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**Illusory Control: A Generative Force Behind Power's
Far-Reaching Effects**

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Illusory Control:

A Generative Force Behind Power's Far-Reaching Effects

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Abstract

Three experiments demonstrated that the experience of power leads to an illusion of personal control. Regardless of whether power was experientially primed (Experiments 1 and 3) or manipulated through manager-subordinate roles (Experiment 2), it led to perceived control over outcomes that were beyond the reach of the powerholder. Furthermore, this illusory control mediated the influence of power on several self-enhancement and approach-related effects found in the power literature, including optimism (Experiment 2), self-esteem (Experiment 3), and action-orientation (Experiment 3), demonstrating its theoretical importance as a generative cause and driving force behind many of power's far-reaching effects. A fourth experiment ruled out an alternative explanation: that positive mood, rather than illusory control, is at the root of power's effects. The discussion considers implications for existing and future research on the psychology of power, perceived control, and positive illusions.

Keywords: power, illusory control, action-orientation, self-esteem, optimism

Illusory Control: A Generative Force Behind Power's Far-Reaching Effects

Having a sense of control over the future has long been considered a fundamental motive and a highly adaptive trait for humans. It is well established that an absence of perceived control leads to depression, pessimism, and withdrawal from challenging situations (e.g., Abramson, Seligman, & Teasdale, 1978; Peterson & Seligman, 1984; Price, Choi, & Vinokur, 2002) and even drives individuals to see non-existent patterns in their environment (Whitson & Galinsky, 2008). In contrast, possessing a general sense of control leads to self-esteem, optimism, and agency (e.g., Bandura, 1989; Scheier, Carver, & Bridges, 1994; Skinner, 1995). Given the importance of these effects on health and well-being, it is not surprising that scholars have invested a great deal of effort in identifying the determinants of perceived control (for reviews see Heckhausen & Schulz, 1995; Skinner, 1995).

A diverse set of findings has suggested that feelings of control often stem from the possession of power, although this relationship has not been directly assessed. People with high socioeconomic status (Lachman, 1985; Lachman & Weaver, 1998; Levenson, 1981), members of dominant groups (Guinote, Brown, & Fiske, 2006), and members of cultures that endorse the values of power and individual agency (Heine, Lehman, Markus, & Kitayama, 1999; Markus & Kitayama, 1991) are all more likely than others to believe they can control the future. Interestingly, these same people—the wealthy, the educated, the numerical majority, the individualistic—also tend to display more optimism, self-esteem, and action in pursuit of their goals (e.g., Heine et al., 1999; Mirowsky & Ross, 2000; Twenge & Campbell, 2002). Taken in concert, these findings suggest that social power might expand one's sense of personal control, even when the control is illusory, and, furthermore, that this elevated sense of control could drive the approach and enhancement effects often displayed by powerholders. In the present research

we test these ideas explicitly.

Power and Illusory Control

Because power emerges from asymmetric control over valuable resources (e.g., Emerson, 1962; Keltner, Gruenfeld, & Anderson, 2003, Magee & Galinsky, 2008), it is reasonable to assume that powerholders experience control over the people and outcomes that are connected to their power. However, the psychological properties of power might also cause powerholders to overestimate their actual control, leading to an illusory sense of control. Illusory control is the belief that one has the ability to influence outcomes that are beyond one's reach (e.g., perceived influence over outcomes that are largely determined by chance, see Langer, 1975; Taylor & Brown, 1988; Thompson, Armstrong, & Thomas, 1998). Prior research has shown that illusory control is caused by the presence of cues related to having control (Langer, 1975; Thompson et al., 1998). We suggest that the possession of power serves as one such cue, with possessing and experiencing power increasing a sense of control over events, even when these events are based in chance or disconnected from the source and context of one's power.

Illusory Control as a Mediator of the Effects of Power

In addition to testing the effects of power on illusory control, we examine the idea that illusory control mediates several extant effects associated with power. Keltner et al. (2003) posited and provided a wealth of circumstantial evidence that power activates the behavioral approach system (BAS), whereas powerlessness activates the behavioral inhibition system (BIS). Empirical tests have lent support to this theory: power has been shown to produce approach-related effects even in domains that are untouched by the actor's power (e.g., Anderson & Galinsky, 2006; Galinsky, Gruenfeld, & Magee, 2003; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Gruenfeld, Inesi, Magee, & Galinsky, 2008). In the current studies, we assess whether

these agency-facilitating effects of power are driven by perceptions of control. Given that perceived control is intimately related to optimism, self-esteem, and agency (Scheier et al., 1994; Skinner, 1995), we posit that a number of the self-enhancement and approach-related effects of power, including optimism (Anderson & Galinsky, 2006), self-esteem (Wojciszke & Struzynska-Kujalowicz, 2007), and action-orientation (Galinsky et al., 2003; Magee, Galinsky, & Gruenfeld, 2007), are driven by an inflated sense of control that is activated by power.

Overview

We conducted three experiments to assess two main hypotheses: (1) power leads to illusory control, and (2) this power-induced illusory control mediates the effects of power on optimism, self-esteem, and action-orientation. In addition, we conducted a fourth experiment to test the alternative hypothesis that positive mood, rather than illusory control, mediates power's effects. Overall, we predicted that power increases illusory control, even over events disconnected from the source or province of power, and this increase in illusory control is what accounts for a number of power's far-reaching effects.

Experiment 1

In Experiment 1, power was manipulated by asking participants to recall an experience with high power, low power, or an event unrelated to power (Galinsky et al., 2003). Illusory control was measured using the classic die-rolling paradigm (Langer, 1975). Participants were offered a reward for predicting the outcome of a die roll and were given a choice of rolling the die or having another person roll the die for them. Choosing to roll the die reflects an illusory sense of control because the actor believes she can personally influence the outcome of the random roll and, thus, increase the odds of obtaining the reward. We predicted that participants in the high power condition would be more likely to choose to roll the die than those in the other

two conditions.

Method

Participants and design

Participants were 38 undergraduate students who were recruited from a large Midwestern university and paid \$5 (demographic data were not available). They were randomly assigned to one of three conditions: High-power ($n = 13$), low-power ($n = 12$), and baseline ($n = 13$). Those in the high-power condition were instructed to recall and write about an incident in which they had power over others, whereas those in the low-power condition were instructed to write about an incident in which someone had power over them (see Galinsky et al., 2003). Participants in the baseline condition were instructed to write about their last experience at the supermarket (see Gruenfeld et al., 2008).

Illusory control. After completing the priming task, participants were instructed that they could win an additional \$5 if they correctly predicted the outcome of a single roll of a six-sided die. Participants were then given a choice between rolling the die themselves or having the experimenter roll the die for them. This choice served as our measure of illusory control.

Results and Discussion

Decision to roll the die differed by condition, $X^2(2) = 6.54, p = .04, p\text{-rep} = .89$. Consistent with our hypothesis, more high-power participants (100%) chose to roll the die than did low-power participants (58%), $X^2(1) = 6.77, p = .01, p\text{-rep} = .95$, or baseline participants (69%), $X^2(1) = 6.54, p = .04, p\text{-rep} = .89$. The low-power and baseline participants did not differ, $X^2(1) = 0.32, p > .57$.

Recalling an experience with power led each and every participant in the high-power condition to roll the die themselves. In contrast, approximately two-thirds or less of participants

in the low-power and baseline conditions chose to roll the die themselves. These results offer strong support for our prediction that power leads to illusory control.

Experiment 2

In Experiment 2 we tested whether illusory control mediates the established relationship between power and optimism (Anderson & Galinsky, 2006). We manipulated power by instructing participants that they would be matched with a partner and play the role of either a Manager or Worker. Before completing any tasks associated with their roles, participants were asked to complete a separate study that was unrelated to their power role and which assessed perceived control and optimism.

Method

Participants and design

Participants were 30 undergraduate students (16 women, 14 men; mean age = 19.83 years) who were recruited from a large Western university and paid \$7. Upon arrival at the lab, they were told that they would be taking part in several unrelated studies.

Power. For the first study, participants were randomly assigned to a condition in which they had power (Manager, $n = 15$) or did not have power (Worker, $n = 15$) in an upcoming task. Participants were informed that the Managers would be supervising and making decisions that would impact their Workers.

Perceived control and optimism. Participants were informed that, before proceeding with the Manager-Worker study, they would complete a separate, unrelated study that involved reading a vignette and answering a few questions about a marketing agency. As the materials were distributed, the experimenter instructed the participants: “Before you move on to the Manager-Worker Task, please read and complete this vignette; it’s for an unrelated study”. This

explicit set of instructions served to ensure that the high and low power assignments would not be applied to the vignette task.

In the vignette, participants were asked to imagine working for a marketing agency. No position in the company was specified. After reading background information about the agency, participants rated the likelihood that they could control the agency's future outcomes, using a scale of 1 (*not at all likely*) to 7 (*very likely*). Using the same scale, they responded to four items measuring optimism about their organization's performance (e.g., "How likely is your agency to increase its profitability in the next two years?") ($\alpha = .80$).

Results and Discussion

As predicted, high-power participants reported greater perceived control ($M = 5.33$, $SD = 1.11$) than did low-power participants ($M = 2.53$, $SD = 1.19$), $t(28) = 6.67$, $p < .001$, $p\text{-rep} = .99$, even though the power roles were unrelated to the marketing context and this measure of control. Similarly, high-power participants were more optimistic about the marketing company's future performance ($M = 4.72$, $SD = 0.92$) than low-power participants ($M = 4.02$, $SD = 0.79$), $t(28) = 2.29$, $p = .03$, $p\text{-rep} = .91$.

Also as predicted, perceived control mediated the relationship between power and optimism (see Figure 1). In contrast, optimism did not mediate the power-control relationship; when controlling for the effects of optimism, the relationship between power and perceived control remained highly significant, $\beta = .67$, $t(29) = 5.66$, $p < .001$, $p\text{-rep} = .99$. It should be noted, though, that controlling for optimism led to a slight, but statistically insignificant, reduction of this relationship (Sobel: $z = 1.64$, $p > .10$).

These findings offer further support for our hypothesis that power leads to illusory control and, furthermore, suggest that the previously established link between power and

optimism (Anderson & Galinsky, 2006) is mediated by this illusory sense of control.

Experiment 3

We next tested whether illusory control mediates power's effects on self-esteem (Wojciszke & Struzynska-Kujalowicz, 2007) and action-orientation (Galinsky et al., 2003). We used a context for action—voting participation in a national election—that is particularly important given that democracies are based on active citizen involvement and are largely shaped by voter mobilization and turnout. Power was manipulated with the same experiential prime used in Experiment 1. We compared power to a baseline condition in order to demonstrate that the effects of Study 2 were driven by the experience of power and not by powerlessness. Participants then completed measures of sense of control, self-esteem, and action-orientation. We predicted that those imbued with a sense of power would demonstrate illusory control, which would mediate power-induced increases in self-esteem and action-orientation.

Method

Participants and design

Participants were 79 adults from the United States (58 women, 21 men; mean age = 33.86 years) who were recruited through an online database maintained by a large Western university and compensated with a \$5 online gift certificate.

Participants were randomly assigned to either a high power ($n = 40$) or a baseline condition ($n = 39$). As in Experiment 1, power was primed by having participants write about an experience in which they possessed power. Those assigned to the baseline condition wrote about events from their previous day. After the power manipulation, participants completed measures of self-esteem, action-orientation, and perceived control.

Self-esteem. Self-esteem was measured with the 10-item Rosenberg (1965) Self-Esteem

Scale using a 4-point scale anchored by 1 (*strongly disagree*) and 4 (*strongly agree*) (e.g., “On the whole, I am satisfied with myself”, $\alpha = .91$).

Action-orientation. Action-orientation was measured by asking participants to indicate whether they planned to vote (coded as “1”) or not vote (coded as “0”) in an upcoming national midterm election.

Perceived control. Perceived control was measured in two ways. First, participants completed a 5-item measure consisting of hard-to-control outcomes (e.g., “To what extent are you able to have some control over what happens in the economy”); items were rated on a 7-point scale ranging from 1 (*very little control*) to 7 (*a great deal of control*) ($\alpha = .81$). Second, participants indicated whether or not they believed they could influence the outcome of the national election by voting. They stated either that they were able (coded as “1”) or unable (coded as “0”) to influence the election results.

Results and Discussion

Perceived control. As predicted, high-power participants perceived higher levels of control ($M = 3.49$, $SD = 1.12$) than those in the baseline condition ($M = 2.86$, $SD = 1.12$), $t(78) = 2.49$, $p = .02$, $p\text{-rep} = .93$. Power also affected the dichotomous measure of control; a greater percentage of those in the high-power condition indicated they could influence the election (70%) than did those in the baseline condition (42%), $X^2(1) = 6.17$, $p = .01$, $p\text{-rep} = .95$.

Self-esteem. High-power participants reported higher self-esteem ($M = 3.17$, $SD = 0.55$) than baseline participants ($M = 2.89$, $SD = 0.51$), $t(77) = 2.25$, $p = .03$, $p\text{-rep} = .91$. As predicted, sense of control (the five-item measure) fully mediated the relationship between power and self-esteem (see Figure 2).

Action-orientation. More participants in the high-power condition indicated plans to vote

and thus were more action-oriented (78%) than in the baseline condition (56%), $X^2(1) = 3.98$, $p = .04$, $p\text{-rep} = .89$. In addition, perceived control over the election outcome (the dichotomous measure) mediated the relationship between power and voting intentions (see Figure 3).

Alternative mediation tests. We also examined the possibility that self-esteem and/or action-orientation might be stronger mediators of each other than sense of control. The relationship between self-esteem and action-orientation failed to reach significance, $\beta = .19$, $t(77) = 1.68$, $p > .09$. Furthermore, including self-esteem as a predictor did not reduce the effects of power on action (Sobel: $z = 0.88$, $p > .37$) and including action as a predictor did not reduce the effects of power on self-esteem (Sobel: $z = 0.53$, $p > .59$). Next, we tested self-esteem as a potential mediator of the power-illusory control relationship. Although including self-esteem as a predictor reduced the relationship between power and sense of control to non-significance, $\beta = .20$, $t(77) = 1.83$, $p > .07$, this reduction did not reach standard levels of significance (Sobel: $z = 1.79$, $p > .07$). Finally, we tested action-orientation as a potential mediator of the power-illusory control relationship. Although including voting intentions as a predictor reduced the relationship between power and the dichotomous measure of sense of control to non-significance, $B = 0.91$, $SE = 0.61$, $X^2(1) = 2.28$, $p > .13$, $p\text{-rep} = .79$, this reduction did not reach standard levels of significance (Sobel: $z = 1.80$, $p > .07$).

Taken together, these results suggest that illusory control mediates both the relationship between power and self-esteem and the relationship between power and action. Neither self-esteem nor action-orientation mediated the effects on each other. Although there was some evidence that self-esteem and action-orientation mediated the relationship between power and illusory control, these effects were only marginally significant. Overall, these data are most consistent with our hypothesized model: power leads to illusory control which, in turn, mediates

the influence of power on behavioral approach and self-esteem.

Experiment 4

The final experiment explored whether positive mood is a driving mechanism behind power's effects. Indeed, some studies have demonstrated a link between power and positive emotions (Anderson & Berdahl, 2002; Berdahl & Martorana, 2006; Keltner et al., 2003). However, several other studies have shown null effects of power on mood (e.g., Anderson & Berdahl, 2002, Study 2; Galinsky et al., 2003; Smith and Trope, 2006; Weick & Guinote, 2008). Nonetheless, we sought to examine positive mood as a potential mediator of power's effects on optimism and self-esteem. This study also allowed us to test whether optimism and self-esteem mediate each other. We randomly assigned participants to either a powerful position or an unspecified position in a negotiation and then measured optimism, self-esteem, and mood.

Method

Participants and design

Participants were 43 adults from the United States (28 women, 15 men; mean age = 31.47 years) who were recruited through an online database maintained by a large Western university and compensated with a \$5 online gift certificate.

Participants were randomly assigned to either a high-power ($n = 23$) or a baseline condition ($n = 20$) in what they thought was an online negotiation between an employer and a job applicant regarding the applicant's salary and vacation package. The employer had a clear advantage in the negotiation and, thus, participants assigned to the role of the employer were in the high-power role. Those in the baseline condition were told they would either be the employer or the applicant, but no role was specified. After reading a description of the negotiation, participants were asked to complete some background questionnaires (which contained the

optimism, self-esteem, and mood measures) while they waited to be connected via computer to their negotiation partner (in reality, the negotiation never took place).

Optimism. Participants rated their optimism regarding the number of points they felt they would accumulate in the negotiation, ranging from 1 (*a low number of points*) to 7 (*a high number of points*).

Self-esteem. Participants' current self-esteem was measured with 8-items on a 7-point scale. Sample items include: "I feel good about myself" and "I feel inferior to others at this moment" (reverse-scored) ($\alpha = .81$).

Positive mood. Participants rated the degree to which they felt four positive emotions at the moment (i.e., "happy", "excited", "enthusiastic", and "proud") on a 7-point scale ($\alpha = .89$).

Results and Discussion

Replicating Experiment 2, high-power participants were more optimistic ($M = 5.30$, $SD = 1.02$) than baseline participants ($M = 4.30$, $SD = 0.80$), $t(41) = 3.55$, $p = .001$, $p\text{-rep} = .99$.

Replicating Experiment 3, high-power participants displayed higher self-esteem ($M = 5.18$, $SD = 0.82$) than baseline participants ($M = 4.69$, $SD = 0.72$), $t(41) = 2.11$, $p = .04$, $p\text{-rep} = .89$.

However, high-power participants did not experience more positive mood ($M = 4.25$, $SD = 1.40$) than those in the baseline condition ($M = 4.79$, $SD = 1.14$), $t(41) = 1.40$, $p > .16$. Moreover, the link between power and optimism remained significant when controlling for mood ($\beta = .47$, $t(42) = 3.31$, $p = .002$, $p\text{-rep} = .98$) and this relationship was not reduced (Sobel: $z = 0.57$, $p > .56$).

Thus, mood did not mediate the power-optimism link. When controlling for mood, although the association between power and self-esteem was reduced to non-significance ($\beta = .25$, $t(42) = 1.72$, $p > .09$), a Sobel test indicated that this reduction was not significant (Sobel: $z = 1.14$, $p > .25$). Thus, mood did not mediate power's effects on self-esteem. Additionally, we examined

whether self-esteem mediated power's effects on optimism and whether optimism mediated power's effects on self-esteem; neither was the case (Sobel: $z = 0.54$, $p > .59$, and Sobel: $z = 0.53$, $p > .59$, respectively).

These results indicate that the effects of power on illusory control, and its mediation role, are not the result of positive mood. Rather, as the results of Experiments 2 and 3 demonstrated, illusory control seems to be the driving force behind the effect of power on self-enhancement and approach-related tendencies.

General Discussion

Across the experiments, using two different instantiations of power, we found that power led to perceived control over outcomes that were uncontrollable and/or unrelated to the participants' power. Power predicted perceived control over a chance event (Experiment 1), outcomes in domains that were unrelated to the source of power (Experiment 2), and future outcomes that are virtually impossible for any one individual to control (e.g., performance of the national economy, national election results) (Experiment 3). Furthermore, this inflated sense of control mediated power's positive effects on optimism (Experiment 2), self-esteem (Experiment 3), and action-orientation (Experiment 3). A final experiment ruled out the effects of power on positive mood as an alternate explanation for these findings (Experiment 4).

Contributions

The present findings offer a number of important contributions. First, they advance research on the determinants of perceived control by revealing that illusory perceptions of control over outcomes are determined not only by chronic personality traits and cultural differences, but also by dynamic, situation-based power asymmetries. Second, they contribute to the power literature by indicating that perceptions of control in response to power are illusory, as

well as realistic, and that this illusory sense of control is a basic response to the psychological experience of power. Finally, and perhaps most importantly, they provide evidence for why power leads to approach and self-enhancement effects: illusory control appears to be a generative cause and driving force behind a number of effects previously found to be associated with power, including action, optimism, and self-esteem.

The present studies also help to shed light on why the powerful often seem to exhibit hubristic overconfidence (Hayward & Hambrick, 1997). By producing an illusion of personal control, power may cause people to lose touch with reality in ways that lead to overconfident decision-making (see e.g., Fenton-O’Creevy, Nicholson, Soane, & Willman, 2003). But we hasten to add that being fully grounded in—and constrained by—reality is not always desirable. As noted earlier, illusory control is often adaptive and, in some cases, can enhance performance (e.g., Langer, 1983; Taylor & Brown, 1988).

Unresolved Questions and Future Directions

The present findings, as with all research, have not answered all questions. One lingering question concerns whether the current relationship between power and illusory control extends to real-world power and organizationally embedded decisions. It is possible that the behavior of our participants, especially the undergraduates in Experiments 1 and 2, do not generalize to samples with more power experience. For example, executives may learn to curb their illusions as they gain experience within a particular decision domain or as they move up the corporate ladder. Alternatively, it could be that the illusion of control actually intensifies as people become increasingly powerful and successful. Given these conflicting possibilities, it is important for future research to examine how power’s effects change over time and whether they are moderated by experience. Similarly, it would be fruitful to examine other potential moderators of

the power-illusory control relationship, such as perceived legitimacy of the power (Lammers, Galinsky, Gordijn, & Otten, 2008), the cultural context (Zhong, Galinsky, Magee, & Maddux, 2008), and perceived personal competence in the domain of power (Fast & Chen, 2008).

Coda: The Yin and Yang of Positive Illusions by the Powerful

The observed causal link between power and illusory control has implications for how power, once attained, is maintained or lost (e.g., Sivanathan, Pillutla & Murnighan, 2008). Positive illusions can lead powerholders to achieve unimaginable accomplishments by embarking on low-probability journeys and persisting when others would give up (Taylor & Brown, 1988). Such unbridled confidence can lead the powerful, in a self-fulfilling manner, to make the seemingly impossible possible. But the relationship between power and illusory control might also contribute directly to losses in power. For example, financial investments driven by illusory control often lead to large and damaging losses. Thus, an illusion of personal control might be one of the ways that power often “leads to its own demise” (Winter & Stewart, 1983).

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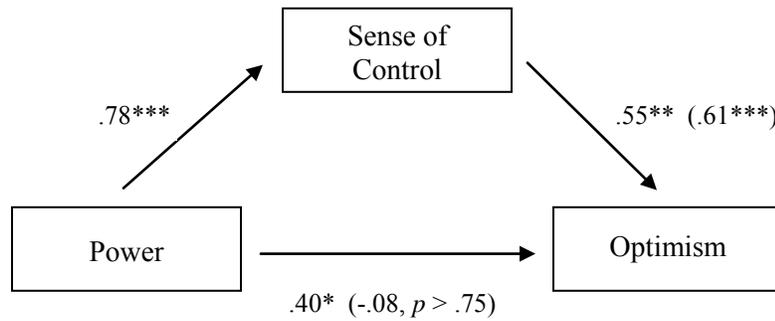
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Figure 1. Mediation analysis predicting optimism, Experiment 2. Values represent standardized regression coefficients; those in parentheses represent the coefficients when both power and control are included as predictors of optimism.

Figure 2. Mediation analysis predicting self-esteem, Experiment 3. Values represent standardized regression coefficients; those in parentheses represent the coefficients when both power and control are included as predictors of self-esteem.

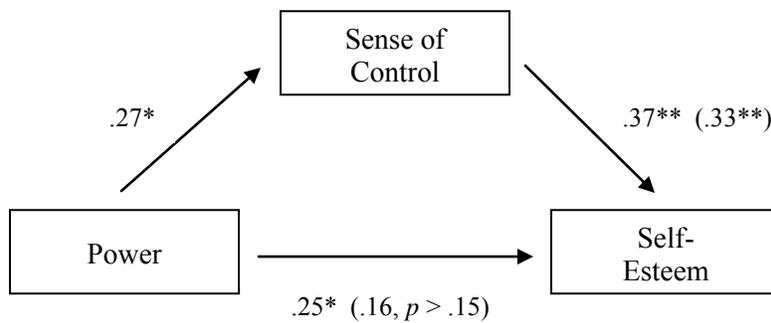
Figure 3. Mediation analysis predicting action-orientation, Experiment 3. Sense of control and action-orientation are both dichotomous measures. Values represent the unstandardized logistic regression coefficients; those in parentheses represent the coefficients when both power and control are included as predictors of action-orientation.

Figure 1.



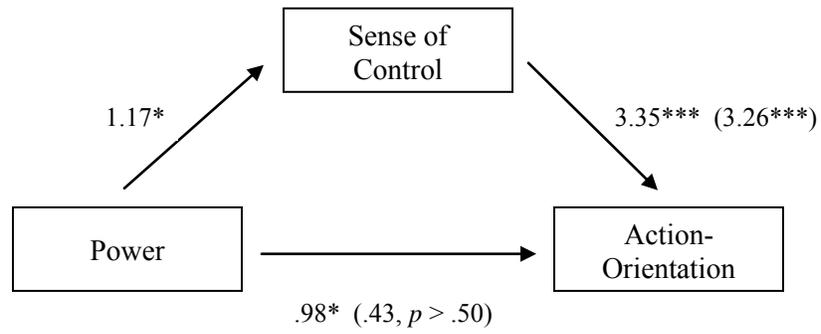
Note: Sense of control fully mediated the link between power and optimism (Sobel: $z = 2.25$, $p = .02$, $p\text{-rep} = .92$); * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2.



Note: Sense of control fully mediated the link between power and self-esteem (Sobel: $z = 1.93$, $p = .05$, $p\text{-rep} = .88$); * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 3.



Note: Sense of control fully mediated the link between power and action-orientation (Sobel: $z = 2.17, p = .03, p\text{-rep} = .91$); * $p < .05$, ** $p < .01$, *** $p < .001$.