Research Article

Stigma as Ego Depletion

How Being the Target of Prejudice Affects Self-Control

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ABSTRACT—*This research examined whether stigma diminishes people's ability to control their behaviors. Because coping with stigma requires self-regulation, and self-regulation is a limited-capacity resource, we predicted that individuals belonging to stigmatized groups are less able to regulate their own behavior when they become conscious of their stigmatizing status or enter threatening environments. Study 1 uncovered a correlation between stigma sensitivity and self-regulation; the more Black college students were sensitive to prejudice, the less self-control they reported having. By experimentally activating stigma, Studies 2 and 3 provided causal evidence for stigma's ego-depleting qualities: When their stigma was activated, stigmatized participants (Black students and females) showed impaired self-control in two very different domains (attentional and physical self-regulation). These results suggest that (a) stigma is ego depleting and (b) coping with it can weaken the ability to control and regulate one's behaviors in domains unrelated to the stigma.*

In his classic novel of Jim Crow America, *Native Son*, Richard Wright (1940) described the Black experience in America during the 1930s. There existed "white schools and black schools, white churches and black churches, white graveyards and black graveyards, and for all I know, a white God and a black God" (p. 437). The long list of rules and taboos to which Blacks had to submit was not without psychological consequence: Many of Wright's characters, having to watch their every word, deal with overt discrimination, and suppress their constant outrage, "acted out" in ways they seemingly could not help. In terms familiar to 21st-century social psychology, their predicament weakened their ability to self-regulate. Although Wright's vision was forbidding and extreme—and America has changed greatly since his day—we wonder if the loss of self-control he described remains a common reaction to the more modern forms of prejudice and discrimination. Stigma's effect on self-control is the focus of this article.

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THE EFFECTS OF STIGMA

Stigmatized individuals possess a "spoiled identity" (Goffman, 1963). They have an attribute that marks them as different and leads them to be devalued and marginalized in the eyes of others (Major & O'Brien, 2005). As a result, these individuals experience more negative outcomes than their nonstigmatized counterparts. African Americans, for example, suffer from academic underachievement and, compared with Whites, face higher risks of physical attack and have reduced access to housing, employment, and education (see Allison, 1998). In short, their status makes them prone to greater stress and frustration.

Another source of stress is the chronic experience of uncertainty. Stigma can lead to *attributional ambiguity*, which is an uncertainty about whether one is being judged because of personal deservingness or the prejudices held against one's group (Crocker & Major, 1989). By blaming discrimination rather than themselves, stigmatized individuals can use this uncertainty to maintain positive feelings about themselves (Major, Quinton, & Schmader, 2003). By discounting feedback, however, they also miss opportunities to learn about themselves and thus may live in a state of chronic uncertainty (Aronson & Inzlicht, 2004)—a state many people find aversive (Epstein & Roupenian, 1970).

Members of stigmatized groups also encounter situations in which anything they do or say can confirm negative stereotypes about their group. This situational predicament, called *stereotype threat* (Steele & Aronson, 1995; Steele, Spencer, & Aronson, 2002), refers to the fear people have of being reduced to a stereotype. The possibility that they may confirm a negative stereotype—in their own and other people's eyes (Inzlicht & Ben-Zeev, 2003)—raises physiological arousal (Ben-Zeev, Fein, & Inzlicht, 2005; Blascovich, Spencer, Quinn, & Steele, 2001), and can ultimately result in poor intellectual performance. Thus, when frustration with a test alerts people that they

may confirm a negative stereotype, they may become overly concerned with managing the impressions they project and try to suppress the concerns and emotions the stereotype raises (Spencer, 2003; see Inzlicht & Good, in press, for a review).

Individuals also differ in the extent to which they are sensitive to stigma. People who expect to be stereotyped by others (Pinel, 1999) and who are sensitive to rejection based on their group (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002) anticipate being the target of prejudice, are extra vigilant for stigma-related threats, and are more likely than other people to perceive ambiguous situations as identity threatening.

BEYOND PERFORMANCE: SELF-CONTROL AS A LIMITED RESOURCE

In sum, stigma increases people's stress, uncertainty, and vigilance and can lead to intellectual underperformance. In the present research, we explored whether prejudice also limits the amount of self-control people can exert. We looked beyond performance to explore whether stigma can affect an outcome that some people have called *the* defining problem of modern society, responsible for problems as diverse as depression, violent crime, and drug abuse (Baumeister, Heatherton, & Tice, 1994): failure of self-control.

Self-control refers to the mental effort individuals use to regulate their own behavior (Muraven & Baumeister, 2000). Monitoring your impressions, controlling your emotions and feelings, eating and drinking in moderation, and delaying your gratification are all actions that require self-control (Herman & Polivy, 1975; Mischel, 1996; Muraven, Tice, & Baumeister, 1998; Vohs, Baumeister, & Ciarocco, 2005). Self-control is often difficult, however. Research shows that people's self-control is limited, with any task requiring willful action depleting this central resource quickly. Thus, exerting self-control on one task drains self-control strength and impairs performance on subsequent tasks requiring this same resource—a process known as *ego depletion*.

Given this limited capacity, we propose that stigmatized individuals use and deplete self-control to manage their devalued social identity, thus leaving them less able than their nonstigmatized counterparts to engage in self-control for other things. Whenever they become conscious of their stigmatizing status or encounter a threatening environment, they face regulatory pressures stemming from, among other things, the stress and uncertainty they feel (Major & O'Brien, 2005), worries about projecting a positive image (Steele et al., 2002), the mental load of intrusive thoughts (Cadinu, Maass, Rosabianca, & Kiesner, 2005), and attempts to suppress negative stereotypes (Spencer, 2003). These outcomes have one thing in common: Each drains regulatory resources. The result, we hypothesize, is impaired self-control.

To our knowledge, no research has tested this hypothesis directly, but prior research is consistent with our reasoning. Research on interracial interactions, for example, suggests that after interacting with an African American, Whites are less able to exert self-control on a subsequent task. This finding implies that intergroup interactions are ego depleting for nonstigmatized individuals (Richeson & Shelton, 2003; Richeson & Trawalter, 2005). We suspect that stigmatized individuals experience similar losses, and given the frequency with which they engage in intergroup interactions, ego depletion may be a more frequent experience for them. As for the connection between stereotype threat and self-regulation, research shows that stereotype threat can drain working memory (Schmader & Johns, 2003). And working memory consists of at least two components: one involving short-term memory capacity and the other attentional self-regulation (Engle, 2002). In other words, working memory impairments found among stereotype-threatened individuals may reflect impairments to self-regulation. There is evidence, then, that being the target of prejudice can limit self-regulation.

In the experiments we report here, we tested our reasoning more directly. First, we asked if Black students who were sensitive to race-based prejudice reported impaired self-regulatory capacity (Study 1). We then explored how situationally activated stigma could impair performance on a task requiring attentional control (Study 2) and on a task requiring physical stamina (Study 3).

STUDY 1: STIGMA SENSITIVITY AND SELF-REGULATION

In this preliminary study, we asked if chronic differences in stigma sensitivity could predict self-regulatory capacity. Given our hypothesis relating stigma and self-regulation, it follows that those individuals who are most vigilant of and threatened by stigma-related cues will also be the ones who experience the most ego depletion and report having the least self-regulatory capacity.

Method

Participants and Procedure

Thirty-eight Black students at New York University (NYU) participated for pay. As part of a larger survey study, they completed a measure of their self-regulatory capabilities in the academic domain, followed by a measure of their sensitivity to race-based prejudice. After completing the larger study, which included reporting their combined quantitative and verbal SAT scores, participants were thanked and debriefed.

Measures

Stigma Sensitivity. Participants completed the Race-Based Rejection Sensitivity (RS-race) scale, which measures one's tendency to anxiously expect, readily perceive, and strongly react to rejection due to race (Mendoza-Denton et al., 2002). Participants were asked to imagine themselves in 12 hypo-

thetical scenarios in which they experienced some negative outcome. After imagining each scenario, using a 6-point Likert scale, they indicated (a) how concerned they were that the negative outcome would be due to their race and (b) how likely the negative outcome would be due to their race. We calculated an RS-race score by multiplying the scores on the concern and likelihood subscales for each scenario and then averaging across the 12 scenarios.

Self-Regulation. Participants also completed the Self-Efficacy for Self-Regulated Learning Scale (SESRL), an 11-item subscale that is part of Bandura's Multidimensional Self-Efficacy Scale. This subscale measures students' confidence in their ability to self-regulate their learning strategies (Pajares & Valiante, 2002). Using an 11-point Likert scale with 10-point increments starting at 0 and going to 100, participants circled the number that corresponded with how confident they were about their ability to use various self-regulated learning strategies, such as "study when there are other interesting things to do" and "motivate myself to do schoolwork." We calculated a self-regulation score by averaging across all 11 items.

Results and Discussion

If stigma consumes self-regulatory resources, then Black students who are more stigma sensitive should report having less self-regulatory capacity than Black students who are less stigma sensitive. Preliminary analyses revealed that both the RS-race ($M = 12.16$, $SD = 5.53$) and the SESRL ($M = 77.42$, $SD = 17.38$) were internally reliable, $\alpha = .92$ and .90, respectively. Further, as in past research (e.g., Aronson & Inzlicht, 2004), stigma sensitivity predicted poor academic performance, as indexed by self-reported SAT scores ($M = 1328.24$, $SD = 97.12$), $\beta = -.41$, $t(34)$[1] $= -2.60$, $p_{rep} = .95$,[2] $d = 0.89$.

Figure 1 shows that the data support our prediction: Greater stigma sensitivity predicted lower levels of self-regulation, $\beta = -.41$, $t(36) = -2.66$, $p_{rep} = .95$, $d = 0.89$. Thus, stigma-sensitive Black students reported having a harder time regulating their academic behaviors than did Black students who were less sensitive. This relationship remained reliable after equating participants on SAT scores, $\beta = -.39$, $t(33) = -2.29$, $p_{rep} = .91$, $d = 0.80$. This means that stigma-sensitive Black students did not report having less self-control because they also had less academic ability; rather, something about stigma produced the result.

One of this study's strengths was that it examined whether stigma predicts the natural variation in perceived control. Nonetheless, it had limitations. First, we did not actually measure self-regulation. Instead, we asked participants to self-report their confidence in their self-regulation. Second, the study was correlational: Although it allowed us to examine self-control naturalistically, the results cannot be the basis for conclusions about causality. We therefore conducted two additional studies in which we experimentally activated stigma and measured self-regulation.

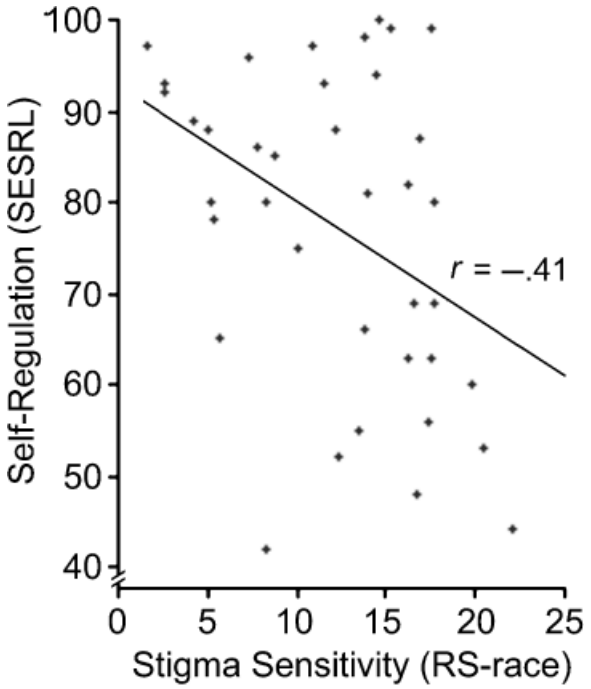

Fig. 1. Scatter plot of the significant correlation between stigma sensitivity and reported self-regulatory capacity among Black college students. RS-race measures race-based rejection sensitivity. SESRL = Self-Efficacy for Self-Regulated Learning Scale.

STUDY 2: STIGMA AND ATTENTIONAL SELF-CONTROL

In Study 2, we explored whether situationally activating stigma could lead to ego depletion. We evoked stereotype threat for Black students and measured their performance on a measure of executive attention—the Stroop task. We predicted that threatened Black students would show impairments in attentional self-regulation, a result that would converge with our findings in Study 1.

Method

Participants and Design

Twenty-one Black and 21 White undergraduates from the NYU subject pool participated for course credit. Participants were assigned to one of four conditions in a Race (Black vs. White) × Stereotype Threat (threat vs. no threat) between-subjects design. One participant was dropped from analyses for not following directions.

[1]The reduction in the degrees of freedom reflects 2 participants' failure to report their SAT scores.

[2]Given the problems with null-hypothesis significance tests, we use an alternative statistic called p_{rep}, which is the probability of replicating an effect of the same sign (Killeen, 2005).

Dependent Variable

Stroop (1935) performance was our main dependent variable. Participants were instructed to quickly name the colors in which a series of stimuli were printed on a card. Participants saw two cards with 50 stimuli each. One contained 10 repetitions of five color words, each printed in a color that did not match its semantic meaning (incompatible card). The other card contained 10 repetitions of five nonsense words of the same length as the color words; each nonsense word appeared in one of five colors (control card). The order in which the cards were presented was counterbalanced across participants. Reaction time (RT) to complete the incompatible and control cards was recorded with a stopwatch. Because the Stroop task demands maintaining the goal of naming the color of words and inhibiting the tendency to read them, it is thought to require attentional self-regulation (Engle, 2002).

Procedure

The experimenter, blind to the study's purpose, introduced the study as an investigation of "how mood affects mental performance." Participants were led to believe that they would take a difficult verbal test and then were randomly assigned to the threat or no-threat condition. In the threat condition, they were told that the test was diagnostic of intellectual ability, a procedure known to activate race-based stereotypes for Black (but not White) participants (Steele & Aronson, 1995). In the no-threat condition, participants were told that the test was nondiagnostic of intelligence, a procedure that should not activate stereotypes. In keeping with the cover story, the experimenter gave all participants a filler mood measure to complete. They were then given 4 min to look over the types of questions they could expect on the test.

The experimenter next administered the Stroop task. Participants were informed that the experimenter had run out of tests and needed to make more copies. They were asked to help with an "unrelated pilot study" in the interim. After accurately explaining what the Stroop task measures, the experimenter measured RTs for this task and in fact never administered the verbal test.[3] The experimenter then explained that the study was over and provided a full debriefing.

Results and Discussion

If stigma depletes executive resources, then Black students who anticipate a stereotype-threatening experience should show more Stroop interference than nonthreatened Blacks. The results of a 2 × 2 analysis of covariance on RTs for the incompatible Stroop trials, adjusting for the control trials, revealed a significant main effect for race, $F(1, 36) = 4.26, p_{rep} = .88, d = 0.69$, that was subsumed by a significant race-by-threat interaction, $F(1, 36) = 4.97, p_{rep} = .91, d = 0.74$. As predicted, the analysis of simple effects showed that Black participants in the threat condition took longer to complete the incompatible Stroop trials than Blacks in the no-threat condition, $F(1, 36) = 6.27$, $p_{rep} = .93, d = 0.84$ (see Fig. 2). In contrast, Whites in the threat condition did not take any longer to complete the incompatible Stroop trials than Whites in the no-threat condition, $F(1, 36) < 1$. Even when White participants expected to take a diagnostic test, this did not induce a threat for them and thus did not consume executive functioning. Thus, stereotype threat can disrupt attentional self-regulation for Black students. This finding replicates and extends the results of Study 1 by showing a clear causal connection between stigma and impaired self-control.

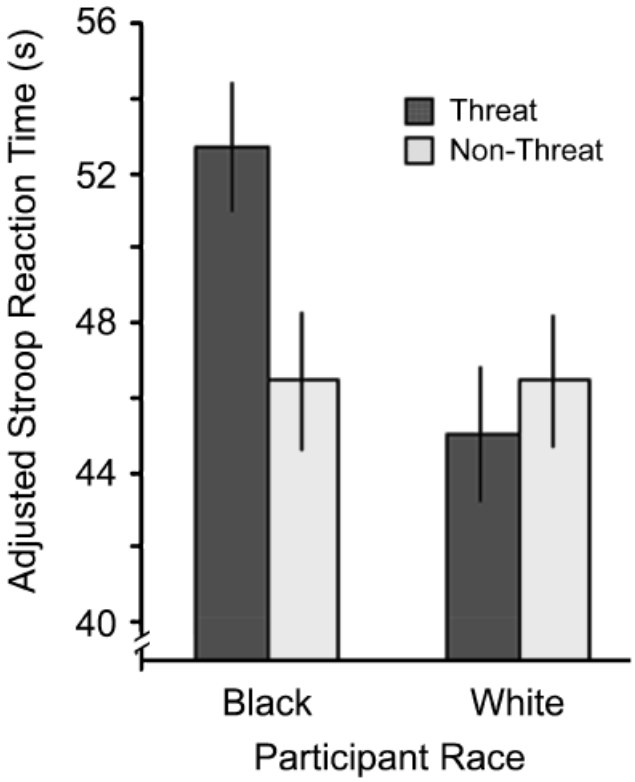

Fig. 2. Results from Study 2: attentional self-regulation as a function of race of participant and threat. Error bars represent standard errors.

Compared with Black participants in the no-threat condition, Black participants who faced the possibility of confirming negative stereotypes about their group had a tougher time maintaining the goal of naming the color in which color words were printed and inhibiting the tendency to read the words. We suspect this difficulty reflects an impairment of executive control. It is nonetheless conceivable that the Black participants misconstrued the Stroop task as a test of verbal performance, and the observed deficits might therefore indicate not impairments in executive control, but rather impairments in performance—the classic stereotype-threat effect. In addition, research has linked Stroop interference with working memory capacity (Engle, 2002), meaning that the observed Stroop deficits may be

[3]We did not administer the test after the Stroop task because we thought the Stroop task itself could be depleting and so lead to floor effects on performance.

another example of how stereotype threat impairs working memory (cf. Schmader & Johns, 2003) and not an example of how it affects executive control. Therefore, we conducted Study 3 to address these alternative explanations.

STUDY 3: STIGMA AND PHYSICAL SELF-REGULATION

In Study 3, we sought to replicate the stigma-depletion effect and to rule out the aforementioned alternative explanations. We also wanted to learn if the effect would generalize to another stigmatized group, women in math (Spencer, Steele, & Quinn, 1999). We used the same threat manipulation as in Study 2, but this time measured performance on a handgrip exerciser—a measure of self-regulatory ability that taps neither the domain associated with the stereotype threat nor working memory. We hypothesized that threatened females would show deficits in physical self-regulation.

Method

Participants and Design

Sixty-one female NYU undergraduates were recruited to participate for payment. They were assigned to one of four conditions in a Test (math vs. verbal) × Stereotype Threat (threat vs. no threat) between-subjects design.

Dependent Variable

To measure physical stamina, we assessed how long participants could continuously squeeze a handgrip. Because this action quickly becomes uncomfortable, self-regulatory strength is required to overcome physical discomfort and persist on the task (Muraven et al., 1998). The experimenter placed a piece of paper between the grips and instructed participants to hold the handgrip for as long as they could. The experimenter began a stopwatch as participants closed the grip and stopped when the paper fell out. The experimenter recorded handgrip time twice: a baseline measure at the beginning of the study and a postmanipulation measure at the end.

Procedure

The experimenter, blind to the hypothesis, introduced the study as an investigation of "how mood affects physical and mental performance." Participants were told that they would complete two handgrip measurements and a test not unlike the SAT. Baseline handgrip time was measured, and then participants completed a mood measure that acted as a filler consistent with our cover story. Half of the participants were then told that they would take a math test; the other half expected to take a verbal test (in fact, no test was administered). We then manipulated stereotype threat by telling participants that the test had not shown gender differences in the past (no-threat condition) or that it was diagnostic of ability (threat condition; Spencer et al., 1999). After participants were given 4 min to look over practice questions, they completed the second handgrip task. The experimenter then explained that the study was over and provided a full debriefing.

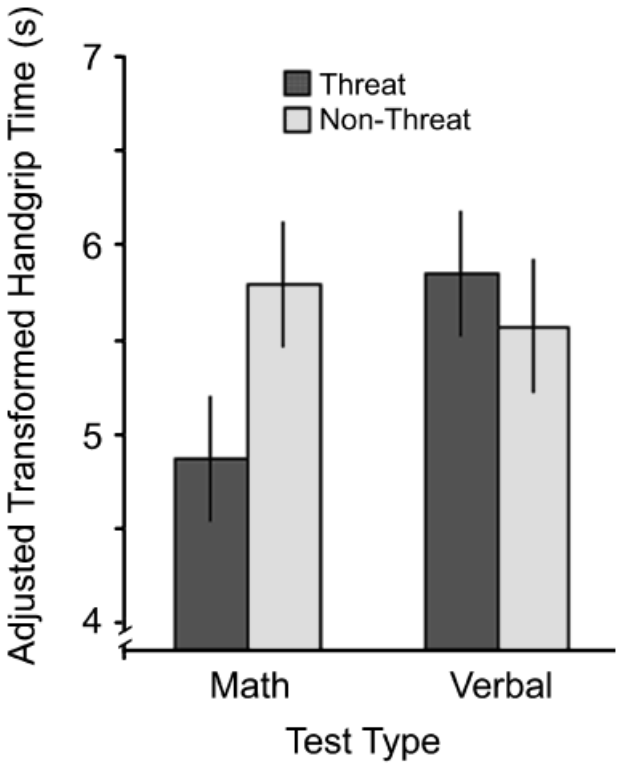

Fig. 3. Results from Study 3: physical self-regulation as a function of test type and threat. Error bars represent standard errors.

Results and Discussion

We hypothesized that females expecting to take a diagnostic math test would show impaired self-regulation, as measured by the amount of time they could hold on to the handgrip. As suggested by McClelland (2000), we dropped 2 outlying participants from all analyses, one for having a handgrip time nearly 4 standard deviations above the mean and the other for having a large studentized deleted residual value when all factors were included in the analysis, $t(55) = 3.20$, $p < .01$. We also transformed the handgrip measures to correct for observed violations of normality by taking the square roots of the RTs (McClelland, 2000).[4] A two-way analysis of covariance on postmanipulation handgrip time, controlling for baseline, revealed only a significant interaction between test and condition, $F(1, 54) = 3.28$, $p_{rep} = .84$, $d = 0.49$ (see Fig. 3).

Analysis of simple effects confirmed our predictions. Among females who expected to take the math test, those in the threat condition were unable to hold the handgrip for as long as those in the no-threat condition, $F(1, 54) = 3.95$, $p_{rep} = .88$, $d = 0.66$. Thus, as in Study 2, anticipating a threatening environment

[4]When we conducted analyses on untransformed data, the results were similar to those reported here.

appeared to deplete self-control. Participants expecting to take the verbal test, in contrast, held on to the handgrip equally long whether they believed the test to be diagnostic or not, $F(1, 54) < 1$. Because there are no negative stereotypes linking women to poor verbal performance, taking a diagnostic verbal test is nonthreatening and thus nondepleting.

These findings support four conclusions. First, as in Study 2, participants who risked confirming negative group stereotypes had a difficult time self-regulating. This suggests that activated stigmas consume executive functioning and weaken self-control capabilities. Second, the ego depletion among females anticipating a diagnostic math test suggests that anyone belonging to a socially devalued group—and not just African Americans—may face pressures and have problems with self-regulation. Third, females who expected to take a diagnostic test in a nonstereotyped domain—in this case, a verbal test—did not experience ego depletion, which means that stigmatized individuals' depletion is not a product of some generalized evaluation apprehension; rather, it is linked to stigmatized domains. Finally, in contrast with our first two studies, Study 3 demonstrated regulatory deficits in a domain (i.e., overcoming physical discomfort) distinguishable from the stereotyped domain (i.e., math ability), suggesting that stereotype effects can generalize to nonstereotyped domains. This is consistent with the idea that self-control is a central resource: Ego depletion can weaken regulation over tasks that are qualitatively different from the tasks that produced it, meaning that once the self is depleted by a stereotype, regulation in nonstereotyped domains may be compromised.

GENERAL DISCUSSION

Stigma research has flourished over the past 15 years. In that time, researchers have learned that stigma is a burden: People who belong to socially devalued groups live stressful lives, experience chronic uncertainty, and suffer from performance deficits. The results of the current research reveal that stigma can have even greater consequences: It can weaken the fundamental ability to control and regulate one's actions and behaviors. Study 1 demonstrated an association between stigma and self-control. Those Black students who felt the full brunt of stigma—those who were sensitive to race-based rejection—were also the ones who reported having the most problems regulating their own learning behaviors. Studies 2 and 3 captured a causal connection between stigma and self-control. By showing that threatened participants had a tougher time with attentional and physical self-regulation than nonthreatened participants did, these studies suggest that the situational activation of stigma taps the limited resource of self-control.

But how did stigma lead to ego depletion in our studies? How did looking over diagnostic practice items and anticipating taking a full diagnostic test deplete self-regulatory capacity? Although the current research cannot address these questions directly, other findings offer clues. Upon reading the threatening test instructions, our participants may have experienced stress that they needed to appraise and cope with (Major & O'Brien, 2005). They may have felt increased arousal (Ben-Zeev et al., 2005), started managing the impressions they were projecting (Inzlicht & Ben-Zeev, 2003), suppressed some of the negative stereotypes they began thinking about (Spencer, 2003), and felt overwhelmed with negative thoughts and concerns (Cadinu et al., 2005). All these stigma sequelae have one thing in common: Each consumes self-regulatory energy, and we suggest that the extent to which they do determines the extent to which they deplete the self and lead to failure of self-control.

These studies provide an initial link between stigma and self-control. They do not, however, show that depleted self-control mediates some of the other consequences of stigma (e.g., intellectual underperformance). Rather, self-control failure may be an epiphenomenon of stereotype threat, separate and distinct from its other effects. This research thus remains silent as to whether ego depletion can, for example, contribute to the performance deficits produced by stereotype threat (cf. Schmeichel, Vohs, & Baumeister, 2003). In this regard, we agree with Steele et al. (2002) that there may be no silver bullet causing stereotype threat, and that it may be multiply mediated, with self-regulation failure perhaps playing some role. Future research, then, will have to examine the link between self-control failure and some of the other consequences of stigma.

Self-control is important because it underlies so many aspects of daily life. Getting out of bed in the morning, studying for a test, drinking in moderation, and so on all require self-control. It is no surprise, then, that failures of self-control are linked with wide-ranging societal problems (see Baumeister et al., 1994). Given self-control's central role in willful human behavior, our findings suggest that dealing with stigma can limit self-control and result in problems unrelated to the stigma. For example, after finding that she is the only woman in her engineering class—a stereotype-threatening environment (Inzlicht & Ben-Zeev, 2000)—a dieting woman may find that she is having a hard time not only in her class, but also in resisting the chocolate-chip cookies offered at the lunch counter. Exploring the generalizability of the link between stigma and self-control failure to nonstereotyped domains is therefore of some import.

CONCLUSION

The present studies examined the relationship of stigma and stigma sensitivity to self-control. And for the most part, the news has been bad: Our studies suggest that stigma can impair the fundamental ability to control and regulate one's actions. We want to conclude, however, with what we think is good news. Research shows that, just like a muscle, self-control can show long-term improvements through repeated practice of self-regulation exercises (Muraven, Baumeister, & Tice, 1999). Self-control, in other words, can be cultivated. A central challenge of

future research, therefore, will be to examine whether increasing self-control can offer a way for individuals to overcome stigma and its negative effects.

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