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Power and overconfident decision-making

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ABSTRACT

Five experiments demonstrate that experiencing power leads to overconfident decision-making. Using multiple instantiations of power, including an episodic recall task (Experiments 1–3), a measure of work-related power (Experiment 4), and assignment to high- and low-power roles (Experiment 5), power produced overconfident decisions that generated monetary losses for the powerful. The current findings, through both mediation and moderation, also highlight the central role that the sense of power plays in producing these decision-making tendencies. First, sense of power, but not mood, mediated the link between power and overconfidence (Experiment 3). Second, the link between power and overconfidence was severed when access to power was not salient to the powerful (Experiment 4) and when the powerful were made to feel personally incompetent in their domain of power (Experiment 5). These findings indicate that only when objective power leads people to feel subjectively powerful does it produce overconfident decision-making.

Introduction

In 2009, British Petroleum (BP) executives confidently downplayed potential risks associated with their oil well located in the Gulf of Mexico, assuring regulators that it was virtually impossible for a major accident to occur (Achenbach, 2010). Months later, an oil rig exploded, killing 11 workers and resulting in a massive oil leak that spanned more than a mile underwater. The executives, who have since been accused of an ongoing pattern of overlooking safety precautions, could have prevented the accident with greater attention to and preparation for potential hazards (Burdeau & Mohr, 2010). In 2000, AOL's CEO, Steve Case, orchestrated a $350 billion deal with Time Warner, the largest merger in history at that time. In spite of his assuredness that the new arrangement would lead to sustained profit and growth, the deal squandered $54 billion in shareholder value in the first quarter alone, and led to his demise as CEO. As was the case in these two stories, the decisions made by power holders across a multitude of arenas—including businesses, government, religious institutions, and nonprofit organizations—are often marred with overconfidence (e.g., see Hayward & Hambrick, 1997; Hribar & Yang, 2010; Li & Tang, 2010; Malmenier & Tate, 2005, 2008). Furthermore, when powerful leaders are plagued with overconfidence, the consequences for performance can be detrimental. Making important decisions in the absence of adequate information hinders not only one's own performance and ability to maintain power, but often hurts companies, stockholders, and the general public too, as the AOL and BP cases highlight.

In spite of the attention given to the occurrence of overconfidence among the powerful, little is known about the social and psychological factors that are responsible for overconfidence among power holders. In the current research, we attempt to understand the precise nature of this relationship, exploring not only what causes it but also when it is most likely to occur. We also examine alternative explanations for the presence of overconfidence among the powerful. On the one hand, it could be that overconfident individuals are drawn to power and/or are more likely to obtain high-power positions (e.g., see Anderson & Brion, 2010). If so, the implication would be that carefully promoting only those who do not have pre-existing tendencies toward overconfidence would help to address the problem. Alternatively, the experience of having power, itself, may create or produce overconfidence, above and beyond one's pre-existing tendencies, making taming the relationship between power and overconfidence a considerably more complicated task. In the present research, we examine precisely this possibility, exploring whether, when, and why the experience of power may facilitate overconfident decision-making.

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Power as a determinant of overconfidence

Building on recent advances in the power literature, we propose that the experience of power exacerbates overconfidence. Consistent with many others in the field, we define power as asymmetric control over valued outcomes (e.g., Emerson, 1962; Keltner, Gruenfeld, & Anderson, 2003; Magee & Galinsky, 2008). Keltner et al.'s (2003) approach/inhibition theory of power asserts that power increases the activation of the behavioral approach system (BAS), leading individuals to be especially sensitive to rewarding possibilities. A number of recent studies have provided support for this theory. After experiencing power, individuals pay more attention to positive and rewarding information (Anderson & Berdahl, 2002; Anderson & Galinsky, 2006), express themselves more freely (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008), and adopt an orientation toward action (Anderson & Berdahl, 2002; Fast, Gruenfeld, Sivanathan, & Galinsky, 2009; Galinsky, Gruenfeld, & Magee, 2003; Magee, Galinsky, & Gruenfeld, 2007). Furthermore, recent evidence shows that experiencing an elevated sense of power – defined as the subjective sense that one is powerful and influential, regardless of whether this is actually the case (Anderson, John, & Keltner, 2011) – coincides with confidence-inducing states, such as optimism (Anderson & Galinsky, 2006), risk-taking (Jordan, Sivanathan, & Galinsky, in press) and exaggerated perceptions of control over outcomes (Fast et al., 2009). Building on these ideas, we predict that power will, via an elevated subjective sense of power, lead to an overestimation of one's accuracy in decision-making domains. Moreover, we predict that this relationship will hold, even when such overconfidence is maladaptive. These predictions are consistent with the notion that behavioral approach activation is associated with a greater degree of positive and action-facilitating cognitions and a reduced tendency to deliberate on information that might hinder the active pursuit of one's goals (Keltner et al., 2003).

Overconfidence and related constructs

The concept of overconfidence is situated in a larger body of evidence in cognitive psychology demonstrating the widespread prevalence of positive illusions and self-enhancement biases. This literature has repeatedly demonstrated that people tend to view themselves, the world, and the future more positively than is objectively warranted (e.g., but see Klayman, Soll, Gonzalez-Vallejo, & Barlas, 1999; Dunning, Griffin, Milojkovic, & Ross, 1990; Dunning, Heath, & Suls, 2004; Moore & Cain, 2007). There are three commonly-observed strands of these effects, each distinct from the others.

First, *overconfidence* refers to an inflated sense of confidence in the accuracy of one's knowledge and/or cognitive estimates. For example, people are often overly confident about the precision of their answers to various questions posed to them (e.g., Russo & Schoemaker, 1992; Soll & Klayman, 2004). Because sound decision making typically requires accuracy regarding what one does and does not know, overprecision in one's knowledge is especially important in organizational settings. In the present paper, we will focus primarily on explaining the emergence of this distinct type of overconfidence among the powerful.

Overconfidence, as defined here, is distinct from a second common self-enhancement bias known as the *better-than-average effect*. The latter refers to the tendency to believe that one is above average on desirable categories (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Klar, Medding, & Sarel, 1996; Weinstein, 1980). For instance, an overwhelming majority of people (82%) judge themselves to be in the top 33% of drivers in the US (Svenson, 1981), a statistical impossibility. Similar perceptions have been documented in arenas of health (Taylor & Brown, 1988), risk-taking (Fischhoff, Slovic, & Lichtenstein, 1977) and negotiations (Neale & Bazerman, 1985). In contrast to overconfidence in one's knowledge, the better-than-average effect emphasizes one's abilities or probabilities relative to those of other people.

A third strand, *illusory control* refers to an overestimation of one's personal control over outcomes that are either chance-based or fall outside the control of the individual (Langer, 1975; Thompson, Armstrong, & Thomas, 1998). Illusory control, which has been linked to power (Fast et al., 2009), is distinct from overconfidence in one's knowledge (Moore & Healy, 2008) as the former relates to the perception that, through one's *abilities and/or actions*, she is more capable of influencing outcomes than she is in reality. One might, for example, believe that one can win more money using a slot machine with a lever one can physically manipulate relative to a slot machine with no lever, as the latter offers no perceived opportunity for control.

Not only is overconfidence in one's accuracy theoretically and empirically distinct from illusory control (Moore & Healy, 2008), but at a basic theoretical level, the two constructs speak to different styles of control that humans pursue. Illusory control maps onto the concept of primary control, characterized as attempts to satisfy one's need for control by directly changing one's environment (Rothbaum, Weisz, & Snyder, 1982). In contrast, overconfidence maps onto the concept of secondary control, which refers to the goal of gaining control by accurately predicting and understanding one's environment (Rothbaum et al., 1982). See Moore and Healy (2008) for a more in-depth and highly insightful discussion on the similarities and differences between overconfidence in one's accuracy, the better-than-average effect, and illusory control.

Finally, it is worth noting that our current emphasis on overconfidence is also distinct from prior work exploring how power affects judgments and evaluations. For example, Inesi (2010) found that power reduces loss aversion by increasing the anticipated value of gains and decreasing the anticipated negative value of losses. In contrast, our work explores whether power leads people to overestimate the accuracy of their own knowledge. Thus, the two ideas capture different effects associated with the experience of power. Additionally, the present work is theoretically different from Georgeson and Harris's (1998) meta-analysis that summarized evidence indicating that as people's power increases, they derogate less-powerful others by rating their performances negatively. Rather than studying derogation in the context of performance evaluations, we make a distinct contribution by exploring overconfidence in one's own knowledge and its effects on decision-making.

Theoretical and empirical contributions

In the present research, we aim to build on and extend extant theory by making three primary contributions. First, we seek to show that power leads to overconfidence in the accuracy of one's knowledge, or overprecision (see Moore & Healy, 2008). Overconfidence matters a great deal, especially among power holders within organizations, as many of their high-impact decisions are based on perceived precision of relevant knowledge. For example, decisions to acquire a company, enter a new market, or execute a joint venture are all based on the perceived accuracy of one's knowledge about the value of the acquired company, market forecast, and production capacities of the potential partner. Although the distinction between overprecision and overassessment of one's abilities is critical (Moore & Healy, 2008), it is often ignored in the literature. The present research examines the potential psychological connection between power and overconfidence, above and beyond exaggerated beliefs in one's personal abilities or one's capacity to

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control outcomes (Fast et al., 2009). Specifically, we predict that power produces greater overconfidence in the accuracy of one's knowledge than those who are less powerful.

A second advance is to help uncover *why* power may lead to overconfidence. There are at least two plausible mechanisms. First, it could be that power leads to overconfidence as a result of activating a subjective sense of power leading, in turn, to greater attention to positive and action-facilitating cognitions (Keltner et al., 2003), such as overconfidence. Alternatively, the observed relationship might instead be a result of role expectations experienced by the power holder. For example, it might be the case that the powerful demonstrate extreme confidence in their knowledge in order to display a trait they believe is expected of those in high-power roles. This idea is consistent with research showing, in a variety of contexts, that inhabiting work roles incites pressures to conform to specific standards of behavior (for reviews see Biddle, 1979, 1986; Stryker & Statham, 1985).

One way to empirically separate these two mechanisms is to hold objective power (i.e., asymmetric control over resources) constant while manipulating whether or not one experiences the subjective sense that one is powerful. Therefore, in addition to testing sense of power as a mediator, in two of our experiments we block subjective feelings of power but leave in place the expectations that accompany high-power roles. Thus, the present research seeks to push the field forward by examining the central role that sense of power has on the effects of power through both mediation and moderation. We investigate whether (a) sense of power mediates the effects of power on overconfidence, as well as whether (b) the effect of sense of power on overconfidence remains when the subjective sense of power is blocked.

Finally, we extend the literature by examining the effect of power on decision-making performance. Whereas the illusion of personal control can be adaptive (e.g., Taylor & Brown, 1988), overconfidence in one's accuracy can be problematic, especially when making decisions that hinge on precision. In such cases, power may prevent one from arriving at accurate assessments by generating overconfidence in one's knowledge. Thus, we advance prior research by examining whether power-induced overconfidence will produce decisions that lead the powerful to lose real money. Specifically, we predict that the experience of elevated power will cause people to underperform on decision-making tasks that require accuracy of knowledge relative to those who are less powerful, even when they are financially motivated to be accurate.

Overview of the present research

We conducted five experiments to test our core hypotheses that power produces overconfidence (Hypothesis 1) and that the subjective sense of power is the causal mechanism (Hypothesis 2). We also hypothesized that the relationship between power and overconfidence would hold even when expressions of overconfidence mean financial losses (Hypothesis 3). Finally, we predicted that making power holders feel incompetent in their roles would eliminate the relationship between power and overconfidence (Hypothesis 4). In Experiments 1–3 we manipulated power by using an episodic recall task and explored whether feeling powerful leads to overconfidence and underperformance in an information task. Experiment 3 examines this relationship further by assessing mood and subjective sense of power as potential mediators. In Experiment 4, we assessed power within a work context to examine if this relationship holds even when individuals stand to incur financial losses. Furthermore, in order to help show that any observed effects were caused by the sense of power, we made the workplace salient for some and not others, predicting that the power → overconfidence link would emerge only when participants' powerful positions in the workplace were made salient. Finally, in Experiment 5, we examined whether lacking a sense of power eliminates the overconfidence displayed by high-power actors, by manipulating perceived aptitude for a high-power role.

Experiment 1

In Experiment 1, we investigated the effect of power on confidence and performance by having participants answer general knowledge questions (Russo & Schoemaker, 1992). We manipulated power by having participants recall a time in which they had power. Although power is conceived as a structural variable, its psychological properties can be activated by recalling past experiences with power (Galinsky, Gruenfeld, & Magee, 2003), and activating power in this manner produces the same subsequent effects as those obtained using structural and role-based manipulations of power (Anderson & Galinsky, 2006; Fast et al., 2009; Galinsky et al., 2003).

Method

Participants were 41 undergraduates (25 women) from a large Midwestern university[1] who participated in exchange for a $5 payment. The experiment involved two conditions, a high-power condition ($n = 19$) and a low-power condition ($n = 22$). Participants came in groups of 6 to the lab and were brought into separate rooms to participate in the experiment. In these rooms, participants were given a high- or low-power experiential prime.

Power

Participants were instructed to recall and write about a personal incident in which they had or lacked power over another individual or individuals (Galinsky et al., 2003). In the *high-power condition*, participants wrote about a situation in which they controlled the ability of another person or persons to get something they wanted or were in a position to evaluate those individuals. In the *low-power condition*, participants wrote about a personal incident in which someone else had power over them.

Overconfidence

After completing the power manipulation, participants were asked to provide answers to a series of six factual questions, adapted from Russo and Schomaker (1992). They were required to provide the correct answer by estimating a 95% confidence interval around each of their answers. For example, one question ("Martin Luther King's age at time of death") required the participant to provide a range in which the correct answer lied, with 95% confidence (e.g., 35–52 years).

Results and discussion

We found no effects of sex on confidence levels. Given the different units involved with each answer (i.e., age, distance, weight), we converted the responses to standardized scores (*z*-score). We used the mean *z*-score for the six items for all of our analyses. As predicted, high-power participants ($M = -0.19$, $SD = 0.43$) assigned narrower answer ranges for their 95% confidence intervals than did low-power participants ($M = .22$, $SD = .78$), $t(39) = 2.09$, $p = .04$, $d = .65$. These findings support our prediction that power leads individuals to overestimate the accuracy of their knowledge.

We also computed a mean accuracy measure by averaging the number of times the correct answer fell between the confidence intervals provided by the participant. Analyses of accuracy

[1] Age was not recorded.

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revealed that confidence in one's answers was inversely correlated with accuracy ($r = -.65$, $p < .01$) and, as a result, high-power participants ($M = .31$, $SD = .19$) were marginally less likely to find the correct answer within their confidence boundaries than were low-power participants ($M = .43$, $SD = .20$), $t(38) = 1.84$, $p = .07$, $d = .62$.

Consistent with our hypothesis, high-power individuals set narrower confidence margins for their answers than did low-power participants. Furthermore, this overconfidence led the powerful to be less accurate than low-power individuals.

Experiment 2

Experiment 2 sought to strengthen the findings from Experiment 1 in a number of ways. First, we included a baseline condition in order to ensure that the high-power condition, rather than the low-power condition, was driving the effects. Second, we assessed overconfidence in a work-relevant domain, testing participants' confidence in their estimates of the future performance of potential employees. Third, we sought to more clearly get at overconfidence and underperformance by using a domain where predictions both mattered and had objective answers. We chose the domain of professional hockey because it places participants in a role that managers face routinely (i.e., rating and selecting potential employees) and, additionally, because there are objective metrics that are observable and painstakingly recorded in hockey games, allowing for a precise measurement of player performance. Given the objective data on past and future performance, we could compare participants' predictions to actual performance.

As in Experiment 1, we manipulated power with a recall prime (Galinsky et al., 2003). After manipulating power, we asked participants to take on the role of an organizational representative making hiring assessments and recommendations for a hockey team and select the player they believed would perform the best for their team. We then measured confidence in their estimates for all players. Because we chose actual statistics from eventual NHL players, we were able to assess the accuracy of participants' judgments.

Method

Participants were 241 students (115 women, 126 men) at a large Western university and a European business school who participated either for course credit or payment. The two samples produced the same patterns of results, so we combined them for further analyses. The experiment involved three conditions: high-power ($n = 81$), low-power ($n = 79$), and neutral power ($n = 81$). After the manipulation, participants completed a hiring task which assessed overconfidence.

Power manipulation

As in Experiment 1, participants were instructed to recall and write about a personal incident in which they had or lacked power over another individual or individuals, or recall and write about their previous day (Galinsky et al., 2003). In the *neutral-power condition*, participants wrote about their experiences during the previous day. This ensured that all participants completed the same task (recalling and writing about past events) while being primed with different levels of power (Galinsky et al., 2003).

Overconfidence

After completing the power manipulation, participants were asked to assess and draft five athletes (i.e., potential employees) for a hockey team. They were asked to select the player among five minor league hockey players who they thought would perform the best for their NHL team the following year. They were provided with each player's minor league statistics (see Appendix A) and were asked to estimate how many points (i.e., goals scored and assists tallied) each would accrue in his first year in the NHL and to estimate 95% confidence intervals around each of their answers. In other words, if they predicted that Player A would score 80 goals, they would then estimate a number below and above 80 such that they were 95% certain the player's actual performance would fall within that range (e.g., 60 and 100).

Accuracy

We were interested not only in participants' confidence levels, but also in whether or not they were correct in their predictions of how many goals their top player would score. To assess whether or not power hindered accuracy, we measured the difference between the player's actual performance (i.e., how many total points (goals plus assists) accrued by the player in his first year in the NHL) and the closest confidence interval provided by the participant. To illustrate, if a participant selected confidence intervals of 60 and 80 but the player's total points was 90, the participant's score would be 10 (i.e., 90 minus 80). Correct predictions (i.e., points that fell within the confidence intervals) received a score of "0" because there was no distance between the player's actual score and the range provided by participants.

Results and discussion

Six participants reported familiarity with the hockey players and, thus, were removed from analyses. There was a main effect for sex; men in the sample had larger confidence intervals ($M = 38.53$, $SD = 32.43$) than women ($M = 28.59$, $SD = 31.59$), $p = .02$, and were also more accurate ($M = 33.89$, $SD = 27.49$) versus ($M = 42.98$, $SD = 22.27$), $p = .01$, respectively. We repeated all analyses with sex as a covariate and found the same patterns of results and significance levels. Thus, we do not discuss this variable further.

Overconfidence

Consistent with our predictions, a contrast comparing high-power participants with participants in the other two conditions produced a significant effect such that high-power participants ($M = 25.82$) assigned narrower confidence intervals for their top choice than did low-power participants ($M = 36.70$), and neutral-power participants ($M = 38.38$), $t(232) = 2.63$, $p = .01$, $d = .35$ (see Table 1). This pattern extended beyond the top selected player; the same general pattern was present across all five players, $t(232) = 2.03$, $p = .04$, $d = .27$. Additional tests showed that high-power participants had narrower confidence intervals for their top player than low-power participants, $t(232) = 2.10$, $p = .04$, $d = .28$. The difference between high-power and neutral-power participants was also significant, $t(232) = 2.47$, $p = .01$, $d = .32$. There was no difference between low-power and neutral-power participants.

Accuracy

As predicted, a contrast comparing high-power participants with participants in the other two conditions produced a significant effect such that the distance between the player's actual performance and high-power participants' confidence intervals ($M = 43.75$) was greater than that of low-power participants ($M = 37.05$) and neutral-power participants ($M = 34.35$), $t(232) = 2.30$, $p = .02$, $d = .30$ (see Table 1). This tendency extended beyond the top selected player; the same general pattern was marginally present across all five players, $t(232) = 1.86$, $p = .06$, $d = .24$.

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Table 1
Effects of power on confidence (i.e., confidence intervals) and accuracy (i.e., distance from correct answer) related to performance predictions for selected player, Experiment 2.

	Low-power		Baseline		High-power	
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)
Confidence intervals	36.70	(35.54)	38.38	(37.28)	25.82	(20.78)
Distance from correct answer	37.05	(25.62)	34.35	(25.01)	43.75	(25.07)

Note: Smaller confidence intervals represent higher levels of confidence; larger accuracy distance scores represent lower accuracy.

Additional tests showed that high-power participants were less accurate than neutral-power participants, $t(232) = 2.35$, $p = .02$, $d = .31$. The difference between high-power and low-power participants approached significance, $t(232) = 1.65$, $p = .10$, $d = .22$. There was no difference between low-power and neutral-power participants.

Consistent with our predictions, power led individuals to overestimate the accuracy of their knowledge. High-power individuals set narrower confidence margins for their picks than did low-power participants. Furthermore, because of their overconfidence, high-power individuals had significantly lower accuracy in their predictions than low-power and neutral-power participants. Specifically, those in the high-power condition set confidence intervals for player performance that were significantly further away from the player's actual performance.

Experiment 3

Experiment 3 explored the psychological processes that produce the causal link from power to overconfidence shown in Experiments 1 and 2. We have proposed that a sense of power (i.e., the subjective sense that one is powerful) is the driving force behind this increased overconfidence. However, it is also possible that having power and/or recalling a time when one feels powerful could induce positive affect which, in turn might lead to overconfidence. Although several studies have found either that mood is not affected by power or that it does not mediate power's effect on other variables (e.g., Anderson & Berdahl, 2002, Study 2; Fast et al., 2009; Galinsky et al., 2003; Smith & Trope, 2006), we wanted to explicitly rule out this alternative explanation for the relationship between power and overconfidence. In order to do this, we assessed the effects of manipulated power on confidence, sense of power, and mood.

Method

Participants were 156 adults (101 women; *M* Age = 33.28, *SD* Age = 11.66) recruited from Amazon's Mechanical Turk (see Buhrmester, Kwang, & Gosling, 2011) for a payment of $0.75. The experiment involved three randomly assigned conditions: high-power ($n = 49$), neutral ($n = 54$), and low-power ($n = 53$). They then responded to several items measuring sense of power, confidence, and positive and negative mood.

Power manipulation

Participants completed the same power manipulations (high-power, neutral-power, and low-power) used in Experiment 2.

Confidence

Confidence was assessed with four items assessing the degree to which participants felt confident in their own thoughts and knowledge ("I feel confident in my thoughts", "I feel confident in my beliefs", "I am certain of my knowledge", and "I'm very sure about what I know"). Items were rated on a 7-point Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree). The scale was reliable ($\alpha = .84$; $M = 5.63$, $SD = .99$).

Sense of power

We used the eight-item Sense of Power Scale (Anderson & Galinsky, 2006; Anderson, Oliver, & Keltner, in press) to assess how powerful people felt (sample items include: "If I want to, I get to make the decisions", "I can get people to listen to what I say", "I think I have a great deal of power", "Even if I voice them, my views have little sway", reverse-scored). All items were rated on a 7-point Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree). The scale was reliable ($\alpha = .89$; $M = 4.61$, $SD = 1.19$).

Positive and negative affect

We measured affect with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants rated how they presently felt by rating positive (e.g., "interested", "excited", "proud", "alert") and negative ("upset", "nervous", "jittery", "afraid") items. All items were rated on a 7-point Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree). The items were reliable for both positive affect ($\alpha = .92$; $M = 2.82$, $SD = 0.97$) and negative affect ($\alpha = .88$; $M = 1.51$, $SD = 0.72$).

Results and discussion

There was no effect of sex on confidence, sense of power, or affect. Age had a marginal positive effect on confidence, $r = .15$, $p = .06$, and positively correlated with positive affect, $r = .27$, $p < .01$, so we repeated all analyses with age as a covariate and found the same patterns of results and levels of significance. Thus, we do not discuss this variable further.

Consistent with Experiments 1 and 2, a contrast comparing high-power participants with participants in the other two conditions produced a significant effect. High-power participants ($M = 5.89$, $SD = 0.81$) reported more confidence than participants in the neutral ($M = 5.55$, $SD = 1.02$) and low-power ($M = 5.48$, $SD = 1.09$) conditions, $t(153) = 2.19$, $p = .03$, $d = .35$. Additional tests showed that high-power participants were more confident than low-power participants, $t(153) = 2.09$, $p = .04$, $d = .34$. The difference between high-power and neutral-power participants revealed the same pattern, but did not reach significance, $t(153) = 1.74$, $p = .09$, $d = .28$. There was no difference between low-power and neutral-power participants.

We next tested whether the power manipulation led to a greater sense of power. As predicted, a contrast comparing high-power participants with participants in the other two conditions revealed that high-power participants ($M = 5.05$, $SD = 1.02$) felt more powerful than participants in the neutral ($M = 4.53$, $SD = 1.16$) and low-power ($M = 4.28$, $SD = 1.25$) conditions, $t(153) = 3.24$, $p = .001$, $d = .52$. Additional tests showed that high-power participants had a greater sense of power than low-power participants, $t(153) = 3.38$, $p = .001$, $d = .55$. The difference between high-power and neutral-power participants was also significant, $t(153) = 2.28$, $p = .02$, $d = .37$. There was no difference between low- and neutral-power participants.

We also assessed the degree to which the power manipulation led to positive affect. A contrast comparing high-power participants with participants in the other two conditions indicated that high-power participants ($M = 3.03$, $SD = 0.96$) felt marginally more

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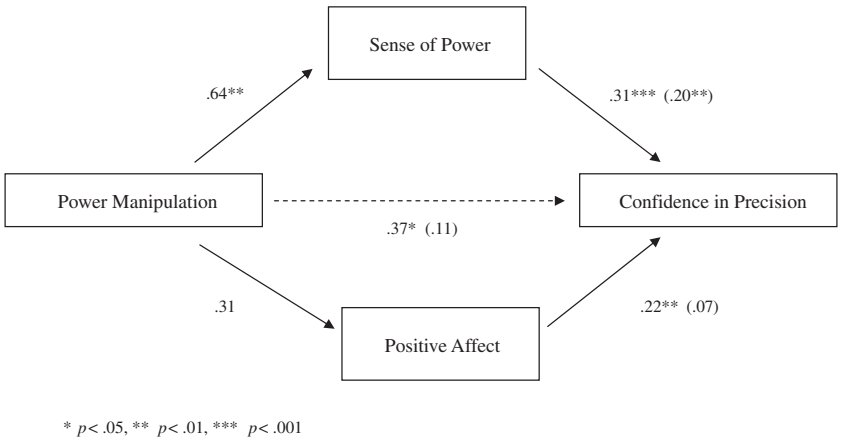

Fig. 1. Subjective sense of power but not positive affect mediates the effect of power manipulation on confidence, Study 3.

positive than participants in the neutral ($M = 2.56$, $SD = 0.99$) and low-power ($M = 2.89$, $SD = 0.91$) conditions, $t(153) = 1.86$, $p = .07$, $d = .30$. This was driven primarily by a difference between the high-power and neutral-power conditions, $t(153) = 2.50$, $p = .01$, $d = .40$. Neutral-power participants also reported marginally more positive mood than low-power participants, $t(153) = 1.79$, $p = .08$, $d = .29$. There was no difference between high-power and low-power participants.

For negative affect, a contrast comparing high-power participants with participants in the other two conditions indicated that high-power participants ($M = 1.38$, $SD = 0.70$) did not report less negative affect than participants in the neutral ($M = 1.52$, $SD = 0.70$) and low-power ($M = 1.62$, $SD = 0.76$) conditions, $t(153) = 1.52$, $p = .13$, $d = .25$. No contrasts were significant.

Finally, we examined subjective sense of power as a possible mediator of the effect of the power manipulation on confidence. Because there was a marginal effect of power on positive affect, we also examined positive affect as a possible mediator. We used Preacher and Hayes' (2008) bootstrapping procedure to test the simultaneous mediation of each variable for the effect of the high-power manipulation on confidence (low-power and neutral conditions were combined, as they produced the same patterns of effects for both confidence and sense of power). As shown in Fig. 2, sense of power, but not positive mood, mediated the effect of power on confidence. Positive mood did not mediate the effect of power on confidence as the 95% bias-corrected bootstrapped confidence intervals for positive mood included zero, indicating that mediation through this path was not significant ($CI = .00$–$.21$). In contrast, sense of power mediated the link between power and confidence, as the 95% bias-corrected bootstrapped confidence intervals for sense of power did not include zero, demonstrating that mediation through this path was significant ($CI = .08$–$.38$). We ran additional analyses using a 3-level coding scheme for power and found the same patterns and levels of significance.

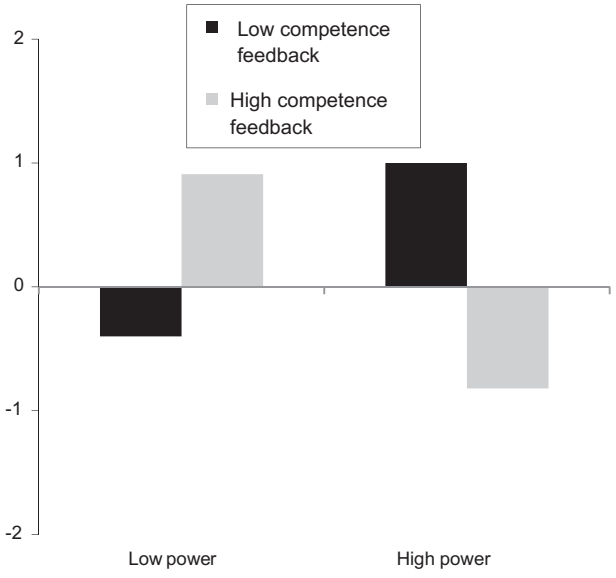

Fig. 2. Amount of $ won/lost as a function of power and competence feedback, Experiment 5.

Conceptual replication

We conducted a conceptual replication of this study using a shortened version of each of the scales and replicated all the effects: power led to higher confidence, higher sense of power, but not more positive affect than low-power and neutral conditions. As predicted, positive sense of power did mediate the effect of power (the confidence did not include zero: $CI = .05$–$.72$) but positive mood was not a significant mediator (confidence intervals for positive mood included zero: $CI = -.20$ to $.31$).

Replicating Experiments 1 and 2, power led to greater confidence in one's own thoughts and knowledge. Furthermore, this effect was mediated by the decision-maker's subjective sense of power, providing important insight into the mechanism. In short, it is when manipulations of power produce a subjective experience of power that they lead to overconfidence.

Experiment 4

In the next experiment, we sought to extend the effects observed in the previous three experiments. First, we examined whether we would observe the same power → overconfidence relationship in the field. We did so by assessing whether holding a position of power in one's place of work leads to overconfidence. To help rule out alternative accounts – namely, the possibility that overconfidence leads to power, rather than our hypothesized direction – we manipulated the salience of the high-power role. For half of the participants, we made their positions at work salient just before they responded to our measure of overconfidence (i.e., we measured work positions and level of power *before* assessing overconfidence). For the remaining half, positions were not made salient (i.e., we measured work positions and level of power *after* assessing overconfidence). If the link between power and

overconfidence is due to the tendency for a disposition-based overconfidence leading to positions of power, we would expect to see a positive correlation between power and overconfidence, regardless of power salience. However, if the psychological experience of power leads to overconfidence, we would expect a two-way interaction, such that the link between power and confidence will be more pronounced when one's power is made salient than when it is not. Thus, we hypothesized that the positive link between power and overconfidence would emerge only among participants with high-power positions *and* whose work roles were made salient. This interaction would help establish that the psychological state of feeling powerful drives the effects of power on overconfidence.

In order to create a conservative test of our hypotheses, we motivated accuracy by providing the chance to earn additional money. We accomplished this by informing participants that they could place bets on difficult trivia questions and then assessed their performance.

Method

Eighty adults (57 women) from various professions (M Age = 35.29, SD Age = 10.04) were recruited from a national database maintained by a university and paid $5. The participants occupied a variety of roles, varying in levels of power, across diverse professional domains.

Power

Participants rated the degree to which they had formal power at work by completing a 4-item scale (see Fast & Chen, 2009): (e.g., "To what extent do you have a position of power at your place of work?", $\alpha = .95$; $M = 4.43$, $SD = 1.91$).

Role salience

We manipulated whether power role was salient by either measuring work-related power *before* assessing overconfidence (*high-salience condition*) or *after* assessing overconfidence (*low-salience condition*). Role salience condition was dummy-coded (0 = low role salience, 1 = high role salience).

Overconfidence

Participants were given the opportunity to bet on five individual questions (before viewing the actual items). The questions were as follows: "What is the most popular first name in the world?", "What is the capital of Azerbaijan?", "How many countries were members of the European Union as of June 2003?", "Which US state instituted the nation's first mandatory seat-belt law in 1984?", and "Which North American city has the following subway stops: Kendall Square, Central Square, and Porter Square?"

To motivate participants, we reminded them that they would receive $5 for the study, but could also purchase, or bet on, up to five trivia questions for $1 each. Correct answers would have a payoff of $2 (resulting in a net gain of $1) and incorrect answers would pay nothing (resulting in a net loss of $1). Importantly, we explicitly told participants that the questions were extremely *difficult*, stating: "Note that each of the questions is designed to be fairly difficult—on average, people tend to get them correct around 20% of the time." Given this information, a rational decision maker would elect not to place any bets, instead electing to keep the $1 per question (a 20% chance of being correct leads to an expected value calculation of a *loss* of $0.60 per bet (i.e., expected value calculation on winning $2 is $.40, for each $1 bet). After indicating whether or not they wanted to bet on the questions, they answered the actual questions.

Because participants were informed of the extremely low odds of winning and made their bets before they had a chance to see the questions, the choice to bet on a question represents overconfidence in one's general knowledge. We measured the number of bets made, which ranged from 0 to 5 ($M = 1.70$, $SD = 1.80$). Additionally, we measured the average amount of money lost. Scores ranged from a loss of $5 to a gain of $2 ($M$ Loss = $1.08, $SD = 1.41$).

Results and discussion

There was no effect of sex on overconfidence; age was negatively correlated with overconfidence, so we controlled for it. We also controlled for income, in order to rule out the possibility that personal wealth, rather than power, explains people's willingness to make bets.

We tested our main prediction using multiple regression analysis. Power was mean-centered and treated as a continuous variable. The number of bets placed was then regressed onto power, role salience, and the two-way Power X Role Salience interaction term. There were no main effects, but the predicted interaction between power and role salience emerged, $B = .45$, $t(79) = 2.77$, $p = .01$. As hypothesized, among participants whose roles were salient, power was associated with greater overconfidence, $B = .37$, $t(42) = 2.35$, $p = .02$. In contrast, when confidence was measured before the work position and level of power had been made salient, there was no relationship between power and overconfidence, $B = -.22$, $t(36) = -1.38$, $p = .18$.

The interaction on money won was marginally significant, $B = -.30$, $t(79) = 2.77$, $p = .07$. As hypothesized, among those whose work role was salient, greater power was associated with a significantly greater loss of money, $B = -.39$, $t(42) = 2.55$, $p = .02$, and among those whose work role was not salient, power was unrelated to financial loss, $B = .05$, $t(36) = 0.31$, $p = .76$.

Taken together, these findings support our predictions. When work roles were salient, participants in high-power positions at work displayed overconfidence in their knowledge, betting more often on trivia questions even when the odds of winning were glaringly low. In addition, strengthening the pattern observed in Experiments 1 and 2, high-power participants underperformed, such that they lost more money than did their lower-power counterparts.

Importantly, this heightened overconfidence and underperformance was present only among high-power participants whose power was made salient. This suggests that the overconfidence was driven by a subjective sense of power, rather than being simply the result of overconfident individuals achieving high-power roles.

Experiment 5

Taken together, the results of the previous experiments indicated that power increases confidence in one's knowledge by producing a subjective sense of power. Sense of power mediated the effects of power on confidence in Experiment 3 and salience of power moderated overconfidence and the resulting loss of money, in Experiment 4. The next experiment further explored moderation by actively hindering the sense of power. Recent findings indicate that power fails to produce its typical effects (e.g., self-enhancement) when the power holder is made to feel incompetent (Fast & Gruenfeld, 2011) or illegitimate (Lammers, Galinsky, Gordijn, & Otten, 2008). Thus, we predicted that the effect of power on confidence observed in our previous experiments would be eliminated if the power holder was made to feel personally incompetent.

To test this possibility, we conducted a laboratory experiment in which we assigned people to high- or low-power roles and then provided either (false) negative or positive feedback about their aptitude to perform well in a high-power role. We then gave

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participants the chance to bet money on a series of trivia questions. Consistent with the idea that overconfidence is driven through a sense of power, we hypothesized that the effect would disappear among those who had received negative feedback about their personal competence.

In addition, we also used a more conservative test of overconfidence than the one used in Experiment 4. Instead of receiving information about the difficulty of the questions and betting *before* viewing the actual questions, participants in the present study had the opportunity to view and answer the question, before betting on the likelihood of a correct answer.

Method

Forty-three students from a large Western University[2] were paid $8 for their participation. They were randomly assigned to play high- or low-power roles. Participants were directed to one of two rooms and seated at partitioned cubicles so that they could not see any other participants.

Power manipulation

Participants were instructed that the purpose of the study was to examine social interactions in a work-based environment. They were then assigned to play the formal role of either Supervisor (high-power condition, $n = 22$) or Production Worker (low-power condition, $n = 21$). The instructions stated that each participant had a partner in an adjacent room and that the supervisor would be guiding the Production Worker on a task and then evaluating and deciding whether to reward the Production Worker's performance. These instructions were corroborated with a clipboard next to each of the supervisor's computers; the top page was entitled "SUPERVISOR" and had categories in which to evaluate the Production Worker. At the bottom of the page were two checkboxes indicating that "My Production Worker deserves a $1 bonus based on performance", and "My Production Worker does not deserve a $1 bonus based on performance."). As such, the high-power participants were aware that they occupied a high-power role that afforded the ability to evaluate and reward their partners.

Power pilot test

To ensure that the power manipulation was effective, we conducted a pilot test with 28 students. Participants, using a 5-point scale, reported greater perceived access to power in the Supervisor role ($M = 3.82$, $SD = 0.77$) than in the Production Worker role ($M = 2.46$, $SD = 0.74$), $t(27) = 6.55$, $p < .001$. Thus, our power manipulation was effective.

Personal competence manipulation

All participants were asked to complete an assessment of their leadership aptitude, entitled "The Leadership Aptitude Scale." The scale consisted of 15 items designed to have high face validity, but to be generic enough to have an ambiguous "right" answer. In addition, participant received the following instructions: "There are no right or wrong answers to the following questions, only personal preferences. Please indicate your answer and answer each question honestly." The scale consisted of 4 yes/no items (e.g., "Have you ever held a leadership position at a place of employment?", "Do you feel you have strong verbal communication skills?") and 11 Likert-scale items (e.g., "When participating in a group project, to what extent do you tend to dominate the group?",). Upon completing the task, they were randomly assigned their scores via the computer. Five categories of scores were given: "Poor", "Fair", "Average", "Good", and "Excellent" and participants saw that their scores either fell in the range of "Fair" (low-competence condition, $n = 21$) or "Excellent" (high-competence condition, $n = 22$). All participants also received the following statement:

> "The Leadership Aptitude Scale (LAS) identifies the extent to which people are a good fit for positions of leadership and authority. People who score high on the scale are described as assertive, influential, and a strong fit for leadership roles. They tend to have the ability to skillfully define problems, identify the highest-priority issues, and understand multiple perspectives. Finally, high-LAS individuals tend to accurately identify personal mistakes, encourage and seek out constructive criticism, and adjust their behavior accordingly. In other words, leadership comes naturally to them. Low scores do not necessarily mean that a person would be a bad leader, but rather that the person is not a natural fit and may not be as competent as others."

Competence pilot test

To ensure that the competence manipulation was effective, we assessed perceived competence in the pilot test. Participants, using a 5-point scale, reported greater perceived competence associated with the high-competence manipulation ($M = 4.54$, $SD = 0.58$) than the low-competence manipulation ($M = 2.36$, $SD = 0.83$), $t(27) = 12.20$, $p < .001$. Thus, our competence manipulation was effective.

Overconfidence

To assess overconfidence, participants could bet on six trivia questions, from their allotment of $8. In contrast to Experiment 4, participants did not receive information implying that betting would be irrational. Rather, each of the six items had only two answers to chose from (e.g., *Question*: According to the 2006 census, which state has the higher population? *Answer*: Nevada or Virginia), indicating no less than a 50% chance of being correct. Importantly, participants read and answered each question before confidence was assessed. After reading each question and selecting an answer, participants indicated how confident they were in their answer by choosing whether to bet money on it. Confidence in this study, then, was how much money participants won/lost overall, ranging from a loss of $6 to a gain of $4 ($M = \$0.19$, $SD = 1.94$).

Results and discussion

One participant was excluded for correctly guessing the purpose of the experiment. There were no main effects of power or competence on overconfidence, but the predicted Power X Competence interaction emerged, $F(1,41) = 7.43$, $p = .01$. As hypothesized, among high-power participants, those with positive feedback regarding leadership aptitude lost more money ($M = -0.82$, $SD = 2.22$) than did those who received negative feedback ($M = 1.00$, $SD = 1.56$), $t(19) = 2.14$, $p < .05$, $d = .95$[3]. Among low-power participants, the reverse pattern occurred, though it was not significant, $t(19) = -1.70$, $p = .11$, $d = .74$. In this case, participants who received positive feedback won money ($M = 0.91$, $SD = 1.76$) whereas those who received negative feedback lost money, ($M = -0.40$, $SD = 1.78$). Overall, high-power/high-competent

[2] Age and sex were not recorded.

[3] Because the DV (money won) ranges from −6 to +6 it was, in effect, a 13-point scale. The mean was close to zero (i.e., $M = 0.19$), which could be likened to 7.19 on a 13-point scale. This puts the high standard deviations in context. In order to examine our effects in different ways, we also added 7 to the scores (making all scores positive) and assessed results for the square root of the scores, both by testing for an interaction and by comparing the high-power/low-competence condition to the other three; we still obtained the same patterns of results, thus strengthening our findings.

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participants lost more money than participants in the other conditions, $t(38) = 2.03$, $p = .05$, $d = .66$ (see Fig. 1).

These findings offer yet further support for the notion that power can lead to overconfidence and underperformance in decision-making tasks. As in Experiment 4, powerful participants lost more money. But, importantly, this effect was eliminated when the powerful were made to feel incompetent. Along with the results of Experiments 3 and 4, this supports the notion that overconfidence by the powerful is driven by a subjective sense of power.

General discussion

Five experiments demonstrated that the psychological experience of power can lead to overconfidence in decision-making tasks. We used multiple instantiations of power and overconfidence, including an episodic recall task (Experiments 1–3), a measure of power in the workplace (Experiment 4), and random assignment to high- and low-power roles (Experiment 5). Across the experiments, we consistently found support for the prediction that power increases overconfidence in the accuracy of one's thoughts and beliefs. Furthermore, the effect persisted even when participants were financially motivated to be accurate (Experiments 4 and 5).

The current research established the critical role that the sense of power plays in the power-overconfidence link. First, sense of power, but not mood, mediated the link between power and confidence in Experiment 3. Second, two variables linked to a sense of power moderated the effect of power on overconfidence and money lost. The link between power and overconfidence was broken when one's access to power at work was not made salient to participants (Experiment 4) and when power holders were made to feel inadequate in the domain of power (Experiment 5). Thus, power appears to lead to overconfidence by activating a subjective feeling of power.

In contrast to the present research, overconfidence is often treated as an individual difference variable (e.g., Parker & Fischhoff, 2005). Accordingly, it could simply be the case that overconfident individuals are simply more likely to obtain power. In line with this notion, recent evidence indicates that overconfident individuals are, indeed, more likely than their less-confident peers to obtain power (Anderson & Brion, 2010). Importantly, by taking an experimental approach, the present research shows a causal relationship between power and overconfidence. Specifically, we find that the former increases the latter. Experiments 1, 2, 3, and 5 demonstrated that random assignment to high-power treatments elevated expressions of overconfidence among participants, except when they received feedback indicating a lack of competence (Experiment 5). Furthermore, Experiment 4 demonstrated a link between power at work and overconfidence only when the power was made salient to participants. Thus, we are able to rule out individual differences in overconfidence as the driver for our effects.

The present research is not without limitations. Our experiments were conducted in both laboratory and field settings, but it would be interesting to assess the presence of overconfidence more systematically with field studies conducted in the workplace, including the use of independent and dependent variables with greater face and construct validity. Some of our studies were conducted with small sample sizes, so replicating the effects observed here with larger sample sizes would be beneficial. Our results indicate that lacking perceived competence reduces overconfidence among the powerful, but other moderators would be interesting to investigate as well. Another notable limitation, in this and related work on the psychology of power, is the lack of attention to power's longitudinal effects. We are unable to answer the question as to whether the effects observed here will increase or, instead, decrease over time.

Contributions

The present findings offer several key contributions to both the power and decision making literatures. First, they move beyond existing work on power to show that power produces a form of overconfidence, referred to as overprecision (i.e., overconfidence in the accuracy of one's judgment; see Moore & Healy, 2008). Not only is this form of overconfidence documented in the present studies distinct from the better-than-average effect and the illusion of control, but it is also more proximal to many of the overconfident decisions committed by organizational actors (e.g., decision making in the context of mergers and acquisitions). Thus, it is both theoretically and practically relevant to organizational science.

Second, these findings contribute to a small but growing literature on the effects of power on performance. Although power improves performance on certain tasks (e.g., see Overbeck & Park, 2001), our results indicate that power can harm performance on tasks that require careful deliberation and accuracy – a common task for many leaders. If the sole task facing BP's executives had been to speak passionately, persuasively, and with charisma about the chances of success in their oil wells, the effects of a high sense of power would likely have improved their effectiveness. However, overprecision is not nearly as adaptive when accuracy-based decisions have consequences for both organizations and society. The present findings indicate that the effects of power, left unchecked, may serve to hinder their performance on such tasks (also see See, Morrison, Rothman, & Soll, 2011). Although power is often self-reinforcing which leads to stable hierarchies (Magee & Galinsky, 2008), the current findings suggest one potential path where power leads to its own demise. If the powerful bet their resources on misguided precision, they may find themselves stripped of their power. We add, however, that there may be some contexts in which overconfidence in one's knowledge could be adaptive. For example, entrepreneurs often work in domains marked by limited knowledge and high risk. Thus, feeling overconfident in one's knowledge may help in that it could provide the confidence needed to keep moving forward without giving up.

Third, the present research advances our theoretical understanding of power's psychological and behavioral effects by showing that the link between power and overconfidence is driven by a sense of power. The link was mediated by sense of power (Experiment 3) and moderated both by the salience of power (Experiment 4) and by the power holder's faith in his or her capacity to effectively fulfill the high-power role (Experiment 5). The implication of this effect is that in order for a position of power to produce overconfidence, and perhaps other forms of positive illusions, one's rank must be made salient and accompanied by a sense of power. To the degree that an actor lacks perceived competence in the domain of power, he or she will be less likely to display overconfidence and other approach-related tendencies. Our results offer important implications about which power holders are especially likely to demonstrate overconfidence and how it might be reduced. It could be useful for future work to examine additional factors that moderate the sense of power among the powerful, including personality traits, type of power possessed (e.g., French & Raven, 1959), and the nature of one's power motive (e.g., prosocial versus antisocial, Magee & Langner, 2008).

The present findings also advance the decision-making literature. Despite the critical importance of decisions made by powerful individuals in organizations and society, surprisingly little research has been done to specifically examine the effects of power on decision processes. The present work indicates that power may harm decision-making, particularly when accuracy is critical. It is our hope that future work can build on these findings by identifying cognitive repairs (Heath, Larrick, & Klayman, 1998) to alleviate overconfidence among high-powered individuals, a fait accompli for organizational actors. For example, powerful decision-makers

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Table A1
Players and their minor league statistics, Experiment 2.

	**Player A** Height: **5′ 10″** Weight: **189** Shoots: **Right-handed** Birthdate: **January 22, 1989** Birthplace: **Sweden**	**Games played** (2007–2008) 63	**Goals scored** (2007–2008) 43	**Assists** (2007–2008) 43	**Total points** (Goals + Assists) **86**	**Points per game** **1.37**
	**Player B** Height: **6′ 2″** Weight: **209** Shoots: **Right-handed** Birthdate: **MAR 17, 1987** Birthplace: **United states**	**Games played** (2007–2008) 48	**Goals scored** (2007–2008) 21	**Assists** (2007–2008) 28	**Total points** (Goals + Assists) **41**	**Points per game** **0.85**
	**Player C** Height: **6′ 1″** Weight: **188** Shoots: **Right-handed** Birthdate: **February 7, 1990** Birthplace: **Canada**	**Games played** (2007–2008) 61	**Goals scored** (2007–2008) 58	**Assists** (2007–2008) 47	**Total points** (Goals + Assists) **105**	**Points per game** **1.72**
	**Player D** Height: **6′ 1″** Weight: **201** Shoots: **Left-handed** Birthdate: **October 2, 1989** Birthplace: **Canada**	**Games played** (2007–2008) 67	**Goals scored** (2007–2008) 29	**Assists** (2007–2008) 67	**Total points** (Goals + Assists) **96**	**Points per game** **1.43**
	**Player E** Height: **6′ 1″** Weight: **206** Shoots: **Right-handed** Birthdate: **October 4, 1983** Birthplace: **Canada**	**Games played** (2007–2008) 40	**Goals scored** (2007–2008) 8	**Assists** (2007–2008) 29	**Total points** (Goals + Assists) **37**	**Points per game** **0.93**

may overcome their overconfidence not only via commonly recommended routes, such as assigning a devil's advocate or surrounding oneself with diverse opinions, but also by exposing themselves to situations that place checks and balances on their sense of power. Alternatively, perhaps merely reminding oneself of past mistakes in judgment could be enough to break through the high-power bubble in which the powerful often reside.

Finally, the results in our experiments highlight an interesting parallel between power and narcissism. Narcissistic individuals tend to display hubristic overconfidence in addition to engaging in risk-taking behaviors (Chatterjee & Hambrick, 2007). Other work indicates that narcissists seek out and are selected into positions of power (Brunell et al., 2008). Our findings uncover another piece of the puzzle, by demonstrating that obtaining power can lead to some of the same tendencies observed in narcissists. Future research exploring this possibility—as well as the potential moderating effects of narcissism on responses to power—would be fruitful.

Conclusion

The results of five experiments indicate that feeling powerful exacerbates overconfidence. In so doing, they highlight the presence of an interesting yet disturbing cyclical pattern: not only do overconfident people tend to acquire roles that afford power (Anderson & Brion, 2010), but the subjective sense of power brought on by these roles causes people to become further overconfident in their own knowledge. The present findings offer a compelling explanation for why the powerful often underperform and/or lose their power prematurely: overconfident decision making. For example, BP is projected to lose a staggering amount of money – some estimates are as high as $100 billion – as a result of the decisions that led to the oil spill described previously. Tony Hayward, the CEO of BP, lost his high-power role during the disaster. Steve Case, CEO of AOL, also lost his position of power after the merger with Time Warner failed to produce positive results. Similar stories can be told of leaders who make ill-informed decisions to wage unwinnable wars, launch new products that are destined to fail, or restructure their organizations in ways that neglect key competencies. Finding practical ways to soften and/or hold in check the causal relationship between power and overconfidence represents an important endeavor for future research. Helping the powerful safely escape this perilous aspect of power is not only in the interest of power holders, but is also in the interest of all who are daily impacted by their decisions.

Appendix A

See Table A1.

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