion when the source of the racism was a Black confederate,  $\beta = -.48, t(61) = -2.23, p = .03$ , see Fig. 1a.

No reliable interaction between centrality and race of partner emerged in the neutral condition,  $\beta = .32, t(61) = 1.52, p = .13$ . Simple slopes analyses revealed that the slope of the line representing the White neutral condition,  $\beta = -.20, t(61) = -1.13, p = .26$ , and the slope of the line representing the Black neutral condition,  $\beta = .31, t(61) = 1.09, p = .28$ , were not significantly different from zero, see Fig. 1b.<sup>2</sup>

#### Discussion

The ability to exert self-control is essential for successful functioning. Self-control is required for tolerating stress, regulating mood, dieting, and maintaining physical stamina (Muraven & Baumeister, 2000). Recent theorizing suggesting that self-control is a limited resource that can be depleted has highlighted the importance of knowing the sources and implications of self-control depletion (Muraven & Baumeister). Building on current theorizing in this domain, it is clear that self-regulatory depletion among undergraduate students could have a negative impact on academic performance, class attendance, and persistence when studying, as well as negative implications for the regulation of eating behavior, exercise, alcohol intake, and other health behaviors (Muraven & Baumeister).

The current study examined the effects of exposure to racism in an interracial context on the self-control resources of the targets of prejudice, specifically Blacks. In line with our prediction, we found that Black participants experienced depletion in interracial encounters, regardless of whether racism was involved. Importantly, however, this effect was moderated by the extent to which race was a central aspect of participants' identity. Specifically, higher levels of racial centrality in our Black participants reliably predicted greater levels of self-control depletion following an encounter with a White partner who espoused racist views.

This study is the first to demonstrate that simply *listening* to a partner in a brief and novel interracial context is sufficient to produce depletion. This finding is important because in the multicultural university context in which this study was conducted, interracial encounters are often the norm rather than the

<sup>1</sup> An evaluation of statistical assumptions led to the transformation of the centrality variable to reduce skewness, and the deletion of three cases as outliers to improve the normality, linearity and homoscedasticity of the residuals (Aiken & West, 1991).

<sup>2</sup> Simple two-way interaction effects were also examined within each race of partner condition. When the partner was Black, a reliable interaction between centrality and topic emerged,  $\beta = .56, t(61) = 2.21, p = .03$ . Similarly, when the partner was White, an interaction between racial centrality and topic again emerged,  $\beta = .51, t(61) = 2.63, p = .01$ .

exception. Our findings suggest that listening to a White peer expressing controversial views can result in self-regulatory depletion for stigmatized minority students. This finding differs somewhat from the results from previous research in which interracial interactions (Richeson et al., 2005) or exposure to blatant racism in a vignette (Salvatore & Shelton, 2007) were not sufficient to cause depletion among Black undergraduates. We believe that this difference might have emerged, at least in part, from the fact that participants in the current study were instructed to simply listen to controversial views being expressed by their partner without being given an opportunity to address them. This scenario directed participants toward more passive responses to potential racism such as scanning for bias (Crocker et al., 1991), interpreting ambiguous comments (Major & Crocker, 1993), and considering how to respond if an opportunity to respond presented itself (Shelton & Stewart, 2004; Stangor, Swim, Van Allen, & Sechrist, 2002). Such a situation might recreate the circumstances in which blatant and subtle forms of racism are often experienced in real life, in which social norms and potential ambiguity inherent in the situations might lead targets to inhibit a desire to respond (Swim & Hyers, 1999).

Importantly, in the current study we extend self-control depletion research by demonstrating that racial centrality moderates the effect of interracial contact on self-control depletion for Black participants when blatant racism is involved. We expected that hearing support for racial profiling from a White peer might be particularly stigmatizing for Blacks higher in racial centrality. In line with research by Inzlicht et al. (2006), who found stigma salience to lead to cognitive depletion among Black participants, in the present study we hypothesized that when confronted with group-based racist statements from a White peer, Blacks who were higher in ingroup identification might feel more stigmatized and expend more cognitive resources than Blacks for whom race is a less central aspect of their identity. Inzlicht et al. suggest that self-control depletion for individuals in stigmatizing environments occurs due to arousal (Ben-Zeev, Fein, & Inzlicht, 2005), impression management (Inzlicht & Ben-Zeev, 2003), and a desire to suppress negative stereotypes associated with the stigma (Spencer, 2003). Our research suggests that, in line with Social Identity Theory (Tajfel & Turner, 2001), when faced with racism, highly identified Blacks likely experience the event as more unjust and arousing and exert more self-control strategies to resist the racist message than less identified Blacks (see also McCoy & Major, 2003). Consistent with these possibilities, Black participants who self-reported higher levels of centrality showed greater depletion after having interacted with a White racist partner than those lower in centrality.

We also found that participants higher in centrality were significantly less depleted by racism coming from a Black confederate. This is interesting considering that our manipulation check revealed that perceptions of racism were influenced by our manipulation of topic, but this was not moderated by the race of their partner or by their level of racial group identification. Although it may seem counterintuitive that anti-Black racism coming from ingroup members produces less depletion, a phenomenon known as the inter-group sensitivity effect (Hornsey, Oppes, & Svensson, 2002) helps to explain this finding. According to inter-group sensitivity research, criticism coming from another ingroup member is considered more constructive and legitimate than criticism from outgroup members. As such, hearing support for racial profiling from ingroup members might have piqued these participants' curiosity rather than force them to consume self-control resources resisting the racism during the encounter. Another related possibility is that racism toward one's ingroup, when expressed by an ingroup member, has a qualitatively different and potentially less threatening meaning to a stigmatized individuals than racism ex-

pressed by an outgroup member, particularly among Blacks who are high in racial centrality. Future research is needed to examine these possibilities.

There are a few noteworthy limitations to the present research that could also be addressed through future research. First, although participants were led to believe that their race was not a relevant factor when completing the main dependent measures, participants in the present study were aware that they had been recruited because of their race for another aspect of the research. We therefore cannot completely rule out the possibility that this initial racial salience was necessary to produce the current effects. In addition, we designed our topic control condition to be affectively negative and likely to elicit disagreement (specifically, having a student *support* increased parking fees) in order to make it more comparable in tone to the racist condition. However, in our current design we cannot rule out the possibility that any mention of race (even a peer rejecting racial profiling on campus) would have produced similar effects. Future research would be useful to further examine the boundary conditions of these effects.

Importantly, the findings of the present research serve to further shake the foundation of the concept of the monolithic Black experience (Shelton, 2000) by demonstrating that variability not only exists in the extent to which Blacks identify themselves according to race but that this variability can differentially predict the effect of racism on Black targets. While our findings could be interpreted as supporting a more moderate endorsement of centrality in Black identity as a strategy to deal with racism, other research examining the effects of centrality on mental health and coping strongly suggests that Blacks reporting high levels of racial centrality tend to cope better with racism in the long-run (Branscombe, Schmitt, & Harvey, 1999; Operario & Fiske, 2001; Shelton & Sellers, 2000). Our research may suggest that self-control depletion is an unexpected short-term cost of having a high level of racial group identification but it also opens the door to future theorizing and research on how this effect might be combated. It is possible, for example, that the preference of those high in racial centrality to interact with members of their ingroup (Sellers, Rowley, Chavous, Shelton, & Smith, 1997) may reflect an intuitive awareness of the need to replenish depleted resources. It is also quite possible that the strategies used by Blacks with high centrality to actively resist racial attacks produce more depletion in the short-term, but result in psychological benefits in the long-run. With additional research, hopefully we can continue to gain a better understanding of the cognitive consequences of potentially stigmatizing experiences, with a focus on how these costs might be minimized.

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