How Power Corrupts:

Power Buffers the Emotional, Cognitive, and Physiological Stress of Lying

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Abstract

Power can lead to corrupt acts such as lying, but how? We propose that power may promote lying through a stress-buffering mechanism whereby power decreases the emotional, cognitive, and physiological costs of deceptive behavior. In an experiment in which people were assigned to high (versus low) power, the powerful deceived with greater ease - emotionally, cognitively, and physiologically - and showed fewer nonverbal cues of deception. These findings provide the first empirical support for the stress-buffering effects of power during lie-telling and suggest that power may lead to corruption, in part, by lowering the emotional, cognitive, and physiological costs of engaging in corrupt behavior.

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As CEOs, money managers, and politicians seem to, daily, fall from power and grace, the relation between power and corruption looms large. Across America and abroad, power-brokers with names such as: Bernie Madoff, Eliot Spitzer, Kenneth Lay, and Rod Blagojevich have become synonymous with corruption, fraud, and deception. Indeed, social science has shown an empirical link between individuals' power and corrupt acts. The conclusions from this work echo the famous Lord Acton quote, "Absolute power corrupts absolutely" (1949). But none of this work has addressed *how* power corrupts. Does power really make people bad? Does power change the perception of the powerful until they begin to perceive corruptive acts as acceptable? While these explanations are certainly possible, we propose that the answer is physiological—that power leads to increased likelihood of corrupt behavior through a stress-buffering mechanism, whereby power lowers the internal costs (i.e., emotional, cognitive, and physiological) of engaging in corruption. The goal of the current research was to develop a theoretical account for the stress-buffering impact of power and provide the first empirical test of this account.

Does Power Corrupt?

Because the powerful hold the keys to our livelihood, the veracity of their statements and acts is of utmost importance—in fact, the very fate of our survival may depend upon being under the power of truthful individuals. Fate, it seems, is not without a sense of irony as research shows that the powerful may be more likely to be corrupt. For instance, the seminal paper by Kipnis

(1972) demonstrated that people with power perceived the less powerful as objects of manipulation and as such, treated them more poorly. In negotiation contexts, high power negotiators were found to bluff more and exchanged less information with their low power counterparts (Crott, Kayser, and Lamm, 1980). Similarly, negotiators who possess more information regarding their counterparts' payoffs, which can be considered as having more power (Lewicki, Litterer, Minton, & Saunders, 1994), were more deceptive than those who possess less information (Boles, Croson & Murnighan, 2000). The powerful have also been shown to be more likely to espouse immoral decisions and be moral hypocrites (Carney & Mason, 2010; Lammers, Stapel, & Galinsky, 2010).

But if power corrupts, what is the mechanism? Some research suggests that the powerful exalt their own view of themselves, distancing themselves psychologically from the less powerful, and thus viewing the less powerful as instrumental objects to be manipulated, objectified, ostracized, or discounted (Gruenfeld, Inesi, Magee, & Galinsky, 2008; Kipnis, 1972; Kozak, Marsh, & Wegner, 2006; Sorokot & Lundin, 1959). This objectification hypothesis, however, is at odds with research on the benevolent qualities of power in humans and non-human primates. For example, the most successful alpha primates are benevolently powerful and use their social rank to care for and access resources for the lower power members of society (e.g., de Waal, 1998). Consistent with the powerful-is-benevolent research in primates, human research also suggests that in many situations the powerful are much more socially and emotionally sensitive than the less powerful (e.g., Hall, Rosip, Smith LeBeau, Horgan, and Carter, 2006; but see also Galinsky, Magee, Inesi, & Gruenfeld, 2006).

Other research suggests that power corrupts by undermining the power-holder's sense of morality. For example, Lammers et al. (2010) showed that power renders people more lenient in monitoring, inhibiting, and correcting their own behavior (Lammers et al., 2010). Another study showed that individuals higher on testosterone, a dominance hormone associated with having more social power (e.g., Sapolsky, 2005), shows a different pattern of morality such that high testosterone MBA students demonstrated more utilitarian decision making in response to moral dilemmas—even when it meant willingness to commit a murder (Carney & Mason, 2010). These findings are consistent with the prevailing theory of power on the approach/disinhibition tendencies of the powerful (Keltner, Gruenfeld, & Anderson, 2003). According to this theory, the powerful are much more focused on reward (versus cost) and as such, are more likely to engage in action to advance self-interest (e.g., Galinsky, Gruenfeld, & Magee, 2003). But this explanation is also at odds with powerful-as-benevolent findings (e.g., de Waal; Hall et al.).

A completely different mechanism, however, one rooted in social neuroscience, may be able to reconcile how it is that power seems to simultaneously (A) lead to more deception and corrupt behavior but are also (B) pave to way toward adaptive and pro-social acts such as: leading, taking action, enduring risk, garnering resources for self and others, and monitoring the well-being of the group. We propose that perhaps power simply offers a buffer against psychological and physiological stress—stress associated with leading people, taking action, taking risk, and caring for people—as well as the stress associated with corrupt acts such as theft, fraud, and deception.

The Stress Buffering Effects of Power

Telling a lie is stressful. While humans lie for many different kinds of reasons, including to protect feelings, claim undue resources, project a false self-image, manipulate, or coerce (e.g., DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996), telling a lie is emotionally, cognitively, and physiologically costly. A lie-teller must actively inhibit and suppress many things including: the truth, internal monitoring of their own moral compass, social norms, fear of consequence, and consideration of others' interests. This suppression leads to experiencing negative emotions (Ekman, O'Sullivan, Friesen, & Scherer, 1991; Frank, 2009; Vrij, 2001; Vrij, Semin, & Bull, 1986), decrements in mental function (Spence, Farrow, Leung, Shah, Reilly, Rahman, & Herford, 2003; Spence, Hunter, Farrow, Green, Leung, Hughes, & Ganesan, 2004; Vrij et al), and physiological stress (Frank, 2009; Iacono, 2007, 2008; Vrij et al). As a result of all of the internal mental conflict and physiological stress, lies tend to be expressed through tiny nonverbal facial movements. These nonverbal indications of conflict and stress in the deception context are often referred to as "nonverbal leakage" or "tells." These nonverbal "tells" are very subtle and span across both body and voice (e.g., Ekman & Friesen, 1969; Ekman & Friesen, 1974; Ekman & O'Sullivan, 2006; Ekman et al; DePaulo et al., 1996; DePaulo et al., 2003; Vrij, 2001). While these "tells" can be seen by a trained eye, ordinary people are no better than chance at discerning liars from truth-tellers (e.g., Ekman, O'Sullivan, & Frank, 1999).

Because telling a lie is emotionally, cognitively, and physiologically costly, we lie less often than we would if lies were "free." This basic idea is true of all human endeavors. Humans, it seems, are cognitive misers – we travel the paths which are most rewarding and least resistant or punishing. Theories from psychological science, such as the somatic marker hypothesis (Damasio, Tranel, & Damasio, 1991), have mapped the ways in which humans learn how to engage with their environment. This research shows that individuals act and get either punished or rewarded for that act. Punishment reduces the likelihood of engaging in that act again, and reward increases the likelihood. Eventually, the mere unconscious “thought” of an act, such as a lie, is run through immediate unconscious cognitive computations taking a fraction of a second which then lead the person to proceed with or inhibit/stop the act. For example, when a young child touches the hot stove for the first time, she gets burned and her brain works to code that act as punishing. She may try again, but if her brain is normal, she will quickly learn not to do it again. Even the mere image of a stove will unconsciously inhibit the act of “to touch.” The same algorithm is used by the brain to calculate the incentive value of lying—if the mere thought of lying is sufficiently punishing, the person will not go through with the lie. With their bounty of emotional, cognitive, and physiological resources—are lies less costly for the powerful?

Power is fundamental. Power determines access to resources (de Waal, 1998; Keltner, Gruenfeld, & Anderson, 2003), agency and control over one’s own body and mind (Keltner et al.), positive feelings (Keltner et al.), and enhanced cognitive function (Keltner et al; Smith, Jostmann, Galinsky, & van Dijk, 2008). Powerful individuals also demonstrate a general state of disinhibition marked by willingness to engage in action (Galinsky & Gruenfeld, 2003; Keltner et al., 2003), and a focus on reward as opposed to risk (Anderson & Galinsky, 2006). The neuroendocrine profiles of the powerful also differentiate them from the powerless. Power is linked to the stress hormone cortisol, such that power-holders show lower levels of basal cortisol, lower cortisol reactivity to stressors, and cortisol drops as power is achieved (Abbott, Keverne, Bercovitch, Shively, Mendoza, Saltzman, Snowdon, Ziegler, Banjevic, Garland, & Sapolsky, 2003; Coe, Mendoza, & Levine, 1979; Sapolsky, 1982; Sapolsky, Alberts, & Altmann, 1997).

Thus, the powerful appear to be more resilient to stressors and have an abundance of emotional and cognitive resources available to use when navigating stressors as they arise.

If power leads to positive emotions, an abundance of cognitive resources, and physiological resilience to stress—power, then, should offer a buffer against stressors such as the act of telling a lie—essentially making such acts of corruption emotionally, cognitively, and physiologically less costly. We propose that the mechanism through which power corrupts is by rendering corrupt acts such as lying less stressful. Specifically, we hypothesized that power buffers the emotional, cognitive, and physiological stress associated with the corrupt act of lying.

The Current Research

We tested the hypothesis that power would buffer the stress response during deception, thus providing a possible mechanism for the effect of power on corrupt behavior. Participants were assigned to the role of “leader” or “subordinate” and engaged in a series of naturalistic social interactions in which the leader had control over the subordinate’s monetary and social outcomes. From the criminal justice and deception literatures we borrowed a “high stakes mock crime” paradigm (for a meta analysis of all of the studies which have employed this basic paradigm, see Kircher, Horowitz, & Raskin, 1988) in which participants stole or did not steal a $100 bill then were interrogated about the alleged transgression, on videotape, by an experimenter (50% were lying and 50% were telling the truth). If successful at convincing the experimenter they did not steal the money, the participants won the $100 prize.

To test our hypothesis that power would buffer individuals from the emotional, cognitive, and physiological stress of telling a lie, we used a multi-method approach to assess moral emotional reactivity, cognitive impairment, physiological stress reactivity, and nonverbal behaviors indicative of mental conflict and physiological stress. We predicted that the powerful would not report lying to be any less wrong than the powerless as would be suggested by the morality-shifting hypotheses previously described (Carney & Mason, 2010; Lammers et al., 2008; Gruenfeld et al., 2008; Kipnis, 1972; Kozak et al., 2006; Sorokin & Lundin, 1959), but that power would enhance the same emotional, cognitive and physiological systems which lie-telling depletes, essentially rendering lie-telling cost-free for the powerful.

Specifically, we predicted that: (1) the powerful and the powerless would equally report that lying was wrong, but that (2) the powerful liars would not feel as bad nor as guilty about lying, (3) powerful liars would not show evidence of cognitive impairment following the lie, (4) powerful liars would not demonstrate physiological stress associated with lying, and (5) powerful liars would show less nonverbal evidence of mental conflict and physiological stress while lying.

Method

Participants and Design

Fifty volunteers were recruited from Columbia University and paid for a one-hour experiment. Participants (30 female) ranged in race/ethnicity: 20 Asian (including Indian/South Asian), 15 Caucasian, 6 Black, and 2 Hispanic, and 4 participants reported being of some “other” race/ethnicity. The experiment was a 2 (high power vs. low power) x 2 (lie-telling vs. truth-telling) between-subjects design. Three participants were removed prior to analysis for not following study instructions (e.g., stealing the money when not supposed to). Because power is a relative state, participants were tested in pairs—one participant being randomly assigned to the high power, or leader, role and the other to the low power, or subordinate, role. Because of the logistical demands of the experiment, two experimenters tested the participants (both experimenters were Asian males aged 23 and 25). Participants were tested together for the first part of the experiment—during the power manipulation—and apart during the second part—the high-stakes mock crime procedure.

Manipulation of Legitimate Power

Standard power manipulation protocols used in both psychological science and behavioral economics were merged to form one very impactful manipulation that was: (a) as naturalistic as possible, and (b) would persist through the subsequent mock crime procedure. Research suggests that to appropriately and effectively manipulate power, the power must be perceived as legitimate by all parties involved (e.g., Anderson & Berdahl, 2002; Lammers et al., 2008). Thus, the experiments began with participants first completing a “Leadership Questionnaire” (adapted from Anderson & Berdahl) which asked participants to describe their leadership experiences through responding to a number of open-ended questions. After completing the questionnaire, the experimenters collected the questionnaires from the participants who were seated together in a room. The experimenters left the room with the questionnaires leaving the door to the room open and appeared to discuss participants’ responses to the questions before assigning roles. The experimenters then, ostensibly, assigned participants to the role (leader or subordinate) best suited for them based on the questionnaire. In actuality, role was randomly assigned.

The leader and subordinate then formed a compensation committee on which they decided bonuses for three individuals (Anderson & Berdahl, 2002) and were told that final decisions would be made by the leader and that the leader would decide how much (if any) of a $20 "paycheck" would be paid to the subordinate versus retained by the leader (i.e., an adaptation of the "dictatorship game" which served as the second of the two-part power manipulation; Sivanathan et al., 2008). Role-play manipulations have been used successfully in a great deal of power research (e.g., Anderson & Berdahl; Hall et al., 2006; Schmid Mast & Hall, 2004) and the added components of the legitimacy of the power manipulation (Anderson & Berdahl) as well as the dictatorship game component (Sivanathan et al.) only further enhanced the ecological validity of the manipulation. To make the power manipulation even more impactful and ecologically valid, the leader was given duplicate copies of the three candidates' resumes and the leader, who was in a big office, called the subordinate (who was in a very small office) into the leader's office for the compensation committee meeting. A 10-minute interaction ensued after which time the leader sent the subordinate back to his/her office while the leader recorded final compensation committee decisions and how much of the $20 to pay the subordinate. A check of the power manipulation confirmed that leaders felt more powerful (a composite variable comprised of: dominant, in control, in charge, high status, like a leader, and powerful—each rated on 5-point scales; $M = 2.89$; $SE = .16$) than subordinates ($M = 2.34$; $SE = .17$), $F(1, 46) = 5.76$, $p < .05$; effect size $r = .35$.

Deception paradigm

A “high-stakes mock crime paradigm” was borrowed from the criminal justice literature (for a meta analysis of all of the studies which have employed this basic paradigm, see Kircher et al., 1988). This paradigm has also been used in the social psychological deception literature (e.g., Frank & Ekman, 2004; see DePaulo et al., 2003 for a meta-analysis of many studies in social psychology utilizing this method). Procedures followed were exactly the same as have been used many times before when investigating the phenomenology and consequences of deception. In the current experiment, immediately after the power manipulation, participant-pairs were separated and brought to nearby enclosed rooms. An experimenter sat down with each participant separately (the two Asian male experimenters were randomly assigned to participant) and explained that they would have an opportunity to earn $100 by convincing the experimenter that they did not steal a $100 bill hidden in the testing room. Participants were told they may or may not have to steal a $100 bill which was in a white envelope buried in a pile of books in the corner of the room but that no matter what, they had to convince the experimenter they did not take the money in order to earn the $100 prize.

Participants were told that after the experimenter left the room, the computer would instruct the participant whether or not to steal the money. All participants were instructed to do their very best to convince the experimenter that they did not steal the money - *whether or not they actually did*. This high-stakes mock crime paradigm creates 50% liars and 50% truth-tellers who are all equally incentivized to earn the $100 prize. If the participant (whether or not s/he was lying) could convince the experimenter (who was blind to lie vs. truth condition) they did not steal the money, the participant would keep the $100 prize and would be entered into a lottery to win $500 more. The experimenter informed the participant that in about 5 minutes, he would come back into the room and conduct an interview on video tape about whether or not the participant stole the money.

All participants believed the experimenter had no knowledge of whether they actually stole the money. To really make sure the participant believed this actually was the case (which it was), both the experimenter and participant discussed this and signed a contract together stating that the experimenter had no knowledge of whether or not the participant would be assigned to steal or not steal the money. In addition, at the end of the experiment during debriefing, the experimenter verified that all participants believed that the experimenter did not know for sure whether they were lying.

After the high-stakes mock crime instructions were given to participants, the experimenter left the testing room and closed the door. The participant then advanced through a series of computer generated instruction screens. Figure 1 depicts the actual instruction screens for both the "steal" and the "no steal" conditions. The only difference between the conditions was the one critical instruction screen which varied by condition (steal vs. no steal) for which there are two versions clearly marked in Figure 1.

<<<<<Insert Figure 1 about here >>>>>

Approximately 5 minutes after the mock theft (in pilot testing it was determined that 5 minutes was always enough time for the participant to complete the mock theft and be seated waiting), one experimenter entered each participant's testing room (experimenter was randomly assigned to participant) and immediately turned on a video camera. The experimenter then interrogated the participant by asking a series of questions. Both experimenters were trained to ask all questions in an affectively neutral, firm manner. Experimenters did not stray from the strict script which asked 10 questions. Because we predicted that high-powered liars will not exhibit the typical nonverbal "tells" associated with lying (because they have the cognitive energy to control them), we needed to code the videotapes for nonverbal behaviors both during responses to "lie questions" (i.e., those questions pertaining to the mock theft about which liars will lie) and "baseline questions" (i.e., neutral questions not pertaining to the mock theft about which liars cannot lie because they are immediately verifiable). Research on the polygraph (for a review, see Kircher et al., 1988), fMRI (e.g., Karim, Schneider, Lotze1, Veit, Sauseng, Braun, & Birbaumer, 2010), and nonvberbal cues (for a review, see DePaulo et al., 2003) have all employed the lie versus baseline approach when examining bodily correlates of deception.

Questions used in the current research included three baseline questions including, "what are you wearing today?" and "what is the weather like outside?" The 7 lie questions were adapted from Frank and Ekman (2004) and included, "did you steal the money?" and "why should I believe you?" and "are you lying to me now?" Immediately after the video recorded interrogation, participants completed the manipulation check, measures of moral emotional feeling, a cognitive reaction time task to assess cognitive function called the Stroop task (Stroop, 1935), and the second saliva sample to measure changes in the stress hormone cortisol was taken approximately 27 minutes after the beginning of the high stakes theft paradigm (the first saliva sample was taken about 10 minutes after arrival to the laboratory).

Moral Emotions, Cognitive Impairment, Cortisol, and Behavior

Moral emotional feelings. Four emotion terms were rated on 7-pont scales: bashful, guilty, troubled, and scornful. The four emotion terms were submitted to a principal component analysis to create a factor score (the factor accounted for 46.16% of the variance). Higher scores indicated more negative moral distress.

Cognitive impairment. A well-known reaction time task measuring executive function called the Stroop task (Stroop, 1935) was administered on the computer. This task is a widely used index of executive function (MacLeod, 1991; Swick & Jovanovic, 2002) and has been used in deception research to assess degree of cognitive impairment following lie- versus truth-telling (e.g., Karim et al., 2010). In the Stroop task participants indicated "as quickly and accurately as possible" whether each of a series of letter strings was written in red or blue (ignoring the meaning of the words). Trials began with a 1-s fixation point located in the center of the computer screen. Fixation points were immediately followed by a red or blue-colored letter string. Participants responded to the string by indicating if it was blue or red by pressing a designated key on a computer keyboard. A 2-s blank screen appeared in between trials. In total the Stroop task consisted of 120 trials (no feedback about whether responses were correct or incorrect was offered). There were 40 congruent trials (i.e., "RED" in red or "BLUE" in blue), 40 neutral trials (i.e., "XXXX" in red or blue), and 40 incongruent trials (i.e., "RED" in blue or "BLUE" in red) presented randomly. Reaction times to the incongruent trials were subtracted from reaction times to the congruent trials. This red versus blue Stroop procedure has been used successfully in previous research (e.g., Smith et al., 2008). As is typical with response-latency data, the distribution was skewed and was therefore transformed using a reciprocal transformation. Thus, higher scores indicated more cognitive impairment.

Hormone Sampling and Assays. Standard salivary hormone-collection procedures were used (Kirschbaum & Hellhammer, 1994; Schultheiss & Stanton, 2009; Touitou & Haus, 2000). Before providing saliva samples, participants did not eat, drink, or brush their teeth for at least one hour. Participants rinsed their mouth with water and chewed a piece of sugar-free Trident Original Flavor gum for 3 minutes in order to stimulate salivation. Trident Original Flavor chewing gum has been shown to yield the least bias as compared with passive-drool procedures (Dabbs, 1991). Participants provided approximately 1.5 mL of saliva through a straw into a sterile polypropylene microtubule and spit out their gum. Saliva samples were immediately brought to a freezer in an adjacent lab room to avoid hormone degradation and to precipitate mucins. Within two weeks, frozen samples were packed in dry ice and shipped for analysis to Salimetrics in State College, Pennsylvania. At Salimetrics, samples were assayed in duplicate for salivary cortisol, using a highly sensitive enzyme immunoassay. A baseline saliva sample was taken from participants approximately 10 minutes after arrival (when participants were seated, relaxed, and completing the consent form for the experiment which contained no stressful information). Approximately 27 minutes after the beginning of the lie manipulation the second saliva sample was taken (SD = 5 minutes; range = 17 to 37 minutes). The intra-assay coefficient of variation (CV) was 5.6 %, and the inter-assay CV averaged across high and low controls was 5.5%. Cortisol levels were in the normal range (M = 0.13 µg/dL, SD = .10). Time 1 cortisol scores were regressed on time 2 scores and the standardized residuals were used in analysis (i.e., the variance associated with the baseline cortisol measurement was removed from the post-manipulation, or time 2, measurement; Thuma, Gilders, Verdum, & Loucks, 1995).

Behavioral Coding. Five research assistants blind to experimental condition coded the interviews for the 8 best nonverbal correlates of deception. Seven of the 8 cues were harvested from a meta-analysis on nonverbal cues to deception by DePaulo et al (2003). The 8th variable was taken from work by Ekman (Ekman & Friesen, 1969, Ekman, Friesen, & Scherer, 1976). The nonverbal cues selected were selected on the basis that they were (a) most relevant to the mock crime paradigm used in the current research, and (b) on the magnitude of the effect size reported in DePaulo et al.

Before describing each of the 8 variables, it is important to understand the underlying cognitive and physiological theme the behaviors capture. During a lie, nonverbal behavior is generally suppressed because the liar is in a state of mental/emotional and cognitive conflict, is under stress, and is trying not to show it (Vrij, 2001) This gives rise to very subtle or partial behaviors which have been labeled “leakage” (Ekman & Friesen, 1969). One class of behaviors which are often suppressed during transgression lies and result in leakage are emblems. Emblems are nonverbal behaviors which take the place of speech (e.g., Ekman & Friesen, 1969, 1974). One partial emblem which has been observed repeatedly in deception research is a partial, rapid shrug which can be observed as a tiny, one-sided shoulder or hand shrug (Ekman & Friesen, 1969, Ekman et al., 1976). A rapid, one-sided (i.e., partial) shoulder shrug was one of the behaviors coded. Four additional “molar” variables (i.e., more global variables rated by condition-blind coders) have been shown repeatedly to indicate deception and are ratings of: cooperativeness, immediacy (which is a word from the nonverbal literature which indicates an amalgam of warmth/intimacy/interest), nervousness, and vocal uncertainty (all have the biggest effect sizes as nonverbal indicators of deception taken from DePaulo et al). Three additional molecularly coded variables (i.e., coded in seconds or by counts) were: accelerated prosody (calculated by taking the number of syllables and dividing them by the number of seconds which passed during the utterances; Buller, 2005), lip presses (counts), and speaking time (in seconds; these three behaviors also have the strongest effect sizes among all the molecular behaviors listed in DePaulo et al.). Behaviors were coded separately during responses to each interrogation question. Inter-rater reliability was determined by two coders rating the same subset of videos (28%). After inter-rater reliability was established, one of the coders went on to rate the remaining videos. A total of 5 different coders coded the 8 behaviors (some coders coded more than one behavior). Table 1 lists the 8 behaviors, a brief description of each, the expected relation to deception for each (taken from DePaulo et al), and the inter-rater reliability for each. All statistical analyses examined behavior during the lie questions minus behavior during the control questions. Analyses were conducted on each behavior separately and on an overall composite variable of “deception tells” (principal components analysis was conducted on the 8 behaviors and accounted for 26% of the variance).

<<<<<Insert Table 1 about here >>>>>

Results

We predicted that power would not lead to a shift in morality as has been suggested in previous research. In fact, we predicted that everyone, high and low-powered individuals, would believe that telling a lie was wrong. However, we did predict that power would buffer individuals from the emotional, cognitive, and physiological stress of lying and as a result would show no evidence of nonverbal behavior indicative of mental conflict or physiological stress. Specifically, we predicted that high-power liars, like the truth-tellers, would evidence no distress during and after the lie, and that only low-power liars would show evidence of moral emotional distress, cognitive impairment, elevated cortisol levels indicative of a stress response, and nonverbal leakage associated with stress and conflict. To test this prediction, a planned contrast tested that only low-power liars would show evidence of distress significantly higher than high-powered liars who would demonstrate a pattern consistent with truth tellers on all outcome variables (emotion, cognition, cortisol, and behavior). Thus, a contrast weight sequence of 3, -1, -1, -1 was used for all outcome variables across: low-power liars, high-power liars, low-power truth-tellers, and high-power truth-tellers (respectively).

Did Power Influence Morality?

Power did not shift participants' sense of morality. All believed lying was wrong on a 1 (*always wrong*) to 6 (*never wrong*) scale and there were no differences among low-power liars (M = 1.62; SD = 1.04), high-power liars (M = 1.75; SD = 1.60), low-power truth-tellers (M = 1.67; SD = .89), and high-power truth-tellers (M = 1.80; SD = 1.03), F(3. 46) = 0.46, p > .98. These results offer no support for the previously suggested power-shifts-morality hypothesis.

Do High-Power Liars Experience Less Moral Distress?

We first tested whether there was support for our stress-buffering hypothesis on a self-report measure of moral emotional distress. Consistent with the our general prediction that power would provide a buffer from the negative feelings associated with lying, only low-power liars reported moral distress following the mock crime and lie. In contrast, high-power liars—like the truth-tellers—reported no moral distress after the mock crime and lie. Figure 2 shows the means across the four groups and Table 2 lists the *t*-value, *p*-value, and effect size *r*s.

<<<<<**Insert Figure 2 about here** >>>>>

<<<<<**Insert Table 2 about here** >>>>>

Do High-Power Liars Experience Less Evidence of Cognitive Impairment after Lying?

Liars are withholding guilty knowledge, experiencing moral distress, experiencing physiological stress, and are trying not to reveal their lies through behavioral expressions of stress and conflict. As such, ordinary liars are typically very cognitively taxed (i.e., impaired) during and after lies (e.g., Karim et al., 2010). We next tested whether power buffers against cognitive impairment following deceptive behavior. Consistent with the stress-buffering hypothesis, power decreased cognitive impairment after engaging in deception. Thus, in addition to buffering the emotional distress of lying, power also buffered against cognitive conflict brought on by telling a lie. The same pattern observed on moral emotion was observed on the Stroop measure of cognitive impairment. Figure 3 shows that the mock theft and lie caused a significant degree of cognitive impairment in the low-power liars but not in the high-power liars or truth-tellers (see Table 2 for significance test).

<<<<<**Insert Figure 3 about here** >>>>>

Does Power Buffer against Stress Hormone Release During Lie-Telling?"

The act of lying is stressful. It is upon this physiological stress response that lie-detector tests (e.g., polygraphs) depend. Cortisol is a stress hormone which can be detected in saliva at peak levels approximately 20-30 minutes after a stressor. As such, ordinary liars should show higher cortisol levels after lying than truth-tellers. Consistent with our stress-buffering hypothesis and the results observed on measures of moral emotion and cognitive impairment, again it was found that high-power liars—like truth-tellers—demonstrated no cortisol reactivity to the stress of telling a lie. Only the low-power liars showed evidence of the typical stress response seen in ordinary liars. Figure 4 shows cortisol levels at time 2 controlling for time 1 (see Table 2 for significance test).

<<<<<Insert Figure 4 about here >>>>>

Do High-Power Liars Express Fewer Signs of Stress/Conflict in Nonverbal Behavior?

All of the internal stress and conflict experienced by liars leaks out as tiny, barely observable, partially suppressed nonverbal cues. Because it was predicted that high-power liars would not experience mental or physiological stress or conflict, we predicted they would not show nonverbal signs of stress or conflict. Consistent with our stress-buffering hypothesis, Figure 5 illustrates the exact same pattern as was observed across all of the other measures: High-power liars—like truth-tellers—evidence no nonverbal signs of cognitive conflict or physiological stress during lying (vs. telling the truth) on the composite nonverbal variable (comprised of all 8 variables: accelerated prosody, cooperativeness, immediacy, lip presses, nervousness, one-sided shoulder shrugs, speaking time, and vocal uncertainty). Only the low-power liars expressed nonverbal distress in a manner similar to previous research on the nonverbal cues associated with deception.

<<<<<Insert Figure 5 about here >>>>>

To further investigate the stress-buffering impact of power on the leakage of nonverbal indications of mental conflict and physiological stress, each of the eight nonverbal behaviors was examined separately and all are depicted in Figure 6.

<<<<<Insert Figure 6 about here >>>>>

Panels A, B, C, and D show, again, that high-powered liars—like truth-tellers—exhibit no nonverbal tells of internal conflict and stress on: accelerated prosody, lip presses, one-sided shoulder shrugs, and vocal uncertainty. The planned contrast comparing low-power liars to the rest of the individuals was statistically significant for each of these nonverbal behaviors ($p < .05$). Interestingly, panel E shows that there may be one nonverbal tell which differentiates high-power liars from the others: High-power liars expressed less immediacy (i.e., more coldness, less intimacy, and less interest) when lying versus when telling the truth. A post-hoc contrast tested this pattern and high-power liars did, in fact, express significantly less immediacy when lying ($p < .05$). This is very interesting and may mean that when lying, high-power liars are more controlled and serious which gives rise to them appearing less warm and engaged. Panel F shows that for cooperativeness, only a main effect of lie vs. truth was observed. A post-hoc *t*-test revealed that truth-tellers were more cooperative than liars ($p < .05$; no other contrasts, main effects, or interactions were statistically significant). Panels G and H show no differences among the four groups on nervousness or speaking time.

Fewer Nonverbal Signs of Distress Don't Help in Accurate Identification of High-Power Liars

There is no reason to predict that, despite fewer nonverbal tells of lying, high-power liars would be more difficult to catch when lying. Research by Paul Ekman, Maureen O'Sullivan, and Mark Frank has repeatedly shown across thousands of ordinary participants (i.e., those who were untrained in lie-detection) who ranged in age, SES, occupation, and gender, people are no better than chance at distinguishing liars from truth-tellers regardless of the type of lie, circumstances surrounding the lie, and nonverbal cues expressed when lying (see, e.g., Bond & DePaulo, 2006; Ekman et al., 1999; Frank & Ekman, 1992). Thus, we had no reason to believe nor did we expect to find that high-power liars would be more difficult to distinguish from anyone else despite fewer nonverbal tells of deception.

While often considered dubious to test for null effects, we thought it was important in the context of the current research given that the reader may come to the conclusion that with fewer tells associated with lying, high-power liars may be more difficult to catch than low-power liars. We did not expect this to be the case and to confirm this expected null effect, seventeen naïve perceivers recruited solely for the purposes of this veracity judgment task viewed each of the forty-seven videotaped interrogations and indicated whether they thought each individual was lying (0) or telling the truth (1). Consistent with the null effect on lie-detection observed in past research, perceivers were at about 50/50 chance in veracity judgments for high-power liars (M = .46), low-power liars (M = .42), high-power truth-tellers (M = .21), and low-power truth-tellers

(*M* = .43; a mean of .50 would indicate that the seventeen perceivers were just as likely to report individuals were lying as they were to indicate that individuals were telling the truth). A one-way ANOVA across the four groups was used because although the veracity judgment was binary (0=lie, 1=truth), when averaged across 17 raters this variable becomes a variable with intervals from 0 to 1. The ANOVA was not statistically significant, $F(1, 44) = 1.93$, $p > .14$; effect size $r = .20$, nor were any post-hoc pair-wise *t*-tests.

Discussion

The current research provides compelling support that power has stress-buffering effects during lie-telling which, in turn, makes it emotionally, cognitively, and physiologically easier to tell lies. This stress-buffering pattern emerged robustly across multiple indices of stress-reactivity – emotional distress, cognitive impairment, stress hormone reactivity, and nonverbal cues of stress and conflict. Power, it seems, enhances the very same systems which lie-telling depletes. Do these results mean that power corrupts? Or does power simply infuse the system with an abundance of resources which can be used for good—or bad?

Power's Corruptive Effects May be Epiphenomenal from a More General and Adaptive Stress-Buffering Mechanism

With the quote from Lord Acton (1949) looming large as powerful people seem to fall from grace and glory almost daily, surely we wonder if it is true that power actually does lead to corruption. Some research does, in fact, suggest that people with power are more likely to deceive in negotiation or strategic game contexts (Boles et al., 2000; Crott et al., 1980), treat subordinates more poorly (Kipnis, 1972), make more immoral decisions (Carney & Mason, 2010), and engage in more immoral behavior (Lammers, Stapel, & Galinsky, 2010). However no research has tested why this effect emerges, nor has any research suggested that the appearance of power's corruptive influence may be an epiphenomenon stemming from the otherwise adaptive and advantageous way in which power buffers individuals from stress.

Research on the disinhibiting, risk-welcoming, and pro-active effects of power (e.g., Keltner et al., 2003) taken together with the results presented here, suggest that it is not that power corrupts, it is simply that power may buffer the emotional, cognitive, and physiological systems from stress in general. This stress-buffering hypothesis can account for all the good that power brings—it is stressful to lead, to always have to engage in action, to take risk, to benevolently protect the less powerful. And the stress-buffering hypothesis can simultaneously account for all the bad that power brings—it is also stressful to cheat, steal, and lie. Our stress-buffering hypothesis offers a resolution to these divergent behaviors which power engenders. Thus, it is likely that the experience of power corrupts no more than it betters – observed corruptions may simply be epiphenomenal from the generally adaptive stress-buffering impact of power which can lead—among other positive things—to corruption.

How Does the Stress-Buffering Hypothesis Account for the Finding that Powerful People Lie More?

As humans approach the world, we rapidly (in a fraction of a second) and unconsciously calculate the incentive value of the various actions available within a particular situation. When a considered action causes pain (emotional, cognitive, physiological, or physical), we cease to act and the likelihood of that behavior's occurrence or reoccurrence diminishes. In contrast, when humans consider an act and the consideration of the act (or the act itself) is painless and/or rewarding, the act continues and the occurrence of that act is likely to increase. If power offers positive emotion to offset distress, extra cognitive resources to offset depletion, and extra physiological resilience to stress, then acts which might typically punish, will cease to be punishing. Acts such as taking risks, talking in front of an audience, asserting one's needs…and doing bad or immoral things such as lying, will simply be less punishing to the emotional, cognitive, and physiological systems. Thus, if power makes lying and other corrupt acts easier to endure, it follows with certainty that those acts will increase in likelihood.

Limitations of the Current Research and Future Directions

One common critique of high stakes mock theft paradigms such as the one used in the current report is that participants are not highly motivated to succeed at lying (e.g., Miller & Stiff, 1993). However, in the current report were offered a substantial prize for success-- $100 for successfully lying with an opportunity to win $500 more. Another criticism is that participants did not choose to lie—they were instructed to do so. Future research needs to replicate the current results with a slightly modified mock crime paradigm in which participants can choose to be in the lie versus truth condition. While this approach confounds willingness to lie with the act of lying, it is very important to discern whether power would exert the same impact on those who choose to lie. It is possible that choice in lying would have a stronger influence on ease of lying than power. While this criticism is important, it is also important to note that many lies in our lives are obligatory and not particularly consequential (for a review, see DePaulo et al., 2003). For example, most of us lie to our grandmother when we tell her we like the sweater she knitted us for our birthday—a lie of this nature is as if someone had instructed us to do so (i.e., obligatory).

Another limitation of the current research is that broad claims about the stress-buffering impact of power were made. While the current research certainly supports this claim, and a good deal of previous work also suggests this may be the case (e.g., Carney, Cuddy, & Yap, 2010; Keltner et al., 2003; Sapolsky, 2005), we may have stepped beyond our data slightly in our interpretation. While we may have stepped slightly beyond the boundaries of what our data say, we did so to advance our theory about the stress-buffering impact of power and in an effort to stimulate more research on this topic. For example, can power buffer the impact of emotional pain from loss of life or divorce? Can power buffer the impact of physical pain? Can power buffer the impact of layoffs, demotion, insult, public speaking, and other life-stressors? There are many open questions to which answers would make valuable contributions across disciplines. Thus, the need for more research on the stress-buffering hypothesis in the field—in particular the organizational context—is underscored.

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Table 1. *Descriptions and Inter-Rater Reliabilities for the 8 Coded Nonverbal Behaviors Indicative of the Internal Conflict/Stress State during Deception.*

Nonverbal behavior	Description and expected relation to deception	Inter-rater reliability (*r*)
Cooperativeness	Cooperative/agreeable in body/voice (-)	.96
Immediacy	Warmth/intimacy/interest in body/voice (-)	.69
Nervousness	Nervous/tense in body/voice (+)	.70
Vocal uncertainty	Uncertain in body/voice (+)	.89
Accelerated prosody	# syllables/# sec utterance took (+)	.97
Lip press	# times lips press together (+)	.96
One-sided shoulder shrug	Rapid one-sided partial shrug (+)	.74
Speaking time	# sec spent speaking (-)	.88

Table 2. *Significance Tests and Effect Sizes for the Effects of Power on the Ease of Lying*.

Indication of stress/conflict	*t*	Effect size *r*
Negative moral emotion (Figure 2)	2.53*	.36
Cognitive conflict (Figure 3)	2.12*	.36
Cortisol reactivity (Figure 4)	2.57*	.31
Nonverbal stress/conflict overall (Figure 5)	2.58**	.37

Note: * $p < .05$, ** $p < .01$; planned contrast tested across low-power liars, high-power liars, low-power truth-tellers, and high-power truth-tellers (weights 3, -1, -1, -1). Across all variables spanning emotion, cognition, cortisol reactivity, and nonverbal indications of stress/conflict, the high-power liars found the mock theft and subsequent lie as “easy” and as stress-free as the truth-tellers. Only the low-power liars exhibited signs of moral conflict, cognitive impairment, and stress.

Figure Captions

Figure 1. Instruction screens for the high stakes mock crime. All participants received the first, second, third, and fifth screen. The critical "steal" versus "no steal" between-participants condition instructions are depicted in the two screens marked "Screen 4."

Figure 2. Like truth-tellers, high-power liars show no emotional distress following the mock crime and lie; only low-power liars report feeling negative moral emotions (a composite of: bashful, guilty, troubled, scornful). Error bars are *SE*s.

Figure 3. Like truth-tellers, high-power liars show no evidence of cognitive impairment indicative of cognitive conflict following the mock crime and lie; only low-power liars show evidence of cognitive impairment. Error bars are *SE*s.

Figure 4. Like truth-tellers, high-power liars show no evidence of cortisol reactivity during the mock crime and lie; only low-power liars show evidence of cortisol reactivity (Y-axis is cortisol at time 2 controlling for baseline cortisol). Error bars are *SE*s.

Figure 5. Like truth-tellers, high-power liars show no nonverbal tells indicative of emotional or cognitive conflict or physiological stress; only the low-power liars leak their internal conflict and stress through subtle nonverbal tells (composite of: accelerated prosody, cooperativeness, immediacy, lip presses, nervousness, one-sided shoulder shrugs, speaking time, and vocal uncertainty). Error bars are *SE*s.

Figure 6. The effects of power and lie-telling on each of the eight individual nonverbal behaviors are depicted in eight separate panels. Panels A, B, C, and D show the same pattern as was found on emotion, cognition, and cortisol. Across accelerated prosody, lip presses, partial shoulder shrugs, and vocal uncertainty, high-power liars—like truth-tellers—show no signs of internal conflict or stress. In panel E a post-hoc contrast revealed that the one tell differentiating high-

power liars from the others is immediacy—high-power liars are more cold, less intimate, and less interested when lying. Panel F shows that for cooperativeness, there was a main effect of lie vs. truth such that truth-tellers were more cooperative than liars. Panels G and H show no differences among the four groups on nervousness or speaking time. Error bars are *SE*s.

Screen 1

We were very serious when we told you about possibly stealing the $100. This is a very real situation. On the next page you will be told whether you ARE or ARE NOT to steal the money. When you are ready, click "continue."

Screen 2

Go over to the books and find the white envelope stashed in the books. When you have the white envelope in your hand, come back to the computer and click "continue."

Screen 3

Do you have the envelope in your hand? If so, click "continue."

Screen 4: Steal Condition

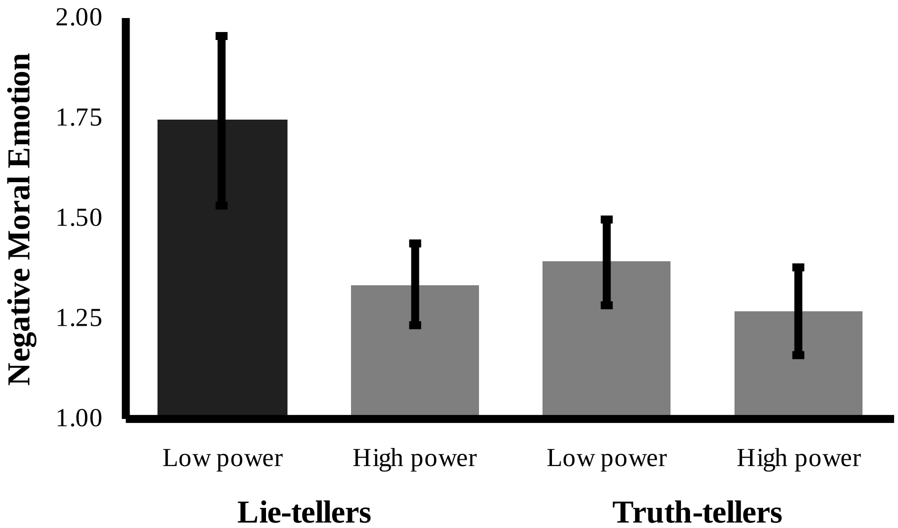
STEAL THE MONEY OUT OF THE ENVELOPE!!! Be very quiet. Put the envelope and books back exactly as you found them. Put the money ON YOU somewhere - pocket, sock, wherever but make sure the experimenter can't see it (obviously). When you are done STEALING the money come back to the computer and click "continue."

Screen 4: No Steal Condition

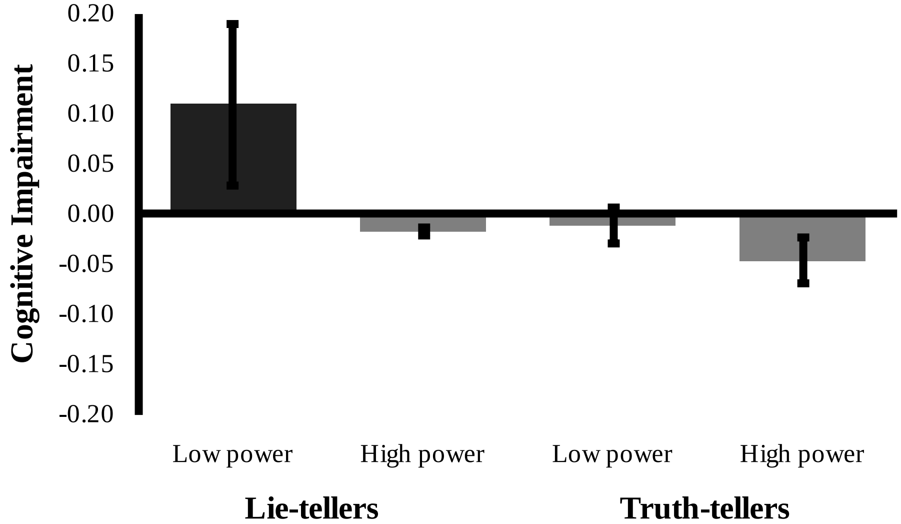
DO NOT steal the money in the envelope. Leave the money in the envelope and put it back where you found it. Be very quiet. Put the envelope and books back exactly as you found them. When you are done putting the money and envelope back in the books, come back to the computer and click "continue."

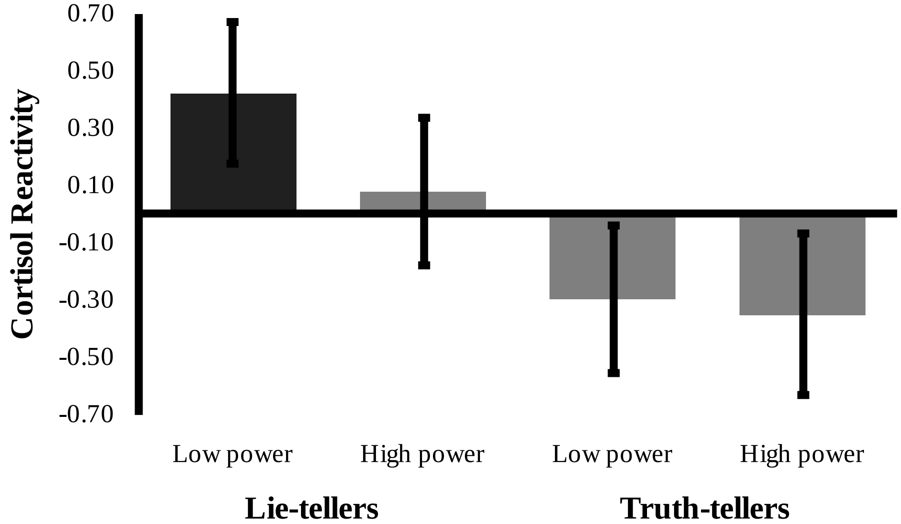
Screen 5

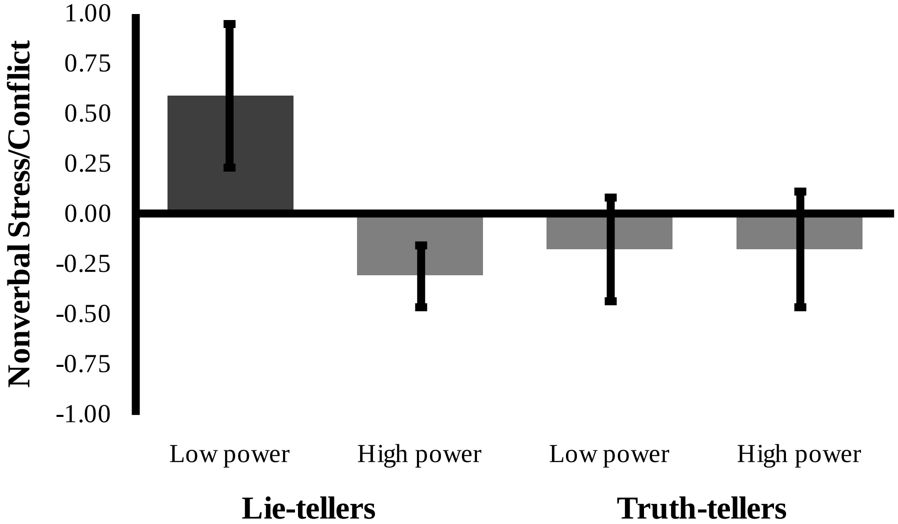
OK. No matter what, you have to convince the experimenter that you did not steal the money. If you can convince the experimenter that you did not take the money you GET TO KEEP IT AND TAKE IT HOME WITH YOU TODAY!! Also, if you successfully convince the experimenter that you did not take the money, You WILL be entered into a lottery to win $500. Literally only 100 or so people will be in this lottery so your odds are EXCELLENT. The stakes are high here- this money is yours to loose. Press "continue" to go to the next screen.



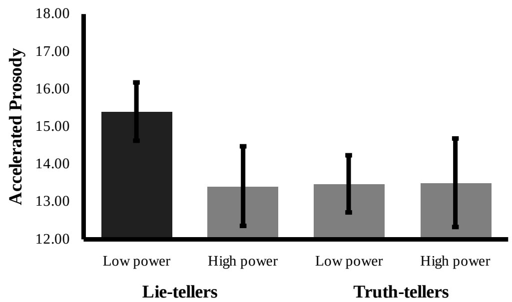
2.00
1.75
1.50
1.25
1.00
Negative Moral Emotion
Low power
High power
Low power
High power
Lie-tellers
Truth-tellers


0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
Cognitive Impairment
Low power
High power
Low power
High power
Lie-tellers
Truth-tellers


0.70
0.50
0.30
0.10
-0.10
-0.30
-0.50
-0.70
Cortisol Reactivity
Low power
High power
Low power
High power
Lie-tellers
Truth-tellers

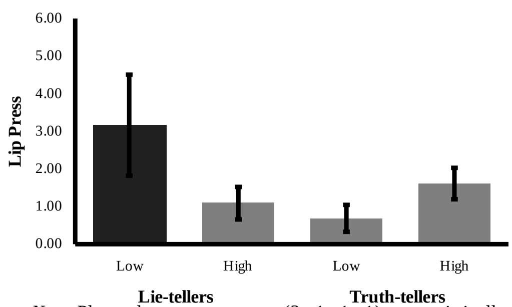

Nonverbal Stress/Conflict
1.00
0.75
0.50
0.25
0.00
-0.25
-0.50
-0.75
-1.00
Low power
High power
Low power
High power
Lie-tellers
Truth-tellers

A



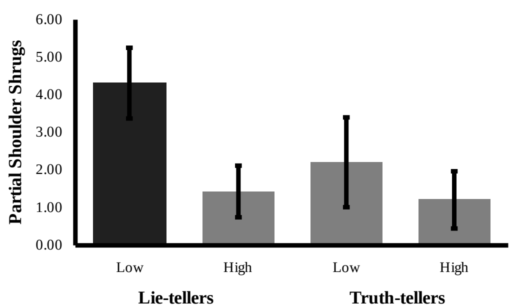
Note: Planned contrast sequence (3, -1, -1, -1) was statistically significant: $t = 1.85$, $p < .07$; $r = .27$

B



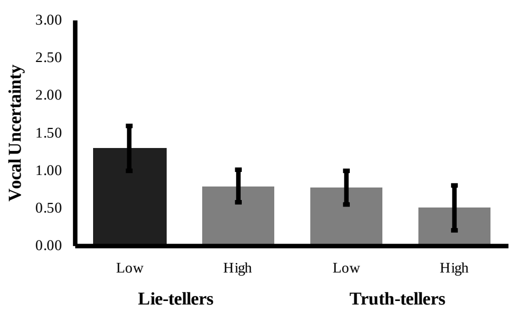
Note: Planned contrast sequence (3, -1, -1, -1) was statistically significant: $t = 2.19$, $p < .05$; $r = .32$

C



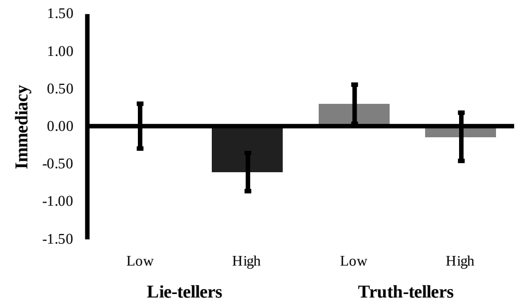
Note: Planned contrast sequence (3, -1, -1, -1) was statistically significant: $t = 2.67$, $p < .01$; $r = .38$

D



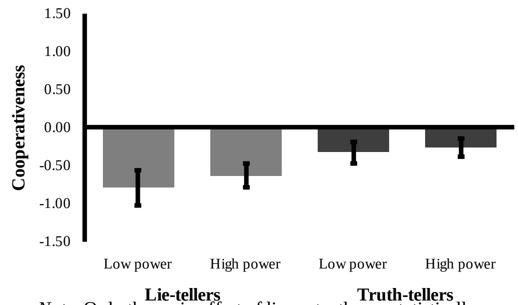
Note: Planned contrast sequence (3, -1, -1, -1) was statistically significant: $t = 2.10$, $p < .05$; $r = .31$

E



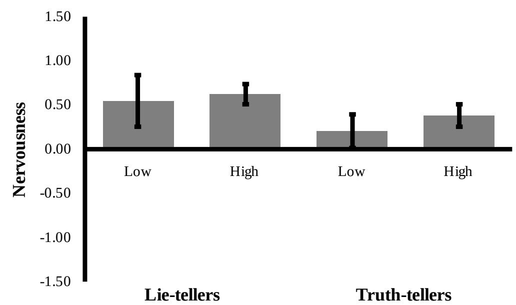
Note: Only the post-hoc contrast sequence (1, -3, 1, 1) was statistically significant: $t = 2.03$, $p < .05$; $r = .30$

F



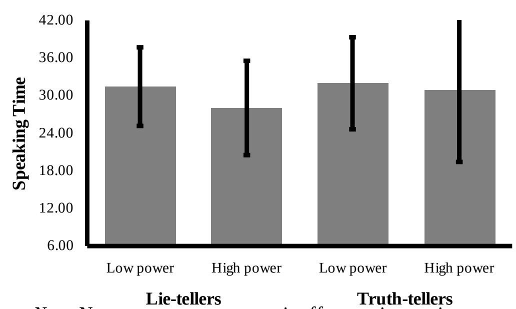
Note: Only the main effect of lie vs. truth was statistically significant: $t = -2.36$, $p < .05$; $r = .34$

G



Note: No contrast sequences, main effects, or interactions were statistically significant

H



Note: No contrast sequences, main effects, or interactions were statistically significant