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Reinstating the Resourceful Self: When and How Self-Affirmations Improve Executive Performance of the Powerless

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Abstract

Research has found that lack of power impairs executive functions. In the present research, we show that this impairment is not immutable. Across three studies and focusing on inhibitory control as one of the core facets of executive functions, our investigation shows that self-affirmation attenuates the previously documented decrements in inhibitory control of the powerless (Studies 1-3). We also examine boundary conditions of this effect and demonstrate that self-affirmation is most effective insofar as the powerless lack self-esteem (Study 2). Finally, we directly test the underlying process of this effect and demonstrate that self-affirmation increases an efficacious self-view among the powerless, which in turn improves their inhibitory control abilities (Study 3). Overall, we conclude that reinstating an efficacious self-view through self-affirmation offsets the impairments in inhibitory control abilities of the powerless and reduces the cognitive performance gap between the powerless and the powerful.

Keywords

social power, self-affirmation, executive functions, efficacy, self-esteem

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Power is a ubiquitous feature of many social structures. In today's society, power hierarchies emerge to facilitate and streamline task performance and group decision-making (Magee & Galinsky, 2008; Van Vugt, 2006). To this end, it is necessary for individuals in a power hierarchy, be they in high-power or low-power positions, to perform optimally in pursuit of goals. However, extensive research shows that power hierarchies differentially affect performance and goal pursuit of high-power and low-power individuals. Notably, while *having power* facilitates self-regulatory processes and goal-directed behavior, *lack of power* has been found to consistently hamper those processes (for a review, see Guinote, 2017). Critically, research has found that lack of power impairs executive functions—a set of basic cognitive control processes that guide selection and monitoring of behaviors to facilitate goal achievement—that results in a performance gap between the powerless and the powerful (Diamond, 2013; Guinote, 2017; Smith, Jostmann, Galinsky, & van Dijk, 2008). It is therefore imperative, from both theoretical and practical perspectives, to identify strategies and interventions that could mitigate the cognitive decrements of the powerless. Attempts at discovering such interventions become even more relevant considering that the powerless outnumber the powerful in social hierarchies, and that it is far more common for individuals to experience situations that induce powerlessness in everyday life (Smith & Hofmann, 2016).

Surprisingly, however, research addressing these theoretical and practical gaps is scarce, and so far, only limited to the study of factors specific to the structure of power hierarchies. For instance, research demonstrates that when power positions are illegitimate and unstable, the powerless show increased approach-related tendencies (Lammers, Galinsky, Gordijn, & Otten, 2008) and goal-directed behavior (Willis, Guinote, & Rodríguez-Bailón, 2010), presumably because such structural conditions motivate the powerless to move up the social hierarchy. These findings, though theoretically illuminating, are less applicable to many hierarchies in everyday life that are fairly stable and in which power positions are legitimate. Furthermore, these findings do not address whether such structural conditions can improve

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executive functions of the powerless, which are the key drivers of the performance gap between the powerless and the powerful. As such, our knowledge of strategies and interventions that can attenuate the cognitive decrements of the powerless is limited, and the highlighted theoretical and practical gaps still exist. To begin redressing these critical gaps, in the present work, we propose and demonstrate that self-affirmation—inviting people to cultivate a sense of self as worthy, adequate, and efficacious (G. L. Cohen & Sherman, 2014; Steele, 1988)—improves inhibitory control, a critical component of executive functions, of the powerless. Specifically, whereas powerlessness is conceptualized mainly as an *interpersonal* and relational construct, we show that an *intrapersonal* intervention, such as self-affirmation, can attenuate the detrimental cognitive consequences of powerlessness, and enable the powerless to respond adaptively to their circumstances in power hierarchies. This implies that the adverse personal consequences of being powerless can be neutralized even when people are locked in a low-power state in social contexts. Our research, therefore, provides a more nuanced understanding of the psychology of powerlessness, which has received scant attention in the power literature and sheds light on ways to minimize the performance gap between the powerless and the powerful.

Powerlessness and Impaired Executive Functions

Power is defined as the asymmetrical control over valued resources and outcomes in social relations (Fiske, 2010). In relationships characterized by power asymmetries, the powerful have higher access to resources and have the relative capacity to influence others' outcomes by awarding or withholding those resources. Higher access to valued resources and lower dependency on others increase approach-related tendencies and goal-directed behavior of the powerful (Hirsh, Galinsky, & Zhong, 2011; Keltner, Gruenfeld, & Anderson, 2003). In contrast, the powerless have less access to resources, and their outcomes are dependent on the powerful. Consequently, the powerless feel more constrained and experience more vigilance, which consumes mental resources and hinders performance by impairing executive functions (Dépret & Fiske, 1993; Keltner et al., 2003; Smith et al., 2008).

Executive functions consist of a family of core interrelated cognitive control processes, enabling an individual to (a) deliberately allocate and maintain attention to goal-relevant information and inhibit habitual response tendencies to distracting stimuli that may disrupt goal pursuit—inhibitory control, (b) retain and update goal-relevant information—working memory, and (c) demonstrate flexibility in shifting between different goals and perspectives according to changed demands or priorities—cognitive flexibility (Diamond, 2013; Hofmann, Schmeichel, & Baddeley, 2012; Miyake et al., 2000). Relating to power asymmetries, specifically, research has found that lack of power consistently impedes inhibitory control, such that relative to the powerful, the powerless show decreased ability to focus on goal-relevant stimuli and to override countervailing impulses and interfering distractions (Guinote, 2007a, 2017; Schmid, Kleiman, & Amodio, 2015; Smith et al., 2008). As a result, the detrimental effects of powerlessness on inhibitory control have been argued to be at the core of how lacking power creates a performance gap between the powerful and the powerless (Guinote & Vescio, 2010; Smith et al., 2008).

Although powerlessness is by definition an interpersonal construct, in essence, it constitutes a salient threat to people's self-worth, a global and positive perception of the self as adequate, capable, and efficacious. Particularly, powerlessness—the experience of asymmetrical outcome dependency in social relations—threatens people's innate need to view themselves as capable of determining their outcomes (Fiske, 2010; Guinote, 2017). According to research on self-determination theory, the feeling that one is agentic and capable of achieving goals despite challenges is a fundamental force behind performance, goal attainment, and overall well-being (Deci & Ryan, 1995; Ryan & Deci, 2000). Therefore, the adverse effects of powerlessness on inhibitory control, a critical component of executive functions, may be driven by the threat that asymmetrical outcome dependency poses to individuals' positive and efficacious self-view. If so, a different scenario may occur when the powerless have the opportunity to restore their self-worth. Specifically, such an opportunity may enable the powerless to perceive themselves as adequate and capable enough to carry out goals despite their disadvantaged social position. Accordingly, in the following, we argue and propose that self-affirmation is one strategy to buffer the detrimental consequences of powerlessness on inhibitory control.

Self-Affirmation as a Remedy for Powerlessness: The When and the How

Psychological threats, like being stigmatized for one's race, socioeconomic status, or gender, challenge people's innate need to view themselves as worthy, capable, and efficacious in carrying out goals in daily life (Sherman & Cohen, 2006). One of the most frequently studied behavioral interventions known to neutralize the adverse effects of psychological threats is self-affirmation. Self-affirmation theory hinges on the premise that the self-system is flexible to the extent that when the self is threatened in one domain, affirming the self in a different domain restores a sense of adequacy, which can be harnessed to buffer the adverse effects of psychological threats (G. L. Cohen & Sherman, 2014).

Research has provided extensive evidence on the positive effects of self-affirmation on achievements and performance outcomes of stigmatized groups. For instance, field and laboratory studies have found that self-affirmation interventions that involve writing about core personal values significantly improve the academic performance of minority students,

who are often negatively stereotyped for their intellectual abilities (G. L. Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Taylor & Walton, 2011). In relation to one's socioeconomic status, studies have found that affirmations among first-generation college students, who often come from financially disadvantaged backgrounds, increase goal-directed intentions and behavior, which ultimately reduce the achievement gap between those students and their more financially advantaged peers (Harackiewicz et al., 2014). In a similar vein, research has also found that affirmations reduce the gender gap in learning and performance (Martens, Johns, Greenberg, & Schimel, 2006).

The reviewed findings have important implications for our reasoning on why self-affirmation may effectively curb the negative cognitive consequences of powerlessness. First, the psychological threats reviewed above (e.g., being stigmatized for one's race, social class, and gender) significantly overlap with the state of powerlessness and are associated with having less control over valued resources and outcomes in social relations (Phelan, Lucas, Ridgeway, & Taylor, 2014). This notion is supported by findings demonstrating that being stereotyped increases the feeling of powerlessness (Cook, Arrow, & Malle, 2011). Moreover, similar to the effects of powerlessness, research has found that stereotype threats undermine performance by impairing cognitive control abilities (Schmader & Johns, 2003). Given the positive effects of self-affirmation on various cognitive outcomes among stigmatized groups, it is plausible that self-affirmation also buffers the adverse effects of powerlessness on cognitive control. Specifically, by shifting the focus of the powerless from their dire state in a power hierarchy to the psychological resources residing within the self, self-affirmation may foster adaptive coping with the consequences of being powerless. We thus hypothesize the following:

> **Hypothesis 1 (H1):** Low-power individuals who self-affirm show improved inhibitory control abilities, relative to low-power individuals who are not given the opportunity to self-affirm.

Although H1 proposes self-affirmation as an intervention to improve the inhibitory control component of executive functions of the powerless, we also examine *when* and *how* self-affirmation extends its reparative effect. Specifically, with respect to *when*, following the logic of the self-affirmation theory, we highlight the role of individual differences in self-esteem as an important boundary condition of our proposed effect in H1. Dispositional self-esteem is a psychosocial resource which fortifies the self against psychological threats. People with high self-esteem (HSE) have a higher sense of personal agency, regard themselves as capable of carrying out goals, and are more likely to generate self-affirming thoughts spontaneously when facing threats (Dodgson & Wood, 1998; Judge, Erez, Bono, & Thoresen, 2002; Pietersma & Dijkstra, 2012). In contrast, those with low self-esteem (LSE) experience more anxiety when facing threats and are less likely to readily view themselves as capable of influencing their environment and overcoming threats (Greenberg et al., 1992; Mecca, Smelser, & Vasconcellos, 1989). Accordingly, research has shown that people with LSE, who lack dispositional resources to protect their self-worth against threats, are those who reap the largest benefit from affirmation interventions (Düring & Jessop, 2015; Jaremka, Bunyan, Collins, & Sherman, 2011). Individual differences in self-esteem thus predict the extent to which people need and benefit from external means of bolstering self-worth (e.g., through self-affirmations) when experiencing self-threats.

Following this reasoning, we posit that the reparative effect of self-affirmation on inhibitory control of the powerless should be most evident among people with LSE. In contrast, people with HSE, who readily regard themselves as capable and adequate in facing threats, should benefit less from explicit self-affirmation interventions when experiencing the psychological threat of powerlessness. We thus propose:

> **Hypothesis 2 (H2):** The reparative effect of self-affirmation on inhibitory control of the powerless is more (vs. less) pronounced among people with low (vs. high) self-esteem.

Finally, concerning the underlying process, we focus on the core of *how* self-affirmation neutralizes the negative consequences of psychological threats. Specifically, self-affirmation has been conceptualized to shift people's attention to their positive self-aspects and boost a self-view that is resourceful and efficacious. As Steele (1988) concludes, self-affirmation is a strategy to bolster and appraise the self as "competent, good, coherent, unitary, stable, capable of free choice, capable of controlling important outcomes" (p. 262). This altered self-appraisal can promote a sense of efficacy, motivating people to strive to change their otherwise challenging and threatening circumstances. This motivational account is consistent with a wealth of findings in the self-affirmation literature ranging from health to education, and organizational psychology. For instance, research has found that self-affirmation reduces defensive processing of health-risk information among people with high health risk and fosters their perceived efficacy and control in adopting healthier and more desirable habits (Armitage, Harris, Hepton, & Napper, 2008; Sherman, Nelson, & Steele, 2000). Similarly, in organizations undergoing downsizing where employees often experience high levels of job insecurity, self-affirmation has been found to reduce anxiety and stress by bolstering employees' perceived efficacy in overcoming workplace challenges (Morgan & Harris, 2015). We propose that a similar process drives our hypothesized effect. Specifically, self-affirmation may cultivate a greater sense of

efficacy among the powerless, which in turn improves inhibitory control abilities of the powerless. Stated formally:

> **Hypothesis 3 (H3):** A sense of efficacy mediates the interaction between social power and self-affirmation on inhibitory control.

Overview of the Present Studies

In three studies, we investigate the effectiveness of self-affirmation interventions in warding off the negative consequences of powerlessness on inhibitory control. Study 1 serves as an initial test of our proposed effect and shows that self-affirmation improves inhibitory control of the powerless indexed by Stroop performance. Study 2 replicates and extends our findings from Study 1 using the flanker task as a different method to assess inhibitory control. Moreover, in Study 2, we examine the role of dispositional self-esteem and demonstrate that the effectiveness of self-affirmation on inhibitory control abilities of the powerless is most pronounced among people with LSE. Finally, in Study 3, we examine the underlying process of this effect and show that self-affirmation improves inhibitory control of the powerless by reinstating an efficacious self-view.

For each study, the sample size was determined a priori using G*Power (v 3.1; Faul, Erdfelder, Buchner, & Lang, 2009) to have a power of 0.80 and an alpha error probability of .05 to detect the hypothesized effect. In Study 1, we took an investigative approach to the determination of sample size. A power analysis yielded a minimum sample size of 191 to detect a medium-sized two-way interaction effect ($f = 0.2$) between power and affirmation. In Study 2, power analysis for a linear regression yielded a minimum sample of 325 to detect a small-sized effect ($f^2 = 0.03$) for the hypothesized three-way interaction between power, affirmation, and self-esteem. Due to its similarity to Study 1, in Study 3, we used the effect sizes obtained in Study 1 ($f = 0.2$). Hence, power analysis yielded a minimum sample of 191 for detecting an interaction between power and affirmation. Accordingly, for each study, we aimed to sample at least the minimum number of participants determined by the power analysis, with more participants being included if allowed by the allotted laboratory time. All our sample sizes exceeded these minima. Finally, where relevant, we refer to the supplementary online material (SOM) accompanying this article which provides the details of all instructions, manipulations, and measures used in our studies, as well as additional analyses of our data.[1]

Study 1

The capacity for inhibitory control is typically assessed using the Stroop task, in which participants have to actively inhibit or override a prepotent response. Particularly, in this task, people see series of color words and are asked to deliberately ignore the meaning of color words (the distractor) and instead focus on the font color in which those words are displayed (the target). Given that both the distractor (color word) and the target (font color) are features of the same stimulus, responding to the font color that conflicts with the color word (e.g., color word RED printed in green) usually takes a longer time and requires people to exert inhibitory control to suppress their primary inclination to respond to the meaning of the color word (MacLeod, 1991). In this study, using the Stroop task, we provide the initial evidence for our hypothesis (H1) that self-affirmation improves inhibitory control of the powerless.

Method

Participants. The sample included data from 205 students from a business school (119 males and 86 females[2]; $M_{age} = 24.57$ years, $SD = 3.54$ years) who participated in a 2 (power: low-power vs. high-power) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects design experiment.

Procedure. Power was manipulated using the well-established "manager-subordinate" role-playing procedure, which induces feelings of having and lacking power among participants through asymmetrical outcome dependency (Guinote, 2007b). First, participants were led to believe that they would be paired with another participant to complete a group task, in which each member would be assigned to the role of either a *manager* or a *subordinate*. Participants completed a short questionnaire, ostensibly designed to identify their role (e.g., manager or subordinate) in the upcoming group task. In reality, participants did not engage in a group task, and regardless of how they responded to the questionnaire, participants were randomly assigned to either a high-power (i.e., manager) or a low-power (i.e., subordinate) condition and received a description of what their role entailed. In brief, participants in the *high-power* condition learned that they would be paired with another participant who would be their "subordinate" and that they would supervise, evaluate, and judge their subordinate's performance in a computerized problem-solving task. They also learned that they would determine which proportion of a designated reward their "subordinate" would receive upon completing the task. In contrast, participants in the *low-power* condition learned that they would be paired with a "manager," who would supervise and evaluate their performance in a computerized problem-solving task and that their rewards associated with the task would be determined only by their "manager" (for details, see SOM).

After the power manipulation, participants were told that the activation of the computerized group task would take some time. Therefore, while waiting, they were asked to complete two different short tasks, independent of their upcoming group task. The first task was a self-affirmation intervention which was followed by the Stroop task. We

adapted the procedure used by Schmeichel and Vohs (2009) for our self-affirmation manipulation. Participants in the *self-affirmation* condition were asked to rank 11 values in terms of personal importance. They were then asked to write why their top-ranked value was important to them. Participants in the *no-affirmation* condition saw the same list of values as those in the self-affirmation condition did; however, they were asked to rank the values in terms of their importance to a well-known philanthropist, Bill Gates. Participants then wrote why the top-ranked value was important to this philanthropist. Therefore, by contemplating the values of another person, participants did not have an opportunity to self-affirm (for details, see SOM).

Following the self-affirmation task, participants were asked to complete the color-word Stroop task. Participants were instructed to indicate whether color words (e.g., RED, YELLOW, or GREEN) were displayed in red, yellow, or green font on the screen. Each trial began with a fixation cross (+) for 500 ms, followed immediately by a color word, and the participant had to respond within 2,000 ms, after which the next trial was automatically presented. Intertrial intervals were 250 ms, and the task duration was approximately 5 min long. Participants first completed eight practice trials and then moved on to perform a total of 120 experimental trials. The experimental trials consisted of 40 *congruent* trials (e.g., the word "RED" displayed in red font, "YELLOW" in yellow font, and "GREEN" in green font), 40 *incongruent* trials (e.g., the word "RED" displayed in green font, "YELLOW" in red font, and "GREEN" in yellow font), and 40 *neutral* trials (e.g., "XXXX" displayed in red, yellow, or green). Responses were collected by the press of predefined keys corresponding to font colors, where the key "R" was for the red font, the key "Y" was for the yellow font, and the key "G" was for the green font. Trials were randomly presented, and performance feedback was not provided in either the practice or the experimental part.

After completing the Stroop task and before the presumable group task, participants specified their age, gender, and completed the Positive and Negative Affective Schedule (PANAS[3]; Watson, Clark, & Tellegen, 1988), Fear of Negative Evaluation[4] scale (Leary, 1983), and manipulation check questions. Finally, participants were debriefed, thanked, and paid for their participation.

Results

Power manipulation check. Using two 9-point scales (1 = *not at all*, 9 = *very much*), each participant indicated the extent to which they felt (a) *themselves* and (b) *their group member* to have control over outcomes. By measuring relative (self vs. other) feelings of outcome control, this method provides a particular advantage in verifying the successful induction of power as a *relational* construct in social contexts. As expected, results of a 2 (power: low-power vs. high-power; between-subjects) × 2 (affirmation: self-affirmation vs. no-affirmation; between-subjects) × 2 (target: self vs. other; within-subjects) mixed-design analysis of variance (ANOVA) revealed a significant interaction between power and target, $F(1, 201) = 149.77, p < .001$, $\eta_p^2 = .43$, such that high-power participants felt to have more control over outcomes ($M_{self} = 6.32$, $SD = 1.95$), than they did their group member to have, $M_{other} = 3.67$, $SD = 1.85$; $F(1, 201) = 83.17$, $p < .001$, $\eta_p^2 = .29$, 95% $CI_{Mean\text{-}Difference} = [2.08, 3.22]$. Conversely, low-power participants felt to have less control over outcomes ($M_{self} = 4.30$, $SD = 2.29$) than they did their group member to have ($M_{other} = 6.70$, $SD = 2.13$, $F(1, 201) = 67.07, p < .001$, $\eta_p^2 = .25$, 95% $CI_{Mean\text{-}Difference} = [-2.97, -1.82]$). No other effect was significant in the mixed-design ANOVA ($Fs < 1$, $ps > .53$). These results show that feelings of having and lacking power were successfully induced among participants through asymmetrical control over resources and that self-affirmation did not influence participants' relative feeling of power.[5]

Stroop performance. Inhibitory control in this task is indexed by Stroop interference,[6] which is calculated by subtracting each participant's average response latencies (in milliseconds) on neutral trials from incongruent trials. Lower Stroop interference scores thus indicate greater ability to override one's dominant response tendencies (i.e., greater inhibitory control). We subjected participants' Stroop interference scores to a 2 (power: low-power vs. high-power) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects ANOVA. Results revealed a main effect of power, $F(1, 201) = 7.75$, $p = .006$, $\eta_p^2 = .04$, a main effect of affirmation, $F(1, 201) = 8.45$, $p = .004$, $\eta_p^2 = .04$, and the expected two-way interaction between power and affirmation, $F(1, 201) = 7.19$, $p = .008$, $\eta_p^2 = .04$ (see Figure 1).

As predicted, low-power participants who affirmed showed less Stroop interference ($M = 59.75$, $SD = 64.16$) than did the powerless in the no-affirmation condition, $M = 116.04$, $SD = 78.52$; $F(1, 201) = 15.55$, $p < .001$, $d = 0.79$, 95% $CI_{Mean\text{-}Difference} = [-84.45, -28.14]$. However, among participants in the high-power condition, there was no significant difference in Stroop interference between those who affirmed ($M = 58.73$, $SD = 75.87$) and those who did not, $M = 60.99$, $SD = 68.89$, $F < 1$, $p = .87$, $d = 0.03$, 95% $CI_{Mean\text{-}Difference} = [-30.28, 25.76]$.

Looked at differently, in the no-affirmation condition, consistent with past findings, low-power participants showed greater Stroop interference ($M = 116.04$, $SD = 78.52$) than did high-power participants, $M = 60.99$, $SD = 68.89$, $F(1, 201) = 14.87$, $p < .001$, $d = 0.75$, 95% $CI_{Mean\text{-}Difference} = [26.90, 83.21]$. However, this performance gap was eliminated in the self-affirmation condition, as there was no significant difference in Stroop interference between low-power ($M = 59.75$, $SD = 64.16$) and high-power participants, $M = 58.73$, $SD = 75.87$, $F < 1$, $p = .94$, $d = 0.01$, 95% $CI_{Mean\text{-}Difference} = [-26.99, 29.04]$.

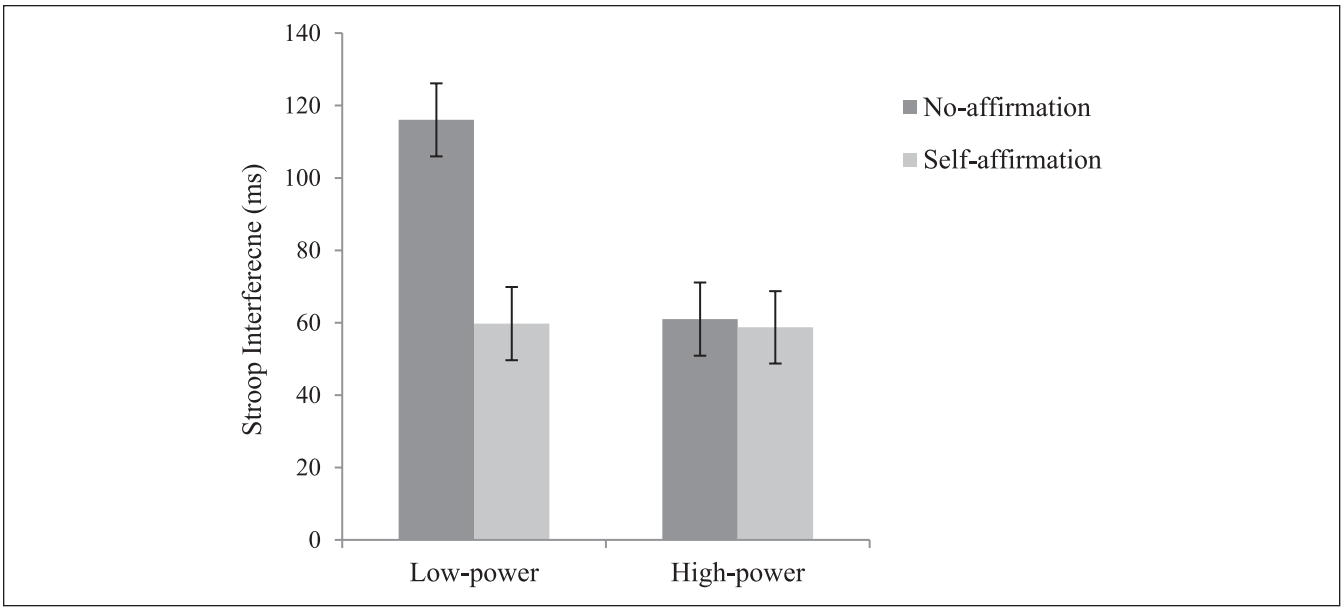

Figure 1. Stroop interference in milliseconds for each experimental condition in Study 1.
Note. Error bars denote ±1 standard error of the mean.

Discussion

Results of Study 1 are consistent with our proposition that self-affirmation improves inhibitory control of the powerless (H1). Compared with the powerless who did not affirm, the powerless who affirmed their core personal values showed marked improvement in their ability to inhibit their dominant response tendencies in the Stroop task. Furthermore, affirmation eliminated the cognitive performance gap between the powerless and the powerful. When affirmed, the powerless were able to suppress their impulses to a level equivalent to that of the powerful. Finally, in contrast to the powerless, affirmations did not further improve the performance of the powerful in the Stroop task. This is consistent with conceptualization of and past findings in the self-affirmation theory (see G. L. Cohen & Sherman, 2014) suggesting that affirmation interventions are most effective for people under psychological threat (i.e., the powerless).

Although the results of this study underscore the effectiveness of self-affirmation in improving inhibitory control abilities of the powerless, they also leave open the possibility that merely having power may have enhanced participants' inhibitory control, irrespective of their affirmation conditions. Therefore, we added a control group to our design in Study 2 to address this concern.

Study 2

In Study 2, we conceptually replicate and extend our findings from the previous study in several important ways. First, we use a different task to assess inhibitory control, namely the flanker task (Eriksen & Eriksen, 1974), which has been previously used in relation to power asymmetries and inhibitory control abilities (Schmid et al., 2015). In a standard version of the flanker task, participants are tested on their ability to ignore distracting cues and to maintain their attention on goal-relevant cues within their visual field. Given that lack of power hampers optimal goal pursuit by reducing people's ability to disregard peripheral information (Guinote, 2007a), we expected that self-affirmation increases the powerless' ability to ignore distracting cues and to maintain their attention on goal-relevant cues. Second, in this study, we test our second hypothesis by examining the role of dispositional self-esteem as an important boundary condition of our effect. We expected that the powerless with LSE would reap the largest benefit from self-affirmation.

Method

Participants and design. A total of 377 students from a business school participated in a 3 (power: low-power vs. high-power vs. control; between-subjects) × 2 (affirmation: self-affirmation vs. no-affirmation; between-subjects) × self-esteem (continuous) experiment. One participant was excluded from the final analysis due to missing flanker data. Therefore, we conducted the final analyses on data obtained from 376 participants (150 males and 226 females; M_{age} = 24.92 years, SD = 3.90 years).

Procedure. Ten days to a week before the experiment, participants completed a short online questionnaire including Rosenberg's (1965) 10-item self-esteem scale (α = .86) and demographic questions (e.g., gender, age). On the day of the lab session, participants were randomly assigned to the high-power, low-power, or control (power-neutral) condition. Power was manipulated using the same procedure outlined

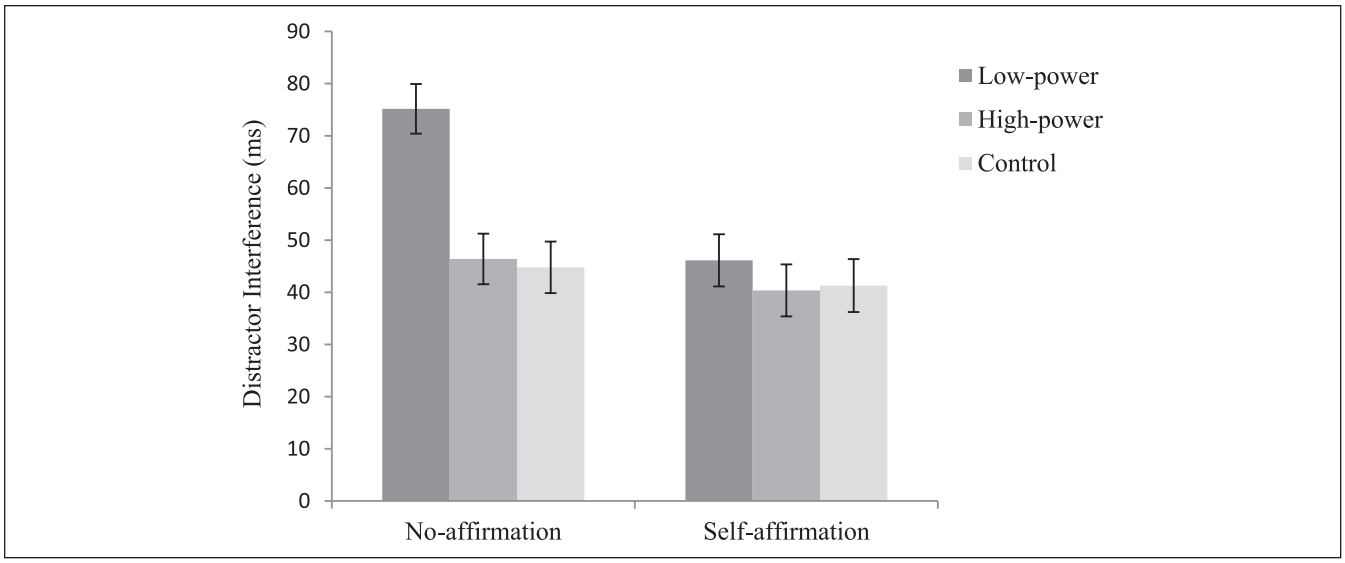

Figure 2. Distractor interference in milliseconds for each experimental condition in Study 2.
Note. Error bars denote ±1 standard error of the mean.

in Study 1. In addition, participants in the control group were led to believe that they would be working on a group task with another participant and that they both would receive the designated reward after completion of the task, thus creating a perception of equal control over resources (see SOM).

Following the power manipulation, participants were randomly assigned to either a self-affirmation or a no-affirmation condition. In both conditions, participants were asked to rank 11 personal values. In the *self-affirmation* condition, they wrote why their top-ranked value was important to them. Conversely, in the *no-affirmation* condition, they wrote about why the value ranked ninth might be important to an average university student. Thus, by contemplating their opinions on a belief they did not strongly hold, participants did not have an opportunity to self-affirm (McQueen & Klein, 2006).

Following the self-affirmation manipulation, participants completed a modified version of the flanker task. Each trial of the flanker task consisted of *congruent* (nine arrows pointing in the same direction), *incongruent* (middle arrow pointed in the opposite direction of four flanking arrows on each side), or *neutral* (a middle arrow flanked by four boxes on each side) stimuli. Each trial began with a central fixation cross which remained on the screen for 500 ms followed by the stimulus which lasted until the participant made a response or for 2,000 ms if no response occurred. The stimulus was followed by a 250 ms intertrial blank screen. Participants completed 12 practice trials first, followed by 120 randomly presented experimental trials, consisting of 40 congruent, 40 incongruent, and 40 neutral trials. Participants were instructed to focus on the middle arrow and press the "A" key (on the left side of the keyboard) when the arrow is pointed left and press the "L" key (on the right side of the keyboard) when the arrow is pointed right. Performance feedback was not provided on either the practice or experimental trials. Finally, after participants completed the PANAS and manipulation check questions, they were debriefed, thanked, and paid.

Results

Flanker performance. We calculated the *distractor interference* by subtracting average response latencies (in milliseconds) of neutral trials from average response latencies of incongruent trials. Lower distractor interference scores thus indicate greater ability to exert attentional control and to ignore distracting and peripheral information (i.e., flanking arrows). Distractor interference scores were subjected to a 3 (power: low vs. high vs. control) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects ANOVA. Results revealed a main effect of power, $F(2, 370) = 9.39$, $p < .001$, $\eta_p^2 = .05$, a main effect of affirmation, $F(1, 370) = 10.44$, $p = .001$, $\eta_p^2 = .03$, and the critical two-way interaction between power and affirmation, $F(2, 370) = 4.38$, $p = .013$, $\eta_p^2 = .02$ (see Figure 2).

As predicted, low-power participants in the self-affirmation condition showed significantly less distractor interference ($M = 46.42$, $SD = 40.47$), than did their powerless counterparts in the no-affirmation condition, $M = 76.37$, $SD = 54.35$, $F(1, 370) = 18.60$, $p < .001$, $d = 0.63$, 95% $CI_{Mean\text{-}Difference} = [-43.61, -16.30]$. However, among the high-power participants, there was no significant difference in distractor interference whether they had affirmed ($M = 40.20$, $SD = 28.17$) or not, $M = 45.54$, $SD = 37.22$, $F < 1$, $p = .45$, $d = 0.16$, 95% $CI_{Mean\text{-}Difference} = [-19.23, 8.54]$. Likewise, for participants in the control condition, distractor interference did

not differ significantly, whether they had affirmed (M = 40.86, SD = 32.80) or not, M = 44.85, SD = 36.40, $F < 1$, p = .57, d = 0.12, 95% $CI_{Mean\text{-}Difference}$ = [−17.87, 9.88].

Moreover, in the no-affirmation condition, low-power participants showed greater distractor interference (M = 76.37, SD = 54.35) than did participants in the high-power, M = 45.54, SD = 37.22, $F(1, 370) = 19.86$, $p < .001$, d = 0.66, 95% $CI_{Mean\text{-}Difference}$ = [17.23, 44.44], and control conditions, M = 44.85, SD = 36.40, $F(1, 370) = 20.43$, $p < .001$, d = 0.68, 95% $CI_{Mean\text{-}Difference}$ = [17.81, 45.24]. However, in the self-affirmation condition, there was no significant difference in distractor interference between the low-power (M = 46.42, SD = 40.47) and high-power participants, M = 40.20, SD = 28.17, $F < 1$, p = .38, d = 0.18, 95% $CI_{Mean\text{-}Difference}$ = [−7.72, 20.15], and control conditions, M = 40.86, SD = 32.80; $F < 1$, p = .43, d = 0.15, 95% $CI_{Mean\text{-}Difference}$ = [−8.26, 19.38], suggesting that self-affirmation eliminated the performance gap between participants in the low-power and those in the high-power and control conditions.

The interplay between self-esteem, self-affirmation, and power. We proposed that the reparative effect of self-affirmation on inhibitory control would be most pronounced among the powerless with LSE. Using the general linear model process, we examined the effect of power, affirmation, self-esteem (centered), and all the two- and three-way interactions on distractor interference.[7] Results revealed a significant main effect of power, $F(2, 364) = 8.40$, $p < .001$, $\eta_p^2 = .04$, and affirmation, $F(1, 364) = 10.19$, p = .002, $\eta_p^2 = .03$. The main effect of self-esteem was not significant, $F(1, 364) = 1.89$, p = .17, $\eta_p^2 = .005$. Moreover, results revealed significant two-way interactions between power and affirmation, $F(2, 364) = 4.09$, p = .02, $\eta_p^2 = .02$, and power and self-esteem, $F(2, 364) = 4.04$, p = .02, $\eta_p^2 = .02$. The interaction effect between affirmation and self-esteem was not significant, $F < 1$, p = .50, $\eta_p^2 = .001$. Most critically, and as predicted, results revealed a significant power × affirmation × self-esteem interaction, $F(2, 364) = 4.38$, p = .01, $\eta_p^2 = .02$.

Following Aiken and West (1991), we decomposed the three-way interaction using a series of regressions to test our proposition (H2). As predicted, in the no-affirmation condition and under the condition of LSE (evaluated at 1 SD below the mean), low-power participants showed greater distractor interference than did high-power participants, b = 54.76, SE = 8.84, $t(364) = 6.19$, $p < .001$, 95% CI = [37.37, 72.15], and participants in the control condition, b = 50.31, SE = 9.99, $t(364) = 5.03$, $p < .001$, 95% CI = [30.66, 69.97]. Importantly however, and as expected, among those with LSE, who had the opportunity to self-affirm, the performance of low-power participants did not significantly differ from that of high-power, b = 5.36, SE = 9.63, $t(364) = 0.56$, p = .58, 95% CI = [−13.58, 24.30], and control participants, b = 4.14, SE = 10.59, $t(364)$ = 0.39, p = .70, 95% CI = [−16.70, 24.97]. These findings demonstrate that for people with LSE who are most vulnerable to psychological threats, self-affirmation effectively curbs negative consequences of powerlessness on inhibitory control and reduces the performance gap between the powerless and people in the high-power and control conditions (see Figure 3).

Furthermore, among participants with HSE (evaluated at 1 SD above the mean), who did not affirm, there was no significant difference in distractor interference between low-power participants and those in the high-power, b = 2.76, SE = 9.72, $t(364) = 0.28$, p = .78, 95% CI = [−16.36, 21.88] and control conditions, b = 10.41, SE = 9.37, $t(364) = 1.11$, p = .27, 95% CI = [−8.00, 28.83]. Likewise, among participants with HSE who affirmed, there was no significant difference in distractor interference between the low-power and those in the high-power, b = 6.16, SE = 10.25, $t(364)$ = 0.60, p = .55, 95% CI = [−13.99, 26.32], and control conditions, b = 5.54, SE = 10.13, $t(364) = 0.55$, p = .58, 95% CI = [−14.38, 25.47]. Thus, among those with HSE, performance was unhindered and self-affirmation did not further improve participants' cognitive control.

Discussion

Results of Study 2 corroborate our findings from Study 1 by showing that self-affirmation improves inhibitory control of the powerless. Furthermore, consistent with past findings and conceptualizations in the self-affirmation literature (G. L. Cohen & Sherman, 2014), affirmations do not improve inhibitory control abilities of the powerful and people in the control condition, whose self-worth is not threatened. Our results also demonstrate that being powerless, rather than being powerful, drives this effect, as we did not observe differences in cognitive performance between the powerful and people in the control condition.

Moreover, we highlighted the boundaries of this effect by examining the role of dispositional self-resources. Specifically, low-power participants with LSE who did not have the opportunity to self-affirm showed less ability in deploying inhibitory control, compared with participants in other conditions. However, as predicted in H2, the powerless with LSE benefited most from the self-affirmation intervention. Indeed, the performance gap between the powerless with LSE and participants in the high-power and control conditions diminished when the powerless had the opportunity to self-affirm. Overall, these findings suggest that power, self-affirmation, and self-esteem combine synergistically to affect inhibitory control. Importantly, relative to participants in the high-power and control conditions, the low-power participants showed no performance decrements when they either had the opportunity to self-affirm or were equipped with dispositional self-resources.[8]

Study 3

In Study 3, we replicate our main finding in the previous studies that self-affirmation improves inhibitory control of the powerless and test the underlying process of this effect.

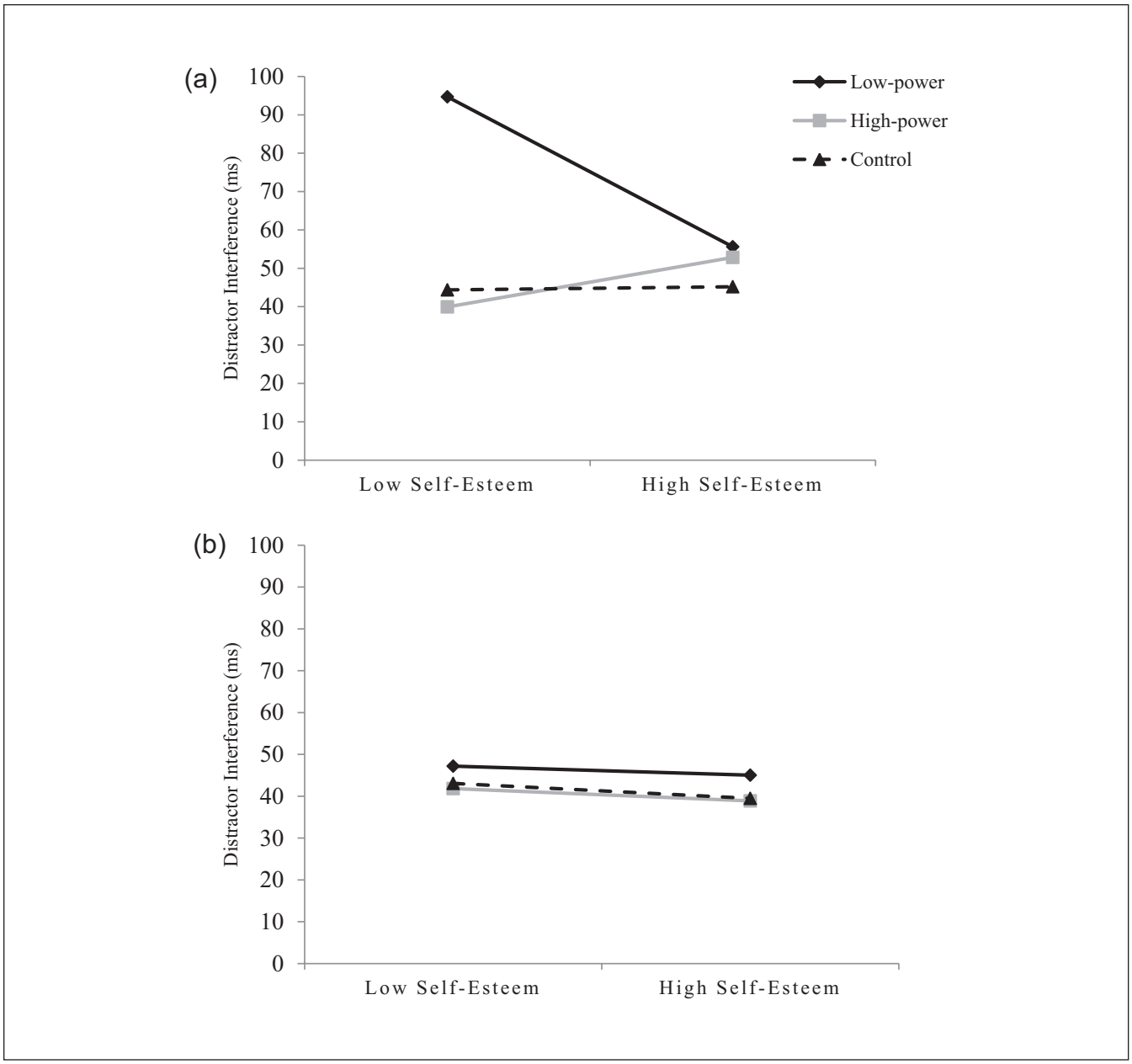

Figure 3. Distractor interference in milliseconds as a function of power, self-affirmation, and self-esteem (Study 2): (a) no-affirmation and (b) self-affirmation.
Note. "High" and "low" levels of self-esteem refer to 1 *SD* above and below the mean, respectively.

Specifically, consistent with our reasoning and as explicated in H3, we test whether the reparative effect of self-affirmation on inhibitory control of the powerless is explained through an increased sense of efficacy—the belief that one can carry out goals and influence the environment despite challenges.

Method

Participants. In total, 221 students from a business school (97 males and 124 females; M_{age} = 24.92 years, *SD* = 3.94 years) participated in a 2 (power: low-power vs. high-power) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects design.

Procedure. First, power was manipulated using the same method outlined in Study 1. Next, participants were randomly assigned to either a self-affirmation or a no-affirmation condition. To generalize our findings across different self-affirmation manipulations, in this study, we asked participants to write about a positive attribute of themselves, kindness. In a meta-analysis of

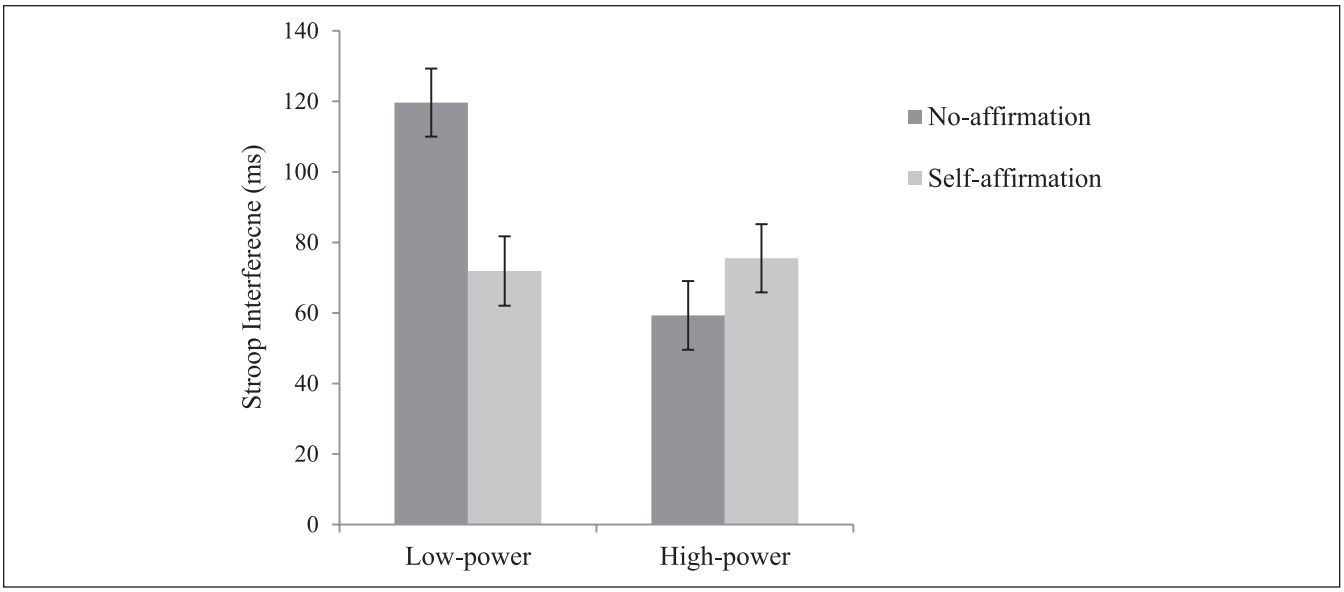

Figure 4. Stroop interference in milliseconds for each experimental condition in Study 3.
Note. Error bars denote ±1 standard error of the mean.

different self-affirmation interventions, recalling acts of kindness was found to be an effective means of affirming the self (McQueen & Klein, 2006). In the *self-affirmation* condition, participants wrote about a time they helped another individual. Specifically, participants were asked to write about who the person they helped was, what the problem was, what they did, and how they felt about it. In contrast, participants in the *no-affirmation* condition were asked to recall and write about an instance when they had to do their laundry.

Following the affirmation manipulation, participants completed a 4-item scale, adopted from Lachman and Weaver (1998), intended to capture the perceived sense of efficacy. Specifically, the scale measures "one's sense of efficacy and effectiveness in carrying out goals" (Lachman & Weaver, 1998). The items (e.g., "Whether or not I am able to get what I want is in my own hands" and "I can do just about anything I really set my mind to") were measured using 7-point scales (1 = *strongly disagree*, 7 = *strongly agree*) and were averaged (α = .91) to form an index of sense of efficacy. Next, participants completed the Stroop task as outlined in Study 1. Finally, participants specified their age and gender, and completed the PANAS, and manipulation check questions, before they were debriefed, thanked, and paid.

Results

Stroop performance. A 2 (power: low-power vs. high-power) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects ANOVA revealed a main effect of power, $F(1, 217) = 8.51$, $p = .004$, $\eta_p^2 = .04$, but no effect of affirmation, $F(1, 217) = 2.63$, $p = .11$, $\eta_p^2 = .01$, on Stroop interference. Importantly, results revealed the critical two-way interaction between power and affirmation on Stroop interference, $F(1, 217) = 10.81$, $p = .001$, $\eta_p^2 = .05$ (see Figure 4).

As predicted, low-power participants who affirmed showed significantly less Stroop interference ($M = 71.90$, $SD = 60.91$) than did the powerless in the no-affirmation condition, $M = 119.66$, $SD = 85.51$, $F(1, 217) = 12.10$, $p = .001$, $d = 0.64$, 95% $CI_{Mean\text{-}Difference} = [-74.82, -20.70]$. However, among the high-power participants, there was no significant difference in Stroop interference whether they affirmed ($M = 75.51$, $SD = 76.04$) or not, $M = 59.29$, $SD = 63.62$, $F(1, 217) = 1.38$, $p = .24$, $d = 0.23$, 95% $CI_{Mean\text{-}Difference} = [-10.97, 43.41]$.

Furthermore, in the no-affirmation condition, consistent with past findings, the powerless showed greater Stroop interference ($M = 119.66$, $SD = 85.51$) than did the powerful, $M = 59.29$, $SD = 63.62$, $F(1, 217) = 19.15$, $p < .001$, $d = 0.80$, 95% $CI_{Mean\text{-}Difference} = [33.18, 87.56]$. However, among participants who affirmed, there was no significant difference in Stroop interference between the low-power ($M = 71.90$, $SD = 60.91$) and high-power participants, $M = 75.51$, $SD = 76.04$, $F < 1$, $p = .79$, $d = 0.05$, 95% $CI_{Mean\text{-}Difference} = [-30.67, 23.45]$, indicating that self-affirmation eliminated the cognitive performance gap between the powerless and the powerful.

Sense of efficacy. Results of a 2 (power: low-power vs. high-power) × 2 (affirmation: self-affirmation vs. no-affirmation) between-subjects ANOVA on participants' sense of efficacy revealed a main effect of power, $F(1, 217) = 6.49$, $p = .012$, $\eta_p^2 = .03$, a main effect of affirmation, $F(1, 217) = 4.66$, $p =$

.03, $\eta_p^2 = .02$, and critically the expected power × affirmation, $F(1, 217) = 19.86$, $p < .001$, $\eta_p^2 = .08$. In the low-power condition, self-affirmation significantly increased participants' sense of efficacy relative to those who did not affirm, $M_{self\text{-}affirmation} = 5.42$, $SD = 0.93$ vs. $M_{no\text{-}affirmation} = 4.49$, $SD = 1.28$, $F(1, 217) = 21.99$, $p < .001$, $d = 0.83$, 95% $CI_{Mean\text{-}Difference} = [0.54, 1.31]$. However, in the high-power condition, affirmation did not significantly alter participants' sense of efficacy, $M_{self\text{-}affirmation} = 5.15$, $SD = 0.98$ vs. $M_{no\text{-}affirmation} = 5.47$, $SD = 0.90$, $F(1, 217) = 2.63$, $p = .11$, $d = 0.34$, 95% $CI_{Mean\text{-}Difference} = [-0.71, 0.07]$.

Sense of efficacy as the mediator. We used Hayes' (2013) PROCESS macro (Model 8) to test our proposition that affirmation among the powerless promotes an efficacious self-view, which in turn improves inhibitory control. A 5,000-resampled percentile bootstrap revealed a significant indirect effect of power × affirmation on Stroop interference via perceived sense of efficacy, *index of moderated mediation* = 30.45, $SE = 9.51$, 95% CI = [13.99, 51.03]. As expected, feeling efficacious mediated the effect of self-affirmation (vs. no-affirmation) on Stroop interference among low-power participants, $b = -22.60$, $SE = 6.93$, 95% CI = [−37.47, –10.26], but not among the high-power participants, $b = 7.85$, $SE = 4.89$, 95% CI = [−0.51, 18.82]. Furthermore, the interaction effect of power and affirmation on Stroop interference became nonsignificant when efficacy was accounted for in the model, $b_{power \times \text{affirmation}} = 33.52$, $SE = 19.08$, $t(216) = 1.76$, $p = .08$, 95% CI = [−4.09, 71.14].

Discussion

Results of this study provide further support that self-affirmation improves inhibitory control of the powerless. Moreover, consistent with our reasoning, we found that self-affirmation improves cognitive performance of the powerless by promoting an efficacious self-view, whereby they see themselves sufficiently capable of carrying out goals despite their outcome dependency.

General Discussion

Powerlessness is an inescapable constituent of many social relations. Critically, powerlessness has been found to consistently hamper inhibitory control, a critical component of executive functions, and a key predictor of goal-directed behavior, career success, health, and well-being throughout the lifespan (Diamond, 2013; Guinote, 2017; Smith et al., 2008). Across three experiments, we provided consistent evidence that self-affirmation attenuates the previously documented decrements in inhibitory control of the powerless. Specifically, we found that affirming core personal values (Studies 1 and 2) or attributes (Study 3) enhances cognitive control of the powerless in overriding impulsive tendencies (i.e., Stroop task) and in disregarding peripheral and goal-irrelevant information (i.e., flanker task), to a level comparable with that of the powerful.

In addition, consistent with the logic of the self-affirmation theory, our findings shed light on *when* (Study 2) and *how* (Study 3) self-affirmation extends its reparative effect on inhibitory control of the powerless. With respect to "when," we found that the reparative effect of self-affirmation was most evident among the powerless with LSE, suggesting that self-affirmation substitutes and compensates for the motivational effects of dispositional self-resources in warding off detrimental consequences of powerlessness on cognitive performance. Furthermore, we addressed the question of "how" by showing that self-affirmation promotes an efficacious self-view among the powerless which in turn improves inhibitory control.

Together, our findings contribute to the existing literature on the social psychology of power as well as the self-affirmation literature in several important ways. First, research on social power has mainly focused on the outcomes and advantages of having power. As a result, less is known about the psychology of lacking power and particularly about strategies and interventions that could mitigate the cognitive and self-regulatory decrements of powerless people. The current study is the first to address this theoretical gap by testing the notion that the cognitive performance gap in power relations can be effectively reduced through well-established self-affirmation interventions. Our findings are consistent with the notion that powerlessness, though inherently a relational construct, acts as a psychological threat to one's self-worth, similar to how various stereotype threats do. As such, the detrimental effects of lacking power on cognition and performance can be effectively neutralized through intrapersonal interventions that bolster self-worth.

Furthermore, our findings echo recent theorizing that highlights the role of autonomy in power relations. Specifically, Lammers, Stoker, Rink, and Galinsky (2016) have empirically demonstrated that the need to have control over one's own outcomes, as opposed to others' outcomes, drives the desire for social power. In other words, people seek power in social relations because it provides them with autonomy and liberates them from others' influence. Once the autonomy is reinstated through means other than having power, the desire for power is quenched (see also Inesi, Botti, Dubois, Rucker, & Galinsky, 2011). Our findings may be interpreted through this perspective where affirmations bolster an efficacious self-view, whereby the powerless, despite their lower position in the social hierarchy, view themselves as adequate and capable of carrying out goals. This reinstated efficacious self-view in turn buffers the negative consequences of lacking power and enables the powerless to perform optimally in pursuit of goals.

Moreover, although much is known about the reparative effects of self-affirmation in coping with various psychological

threats, less is known about the process underlying those effects. Recent reviews of the affirmation literature conclude that processes underlying self-affirmation effects are highly context-dependent, and there is no one-for-all mediator of self-affirmation effects (G. L. Cohen & Sherman, 2014; Sherman, 2013). Consequently, in our attempt at uncovering the effects of affirmations, we adhere to the motivational underpinning of self-affirmation (i.e., increased sense of efficacy) in curbing the detrimental effects of powerlessness on cognitive performance. Our findings, therefore, inform and broaden the current understanding of mechanisms through which self-affirmation promotes resilience and adaptive coping.

The present set of studies has some limitations that future research can help resolve. First, while the present studies demonstrate that self-affirmations facilitate cognitive performance of the powerless, must strategies that improve performance always be in the form of affirmations? An intriguing research possibility, aiming at reducing the performance gap between the powerless and the powerful, would be to investigate the role of other psychosocial resources that could reinstate feelings of efficacy among the powerless. For instance, there has been some research on the effects of social support on environmental stressors (e.g., Schnall, Harber, Stefanucci, & Proffitt, 2008), such that people who engage in group activities accrue benefits that strengthen their resolve and augments their capacity to cope with threats (G. L. Cohen & Sherman, 2014). This happens because social systems are in and of themselves sources of power and control (Adler & Kwon, 2002) and people with strong social capital are shielded from environmental stressors through the support they receive from others (Ensel & Lin, 1991). Social support, therefore, might potentially compensate for the lack of other self-related resources such as power. This possibility is especially relevant for organizations where social support systems in the form of teams play a crucial role in individual and team success (D. Cohen, Prusak, & Prusak, 2001).

Second, in the current research, we focused on one of the core facets of executive functions: inhibitory control. Our motivation for doing so was mainly driven by the abundance of prior research and conceptualizations in the social psychology of power evincing that lack of power impedes inhibitory control abilities (Guinote, 2007a, 2017; Schmid et al., 2015; Smith et al., 2008). Future research could help disambiguate the effects of interventions such as self-affirmation on other facets of executive functioning among the powerless, such as working memory and cognitive flexibility.

Third, in the current set of studies, power was systematically manipulated using the well-established role-playing task. We used this manipulation throughout our studies because it ties in with the definition of power as the asymmetrical control over outcomes in social relations. However, using the same manipulation across studies may raise the question of whether our results generalize to other types of power manipulations. Thus, future research may profitably explore whether similar findings are obtained when power is induced using other methods such as variants of the dictator game (e.g., Sivanathan, Pillutla, & Murnighan, 2008) or through a recall task (e.g., Galinsky, Gruenfeld, & Magee, 2003) while considering ease of retrieval for the success of this specific manipulation (Lammers, Dubois, Rucker, & Galinsky, 2017).

Another important research question is whether low-power people spontaneously seek opportunities to recruit alternative resources to cope with the psychological threat of being powerless, or whether they need to be assisted by societal interventions. The marked effect of powerlessness on cognitive control in our no-affirmation conditions suggest that the spontaneity of recruiting alternative resources is rare. However, the critical moderating role of dispositional self-resources, such as self-esteem in our Study 2, suggests otherwise. Although our results in Study 2 do not directly address how HSE safeguards cognitive performance of the powerless, we speculate that dispositional self-resources facilitate generation of self-affirming thoughts spontaneously under threat (Dodgson & Wood, 1998; Pietersma & Dijkstra, 2012). Future research may test our conjecture more in detail by examining the interactive effect of power and self-esteem and its underlying process in shaping cognitive control. Finally, taking a broader theoretical perspective, results of Study 2 are also consistent with the notion that psychosocial resources are fungible and that dispositional (e.g., self-esteem), intrapersonal (e.g., self-affirmation), and interpersonal (e.g., social power) sources of self-worth are substitutable for optimal adaptation and performance (Hobfoll, 2002; Tesser, 2000). Future research may, therefore, fruitfully examine the exchangeability of other self-resources for individuals' performance and goal pursuit in the context of power asymmetries.

Conclusion

Inhibitory control is central to attention regulation, impulse control, and goal pursuit. Lack of power impairs inhibitory control abilities, resulting in a performance gap between the powerless and the powerful. Bridging the research streams on social power and self-affirmation, in the present research, we proposed and provided converging evidence that affirmations curb the negative consequences of powerlessness on inhibitory control by promoting a more efficacious self-view among the powerless.

Declaration of Conflicting Interests

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Notes

1. Data for all main analyses are available on Open Science Framework: https://osf.io/58u4h/?view_only=ceaee85de8ab4a77a509e52cc2f0b9af
2. In all three studies and to ensure the robustness of our findings, we reanalyzed data including gender as an additional factor. We did not find any gender effects and the pattern and significance of our findings did not change. Details of gender-related analyses are provided in the supplementary online material (SOM).
3. Across all three studies, participants' affective states were not modulated by power, affirmation, or their interaction. Moreover, including participants' affect scores as covariates did not influence the significance or the pattern of our main findings. These results rule out *mood repair* as an alternative explanation for the reparative effect of self-affirmation on cognitive abilities of the powerless. Details of these analyses are provided in the SOM.
4. We also measured *fear of negative evaluation* (FNE) in this study. However, our power and affirmation manipulations did not predict participants' FNE. As with PANAS, these results suggest that an affect-based explanation is unlikely to account for the process underlying our proposed effect. Results of this analysis are explicated in the SOM.
5. Across all studies, power was successfully manipulated. Analyses related to the power manipulation check of Studies 2 and 3 can be found in the SOM.
6. Details pertained to the preliminary inspection of response latencies and treatment of any outlying latencies are provided in the SOM. Furthermore, in Studies 1 and 3 where we used the Stroop task, analysis of *Stroop interference in errors* revealed no effect of power, affirmation, or their interaction on errors. Moreover, controlling for *Stroop interference in errors* did not change the pattern or significance of our findings in these studies, suggesting that the improved performance of the powerless, after self-affirmation, is not merely attributable to providing speeded responses (a strategy that would have rendered more errors), but is the result of more efficient deployment of executive control to override impulses. See SOM for a detailed analysis of *error rates.*
7. Although we measured self-esteem at least 7 days prior to the experiment, to ensure that our power and affirmation manipulations did not predict dispositional self-esteem, we ran an analysis of variance (ANOVA) with power and self-affirmation as independent variables and self-esteem as a dependent variable. Results of this analysis revealed no significant interaction effect of power and affirmation on self-esteem, $F(2, 370) = 1.72$, $p = .18$, confirming successful random assignment.
8. Similar to past findings (Jaremka, Bunyan, Collins, & Sherman, 2011), people with high self-esteem (HSE) in our study did not benefit from self-affirmation. This may be because these people did not perceive a threat when assigned to the powerless condition, or alternatively that they were able to cope adaptively with the threat of being powerless due to their dispositional self-resources. The former possibility suggests that dispositional self-esteem might have influenced participants' perception of relative power in our study. Although none of these possibilities undermines our H2 which highlighted low self-esteem (LSE; and not HSE) as the most fertile ground for the reparative effect of self-affirmation among the powerless, we ran an extra analysis to examine whether self-esteem interfered with our power manipulation. To this end, using the two manipulation check questions, we created a *relative social power score* by subtracting participants' perception of control over their group member (i.e., *other*) from that of their own (i.e., *self*) and subjected this score to a general linear model with power, affirmation, self-esteem (centered), and all the two- and three-way interactions as predictors. As expected, dispositional self-esteem did not have a significant main effect, nor did it interact with power and affirmation (Fs < 2.64, ps $> .11$) to predict relative feelings of power. This suggests that participants' self-esteem did not interfere with their perceived power in our study, but higher self-esteem enabled the powerless to cope adaptively with negative consequences of powerlessness.

Supplemental Material

Supplemental material is available online with this article.

References

Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, *27*, 17-40.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: SAGE.

Armitage, C. J., Harris, P. R., Hepton, G., & Napper, L. (2008). Self-affirmation increases acceptance of health-risk information among UK adult smokers with low socioeconomic status. *Psychology of Addictive Behaviors*, *22*, 88-95.

Cohen, D., Prusak, L., & Prusak, L. (2001). *In good company: How social capital makes organizations work* (Vol. 15). Boston, MA: Harvard Business School Press.

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science*, *324*, 400-403.

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social-psychological intervention. *Annual Review of Psychology*, *65*, 333-371.

Cook, J. E., Arrow, H., & Malle, B. F. (2011). The effect of feeling stereotyped on social power and inhibition. *Personality and Social Psychology Bulletin*, *37*, 165-180.

Deci, E. L., & Ryan, R. M. (1995). Human autonomy. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31-49). Boston, MA: Springer.

Dépret, E., & Fiske, S. T. (1993). Social cognition and power: Some cognitive consequences of social structure as a source of control deprivation. In G. Weary, F. Gleicher, K. L. Marsh (Eds.), *Control motivation and social cognition* (pp. 176-202). New York, NY: Springer.

Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*, 135-168.

Dodgson, P. G., & Wood, J. V. (1998). Self-esteem and the cognitive accessibility of strengths and weaknesses after failure. *Journal of Personality and Social Psychology*, *75*, 178-197.

Düring, C., & Jessop, D. C. (2015). The moderating impact of self-esteem on self-affirmation effects. *British Journal of Health Psychology*, *20*, 274-289.

Ensel, W. M., & Lin, N. (1991). The life stress paradigm and psychological distress. *Journal of Health and Social Behavior*, *32*, 321-341.

Eriksen, B. A., & Eriksen, C. W. (1974). Effects of noise letters upon the identification of a target letter in a nonsearch task. *Attention, Perception, & Psychophysics*, *16*, 143-149.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149-1160.

Fiske, S. T. (2010). Interpersonal stratification: Status, power, and subordination. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 2, pp. 941-982). Hoboken, NJ: John Wiley.

Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology*, *85*, 453-466.

Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., . . . Pinel, E. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves an anxiety-buffering function. *Journal of Personality and Social Psychology*, *63*, 913-922.

Guinote, A. (2007a). Power affects basic cognition: Increased attentional inhibition and flexibility. *Journal of Experimental Social Psychology*, *43*, 685-697.

Guinote, A. (2007b). Power and goal pursuit. *Personality and Social Psychology Bulletin*, *33*, 1076-1087.

Guinote, A. (2017). How power affects people: Activating, wanting, and goal seeking. *Annual Review of Psychology*, *68*, 353-381.

Guinote, A., & Vescio, T. K. (2010). *The social psychology of power*. New York, NY: Guilford Press.

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., & Hyde, J. S. (2014). Closing the social class achievement gap for first-generation students in undergraduate biology. *Journal of Educational Psychology*, *106*, 375-389.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hirsh, J. B., Galinsky, A. D., & Zhong, C. B. (2011). Drunk, powerful, and in the dark: How general processes of disinhibition produce both prosocial and antisocial behavior. *Perspectives on Psychological Science*, *6*, 415-427.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*, 307-324.

Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences*, *16*, 174-180.

Inesi, M. E., Botti, S., Dubois, D., Rucker, D. D., & Galinsky, A. D. (2011). Power and choice: Their dynamic interplay in quenching the thirst for personal control. *Psychological Science*, *22*, 1042-1048.

Jaremka, L. M., Bunyan, D. P., Collins, N. L., & Sherman, D. K. (2011). Reducing defensive distancing: Self-affirmation and risk regulation in response to relationship threats. *Journal of Experimental Social Psychology*, *47*, 264-268.

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, *83*, 693-710.

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review*, *110*, 265-284.

Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology*, *74*, 763-773.

Lammers, J., Dubois, D., Rucker, D. D., & Galinsky, A. D. (2017). Ease of retrieval moderates the effects of power: Implications for the replicability of power recall effects. *Social Cognition*, *35*, 1-17.

Lammers, J., Galinsky, A. D., Gordijn, E. H., & Otten, S. (2008). Illegitimacy moderates the effects of power on approach. *Psychological Science*, *19*, 558-564.

Lammers, J., Stoker, J. I., Rink, F., & Galinsky, A. D. (2016). To have control over or to be free from others? The desire for power reflects a need for autonomy. *Personality and Social Psychology Bulletin*, *42*, 498-512.

Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin*, *9*, 371-375.

MacLeod, C. M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin*, *109*, 163-203.

Magee, J. C., & Galinsky, A. D. (2008). 8 social hierarchy: The self-reinforcing nature of power and status. *Academy of Management Annals*, *2*, 351-398.

Martens, A., Johns, M., Greenberg, J., & Schimel, J. (2006). Combating stereotype threat: The effect of self-affirmation on women's intellectual performance. *Journal of Experimental Social Psychology*, *42*, 236-243.

McQueen, A., & Klein, W. M. P. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, *5*, 289-354.

Mecca, A. M., Smelser, N. J., & Vasconcellos, J. (1989). *The social importance of self-esteem*. Berkeley: University of California Press.

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. *Cognitive Psychology*, *41*, 49-100.

Morgan, J. I., & Harris, P. R. (2015). Evidence that brief self-affirming implementation intentions can reduce work-related anxiety in downsize survivors. *Anxiety, Stress, & Coping*, *28*, 563-575.

Phelan, J. C., Lucas, J. W., Ridgeway, C. L., & Taylor, C. J. (2014). Stigma, status, and population health. *Social Science & Medicine*, *103*, 15-23.

Pietersma, S., & Dijkstra, A. (2012). Cognitive self-affirmation inclination: An individual difference in dealing with self-threats. *British Journal of Social Psychology*, *51*, 33-51.

Rosenberg, M. (1965). Measurement of self-esteem. In M. Rosenberg (Ed.), *Society and the adolescent self-image* (pp. 297-307). Princeton, NJ: Princeton University Press.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68-78.

Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, *85*, 440-452.

Schmeichel, B. J., & Vohs, K. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal of Personality and Social Psychology*, *96*, 770-782.

Schmid, P. C., Kleiman, T., & Amodio, D. M. (2015). Power effects on cognitive control: Turning conflict into action. *Journal of Experimental Psychology: General*, *144*, 655-663.

Schnall, S., Harber, K. D., Stefanucci, J. K., & Proffitt, D. R. (2008). Social support and the perception of geographical slant. *Journal of Experimental Social Psychology*, *44*, 1246-1255.

Sherman, D. A. (2013). Self-affirmation: Understanding the effects. *Social and Personality Psychology Compass*, *7*, 834-845.

Sherman, D. A., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology*, *38*, 183-242.

Sherman, D. A., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, *26*, 1046-1058.

Sivanathan, N., Pillutla, M. M., & Murnighan, J. K. (2008). Power gained, power lost. *Organizational Behavior and Human Decision Processes*, *105*, 135-146.

Smith, P. K., & Hofmann, W. (2016). Power in everyday life. *Proceedings of the National Academy of Sciences of the United States of America*, *113*, 10043-10048.

Smith, P. K., Jostmann, N. B., Galinsky, A. D., & van Dijk, W. W. (2008). Lacking power impairs executive functions. *Psychological Science*, *19*, 441-447.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in Experimental Social Psychology*, *21*, 261-302.

Taylor, V. J., & Walton, G. M. (2011). Stereotype threat undermines academic learning. *Personality and Social Psychology Bulletin*, *37*, 1055-1067.

Tesser, A. (2000). On the confluence of self-esteem maintenance mechanisms. *Personality and Social Psychology Review*, *4*, 290-299.

Van Vugt, M. (2006). Evolutionary origins of leadership and followership. *Personality and Social Psychology Review*, *10*, 354-371.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scale. *Journal of Personality and Social Psychology*, *54*, 1063-1070.

Willis, G. B., Guinote, A., & Rodríguez-Bailón, R. (2010). Illegitimacy improves goal pursuit in powerless individuals. *Journal of Experimental Social Psychology*, *46*, 416-419.