

Transparency for the Public Good: When Feeling Powerful Does and Does Not Affect Willingness to Sacrifice for the Environment

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ABSTRACT

In two studies, we tested the hypothesis that the effect of feeling powerful on willingness to sacrifice for the preservation of shared resources depends on whether such willingness is expressed publicly or privately. Participants were randomly assigned to either a power priming condition or a control condition and then completed measures assessing their attitudes, future intentions, and willingness to sacrifice for environmental conservation. Consistent with our hypothesis, the psychological experience of power decreased people's environmental attitudes and willingness to sacrifice for the environment, but only when these responses were made privately. These findings suggest that a sense of power, when experienced in private, influences the way individuals feel about and intend to engage in pro-environmental sacrifice. The findings also suggest that this effect may be eliminated when judgments are made transparently, in public view.

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IN 2010, SEVERAL MILLION BARRELS OF GAS AND OIL flowed from the Mocondo well to the seafloor of the Gulf of Mexico during the *Deepwater Horizon* oil spill, causing immense ecological devastation. The oil spill, recognized as the largest environmental disaster in U.S. history, sparked public outrage and forceful calls for British Petroleum and U.S. government officials to energize an immediate and effective response (ABC News/Washington Post, 2010). When environmental disasters like this occur, people often turn to executives, politicians, and other high-ranking policy makers to distribute financial and material resources to aid the recovery process. In times of need, leaders are called upon to visibly exercise their influence and power to address environmental problems.

Although leaders play a critical role in addressing environmental issues, the psychological experience of power itself may influence one's level of concern for the preservation of natural resources. There is growing evidence that power can have transformative effects on people's cognition and behavior. For example, feeling powerful tends to reduce perspective taking (Galinsky, Magee, Inesi, &

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Gruenfeld, 2006), empathy (van Kleef et al., 2008; Wolpin, Corneille, Yzerbyt, & Förster, 2011), and helping behavior (Lammers, Galinsky, Gordijn, & Otten, 2012). All of these responses are known to foster pro-environmental attitudes and behavior (Berenguer, 2007; Schultz, 2000). Although considerable research has investigated the psychological and behavioral effects of feeling powerful (for a review, see Sturm & Antonakis, 2015), there are many domains of belief and behavior in which the effects of feeling powerful are unknown. In the present research, we suggest that power fundamentally changes the way people think about, and sacrifice for, the preservation of natural resources. We view people's consumption of natural resources as part of a commons dilemma (cf. Dawes, 1980; Hardin, 1968) in which each individual's consumption, if excessive, can diminish the limited natural resources available to all.

Additionally, we suggest that an individual's decision to wield his or her power to preserve natural resources is influenced by whether this decision is made publicly or privately. It is well known that people sometimes alter their behavior when being observed by others and attempt to manage the impressions others form of them (Leary & Kowalski, 1990). Put simply, people sometimes behave differently in private than in public, especially when social image concerns are prominent. Although recent research has examined the relationship among social approval, self-monitoring, and social power (e.g., Sosik & Dinger, 2007), few studies have directly linked these motivations to environmental attitudes and behavior. The present investigation, therefore, was designed to merge the literatures on power and environmental psychology. Specifically, we tested the hypothesis that the effect of power on willingness to sacrifice for the environment depends on whether the decisions are made in public or private.

The human-nature relationship

Researchers have increasingly focused on human environmental behavior as the effects of our species' growing population and overconsumption of natural resources have become more apparent. There exists a large body of research on the psychological factors involved in sacrificial behaviors (i.e., committing time, effort, or money) that promote environmental conservation. For example, feeling both a sense of connection to nature (Leary, Tipsord, & Tate, 2008; Mayer & Frantz, 2004; Nisbet, Zelenski, & Murphy, 2009) and commitment to the environment (Davis, Green, & Reed, 2009) predict pro-environmental behavior. Connectedness to nature is also a significant predictor of children's interest in protecting the environment (Cheng & Monroe, 2012). Other research building on Rusbult's commitment model (Rusbult, 1980) has shown that both satisfaction with the environment and investments in the environment predict ecological commitment (Davis, Le, & Coy, 2011). Relatedly, willingness to sacrifice for the environment predicts environmentally responsible behavior (Iwata, 2002). Moreover, environmental identity—incorporating the natural environment into one's self-concept—is positively associated with connection and engagement with the natural environment (Brügger, Kaiser, & Roczen, 2011;

Clayton, 2003; Hinds & Sparks, 2008). These studies, taken together, reveal a wide range of attitudinal and motivational variables that underlie pro-environmental commitments.

Power and the natural environment

Power, or the asymmetric control of valued resources (Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003; Overbeck & Park, 2001), is a central feature of human social relationships. Consistent with the behavioral approach theory of power (Keltner et al., 2003), which states that power activates the behavioral approach system (Gray, 1982), research has shown that powerful individuals are action-oriented, goal-focused, and tend to approach desirable outcomes (Galinsky, Gruenfeld, & Magee, 2003; Guinote, 2007; Keltner et al., 2003; Maner, Kaschak, & Jones, 2010). By virtue of being less susceptible to punishment from others, powerful individuals can prioritize their own needs and goals with reasonably little interference from others (Gruenfeld, Inesi, Magee, & Galinsky, 2008; Slabu & Guinote, 2010).

Although few empirical studies have examined power motives and environmental behavior, there is a vast and growing literature on the psychological and behavioral effects of power that suggests these variables should be related. Galinsky et al. (2006) found that powerful individuals are less likely to take into account other people's perspectives. Perspective taking, however, plays a crucial role in environmental concern. Schultz (2000), for example, asked participants to view pictures of animals being harmed by pollution and instructed some participants to take the perspective of the animals' experience (as opposed to viewing the images objectively). Those who took the perspective of an animal being harmed, compared to those who remained objective, showed greater environmental concern (Schultz, 2000). Related to perspective taking, other research has shown that power holders are less compassionate toward the suffering of others (van Kleef et al., 2008). In the same way that power diminishes the tendency of individuals to care for the well-being of others, power may also reduce caring for the environment.

As mentioned earlier, feeling a sense of connection to nature is associated with environmentally responsible attitudes and behavior (Leary et al., 2008; Mayer & Frantz, 2004; Nisbet et al., 2009). Although connectedness to nature may foster pro-environmental responses, research consistent with the social distance theory of power (Magee & Smith, 2013), which suggests that power leads people to feel distant from others, implies that power holders may have difficulty feeling connected to nature. In work by Lammers et al. (2012), for example, participants anticipating a leadership role preferred solitary to interactive computer games (Study 1) and preferred working alone on a puzzle task (Study 2). These results fit with previous theorizing that power leads individuals to think of themselves independently of others (Lee & Tiedens, 2001) and to feel psychologically distant from others (Magee & Smith, 2013). Given this tendency to distance themselves socially, powerful individuals may make a similar distinction between themselves and nature, thus affecting their level of environmental concern.

For power holders, one potential consequence of diminished concern about environmental conservation is reduced willingness to sacrifice on its behalf. This idea has not been explicitly tested, but research does support the notion that power can influence similar prosocial and antisocial outcomes (see Hirsh, Galinsky, & Zhong, 2011). For example, Lammers et al. (2012; Studies 4 and 5) found that power can decrease people's willingness to help others. Research has also shown that powerful people, in contrast to those without power, spend more money on themselves than others despite already having access to valued resources (Rucker, Dubois, & Galinsky, 2011). This body of research has important implications for understanding how power might influence environmental responses. Power promotes self-focus and a tendency to prioritize the needs of the self over the needs of others. From this perspective, power may, by producing greater self-focus, foster a similar unwillingness to behaviorally or financially sacrifice for the environment.

Power in the public eye

It is a truism of social living that the presence of others can powerfully influence people's behavior. Some of this influence occurs because people are motivated to present favorable images of themselves to others (Leary, 1995; Leary & Kowalski, 1990). We suggest that high-power individuals can attempt to manage the impressions others form of them through public displays of environmental responsibility. In support of this notion, Griskevicius, Tybur, and Van den Bergh (2010) examined whether activating status motives led people to engage in pro-environmental responses in public versus private. Across several studies they found that status increased preference for environmentally friendly ("green") products relative to traditional ("non-green") products, but only when these preferences were made in public. Although status, which is a function of others' respect, is distinct from power (Magee & Galinsky, 2008), the obvious relation between these constructs makes Griskevicius et al.'s (2010) work consistent with our suggestion that powerful individuals strategically, often publically, express support for the environment to create a positive social image.

Many business leaders and executives also use self-presentation tactics to influence a wide range of consumer-related outcomes. Increasingly, firms are motivated to connect their company brand to slogans and campaigns that heighten environmental awareness. How do institutional impression management strategies affect public perceptions of commitment to the environment? To address this question, Bansal and Kistruck (2006) asked participants to review the websites of two oil companies that differentially displayed characteristics indicative of commitment to the environment. Perceptions of commitment were highest when the Web sites displayed details about the company's environmental initiatives and highlighted the company's eco-friendly achievements (Bansal & Kistruck, 2006). Related research has shown that invoking social norms (e.g., "The majority of hotel guests reuse their towels") promotes greater conservation (Goldstein, Cialdini, & Griskevicius,

2008), which implies that business leaders can foster ecologically responsible behavior while simultaneously showcasing their dedication to the environment. Self-presentation, then, plays an important role in environmental decision-making and behavior at both the individual and institutional levels. It remains largely unknown, however, how experiencing power affects attitudes and willingness to sacrifice for the environment when others are (or are not) watching.

Overview of the current research

In the current research, we tested the hypothesis that power's effect on willingness to sacrifice for the environment depends on the transparency of the sacrifice. In Study 1, participants were randomly assigned to either a power priming condition or a control condition and then completed measures assessing their willingness to sacrifice. Whereas participants in the public condition indicated their responses in the presence of the experimenter, participants in the private condition placed their completed responses in a sealed envelope. In Study 2, we used the same priming procedure as in Study 1 but included different dependent variables to replicate and extend the previous results. Across both studies, we predicted that the psychological experience of power would decrease people's environmental attitudes and willingness to sacrifice for the environment, but only in private. If our general hypothesis is correct, then people primed with power, when left alone to form their attitudes free of public scrutiny, should show significant decreases in their willingness to sacrifice relative to control participants and participants whose responses were public.

Study 1

In Study 1, we predicted that the psychological experience of power would (1) lower people's attitudes toward sacrificing for the environment, (2) decrease people's future intentions to financially sacrifice for the environment, and (3) decrease people's willingness to sacrifice for the environment. We predicted these effects would only emerge in the private condition.

Method

Participants

Eighty-five undergraduates (68 women, 17 men, $M_{\text{age}} = 19.78$) at a large midwestern university completed the study in exchange for credit toward a course requirement. Fifty-five participants were European American, 23 were African American, 3 were Asian American, 2 were Hispanic American, and 2 were Middle-Eastern American.

Materials

Participants expressed their attitudes toward sacrificing for the environment by responding to semantic-differential items such as, "For me, sacrificing for the sake of environmental conservation would be... (1 = *bad*, 7 = *good*)" and

“For me, environmental conservation is ... (1 = *unpleasant*, 7 = *pleasant*).” We averaged responses to create a composite index of participants’ attitudes toward sacrificing for the environment ($\alpha = .67$), with higher scores indicating more favorable attitudes. The measure demonstrated marginal internal consistency.

Future intentions to financially sacrifice for the environment were measured with three items, focused on plans for the future, that employed a 1 (*strongly disagree*) to 7 (*strongly agree*) scale: “If it helps protect the environment, I will pay higher prices for things in the future,” “If it helps protect the environment, I will support raising taxes that I will have to pay in the future,” and “If it helps protect the environment, I will accept cuts to my standard of living (i.e., financial standing) in the future.” We averaged responses to create a composite index of participants’ likelihood of financially sacrificing in the future ($\alpha = .83$).

To measure willingness to sacrifice, participants completed the five-item Willingness to Sacrifice for the Environment (WSE) scale (Davis et al., 2011). Example items included, “I am willing to give things up that I like doing if they harm the natural environment” and “Even when it is inconvenient to me, I am willing to do what I think is best for the environment” (1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .88$).

Procedure

Upon arriving to the lab, participants were randomly assigned to complete a priming essay designed to elicit either feelings of power or a control state (Galinsky et al., 2003). Participants in the power condition wrote about a time in which they had power over another individual or individuals. (“Power” was defined as a situation in which participants controlled the ability of another person or persons to get something they wanted, or were in a position to evaluate those individuals; see Galinsky et al., 2003). Participants in the control condition wrote about the last time they went to the grocery store. This procedure has been used extensively in previous research as an effective way to activate the psychological experience of power (Anderson & Galinsky, 2006; Galinsky et al., 2003).

Following the essay prime, participants completed the primary dependent measures as part of a paper questionnaire. Participants were randomly assigned to complete these measures either alone in the lab (private condition) or in the presence of the experimenter (public condition). The experimenter read the following instructions to participants in the private condition: “This is the paper questionnaire. After you’ve finished both sides, to keep your answers as private as possible, please put the completed questionnaire completely inside the envelope so your answers are not exposed. Then, please put the closed envelope in that box.” The experimenter gestured to a box on the other side of the room into which participants could place their response envelope. The experimenter read the following instructions to participants in the public condition: “This is the paper questionnaire. After you’ve finished both sides, please give it back to me so I can look it over. I have to enter it into the computer soon.”

After completing the primary measures, participants completed a few additional filler measures (e.g., 16-item Narcissistic Personality Inventory; Ames, Rose, &

Anderson, 2006) to mask the focus on environmental variables. In the public condition, the experimenter took the completed paper questionnaire to a visible workstation and pretended to look over the participant's responses before entering them into the computer. Next, participants completed two manipulation check items: "My answers on the paper questionnaire have already been looked at by someone" and "My answers on the paper questionnaire have been kept very private" (1 = *not at all true*, 7 = *very true*). Finally, participants were fully debriefed and thanked for their participation.

Results

Manipulation checks

Compared to participants in the private condition ($M = 1.00$, $SD = .00$), participants in the public condition ($M = 4.05$, $SD = 2.44$) were more likely to believe that their answers on the paper questionnaire had been looked at by the experimenter, $d = 1.77$. After participants in the public condition handed their questionnaire to the experimenter, they continued the study while the experimenter relocated to a different workstation to ostensibly enter the data into the computer. The average score in the public condition may have been higher had participants been instructed to focus on the experimenter's activity rather than continue the study.

Similarly, compared to participants in the public condition ($M = 6.39$, $SD = 1.20$), participants in the private condition ($M = 6.93$, $SD = .47$) were more likely to believe that their answers on the paper questionnaire had been kept private, $d = .60$. The high average score in the public condition may have resulted from participants interpreting the item to mean "kept very private from people other than the experimenter." Nevertheless, both manipulation check items confirmed that the participants had a greater sense of privacy in the private condition than in the public condition.

Primary results

In the private condition, participants primed with power ($M = 4.42$, $SD = 1.10$) expressed less positive attitudes toward sacrificing for the environment than control participants ($M = 5.16$, $SD = .81$), $d = .77$. In the public condition, the difference between powerful ($M = 5.33$, $SD = .80$) and control participants ($M = 5.23$, $SD = .96$) was much smaller and in the opposite direction, $d = -.11$ (see Figure 1). (The results of planned-contrast significance tests for all primary results are available upon request.)

In the private condition, participants primed with power ($M = 3.35$, $SD = 1.52$) were less willing to sacrifice financially for the environment in the future than control participants ($M = 4.32$, $SD = 1.24$), $d = .70$. In the public condition, the difference between powerful ($M = 4.48$, $SD = 1.07$) and control participants ($M = 4.29$, $SD = 1.59$) was much smaller and in the opposite direction, $d = -.14$ (see Figure 2).

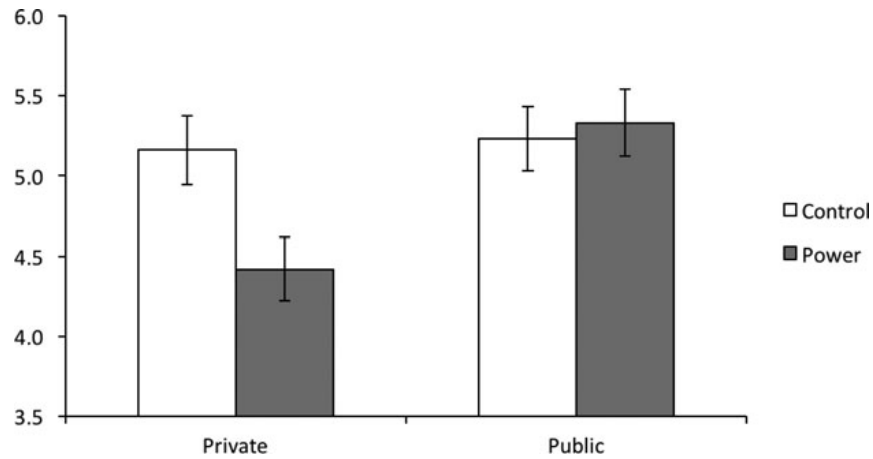


Figure 1. The effect of power priming on attitudes toward sacrificing for the environment in public versus private. A sense of power significantly lowered participants' attitudes toward sacrificing in the private condition, but not the public condition.

In the private condition, participants primed with power ($M = 4.23$, $SD = 1.12$) were less willing to sacrifice behaviorally for the environment than control participants ($M = 4.89$, $SD = 1.00$), $d = .62$. In the public condition, the difference between powerful ($M = 5.40$, $SD = .83$) and control participants ($M = 5.03$, $SD = 1.14$) was smaller and in the opposite direction, $d = -.37$ (see Figure 3).

Discussion

We hypothesized that the psychological experience of power would decrease people's attitudes, future intentions, and behavioral willingness to sacrifice for the environment, but only when these responses were made in private. The results from Study 1 confirmed our hypotheses. In privacy, a sense of power significantly reduced people's attitudes toward sacrificing for the environment, future intentions to

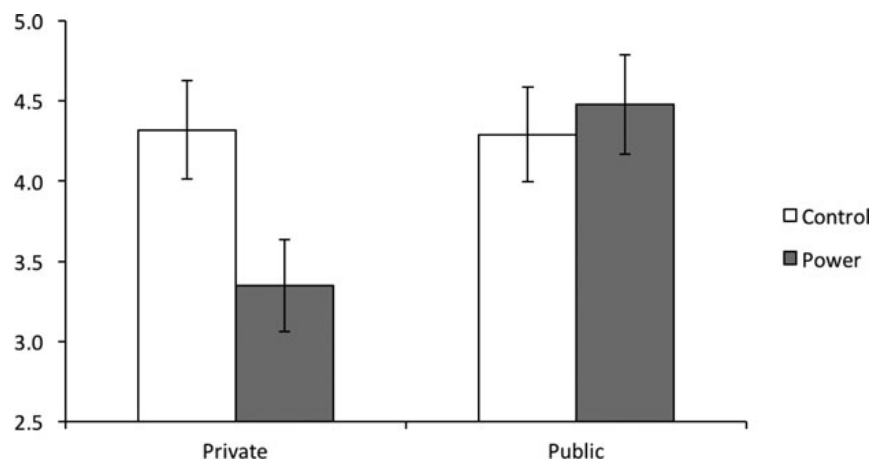


Figure 2. The effect of power priming on future intentions to financially sacrifice for the environment in public versus private. A sense of power significantly reduced participants' future intentions to financially sacrifice in the private condition, but not the public condition.

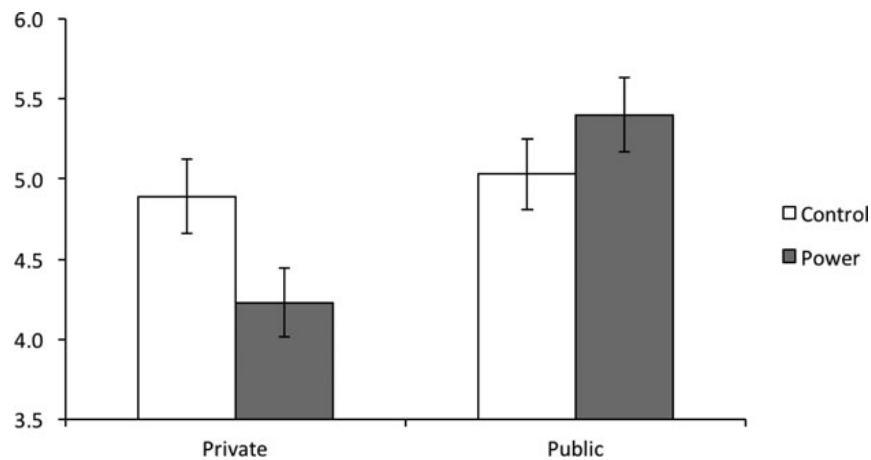


Figure 3. The effect of power priming on willingness to sacrifice for the environment in public versus private. A sense of power significantly reduced participants' willingness to sacrifice for the environment in the private condition, but not the public condition.

financially sacrifice, and willingness to engage in environmentally conscious behavior relative to public power. These findings suggest that a sense of power, when experienced in private, fundamentally influences the way individuals feel about pro-environmental sacrifice and how they intend to behave toward the natural environment. In Study 2, we aimed to replicate the results from Study 1 using a different geographic sample and different (but conceptually related) dependent measures.

Study 2

Our predictions were the same as in Study 1, namely, that the psychological experience of power in private (but not public) would lower people's attitudes toward sacrificing for the environment and decrease people's willingness to financially sacrifice for the environment.

Method

Participants

One hundred seventeen undergraduates at a large northwestern university participated in exchange for credit toward a course requirement. Two participants were excluded for failing a manipulation check, six participants were excluded for correctly identifying the purpose of the study, and three participants were excluded for not following directions. The final sample consisted of 106 undergraduates (50 women, 56 men, $M_{\text{age}} = 21.75$). Ninety-one participants were European American, 2 were Asian American, 1 was African American, and 1 was Native Hawaiian/Other Pacific Islander. Five participants were more than one race, and 6 participants did not report their race.

Materials

Baseline levels of power were measured with the Generalized Sense of Power (GSP) scale (Anderson & Galinsky, 2006) and the Achievement Motivation Scale (AMS; Cassidy & Lynn, 1989). The AMS includes three subscales on power-related constructs: dominance ($\alpha = .81$), competitiveness ($\alpha = .73$), and status/prestige ($\alpha = .80$). We included these measures to assess any preexisting differences in sense of power before manipulating power.

Participants completed five items measuring their baseline levels of environmental behavior (Feygina, Jost, & Goldsmith, 2010; Study 2). Participants indicated their frequency of engaging in environmentally friendly behaviors such as recycling and donating money to pro-environmental organizations (1 = *none of the time*, 5 = *all of the time*). We averaged responses to create a composite index of participants' baseline environmental behavior ($\alpha = .72$), with higher scores indicating greater pro-environmental behavior.

Three measures of attitudes, beliefs, and willingness to sacrifice were used as dependent measures. Participants indicated their attitudes toward the environment by responding to two dichotomous items from the 1999–2001 World Values Survey (2005). On the first item, participants indicated whether they thought protecting the environment should be given priority, even if it leads to slower economic growth and job loss, or whether economic growth and job creation should be the top priority, even if nature consequently suffers. On the second item, participants indicated whether they thought human beings should master or coexist with the environment. The first item was reverse-scored and combined with the second item to create an internally consistent index of environmental attitudes ($r = .28, p = .004$), with higher scores indicating more favorable attitudes.

To assess attitudes and beliefs about the human-environment relationship, participants completed the 15-item New Ecological Paradigm (NEP) scale (Dunlap, Van Liere, Mertig, & Jones, 2000). Participants indicated their agreement with statements such as “Humans have the right to modify the natural environment to suit their needs” and “Humans are severely abusing the environment” (1 = *strongly disagree*, 5 = *strongly agree*). We reverse-scored and averaged responses to create a composite index of participants' attitudes about the human-environment relationship ($\alpha = .84$), with higher scores indicating greater environmental concern.

To assess willingness to financially sacrifice for the environment, participants responded to the following three items from the World Values Survey: “I would give part of my income if I were certain that the money would be used to prevent environmental pollution,” “I would agree to an increase in taxes if the extra money were used to prevent environmental pollution,” and “The government should reduce environmental pollution but it should not cost me any money” (1 = *strongly disagree*, 4 = *strongly agree*). We reverse-scored the third item and averaged responses to create a composite index of participants' willingness to financially sacrifice for the environment ($\alpha = .55$), with higher scores indicating greater willingness to sacrifice.

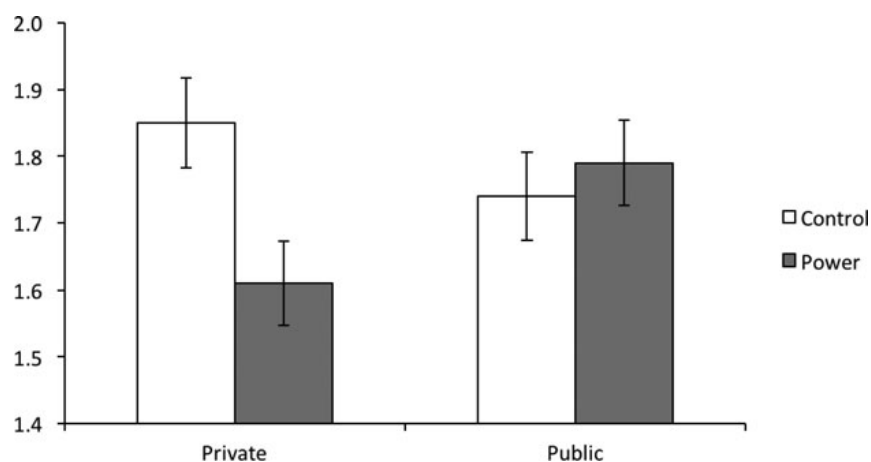


Figure 4. The effect of power priming on attitudes toward sacrificing for the environment (World Values Survey) in public versus private. A sense of power significantly lowered participants' attitudes toward sacrificing in the private condition, but not the public condition.

Procedure

The same priming essay, private vs. public manipulation, and manipulation check items were used as in Study 1.

Results

Manipulation checks

Participants in the power and control conditions did not significantly differ in baseline levels of power on the GSP ($p = .55$) or any of the AMS subscales (all $ps > .26$), nor were there baseline differences in frequency of environmental behavior ($ps > .16$).

Compared to participants in the private condition ($M = 1.13$, $SD = .59$), participants in the public condition ($M = 5.36$, $SD = 1.77$) were more likely to believe that their answers on the paper questionnaire had been looked at by the experimenter, $d = 3.21$. Similarly, compared to participants in the public condition ($M = 5.08$, $SD = 1.96$), participants in the private condition ($M = 6.51$, $SD = 1.27$) were more likely to believe that their answers on the paper questionnaire had been kept private, $d = .87$.

Primary results

In the private condition, participants primed with power ($M = 1.61$, $SD = .40$) expressed less positive attitudes toward sacrificing for the environment than control participants ($M = 1.85$, $SD = .23$), $d = .74$. In the public condition, the difference between powerful ($M = 1.79$, $SD = .29$) and control participants ($M = 1.74$, $SD = .36$) was much smaller and in the opposite direction, $d = -.15$ (see Figure 4).

These results are further corroborated by responses on the NEP. In the private condition, participants primed with power ($M = 4.34$, $SD = .59$) reported lower NEP scores than control participants ($M = 4.66$, $SD = .50$), $d = .59$. In the

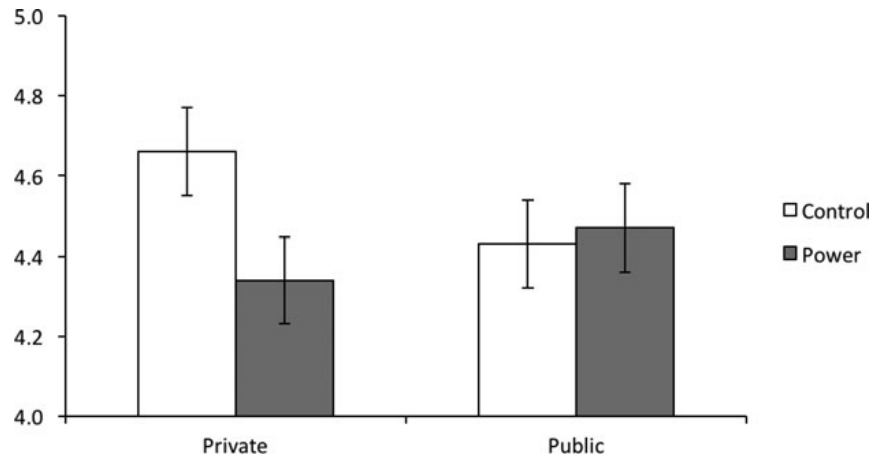


Figure 5. The effect of power priming on New Ecological Paradigm (NEP) scores in public versus private. A sense of power significantly reduced participants' NEP scores in the private condition, but not the public condition.

public condition, the difference between powerful ($M = 4.47$, $SD = .59$) and control participants ($M = 4.43$, $SD = .56$) was much smaller and in the opposite direction, $d = -.07$ (see Figure 5).

In the private condition, participants primed with power ($M = 2.53$, $SD = .67$) were less willing to sacrifice financially for the environment than control participants ($M = 2.83$, $SD = .63$), $d = .46$. In the public condition, the difference between powerful ($M = 2.69$, $SD = .61$) and control participants ($M = 2.58$, $SD = .65$) was smaller and in the opposite direction, $d = -.18$.

Discussion

Results from Study 2 provide additional support for our hypothesis: The psychological experience of power reduced people's attitudes and willingness to financially sacrifice for the environment, but only in private. The effect for willingness to financially sacrifice for the environment fell short of statistical significance (perhaps because the internal consistency of the measure was poor) but conformed to the same patterns that emerged in Study 1. The combined findings of both studies suggest that feeling powerful in solitude changes the way individuals think about, and sacrifice for, the common good of the environment.

General discussion

As the world's natural resources become increasingly strained, the environmental consequences of policy makers' decisions can be far-reaching. Organizations and governments face social dilemmas of many kinds (cf. Stroebe & Frey, 1982), and leaders have choices in how they resolve these dilemmas. Our two studies focused on beliefs, attitudes, and intentions about sacrificing for the environment, and the results we obtained across these dependent variables suggested a condition under which a sense of power might reduce motivation to conserve a shared resource at one's own expense. A sense of power seemed to reduce such motivation unless

responses were open to someone else's scrutiny. In private, a sense of power reduced willingness to sacrifice for the environment, whereas in public, it had no such effect.

Galinsky et al. (2003; Experiment 3) demonstrated that a sense of power encouraged taking resources in a simulated commons dilemma, but also encouraged contributing resources in a simulated public goods dilemma. Our results were only partially consistent with these findings. In our private condition, participants with a sense of power expressed less willingness to sacrifice for the sake of conservation (even though it is widely understood that the environment is a shared set of natural resources upon which we all depend). We did not observe, however, that participants with a sense of power were more willing to contribute to shared natural resources. However, our measures were very different from Galinsky et al.'s (2003), and we did not explicitly frame natural resources as a public good.

An additional way that our findings differ from those that have emerged in past studies is that we examined transparency (i.e., a public vs. private variable) as a moderator of sense of power. Our findings raise the possibility that transparency moderates the effects of power in several domains. For example, there is evidence that individuals with a heightened sense of power show less compassion toward the suffering of others and are less willing to help others (Lammers et al., 2012; van Kleef et al., 2008). When open to someone else's scrutiny, however, such individuals may display increased compassion and willingness to help. Another domain in which transparency may moderate the effects of power is the allocation of financial resources to the self versus others. Building on the work of Rucker et al. (2011), future research might explore whether individuals who feel powerful spend more on themselves than others in private but spend more on others than themselves in public. Thus, in addition to highlighting an important boundary condition regarding the link between a sense of power and environmental concern, the current studies suggest that transparency could moderate some of the effects of power established in prior literature.

Theoretical and practical implications

Our findings have important implications for understanding how social processes influence environmental outcomes. Previous research has identified a wide range of responses related to environmental concern, including connectedness to nature (Mayer & Frantz, 2004), commitment to the environment (Davis et al., 2009), environmental identity (Clayton, 2003), and willingness to sacrifice (Iwata, 2002). The current research suggests that making environmental decisions transparent and open to the public may influence such responses, and perhaps decisions as well.

This research also contributes to the growing literature on the psychological, affective, and behavioral consequences of power. Although not designed as a test of extant theories of power, our findings may have implications for the behavioral approach theory of power, which states that powerful individuals are agentic and tend to approach desirable goals and outcomes (Galinsky et al., 2003; Keltner et al., 2003). It is possible that our experimental manipulation created a goal conflict that

forced participants to pursue the outcome that was most personally beneficial. For powerful individuals, sacrificing for the environment may not have been a particularly desirable goal, but when presented with a conflicting goal that yielded significant social benefits (i.e., promoting a positive self-image), they were motivated to approach this latter outcome. The notion that high-power individuals prioritize their own needs and goals over others' needs is supported by recent research by Bendahan, Zehnder, Pralong, and Antonakis (2015), which found that powerful individuals playing the dictator game violated social norms and acted in their own self-interest at the expense of the common good. Social transparency may buffer powerful individuals from acting selfishly and approaching non-communal goals.

The current studies may have practical implications for promoting pro-environmental decision-making among leaders and citizens alike. As our growing population places greater demand on natural resources, our species' collective responsibility for preserving and protecting the environment grows. One might assume that leaders have more responsibility than others, especially when leaders have publically supported pro-environmental values and policies. Our results, however, highlight the possibility that when deliberations occur in private, a leader's sense of power may interfere with his or her willingness to enact pro-environmental policies. Similarly, a sense of power within private situations may affect the decisions of regular citizens, who also play an obvious role in our species' ecological impact.

Limitations and future research

Several limitations of the current studies should be considered when interpreting our findings. The power priming essay manipulation (Galinsky et al., 2003) used in both studies suited our purposes because we were primarily interested in feelings of power rather than the ability to exercise power over others. Although we cannot be sure the effects we observed would replicate with less subtle experimental manipulations, we anticipate that using a more immersive manipulation would yield stronger findings.

Another possible limitation of the essay prime is that it invokes the recollection of power rather than a sense of power in the moment. Still, the demonstrated efficacy of the essay prime throughout the power literature underscores its utility in activating the psychological experience of power. This limitation also raises the need in future studies to differentiate between a sense of power (the focus of the current studies) and actual power. Future research might explore whether giving people control over resources or placing people in a position of power over others (as part of a social hierarchy) similarly decreases environmental concern.

An additional limitation pertains to the fact that we measured attitudes and behavioral intentions rather than actual environmental behavior. The road to environmental behavior is often paved with good intentions, but there may be situations in which the attitudes and intentions measured in our studies do not correspond with lasting behavioral sacrifices for the environment. Related to this point, we measured behavioral intentions with items such as, "If it helps protect the environment,

I will pay higher prices for things in the future.” Although these future-tense items helped participants focus on their behavioral plans, using specific behavioral intention stems (e.g., “I intend/not intend”) in future research may help researchers connect specific behavioral intentions to specific environmental outcomes.

Although we opted for concise and direct measures of people’s attitudes, future intentions, and willingness to sacrifice for environmental conservation, the strength of our effects may have been constrained by the brevity, and sometimes the lower internal consistency, of our measures. For example, the attitudes measure and the willingness to sacrifice measure from the World Values Survey contained only two and three items, respectively. We anticipate that using more comprehensive and nuanced measures in future research would strengthen the present findings.

Despite these limitations, there are several directions for future research that have the potential to inform our understanding of the human-nature relationship. In the current studies, we focused on the psychological experience of power; recently, however, researchers have begun exploring the consequences of lacking power on cognition and behavior (e.g., Lee & Schnall, 2014; Smith, Jostmann, Galinsky, & van Dijk, 2008). For example, Case, Conlon, and Maner (2015) found that lacking power increases people’s desire for social affiliation, which is consistent with the idea that powerless individuals rely on their relationships with others in order to achieve desired outcomes (Keltner et al., 2003). Building on this work, future research might explore how lacking power influences environmental concern and whether this relationship is moderated by transparency. One possibility is that lacking power increases individuals’ willingness to sacrifice for the environment, and this effect is amplified in public (as doing so would make visible to others one’s willingness to cooperate for a common good). Future research would also benefit from inclusion of individual difference and personality variables as potential moderators of the relationship between sense of power and willingness to sacrifice for the environment in private settings.

Conclusion

Robert F. Kennedy (1964) wrote, “The problem of power is how to achieve its responsible use rather than its irresponsible and indulgent use—of how to get men of power to live for the public rather than off the public” (p. 6). The findings reported in this paper affirm Kennedy’s assumption that power has—under the right conditions—the potential to be used for the public’s benefit. But to make power’s responsible use more likely, some degree of transparency may be desirable.

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