Preparatory Power Posing Affects Nonverbal Presence and Job Interview Performance

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Abstract

We tested whether engaging in expansive (vs. contractive) "power poses" *before* a stressful job interview – preparatory power posing – would enhance performance *during* the interview. Participants adopted high-power (i.e., expansive, open) poses or low-power (i.e., contractive, closed) poses, and then prepared and delivered a speech to two evaluators as part of a mock job interview. All interview speeches were videotaped and coded for overall performance and hireability, and for two potential mediators: verbal content (e.g., structure, content) and nonverbal presence (e.g., captivating, enthusiastic). As predicted, those who prepared for the job interview with high- (vs. low-) power poses performed better and were more likely to be chosen for hire; this relation was mediated by nonverbal presence, but not by verbal content. While previous research has focused on how a nonverbal behavior that is enacted *during* interactions and *observed* by perceivers affects how those perceivers evaluate and respond to the actor, this experiment focused on how a nonverbal behavior that is enacted *before* the interaction and *unobserved* by perceivers affects the actor's performance, which, in turn, affects how perceivers evaluate and respond to the actor. This experiment reveals a theoretically novel and practically informative result that demonstrates the causal relation between *preparatory* nonverbal behavior and *subsequent* performance and outcomes.

Key Words: Power Posing, Social Evaluation, Nonverbal Behavior, Job Interviews, Presence, Posture

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In the moments before walking into a stressful social evaluation, such as an interview, many people—already aware of their relative powerlessness—shrink in their seats or hunch over their phones, adopting nonverbal postures that can cause them to feel even more powerless (Carney, Cuddy, & Yap, 2010). How does this slumped, small, closed posture affect subsequent performance? What if they did the opposite before the interview—stretching out and claiming more physical space, rather than contracting and taking up less? Can adopting a powerful (vs. powerless) posture immediately *before* entering a stressful social evaluation actually influence performance and outcomes? The current paper tests this question in the domain of job interviews – perhaps the most commonly experienced stressful social evaluation.

In both human and non-human primates, expansive, open postures reflect high power whereas contractive, closed postures reflect low power (Carney, Hall, & Smith LeBeau, 2005; de Waal, 1998; Hall, Coats, & Smith LeBeau, 2005). For example, when crossing the finish line, athletes taking first place spontaneously raise their arms in a 'V', expand their chests, and lift their chins, while athletes finishing later in the competition slump their shoulders and narrow their chests (Tracy & Matsumoto, 2008). Similarly, high status chimpanzees inflate and pound their chests to display victory, while lower status chimps submissively contract their chests and limbs inward (de Waal, 2008).

But, just as smiling both reflects and produces positive mood (e.g., McIntosh, 1996; Strack, Martin, & Stepper, 1988), these expansive postures both reflect and produce power, in the following ways. In contrast to low-power poses, adopting high-power poses boosts feelings of power, confidence, self esteem, risk tolerance, mood, action orientation, memory for positive words and concepts, and pain tolerance, while reducing feelings of fear (Bohns & Wiltermuth,

2012; Carney, Cuddy, & Yap, 2010; Carney, Cuddy, & Yap, in press; Huang, Galinsky, Gruenfeld, & Guillory, 2011; Michalak, Rohde, & Troje, 2014; Nair, Sagar, Sollers, Consedine, & Broadbent, 2014; Park, Streamer, Huang, & Galinsky, 2013; Yap, Wazlawek, Lucas, Cuddy, & Carney, 2013). Holding an expansive posture also increases both salivary and blood serum levels of testosterone, a hormone associated with dominant and status-seeking behaviors, and decreases salivary and blood serum levels of cortisol, a hormone associated with stress, low social status, and relatively submissive behaviors (Carney et al., 2010; Minvaleev, Nozdrachev, Kir'yanova, & Ivanov, 2004; for a review of the social endocrinology research on testosterone, cortisol, and behavior, see Knight & Mehta, 2014). Moreover, enacting high-power poses produces stronger effects on thought abstraction and action orientation than do classic, explicit power manipulations that do not involve physical posture, such as role assignments and recall primes (Carney et al., in press; Huang et al., 2011).

Acquiring power causes a bevy of psychological and behavioral changes that could improve a person's performance and outcomes in stressful social evaluations. First, power increases cognitive processing and goal-oriented behaviors, which could cause an individual to appear more intelligent and organized (Guinote, 2007; Smith, Dijksterhuis, & Wigboldus, 2008; Smith, Jostmann, Galinsky, & van Dijk, 2008). Second, powerful individuals tend to feel more positive and optimistic, and become more approach oriented, which could increase the enthusiasm and confidence they project (Anderson & Berdahl, 2002; Anderson & Galinsky, 2006; Keltner, Gruenfeld, & Anderson, 2003). Third, power decreases anxiety, self-reported stress, and cortisol, while increasing testosterone; these changes could make an individual more calm and collected in the most stressful situations (Carney, Yap, Lucas, Mehta, McGee, & Wilmuth, under review; van Honk, Tuiten, Verbaten, van den Hout, Koppeschaar, Thijssen, & de

Haan, 1999). Furthermore, high basal (i.e., a person's average circulating level) testosterone coupled with low basal cortisol—a hormone profile that can be temporarily induced by adopting a high-power pose for two minutes (Carney et al., 2010; Minvaleev et al., 2004) —is characteristic of effective leaders and is associated with increased engagement and better performance in competitive tasks (Sherman, Lee, Cuddy, Renshon, Oveis, Gross, & Lerner, 2012; Mehta, Jones, & Josephs, 2008; Mehta & Josephs, 2010).

Regardless of power's performance-boosting potential in stressful social evaluations, it is often difficult or risky to deliberately and overtly attempt to change the power dynamics during such a situation. In dyadic interactions involving power asymmetries, mimicking the dominant or submissive nonverbal behavior of the other person (e.g., dominance in response to dominance) decreases both mutual liking and comfort (Tiedens & Fragale, 2003; Wiltermuth, Tiedens, & Neale, 2012). Moreover, in many types of interactions, hierarchical status dictates which party should or should not signal power; generally, the higher-status individual can signal power without violating norms or expectations, whereas the lower-status individual cannot (Magee & Galinsky, 2008). Thus, in a job interview, a candidate who nonverbally displays too much power would likely be breaching these norms, running the risk of eliciting some sort of punitive backlash.

Candidates often attempt to manage the interpersonal dynamics and outcomes of job interviews by deliberately enacting nonverbal or verbal behaviors that they believe will cause the interviewer to form a more favorable impression of them. An extensive literature has examined how these impression management (IM) tactics influence job interview outcomes, and the results are mixed (Barrick, Shaffer, & DeGrassi, 2009). For example, one thorough examination of various IM tactics revealed significant effects for some verbal tactics (e.g., self promotion

through the use of positive self-descriptive trait terms or through the telling of personal success stories) but not for nonverbal tactics (e.g., frequent eye contact and smiling) (Gilmore & Ferris, 1989; Stevens & Kristof, 1995). However, these effects are attenuated or disappear as interviews become longer (Tsai, Chen, & Chui, 2005), are more structured or standardized (Barrick et al., 2009), and involve trained interviewers (Howard & Ferris, 1996). Many other variables moderate the extent to which IM tactics lead to positive versus negative hiring decisions, such as gender of both candidate and interviewer (Baron, 1986; Rudman, 1998; Von Baeyer, Sherk, Zanna, 1981), valence of the interviewer's affective state (Baron, 1987), and perceived similarity of the candidate to the interviewer (Judge, Cable, & Higgins, 2001). And, perhaps more important, as candidates increase their use of nonverbal IM tactics, interviewers begin to perceive the candidates as inauthentic and manipulative, leading to negative evaluations and hiring decisions (Baron, 1986). In short, deliberately managing nonverbal and verbal behaviors during job interviews, in attempt to influence interviewers' impressions and decisions, is a risky strategy that can lead to poor job interview evaluations and negative hiring decisions. To our knowledge, the study presented here is the first to examine the effects of adopting nonverbal behaviors *before*, as opposed to *during*, a job interview, which has the potential to yield favorable outcomes without carrying the risks that can come with deliberate management of nonverbal behaviors during interviews.

We also sought to identify the mechanism through which preparatory power posing could exert effects on subsequent performance, considering two possible mediators: verbal content and nonverbal presence, both of which have been shown to affect judgments and outcomes in stressful social evaluations. First, how might each of these variables affect the outcomes of stressful social evaluations? Verbal content—the extent to which the content of the presentation

is intelligent, clear, and well structured (i.e., "what they said") —influences potential investors' evaluations of and level of interest in pursuing entrepreneurs' investment proposals (Clark, 2008), and, as noted above, self-promoting verbal content can positively influence hiring decisions (e.g., Stevens & Kristof, 1995), although this relationship is far more complicated for female candidates (e.g., Rudman, 1998). Nonverbal presence—the extent to which the speaker's presentation is enthusiastic, confident, and captivating (i.e., "how they said it") —significantly predicts job interviewers' general evaluations of applicants, call-backs, and final hiring decisions (Young & Kacmar, 1998). Studies that have looked at variables related to nonverbal presence tend to differ from the IM studies of nonverbal tactics reviewed above, in a fundamental way: presence-related nonverbal characteristics (e.g., enthusiasm) are not adopted calculatedly by the candidates. For example, applicants who unaffectedly demonstrate what Degroot and Motowidlo (1999) refer to as "high nonverbal cues" (e.g., higher affect, energy level, and pitch and amplitude variability) are significantly more likely to be invited back for a second interview than applicants who demonstrate "low nonverbal cues" (e.g., lower affect, energy level, and pitch and amplitude variability) (McGovern & Tinsley, 1978). Similarly, an examination of 185 videotaped two-minute pitches showed that venture capitalists were most likely to invest in entrepreneurs who displayed confidence, passion, and enthusiasm (Balachandra & Briggs, under review). Job candidates who fail to demonstrate enthusiasm tend to be judged as more anxious (Levine & Feldman, 2002), and anxious candidates, perceived as lacking confidence, are less effective communicators and less likely to perform well and be positively evaluated in job interviews (Gudykunst & Nishida, 2001; McCarthy & Goffin, 2004).

Second, how is power posing likely to affect verbal content and nonverbal presence? The impact of power on cognitive functioning and goal-orientation suggests that high-power poses

may increase the quality of verbal content, via positive effects on abstract thinking and executive function (Smith, Jostmann et al., 2008; Guinote, 2007). However, considerably more research indicates that high-power poses should impact nonverbal presence, by reducing stress and anxiety, and by increasing positive affect and optimism—all of which would presumably make an individual more confident, captivating, and enthusiastic (Anderson & Berdahl, 2002; Anderson & Galinsky, 2006; van Honk et al., 1999). For example, participants who delivered impromptu speeches while sitting in an expansive, upright posture were happier, less fearful, and conveyed more positivity, compared to participants who delivered speeches while sitting in a closed, slouched posture (Nair et al., 2014). Thus, a thorough review of these findings suggests that nonverbal presence is more likely than verbal content to mediate the predicted effect of power posing on job interview performance.

In the experiment presented here, we address the question: can *preparatory* power posing boost performance and shape outcomes in stressful social evaluations? Participants adopted either high-power or low-power poses immediately *before* taking part in a stressful mock job interview. One of the most common components of job interviews involves asking the candidate to respond to a very general question about why s/he should be hired (e.g., Huffcutt, Conway, Roth, & Stone, 2001), such as “What makes you a good candidate for this job?” or, simply, “Why should we hire you?” This type of question typically occurs early in the interview, and this timing contributes to candidates’ responses disproportionately affecting interview outcomes via confirmation biases that favor and reinforce first impressions (Dougherty, Turban, & Callender, 1994; Tetlock, 1983). This particular job interview task also closely resembles other stressful work-related evaluations, such as pitching an idea, promoting a product, or delivering a speech, allowing for greater generalizability of our findings. To operationalize this common job

interview task, we instructed participants to explain to two experienced evaluators, in a five-minute speech, their qualifications, strengths, and reasons why they should be chosen for the job. Evaluators were trained to withhold any and all verbal and nonverbal feedback (both positive and negative) during the speech, for two reasons: (1) to make the task particularly stressful (described in more detail in the Methods), and (2) to minimize the amount of dynamic candidate-interviewer interaction so that we could be certain effects were being produced via intrapersonal, not interpersonal, mechanisms. Hypothesis- and condition-blind coders then evaluated participants' performance, hireability, verbal content, and nonverbal presence. Specifically, this study allows us to test the hypotheses that (1) power posing *before* a stressful mock job interview improves performance during the interview, and (2) this effect is mediated by an increase in nonverbal presence evident during the interview.

Methods

Participants and Procedure

Sixty-six students at a private East Coast university participated in a study called "Physical Motion and Performance," for which they were paid $15. Four participants did not understand the instructions for the speech task and one participant did not maintain the power poses during speech preparation; these five participants were excluded from analyses, reducing the total *N* to 61 (40 women and 21 men; 22 white, 12 black, 20 Asian, 5 Latino, 2 other). Participants were randomly assigned to adopt either a high-power (i.e., expansive and open) or low-power (i.e., contractive and closed) pose.

Power Pose Manipulation. Each participant adopted one of two standing poses (as used in Yap et al., 2013): they stood with hands on their hips, elbows pointing out and feet approximately 1' apart (high-power); or they stood with hands and arms wrapping around the

torso and feet together (low-power). Figure 1 presents illustrations of the specific poses. Participants maintained the poses for a total of five to six minutes while preparing for the job interview speech. Instructions for the experimental conditions were as follows[i]:

High-power pose condition.

This study is about physical motion and performance. There is a physical position we'd like you to try out. If you could stand up and sort of stand with your two feet apart and hands on your hips like this [experimenter demonstrated for participant]. Get comfortable in this pose for a minute while I go set something up. Just get comfortable in this physical position and I will be back in one minute [If needed, experimenter adjusted the participant's posture by lightly touching arms and legs].

Low-power pose condition.

This study is about physical motion and performance. There is a physical position we'd like you to try out. If you could stand up and sort of stand with your feet together and crossed over and your arms and hands wrapped around your torso like this [experimenter demonstrated for participant]. Get comfortable in this pose for a minute while I go set something up. Just get comfortable in this physical position and I will be back in one minute [If needed, experimenter adjusted the participant's posture by lightly touching arms and legs].

Job Interview Preparation. Immediately after holding a high- or low-power pose for one minute, participants were asked to, while maintaining the pose, imagine that they were about to interview for their dream job and were instructed to prepare and deliver a five-minute speech, detailing their strengths and qualifications and explaining why they should be chosen for the job, to two experienced evaluators. Poses were held throughout this five-minute preparatory period.

This task, excluding the poses, is a common adaptation of the Trier Social Stress Test (Foley & Kirschbaum, 2010; Kirschbaum, Pirke, & Hellhammer, 1993). As is typical of this task, the experimenters (i.e., the "experienced evaluators") wore white lab coats, made notations on clipboards, and displayed flat affect throughout the speeches. By displaying flat affect and refraining from giving encouraging nonverbal responses like smiling and head nods, the experimenters effectively deprived participants of real-time feedback and reaction to their performance, making this task particularly challenging. The experimenters were also instructed to avoid prompting or asking questions during the speeches, which is described by some as "best practice" in real job interviews because the use of prompts and follow-up questions tends to bias information gathering (Dipboye, 1994; Campion, Palmer, & Campion, 1997). However, if the participant stopped before the full five minutes ended, the experimenter said, "Please continue." Although the TSST speech task was already described to participants as part of a job interview (Williams, Hagerty, & Brooks, 2004), we further insured that participants experienced the task as a job interview by having the experimenters make several statements to remind them that it was a job interview (e.g., "You are about to interview for your dream job," and "Remember, you really want this job." See instructions below).

Participants were videotaped to verify that the poses were maintained throughout the preparation phrase and then received the following instructions:

> *Now what we are going to do is to have you prepare a speech. Imagine that you are about to interview for your dream job. We'd like you to stay in this position and think about what you will say. You will have 5 minutes to prepare then you will deliver your speech for five minutes to two evaluators. The other experimenter and I will evaluate your performance on the speech task. We will be evaluating your nonverbal behavior and*

what you say and how you say it. Remember, you really want this job. You should be honest and straightforward and talk about your experiences, strengths, and why you should be chosen for this job. You should keep this physical position while you are preparing the speech. To prepare, just think through what you want to say, and you may practice. I am going to turn on this video camera while you prepare. The camera is there so that we can later verify that you maintained this physical position. Remember, you are preparing for five minutes; then you will deliver a five-minute speech to two evaluators. Do you have any questions? I am turning on the video camera now and I will leave the room while you prepare. I will be back in five minutes.

Job Interview Speech. Upon returning, experimenters told participants that they could stand freely and did not have to maintain the pose during while delivering the speech. Participants were again videotaped, this time to allow for coding of the dependent variables. Instructions were as follows:

You can now stand however you like. I am [Experimenter #1's Name] and this is [Experimenter #2's Name]. We are both experienced evaluators. We will be evaluating how you perform on your speech on a number of different dimensions. We will be observing your nonverbal behavior and listening to what you say and how you say it. We will be taking some notes while you are giving your five-minute speech. The camera is rolling and you may begin whenever you are ready. Please begin by stating what your ideal job is.

Dependent Measures. Immediately after delivering their speeches, as a manipulation check, participants reported how *dominant, in control, in charge, powerful,* and *like a leader* they felt on a 5-point scale from 1 (*not at all*) to 5 (*a lot*). These five items showed high

reliability and thus were averaged into a composite ($\alpha = .89$). The difference between high-power and low-power posers' self-reported feelings of power (high-power: $M = 2.47$, $SD = 0.93$; low-power: $M = 2.04$, $SD = 0.93$) was marginally significant, $F(1, 60)=3.258$, $p = .076$ ($d = 0.46$, $\eta_p^2 = .053$) (see Table 2). This finding is consistent with past research showing that power posing has a weak impact on self-reported feelings of power despite its stronger effects on cognitive and behavioral outcomes (Carney et al., in press; Huang et al., 2011). Additionally, the manipulation check questions were asked after the stressful speech task, which could have depleted participants' conscious feelings of power.

Variable Coding

All coders were both hypothesis- and condition- blind.

Overall Performance and Hireability. Looking to Cable and Judge's (1997) seminal paper on hiring decisions, we designed measures of overall performance and hireability. Cable and Judge used a 5-point scale measuring the interviewer's overall evaluation of the candidate, from very negative to very positive, and a categorical measure: Did the organization extend an offer to the candidate (yes/no)? Similarly, our two coders coded the two primary dependent hiring-related variables: (1) *overall performance* ("Overall, how good was the interview?" 1 = awful, 7 = amazing) and (2) *hireability* ("Should this participant be hired for the job?" 1 = no, 2 = maybe, 3 = yes). We used a 3-point scale for hiring because we felt it best represented the 3-point evaluation system commonly used in interviews: when job candidates and college applicants are reviewed, they are (1) hired/accepted, (2) held for possible further consideration/waitlisted, or (3) not hired/admitted. Although we designed measures that we believed would best capture a wide range of real-world hiring and admissions decisions, certainly many of these decisions are more complex and involve multiple stages and dimensions.

Nonverbal Presence and Verbal Content. Two different coders coded the individual variables that comprise the two potential mediators, (1) *verbal content* and (2) *nonverbal presence*, using 7-point Likert-style scales (1 = not at all, 7 = extremely). The variables comprising *verbal content* were *qualified*, *intelligent*, *structured*, and *straightforward* ($\alpha = .89$), and the variables comprising *nonverbal presence* were *confident*, *enthusiastic*, *captivating*, and *awkward* (reverse-scored) ($\alpha = .79$).[ii]

As is standard procedure, the two coders responsible for the dependent variables rated the same 10% of the videos, and once inter-rater reliability was determined to be sufficiently high (i.e., $r > .80$), one of the coders rated the remaining 90% of the videos (Carney et al., 2005; Harrigan, Rosenthal, & Scherer, 2005)[iii]. This same procedure was employed for the coding of the potential mediators. Average inter-rater reliability was .90. Table 1 presents the inter-rater reliability for each coded nonverbal behavior.

Results

Overall Performance and Hireability

One-way analyses of variance (ANOVA) examined the effect of power poses on performance and hireability. As hypothesized, coders rated those who prepared with a high-power pose significantly higher on job interview performance than those who prepared with a low-power pose, $F(1, 60)=8.33$, $p = .005$ ($d = 0.73$). High-power posers were also rated significantly higher on hireability than low-power posers, $F(1, 60)=7.22$, $p=.009$, ($d = 0.68$) (see Table 2). Neither gender nor race of participant interacted with the power pose condition or affected any of the dependent variables (all p's $> .70$).

Mediation

To better understand *why* high-power posers received higher performance and hireability ratings, the possible behavioral mediators —verbal content and nonverbal presence—were simultaneously regressed onto the two dependent variables. Nonverbal presence predicted both performance (β = .772, t[60] = 6.24 p < .001) and hireability (β =.405, t[60] = 2.24, p = .029). Verbal content predicted neither performance (β = .049, t[60] = .40 p = .692) nor hireability (β = .139, t[60] = .77 p = .447).

Our next set of analyses tested mediation. Two separate series of analyses, one for performance and one for hireability, regressed (a) performance or hireability (the criterion) onto power pose (the predictor), (b) nonverbal presence (the mediator) onto power pose, and (c) performance or hireability simultaneously onto both power pose and nonverbal presence (see Figures 2 and 3). As predicted, nonverbal presence mediated the effects of power pose on both overall performance (Sobel Z = 2.21, p = .027) and hireability (Sobel Z = 2.03, p = .042). Bootstrap analyses of the indirect effect of condition on the outcome measures using 5000 repetitions found 95 percent confidence intervals for overall performance (BCa 95%, CI .093, 1.0299) and hireability (BCa 95%, CI .0318, .3733) that did not contain the value zero (see Table 3 for intercorrelations among all coded measures).

Body Expansiveness During the Speech

To rule out the possibility that body expansiveness *during* the speech inflated performance ratings by signaling high versus low power, we also coded the videos for body expansiveness during the speeches on a 7-point scale from 1 (*very contractive*) to 7 (*very expansive*). A one-way ANOVA revealed no significant body expansiveness difference between high-power (M = 0.48, SD = 1.76) and low-power posers (M = 0.47, SD = 1.47) during the interview F(1,59)=.001, p =.97, (d = 0.006, η_p^2 = .000).

Discussion

This experiment demonstrates that preparatory power posing affects individuals' presence while delivering a speech during a stressful job interview, which in turn influences judges' evaluations and hiring decisions. Compared to low-power posers, high-power posers appeared to better maintain their composure, project more confidence, and present more captivating and enthusiastic speeches, which led to higher overall performance evaluations. Beyond the findings specifically related to nonverbal behavior, power, and social evaluations, this is, to our knowledge, one of the first psychological studies that explicitly examines *presence*, a nonverbal variable that has not explicitly received much empirical attention but that likely plays a role in a wide range of social interactions.

Many social evaluations are characterized by a power asymmetry, such that the evaluator has control over the future of the individual being evaluated. By nonverbally manipulating their own sense of power, the high-power posers were effectively imbued with the psychological and physiological advantages typically associated with high power, despite their low-power position relative to the evaluators. Moreover, by adopting the poses *prior* to the social evaluation, the high-power posers avoided violating social norms dictating that low-power individuals should display submissive behaviors in order to complement the position of the high-power evaluator (Tiedens & Fragale, 2003).

Previous research has focused on how nonverbal behavior that is enacted *during* interactions and that is observed by perceivers affects how those perceivers evaluate and respond to the actor. For example, some studies have shown that smiling, gesturing, nodding, handshake quality, and leaning forward during an interview affect interviewers' evaluations of decisions about job candidates (Gifford, Ng, & Wilkinson, 1985; Hollandsworth Jr., Kazelskis, Stevens, &

Dressel, 1979; Parsons & Liden, 1984; Stewart, Dustin, Barrick, & Darnold, 2008; Word, Zanna, & Cooper, 1974). And, as reviewed above, a substantial body of research has examined the outcomes of using nonverbal IM tactics in job interviews, yielding mixed results (e.g., Barrick et al., 2009). This experiment goes further, demonstrating that nonverbal behavior enacted *before* an interaction can influence how a perceiver evaluates and responds to the actor, even when the perceiver has not observed the nonverbal display. As reported, high- and low-power posers did not differ in the extent to which they adopted expansive vs. contractive postures *during* the interview; it was *preparatory* power posing, which was not observed by perceivers, that impacted perceivers' evaluations and responses, via the actor's performance.

It is possible that power posing could boost participants' performance during the preparation phase, which could in turn improve performance during the actual interview. For example, via improved cognitive function, a well documented outcome of power manipulations (e.g., Smith et al., 2008), power posing could enable participants to write higher quality speeches. The results of this experiment do not support that alternative hypothesis, given that verbal content was not affected by the power pose condition. In our ongoing research, we are exploring whether and how power posing impacts preparation for social evaluations. We are also examining whether and how power posing changes other aspects of individuals' nonverbal behaviors, such as speed of movement, paralinguistic cues, facial expression, and economy of motion—all of which can implicitly signal power to others (Gruenfeld & Guillory, 2010; Hall et al., 2005; Stel, van Dijk, Smith, van Dijk, & Djalal, in press).

Several limitations should be addressed in future research. First, the current experiment found that preparatory power posing enhanced job candidates' performance when asked to explain why they should be hired for a particular job, a task that represents only one component

of a typical job interview. Because we sought to demonstrate that preparatory power posing could affect performance through intrapersonal processes without reinforcement from an interaction partner, we needed to limit the amount of dialogue and interaction between the candidate and the interviewer; by training the evaluators to withhold feedback, we were able to design a job interview task that met this criterion. Although the interaction in this study did not include a typical conversation, the nature of this interaction is critical to making the task especially stressful: receiving no feedback from the interviewers is unsettling and stress-inducing. As LaFrance has described, this type of interaction (i.e., one in which the person with whom you're interacting provides no nonverbal feedback) feels like "standing in social quicksand" (LaFrance, 2011). Furthermore, the evaluators frequently and explicitly reminded participants that they were being interviewed for a job, which insured that the participants would indeed experience the task as a job interview. However, in most interviews, candidates would be asked to answer more than one question, and the procedure would be longer and more dynamic (Arvey & Campion, 2006; Campion et al., 1997). Future research should look at whether the beneficial effects of preparatory power poses persist in an extended and more naturalistic interview context.

Second, the current experiment did not include a control condition, which makes it difficult to know if the effects should be attributed to the high-power or to the low-power condition. Scholars of the psychology of power have long debated this issue: what is the appropriate control condition when manipulating individuals' power? In a recent discussion, Magee and Smith (2013: 172-3) suggested, "To establish the relative strength of the effects of being low versus high in power, researchers have relied on comparing low- and high-power conditions to "control" or "baseline" conditions that are non-relational (e.g., write about your day

yesterday…; neutral semantic primes of concepts unrelated to social relations…). We recommend instead that researchers use the symmetrically dependent relationship as a comparison." Unfortunately, this is not an option for researchers studying nonverbal expressions of power. Research on the nonverbal display of power typically does not include a "no power" condition because it is not theoretically or practically clear what "no power" means. An alternative approach may be to include a medium power condition—however, the nonverbal communication literature has not yet determined what the nonverbal display of "medium power" looks like, and studies that have included a version of a neutral, moderate, or baseline nonverbal power condition have yielded very mixed results: sometimes the control condition yields results similar to the high-power condition (e.g., Allen, Gervais, & Smith, 2013); sometimes the control condition yields results similar to the low-power condition (e.g., Bohns & Wiltermuth, 2012); and sometimes the control condition yields results that vary, resembling the high-power condition on some measures and resembling the low-power condition on others (e.g., Tiedens & Fragale, 2013). Even so, we intuit that the effect is driven by both the high-power pose and the low-power pose. This intuition is based on our own earlier research showing that both low- and high-power poses caused significant changes in participants' basal cortisol and testosterone levels. Thus, there is reason to believe that both low and high preparatory power poses are exerting influence on presence and performance.

Third, the coders in our study were undergraduate students who had extensive training on coding both verbal and nonverbal content, but who were not experienced at interviewing candidates for real jobs. As noted above, the extent of a job interviewer's experience and expertise can affect hiring decisions (Howard & Ferris, 1996), so conducting field experiments

involving real job interviews will allow us to examine the effects with professional human resource personnel as evaluators.

"Begin to be now what you will be hereafter," wrote William James more than a century ago (as cited in Piironen, 2013). We are hopeful that preparatory power posing can serve as a simple tool to facilitate this kind of psychological and behavioral change, and are particularly interested in applications for people who chronically experience powerlessness resulting from lack of resources, formal power, or status. To that end, studies of preparatory power posing should extend across a wide variety of domains and populations. Several research teams have begun to do just this, launching experiments to examine the effects of preparatory power posing as a tool for victims of bullying and domestic violence, to attenuate stereotype threat effects, to reduce children's test anxiety and boost their test performance, to manage physical pain, to treat clinical depression, and to improve athletic performance, among others. In sum, the potential applicability of this simple, postural shift should be investigated across a much broader range of settings and circumstances, with an eye toward identifying critical boundary conditions and contexts that could modify how and when posture affects people's thoughts, feelings, and behaviors.

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Acknowledgments

The authors enthusiastically thank Madeline Bernstein, Christina Leonelli, Brian Lucas, James McGee, Pranjal Mehta, Emily Rutter, and Vera Sundström for their enormous contributions to conducting this research, and to Vanessa Bohns, Deborah Gruenfeld, Bob Josephs, Chris Oveis, Pam Smith, and Scott Wiltermuth for their very helpful feedback on drafts of this paper. We also thank Dailey Crafton and Cindy Rodriguez of Lockstep Studio, for designing, producing, and donating the graphic depictions of the high- and low-power poses (Figure 1). This research was partially supported by an NSF CAREER award (#1056194) to DRC.

Figure 1

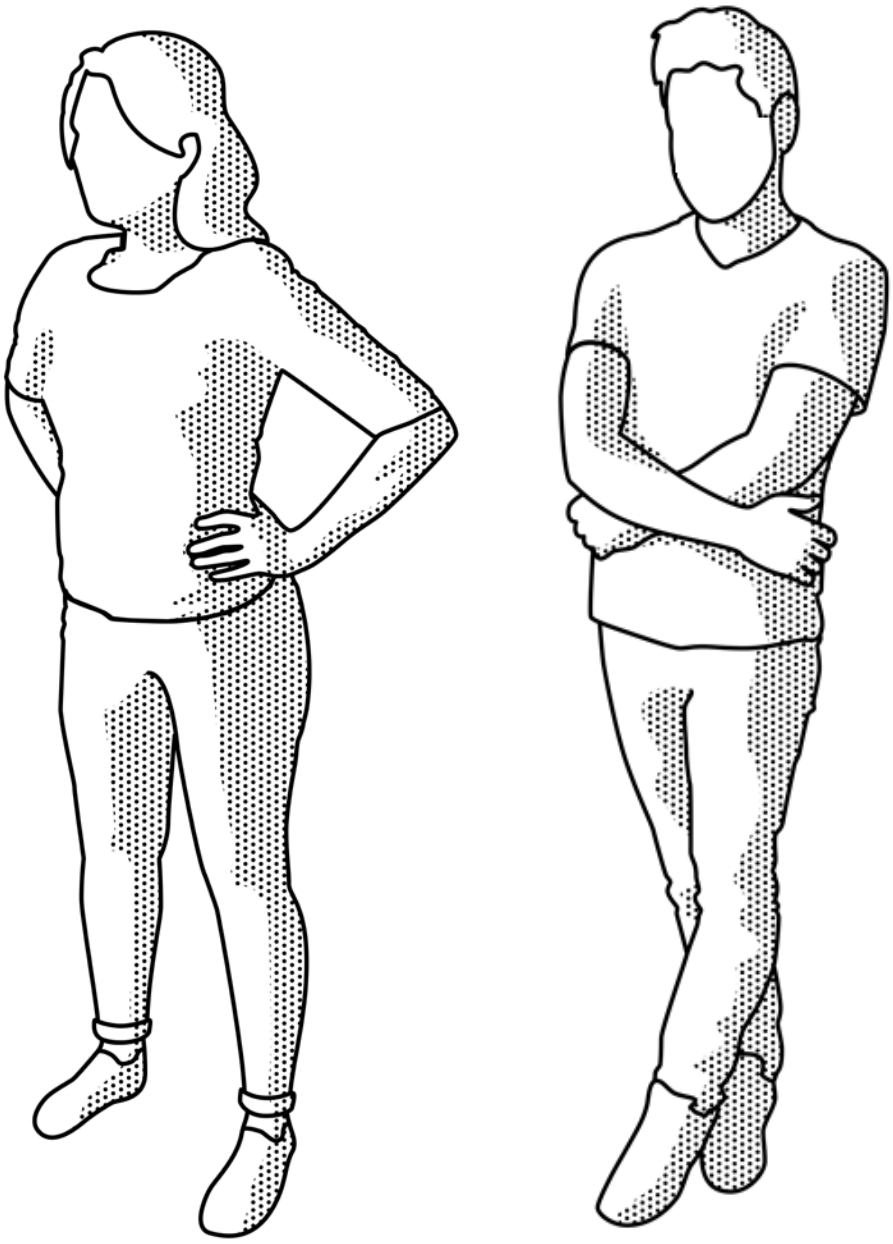

Figure 1. Images depicting the high-power (left) and low-power (right) poses adopted by participants in this experiment.

Figure 2

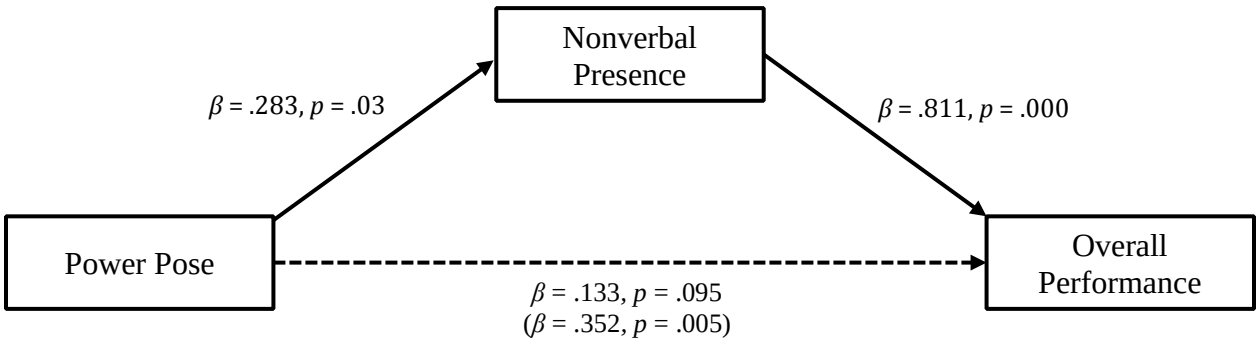

Figure 2. Regression analyses showing that nonverbal presence mediated the effect of power pose on overall performance.

Figure 3

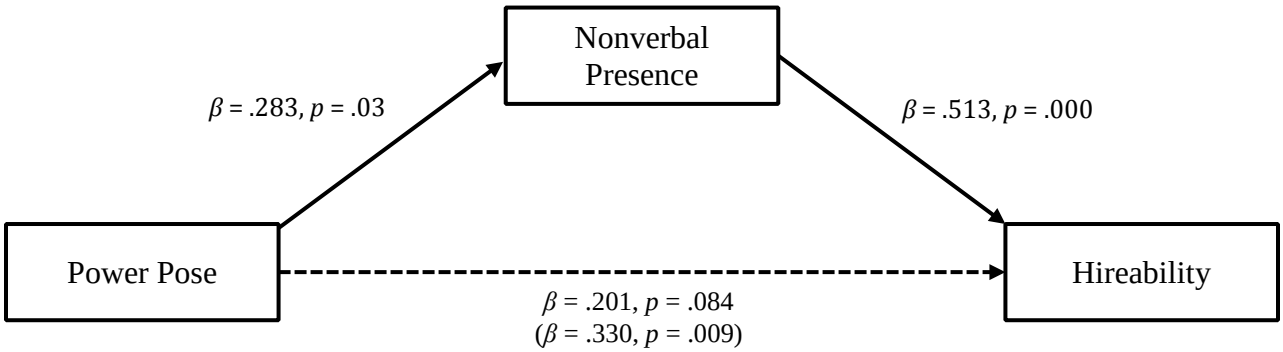

Figure 3. Regression analyses showing that nonverbal presence mediated the effect of power pose on ratings of whether or not the person should be hired.

Table 1

Variable Descriptions and Inter-Rater Reliabilities

Variable	Description / Coder Instruction	Inter-rater Reliability (*r*)
Expansiveness	How expansive was the speaker's body?	.96
Performance		
Overall performance	How good was the interview?	.97
Hireability	Should this person be hired for the job?	.80
Nonverbal presence (α = .79)		
Enthusiastic	How enthusiastic was the speaker?	.88
Captivating	How well did the speaker capture your attention?	.81
Confident	How confident was the speaker?	.95
Awkwardness (reverse-scored)	How awkward was the speaker?	.92
Verbal content (α = .89)		
Structured	How well organized and structured was the speech?	.89
Straightforward	How straightforward was the speech?	.93
Intelligent	How smart and intelligent was the speech?	.94
Qualified	How impressive were the qualifications that the speaker mentioned in the speech?	.87

Table 2

Means and standard deviations for all study variables

Variable	Scale Range	High Power Means (Standard Deviations)	Low Power Means (Standard Devations)
Manipulation Check:			
Self-reported power (composite, α = .89)	1-5	2.47 (0.93)	2.04 (0.93)
Dominant	1-5	2.23 (1.14)	1.57 (0.94)
In control	1-5	2.90 (1.13)	2.47 (1.07)
In charge	1-5	2.23 (1.19)	1.93 (0.98)
Powerful	1-5	2.53 (1.20)	2.17 (1.18)
Like a leader	1-5	2.47 (1.20)	2.07 (1.17)
Dependent Variables:			
Overall Performance	1-7	4.63 (1.16)	3.81 (1.08)
Hireability	1-3	2.43 (0.63)	2.00 (0.63)
Potential Mediators:			
Verbal Content (composite, α = .89)	1-7	5.34 (1.13)	4.93 (1.34)
Qualified	1-7	5.73 (1.11)	5.39 (1.60)
Intelligent	1-7	5.77 (1.19)	5.39 (1.36)
Structured	1-7	4.83 (1.51)	4.29 (1.68)
Straightforward	1-7	5.03 (1.38)	4.65 (1.52)
Nonverbal Presence (composite, α = .79)	1-7	4.85 (1.04)	4.20 (1.18)

Confident	1-7	5.63 (1.56)	4.74 (1.63)
Enthusiastic	1-7	4.27 (1.55)	3.77 (1.36)
Captivating	1-7	4.17 (1.23)	3.45 (1.31)
Awkward (reverse-scored)	1-7	5.32 (1.34)	4.79 (1.29)
Body Expansiveness	1-7	0.48 (1.76)	0.47 (1.47)

Table 3

Intercorrelations among all study variables

	Overall Performance	Hireability	Self-Reported Feelings of Power	NVB Presence	Speech Content	Body Expansiveness
Overall Performance	1	--	--	--	--	--
Hireability	.622**	1	--	--	--	--
Self-Reported Feelings of Power	.139	.252	1	--	--	--
NVB Presence	.811**	.513**	.164	1	--	--
Speech Content	.655**	.456**	.261*	.784**	1	--
Body Expansiveness	-.076	-.136	-.082	.183	.022	1

Note. *$p < .05$, **$p < .01$, ***$p < .001$. NVB Presence = Nonverbal Presence.

[i] A subset of the participants adopted two separate high- or low-power poses, but for the same total amount of time as the other participants, who adopted only one pose. We found no effects of adopting one vs. two poses. After the interviews, the participants in the study completed additional measures and a small subset of the participants (< 15%) in the current report overlapped with the subjects used for a separate project.

[ii] The coders of overall performance and hireability were instructed to imagine themselves as the interviewer; however, coders of the mediator variables were not given that instruction.

[iii] For the 10% of the videos coded by two coders, the code used in the analyses was that of the coder who rated the remaining 90% of the videos.