

Effects of power on emotion and expression during a controversial group discussion

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Abstract

The approach/inhibition theory of power proposes that elevated social power increases the experience and expression of positive emotions and that reduced social power increases the experience and expression of negative emotions (Keltner, Gruenfeld, & Anderson, 2003). The evidence to date for these proposed relationships is correlational. Studies that have attempted to find a causal link between power and emotions have failed to do so. The current study manipulated social power in 61 three-person groups that engaged in a meaningful discussion (explanations for poverty in the US) that produced disagreements and strong emotions. High power individuals experienced and expressed more positive emotions and less anger than low power individuals did. High power individuals were also more likely than low power individuals to openly express their opinions during the group discussion. Implications for theory and future research are discussed. Copyright © 2006 John Wiley & Sons, Ltd.

Power is a core social motive (Fiske, 2004; McClelland, 1961; Winter, 1973). Defined as relative control over another's valued outcomes (Dépret & Fiske, 1993; Emerson, 1962; Fiske & Berdahl, in press; Keltner, Gruenfeld, & Anderson, 2003; Kipnis, 1976; Thibaut & Kelley, 1959), power can be used to control others and get one's way, leading to a relatively positive experience of the world. Social psychological theories of power have focused on how power affects specific classes of social cognition, such as attribution (Kipnis, 1972) and stereotyping (Fiske, 1993), and specific classes of behavior, such as smiling, touching, and visual dominance (e.g., Dovidio & Ellyson, 1985; Goffman, 1956; Hall, Coats, & LeBeau, 2005; Henley, 1977). Recently, Keltner, Gruenfeld, and Anderson (2003) provided a broader theory of power that unifies many of its potential effects by linking the presence or absence of power to approach and inhibition, respectively (Gray, 1994). One of the unique contributions of the approach/inhibition theory of power is that it makes predictions for emotions (Keltner et al., 2003).

Keltner and colleagues propose that elevated social power activates the approach system and reduced social power activates the inhibition system. By definition, the powerful have relative control

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over valued outcomes. This means they can act with relatively little interference or constraint from others who lack such control. Powerholders therefore experience relatively little fear of reprisal from others for their actions, and are likely to perceive rewards and opportunities in their environment. This focus on rewards helps to activate the approach system. Those low in power, by contrast, have relatively little control over valued outcomes. They must consider the reactions of the powerful before acting because the powerful can punish them if they disapprove of their actions. Those low in power are therefore likely to perceive threats and uncertainty in their environment. This focus on threats helps to activate the inhibition system.

The approach and inhibition systems are associated with a variety of cognitive, behavioral, and affective outcomes (Keltner et al., 2003). An activated approach system is associated with more automatic information processing, behavioral disinhibition, and positive emotions. An activated inhibition system, on the other hand, is associated with more thorough information processing, behavioral inhibition, and negative emotions. By linking power with these systems, the approach/inhibition theory of power is able to make predictions for the effects of power on a variety of outcomes, including emotions and social behavior. Its ability to do so represents a unique contribution of the theory. Several studies have already focused on the theory's predictions for behavioral expression and inhibition (Anderson & Berdahl, 2002; Galinsky, Gruenfeld, & Magee, 2003; Smith & Bargh, 2003). The theory's predictions for emotions—that elevated power increases the experience and expression of positive emotions and reduced power increases the experience and expression of negative emotions—has received less attention and support.

The notion that those with power are likely to experience and express relatively positive emotions while those without power are likely to experience and express relatively negative ones may seem obvious. However, there are reasons why the opposite may be true. As relative control over others' outcomes, power comes with opportunities to use this control for one's own satisfaction, which might increase positive emotions, but it also comes with responsibility for others, which might be a burden (e.g., Bugental & Lin, 2001; Chen, Lee-Chai, & Bargh, 2001) and increase negative emotions. A lack of power, or relatively little control over others' outcomes, is accompanied by relative dependence on others, which might increase negative emotions, but is also accompanied by relative freedom from responsibility for others, which might be pleasant and increase positive emotions. Furthermore, research has shown that people associate the emotion of anger with the powerful and the emotion of guilt with the powerless (Tiedens, Ellsworth, & Mesquita, 2000), an association that is proposed to be based on actual differences in experiences and expressions of emotions (Tiedens, 2000). If anger, a negative emotion, is experienced more by those with power than by those without it, then Keltner et al.'s (2003) prediction that reduced power leads to more negative emotions is incorrect, or at least is qualified by the particular negative emotion considered. Recent cross-cultural research suggests that people believe the powerful elicit anger and contempt in others, supporting Keltner et al.'s (2003) prediction, but points out that research is needed on how power affects actual emotional experience and expression (Mondillon et al., 2005).

Most evidence to date in support of the predictions made by the approach/inhibition theory of power is correlational rather than causal (Keltner et al., 2003). A few studies have attempted to manipulate power to test the theory's predictions (Anderson & Berdahl, 2002; Galinsky et al., 2003; Smith & Bargh, 2003). Anderson and Berdahl (2002) gave one individual power over the outcomes of another in dyads and had the dyads engage in a decision-making task. Those with power had more influence over the groups' decisions, reported expressing their true opinions more during the discussion, and perceived more liking by their partners than did those without power. Manipulated power was not, however, related to emotions or inhibition.

Galinsky and colleagues (2003) assigned participants to leader and subordinate roles in one experiment and in two other experiments had participants recall a time when they had power over

someone or when someone had power over them. Participants then made decisions in isolation. Those in high power conditions were more likely than those in low power (and control) conditions to choose to take action: to take a card in a simulated game of blackjack, to move an annoying fan out of the way, and to take from or contribute to a common resource. Galinsky and colleagues' third experiment examined the effects of power on mood but found none.

Smith and Bargh (2003) examined relationships between power and the accessibility of positive constructs in memory and mood in four experiments. Study 1 manipulated power with titles (attorney or judge, using Overbeck & Park's, 2001, procedure) and measured individual response times to positive or negative words on a computer screen. Study 2 manipulated power with seating assignments (using Chen et al.'s, 2001, procedure) and had individuals conduct a word-completion task. Studies 3 and 4 primed power (using Galinsky et al.'s, 2003, procedure) and had individuals approach or avoid words on a computer screen or choose a course of action in a hypothetical decision scenario (respectively). Those in the high power conditions were significantly more likely than those in the low power ones to respond quickly to positive rather than negative words (Study 1), make fewer negative word fragment completions (Study 2), approach rather than avoid a stimulus on a computer screen with a mouse pointer (Study 3), and make risky choices (Study 4). Power was not significantly related to mood in any of the four experiments, however.

These studies provide partial support for Keltner and colleagues' (2003) predictions that power facilitates a reward orientation, action, and expression, but no studies to date provide support for its predictions regarding emotions. Anderson and Berdahl (2002) concluded that power differences that affect emotions may be too difficult to manipulate experimentally. If this is the case, it does not bode well for our ability to study the causal effects of power.

A factor common to all of these studies is that they involved relatively meaningless behaviors that are unlikely to evoke strong emotions. Anderson and Berdahl (2002) nicely manipulated real power differences between participants and studied real social interactions, but their groups engaged in a decision-making task that did not involve actual issues or people: groups allocated hypothetical bonus money among hypothetical employees of a hypothetical organization. Not surprisingly, this task failed to elicit strong emotions (an average of 0.48 for negative emotions on a scale that ranged from 0 to 8). In their study that measured the effect of power on mood, Galinsky and colleagues (2003) had individuals act in isolation and make choices of little or no social consequence or meaning. Not surprisingly, power was not related to mood. Smith and Bargh (2003) studied individual responses to words on a computer screen, word-completion tasks, and hypothetical decisions. In three of their four studies individuals were alone in the room in which they completed the task, and in none of the studies did power affect mood.¹

The emotional effects of power are likely to be weak when a decision or an interaction involves a relatively meaningless choice or action. When the behavior or social interaction involves something more meaningful, the emotional effects of power should be stronger. For example, when discussing which appetizer to order over dinner, individuals who differ in power may not differ in their emotional experiences. When discussing a controversial issue about which the individuals care, however—such as social discrimination—individuals who differ in power may also differ in their emotional experiences. The effects of power are likely to be stronger when a social interaction involves something

¹It is unfortunate that social psychologists mostly study social power as an individual characteristic that influences a lone individual's perceptions and behaviors, rather than as a structural characteristic of a social relation that influences how people interact with one another and their responses to this interaction. After all, social power is a relative phenomenon: it is not an individual 'attribute' but a structural property of a social relation. It does not make sense to say someone has social power without specifying *over whom* (Arendt, 1960; Emerson, 1962; French & Raven, 1959; Wartenberg, 1990). Sociologists have argued against applying the concept of power to inter-individual relations that are independent of the wider social system (Parsons, 1999; Poulantzas, 1973, 1978). Studying existing power relations in actual social systems is certainly important. We believe it is also important, however, to tease apart the consequences from the causes of social power through experimental manipulation and the study of its inter- and intra-individual effects.

meaningful to participants. This is because powerholders are more likely to punish those who differ with them and to reward those who agree with them on important issues than on trivial ones. The theoretical rationale for tying power to social disinhibition and emotions is that powerholders not only experience more rewards and fewer threats in their environments than those without power, but that powerholders control these rewards and threats (Keltner et al., 2003). This enables powerholders to act with relative impunity, while those without power must anticipate the wrath of the powerful they displease. We would therefore expect the relationship between power, emotions, and disinhibition proposed by Keltner and colleagues (2003) to be most likely to emerge during social interactions that involve a meaningful exchange between participants.

Whereas prior studies failed to find a relationship between power and emotions, we suspected this relationship would emerge when participants engage in a discussion of a meaningful and controversial topic that was likely to produce disagreement. We conducted a study in which we manipulated power according to its definition of relative control over others' outcomes and had participants engage in face-to-face discussions of the reasons for poverty in the US, a topic that elicited differences of opinion, heated debates, and strong emotions. We studied 61 three-person groups in which one member was given power over the other two.

Consistent with the predictions made by the approach/inhibition theory of power (Keltner et al., 2003), we expected that having social power would increase the experience and expression of positive emotions and that lacking power would increase the experience and expression of negative emotions. We also expected elevated power to increase opinion expression and reduced power to increase inhibition. Because prior research suggests that people associate anger with high power individuals and guilt with low power individuals (Tiedens, 2000; Tiedens, Ellsworth, & Mesquita, 2000), we also examined the effects of power on the specific negative emotions of anger and guilt. This allowed us to examine whether the approach/inhibition theory of power is correct in predicting that reduced power leads to negative emotions generally, or whether power affects negative emotions differently depending on the particular emotion.

METHOD

Participants

Participants were 183 students (90 men and 93 women) from introductory Psychology, Organizational Behavior and Marketing courses at a large public university on the US West Coast. They were 19.83 years old on average ($SD = 3.94$). 47.5% of participants were Asian-American, 36.6% were Caucasian, 7.7% were Latina/o, 3.8% were African-American, and 4.4% were of other ethnicities. Approximately 12 to 16 participants of the same sex were scheduled for each 1-hour session, so all 61 groups studied were same-sex groups.

Procedure

Participants were seated around one large conference table and were informed that they would have the opportunity to win up to \$300 for participating and that the experiment would progress to discussions in small break-out groups. Participants signed consent forms and completed a background questionnaire that measured demographic information, leadership experience, and personality traits. Participants were instructed to indicate if they were familiar with any of the other participants in the room.

After the background questionnaires were collected, research assistants outside the room randomly assigned participants who were unfamiliar with each other to three-person groups and randomly

selected one leader for each group with the role of a die.² However, in front of the research participants, the experimenter carefully examined and sorted their questionnaires to give the impression that roles were being assigned based upon their backgrounds. After what appeared to be careful consideration of participants' backgrounds, the experimenter announced who would be the leaders during the groups' discussions and explained that the leaders would be responsible for leading their group's discussion and recording their group's decisions. The experimenter also explained that after the group discussion, leaders would privately decide how to divide \$300 among their group members, a decision that would be honored if their group was one of three to win a \$300 lottery. The experimenter emphasized that the leader's decision would be honored (and it was).

After the leader announcement, participants individually completed questionnaires that contained the Explanations for Poverty Scale (Feagin, 1975; Kluegel & Smith, 1986). This scale asks respondents to judge how important various explanations are for why there are poor people in the US, from 1 (not at all important) to 4 (very important). Five items attribute poverty to individual characteristics of the poor, five items to structural characteristics of society, and two items to bad luck.

After participants completed this questionnaire, they were led in groups of three to smaller conference rooms. The leader was instructed to sit on one side of the table in a cushioned cloth-covered armchair, while the two subordinates were left to sit facing the leader on the opposite side of the table in smaller collapsible chairs made of plastic and metal. After turning on a video camera, the experimenter instructed the leader to lead a group discussion of the items on the group questionnaire, which included the Explanations for Poverty Scale. The leader was also responsible for recording the agreed-upon opinion for each item. The leader was then told that an effectively-led discussion would qualify the group for the \$300 lottery, which the leader would solely and privately decide how to divide among the group members. Similar to real life leadership scenarios, the leader depended to some degree on subordinates to effectively carry out the task (an effectively-led discussion) but controlled their rewards after its completion.

Groups were given 15 minutes for discussion. At the end of 15 minutes, the group questionnaire was collected and subordinates were escorted to a large conference room where they each completed a post-discussion questionnaire. The post-discussion questionnaire asked participants about their sense of power, their expression or inhibition, and their emotions during the group interaction. The leader remained in the small conference room to privately complete the post-discussion questionnaire and lottery allocation.

Manipulation of Power

We manipulated power according to its definition as relative control over valued outcomes. Leaders had control over how to allocate \$300 among their group members. Control over the group discussion and questionnaire was also given to leaders. In addition, our power manipulation included what French and Raven (1959) called 'legitimate' power, because participants were led to believe the selection of leaders was based on their background qualifications. Finally, symbolic power was given to leaders by having the experimenter speak only to leaders after leadership was assigned and by seating leaders in a relatively large and comfortable chair opposite the subordinates, who sat in small collapsible chairs. Leaders were also allowed to remain in their break-out rooms while completing the final questionnaire,

²This resulted in nine groups with Caucasian members only, 22 groups with non-Caucasian members only, 17 groups with a Caucasian leader and one Caucasian and one non-Caucasian subordinate, and 13 groups with a non-Caucasian leader and one Caucasian and one non-Caucasian subordinate. Ethnicity did not significantly affect results and was not the focus of this study, and was therefore excluded from analyses.

while subordinates were shuttled off *en masse* to another large group room. Such symbolic power has been shown to increase perceptions of power (Chen et al., 2001; Overbeck & Park, 2001).

RESULTS

The data violate assumptions of independence required by normal analysis of variance and regression models because the emotional reactions and social behavior studied took place in interacting groups (Bryk & Raudenbush, 1992; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). Repeated measures analyses of variance (RM-ANOVAs) were therefore conducted with group ($N=61$) as the unit of analysis. The two subordinates' outcomes were averaged within each group to create one measure of subordinates' outcomes. The leader's outcome and the subordinates' outcomes served as within-group repeated measures. Means appear in Table 1.

Manipulation Check

To check if our manipulation of power led to a sense of power during the group discussion, we asked participants in the post-discussion questionnaire to rate how much they agreed with three statements about their experience during the group interaction: 'I was in control,' 'I was dominant,' and 'I led our discussion,' from 1 (strongly disagree) to 5 (strongly agree). Responses to the three items were averaged to measure participants' sense of power, $\alpha = 0.68$, $M = 2.85$, $SD = 0.23$. Leaders had a higher sense of power during the group interaction ($M = 3.33$, $SD = 0.74$) than subordinates ($M = 2.96$, $SD = 0.49$), $F(1,60) = 26.11$, $p < 0.0001$, suggesting our manipulation of power was effective.

Table 1. Estimated marginal means (and standard deviations) by power

	Leader	Subordinates
Manipulation checks		
Reported sense of power***	3.33 (0.74)	2.96 (0.49)
Observed power***	3.88 (0.97)	3.28 (0.76)
Emotions		
Reported positive emotions***	2.75 (1.07)	1.35 (0.84)
Reported negative emotions	2.09 (0.35)	2.00 (0.34)
Reported anger***	1.20 (0.44)	1.59 (0.38)
Reported guilt	1.41 (0.87)	1.37 (0.64)
Observed positive emotions*	2.07 (1.33)	1.59 (1.14)
Observed negative emotions	1.83 (0.59)	1.83 (0.96)
Observed anger [†]	1.45 (0.77)	1.72 (0.66)
Observed guilt	1.52 (0.82)	1.66 (1.65)
Expression and Inhibition		
Reported expression***	3.93 (1.06)	1.82 (0.94)
Reported inhibition***	3.05 (0.75)	2.70 (0.55)
Observed expression [†]	19.83 (6.16)	18.93 (5.18)

Tests for differences between leaders and subordinates were conducted with group-level repeated measures analysis of variance. $N = 61$ groups for self-report variables ('Reported'), $N = 50$ groups for video-coded variables ('Observed').

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

As an additional manipulation check, we had two coders blind to the hypotheses independently watch videotapes of the group interactions and rate the degree to which each member controlled the group discussion (interrater reliability $\alpha = 0.94$) and acted as a leader (interrater reliability $\alpha = 0.98$), from 1 (very low) to 5 (very high). Due to technical difficulties (e.g., the research assistants not properly starting the video camera or forgetting to replace the videotape), video data was available for only 50 of the 61 groups. We averaged the coders' ratings for each item and averaged the two items to measure expressed power ($\alpha = 0.89$, $M = 3.07$, $SD = 1.25$). Expressed power was positively correlated with sense of power ($r = 0.31$, $p < 0.001$). Consistent with the results for sense of power, leaders displayed more power during their group interactions ($M = 3.88$, $SD = 0.97$) than subordinates ($M = 3.28$, $SD = 0.76$), $F(1,46) = 27.40$, $p < 0.0001$, again suggesting our manipulation of power was effective.

Emotions

Positive versus Negative

To test whether leaders experienced and expressed more positive and fewer negative emotions than subordinates, as predicted by the approach/inhibition theory of power (Keltner et al., 2003), we collected self-report data on emotions *experienced* during the group discussion as well as video-coded data on observed emotions *expressed* during the group discussion.

In the post-discussion questionnaire, participants rated how much they experienced various emotions during the group interaction from 1 (none) to 5 (an extreme amount). Happiness and interest were averaged to measure positive emotion ($\alpha = 0.71$, $M = 2.54$, $SD = 1.20$). Anger at teammate(s), anger at self, contempt for teammate(s), discomfort, disgust, embarrassment, fear, guilt, and shame were averaged to measure negative emotion ($\alpha = 0.73$, $M = 1.35$, $SD = 0.47$). Positive and negative emotions were somewhat positively correlated ($r = 0.14$, $p = 0.06$). The repeated measures ANOVAs for positive and negative emotions involved a 2 (leader, subordinates) by 2 (positive emotions, negative emotions) design. Leaders reported experiencing more positive than negative emotions but subordinates reported experiencing more negative than positive emotions, $F(1,58) = 5.78$, $p < 0.05$. Leaders ($M = 2.75$, $SD = 1.07$) experienced more positive emotions than subordinates did ($M = 1.35$, $SD = 0.84$), $F(1,58) = 146.35$, $p < 0.0001$, but leaders ($M = 2.09$, $SD = 0.35$) and subordinates ($M = 2.00$, $SD = 0.34$) did not differ significantly in how many negative emotions they reported experiencing, $F(1,58) = 2.52$, $p = 0.12$.

To examine whether leaders expressed more positive relative to negative emotions than subordinates, two independent coders blind to the hypotheses watched videotapes of the group interactions and rated, from 1 (very low) to 5 (very high), the degree to which each participant expressed happiness or amusement (interrater reliability $\alpha = 0.91$), anger or disgust (interrater reliability $\alpha = 0.63$), and shame, guilt, or fear (interrater reliability $\alpha = 0.88$). We averaged the coders' ratings for expressed positive emotions ($M = 1.91$, $SD = 1.15$) and for expressed negative emotions ($M = 1.52$, $SD = 0.58$). Expressed positive emotions were negatively correlated with expressed negative emotions ($r = -0.32$, $p < 0.001$). Results for expressed emotions were consistent with the results for experienced emotions. Leaders expressed more positive than negative emotions, whereas subordinates expressed more negative than positive emotions, $F(1,46) = 5.18$, $p < 0.05$. Leaders ($M = 2.07$, $SD = 1.33$) expressed significantly more positive emotions than subordinates did ($M = 1.59$, $SD = 1.14$), $F(1,46) = 4.40$, $p < 0.05$. Leaders ($M = 1.83$, $SD = 0.59$) and subordinates ($M = 1.83$, $SD = 0.96$) did not differ in how many negative emotions they expressed, $F(1,46) = 0.01$, *n.s.*

In sum, the results for experienced and expressed positive and negative emotions are highly consistent. They support Keltner et al.'s (2003) prediction that elevated power increases positive emotions but do not support their prediction that reduced power increases negative emotions. Those without power experienced and expressed more negative relative to positive emotions, however, while those with power experienced and expressed more positive relative to negative emotions.

Anger versus Guilt

We examined whether leaders and subordinates differed in their experience and expression of two discrete emotions that are stereotypically associated with high and low power: anger and guilt, respectively (Tiedens et al., 2000). It is possible that the null findings for negative emotions are due to the fact that anger and guilt are combined into one measure when power may have quite different effects on each.

As was done for positive and negative emotions, separate repeated-measures ANOVAs were conducted for self-reported (experienced) and video-coded (expressed) emotions. Reported anger at teammates and reported contempt for teammates ($r = 0.25, p < 0.01$) were combined to measure experienced anger. Reported guilt and reported shame ($r = 0.22, p < 0.01$) were combined to measure experienced guilt. A 2 (leader, subordinates) by 2 (guilt, anger) analysis revealed a tendency for leaders to experience more guilt than anger and for subordinates to experience more anger than guilt, $F(1,59) = 3.89, p = 0.05$. Leaders experienced less anger ($M = 1.20, SD = 0.44$) than subordinates ($M = 1.59, SD = 0.38$), $F(1,59) = 16.77, p < 0.0001$, but there was no effect of power on guilt, $F(1,59) = 0.37, n.s.$

The same repeated-measures ANOVA was conducted on video-coded expressions of anger and guilt. Unlike the results for the relative amounts of anger and guilt experienced by leaders and subordinates, leaders did not express more guilt than anger, nor subordinates more anger than guilt ($F(1,46) = 1.53, n.s.$), though results were in this direction. The effect of power on expressed anger did not reach significance ($F(1,46) = 2.89, p = 0.09$), though there was a tendency for leaders to express less anger ($M = 1.45, SD = 0.77$) than subordinates ($M = 1.72, SD = 0.66$), consistent with the direction of the effect of power on experienced anger. There was no effect of power on expressed guilt ($F(1,46) = 1.68, n.s.$).

The results for anger are consistent with the prediction made by the approach/inhibition theory of power that reduced power increases the experience and expression of negative emotions (Keltner et al., 2003), but here it is limited to anger. These results contradict Tiedens' (2000) hypothesis that the powerful experience more anger, and less guilt, than the powerless. Reduced power increased the experience and expression of anger. Having power led to feeling more guilt than anger, while lacking power led to feeling more anger than guilt.

Expression and Inhibition

To test if high power leads to more open expression and less inhibition than low power, as predicted by the approach/inhibition theory of power (Keltner et al., 2003), we collected self-report data on expression and inhibition as well as video-coded data on expression during the group discussion.

We measured self-reported expression and inhibition in the same way as Anderson and Berdahl (2002). Expression was measured by asking participants a single item in the post-discussion questionnaire how often they expressed their true feelings, attitudes, and opinions, from 1 (never) to 5 (all the time) ($M = 3.39, SD = 1.51$). Inhibition was measured with three items. Participants were asked how often they 'Agreed with my teammates overtly, even though I disagreed,' 'Kept my honest opinion

to myself,' and "'Gave in' on certain points to avoid disagreement" ($\alpha = 0.62$, $M = 1.82$, $SD = 2.32$). Expression and inhibition were not correlated ($r = -0.09$, n.s.). Repeated-measures ANOVAs for self-reported expression and inhibition involved a 2 (leader, subordinates) by 2 (expression, inhibition) design. Results were highly significant. Leaders reported expressing their true opinions more than inhibiting them, while subordinates reported inhibiting their opinions more than expressing them, $F(1,60) = 21.64$, $p < 0.0001$. Leaders ($M = 3.93$, $SD = 1.06$) reported expressing their true feelings and opinions significantly more than subordinates did ($M = 1.82$, $SD = 0.94$), $F(1,60) = 205.61$, $p < 0.0001$. However, leaders ($M = 3.05$, $SD = 0.75$) also reported inhibiting themselves more than subordinates did ($M = 2.70$, $SD = 0.55$), $F(1,60) = 28.95$, $p < 0.0001$.

We also coded the videos of the group discussions to measure expression. Two independent coders who were blind to the hypotheses watched the videotapes of the group interactions and counted the number of times each group member expressed their own idea or opinion (interrater reliability $\alpha = 0.92$; $M = 19.00$, $SD = 6.60$). Inhibition was not coded because it was impossible to tell if participants were hiding their own opinions from the group. The repeated-measures ANOVA for video-coded expression compared the number of times leaders and subordinates expressed their own ideas or opinions. Results for expression were consistent with the self-report data. Leaders expressed their own ideas ($M = 19.83$, $SD = 6.16$) more often than subordinates ($M = 18.93$, $SD = 5.18$), though this difference did not quite reach significance, $F(1,47) = 2.90$, $p = 0.09$.

In sum, results for expression were consistent with predictions made by the approach/inhibition theory of power (Keltner et al., 2003). Those with power reported expressing their true opinions more than those without power. Neutral observations also indicated that powerholders tended to express their opinions more often. Results for inhibition were less consistent with the approach/inhibition theory of power. While powerholders expressed themselves more, they also reported inhibiting themselves more. However, powerholders reported expressing more than inhibiting their true opinions, while those low in power reported inhibiting more than expressing them.

DISCUSSION

This study provides the first causal evidence that power, or relative control over others' outcomes (Dépret & Fiske, 1993; Emerson, 1962; Fiske & Berdahl, in press; Keltner, Gruenfeld, & Anderson, 2003; Kipnis, 1976; Thibaut & Kelley, 1959), affects emotional experience as predicted by the approach/inhibition theory of power (Keltner et al., 2003). This study demonstrates that it is possible to manipulate power in an engaging laboratory experiment that results in significant differences in emotional experience and expression, contrary to Anderson and Berdahl's (2002) conclusion. Those high in power experienced and expressed more positive emotions compared to those low in power. Powerholders also experienced and expressed more positive than negative emotions, while those low in power experienced and expressed more negative than positive emotions.

A result that our study has in common with other tests of Keltner and colleagues' (2003) approach/inhibition theory of power is that we found no relationship between power and negative emotions generally (Anderson & Berdahl, 2002; Galinsky et al., 2003; Smith & Bargh, 2003). Those low in power, however, experienced and expressed more anger than those high in power did. This is consistent with the prediction made by Keltner and colleagues (2003) that reduced power increases the experience and expression of negative affect. It is not surprising that being low in power, or in relative control over outcomes, would induce feelings of anger. These findings are consistent with Mondillon et al.'s (2005) research demonstrating that people believe the powerful elicit anger in others. The fact that we found significant effects of power on anger but not other negative emotions may help to explain why

combining different negative emotions into one overall measure, as past research has done (e.g., Anderson & Berdahl, 2002), may not yield significant effects of power on negative emotions overall. An interesting direction for future research is to examine the effects of power on specific emotions, not just positive and negative ones generally.

Our findings that low power led to more anger, and that low-power individuals experienced more anger than guilt and high-power individuals experienced more guilt than anger, contradict Tiedens' (2000) proposal that high-power individuals experience and express more anger and less guilt than low-power individuals. If observers view those who express anger as high in status (Mondillon et al., 2005; Tiedens, 2001; Tiedens et al., 2000), the tendency for low-power individuals to express more anger than high-power individuals may not only reflect how they feel, but be strategic in enhancing their status. If anger enhances power and power decreases anger, this implies a dynamic that reduces discrepancies in power between individuals in groups over time rather than a viscous cycle that increases them. Future research should determine how the relationship between power and anger depend on the social context in which they take place, such as the duration of a group and the nature of power within it. Low power individuals might be less likely to express their anger in longer-term groups or in groups that afford them the opportunity to be formally promoted to a position of power, especially if they do not cross those already in them.

We found partial support for the approach/inhibition theory's predictions for expression and inhibition. Powerholders reported expressing their true opinions more than those lacking power. Contrary to Keltner et al.'s (2003) predictions, however, powerholders also reported inhibiting themselves more. When rates of expression and inhibition were compared within individuals, results showed that powerholders expressed themselves more than they inhibited themselves, and that those lacking power inhibited themselves more than they expressed themselves. The fact that those assigned power reported both inhibiting and expressing themselves more than those who were not assigned power might reflect the fact that power comes with opportunities that may produce approach-related tendencies, but also comes with responsibilities that may produce inhibition-related ones. Controlling the outcomes of others grants freedom to pursue one's own interests but also makes one responsible for others' interests. Powerful roles are also often accompanied by explicit responsibilities, such as leading an effective group discussion as in the current study, and frequently involve interdependence with those being led. Responsibility for others and a dependency on them to carry out a task may trigger relatively high levels of both expression and inhibition in powerholders, as our results suggest.

The relatively strong results in this study (and others) for the effect of power on approach tendencies (here expression and positive emotions) and the relatively weak results in this study (and others) for the effect of power on inhibition tendencies (here inhibition and negative emotions) support Keltner et al.'s (2003) proposed link between elevated power and approach more strongly than their proposed link between reduced power and inhibition. Future research should endeavor to test the latter more thoroughly. It may be easier to activate the approach-oriented consequences of power than to activate the inhibition-oriented consequences of lacking power. It is easier to assign power experimentally than to take it away. Our manipulation gave some individuals control over outcomes they did not have before the experiment, but did not take away prior control over outcomes. The latter would be difficult to experimentally manipulate while maintaining proper respect for human subjects. It is also possible that, when compared to those who have equal power with others, those low in power *or* high in power experience a more active inhibition system. Future research should include control conditions in which power is not manipulated so that baselines for dependent variables can be established and compared to high and low power conditions (cf. Hecht & LaFrance, 1998; Moskowitz, 2004). This would also help to clarify whether it is high power or low power that is driving the results. For example, we found that those without power experienced more anger than those with

power, but we do not know if this is because lacking power increases anger, having power decreases it, or both.

What sets this study apart from most studies of power is that we manipulated power as actual control over outcomes and had individuals with different levels of power engage in a non-simulated, real-time, face-to-face group discussion of a controversial topic that involved pre-existing beliefs (reasons for poverty in the US). Most studies have not manipulated actual power but instead have implicitly primed power (e.g., Chen et al., 2001; Galinsky et al., 2003; Smith & Bargh, 2003) or manipulated social status cues (e.g., Chen et al., 2001; Overbeck & Park, 2001; Smith & Bargh, 2003). Most studies also do not involve actual social interaction, but instead present hypothetical scenarios to participants, examine the effects of power on individuals acting in isolation, or study individuals 'interacting' with controlled others (confederates or preprogrammed computer messages). These designs preclude the study of *social power* and its effects on individual experiences and behavior during social interaction, as well as its effects on social dynamics, such as compliance or resistance to power structures (Martorana, Galinsky, & Rao, 2005). Finally, most studies of power involve acts and topics of no importance to those involved. Because power is likely to have its most meaningful consequences when the interaction in question is important to participants, this shortcoming has posed a serious limitation to our previous understanding of power. Popular research designs may lead us to overestimate the effects of power on some outcomes (e.g., influence and action) and underestimate its effects on others (e.g., emotions) for actual social behavior.

CONCLUSION

Social power is a basic component of social interaction. Relations between bosses and subordinates, customers and salespersons, doctors and patients, parents and children, and even lovers are shaped in fundamental ways by social power. Power has historically played a central role in the theories of economists, sociologists, political scientists, and historians. The study of social power is a relatively new focus in social psychology by comparison. A social psychological approach contributes to an understanding of power by examining the psychological processes that underlie interpersonal power dynamics and by using controlled experimental methods to distinguish the causes from the effects of power. This study adds to our understanding of the causal effects of power on emotions, expression, and inhibition in an engaging, yet experimentally controlled, setting. Further advances to understanding the effects of power will require more studies that manipulate actual social power and examine its effects on both individual and group outcomes during meaningful social interactions.

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