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Alice Moon, Serena Chen

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The Power to Control Time: Power Influences How Much Time (You Think) You Have

Alice Moon and Serena Chen

University of California, Berkeley

Corresponding Author:

Alice Moon, University of California, Department of Psychology, 4143 Tolman Hall, Berkeley, CA 94720; Phone: +1-510-642-5050; Email: [alicemoon@berkeley.edu](mailto:alicemoon@berkeley.edu).

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## Abstract

Time, because of its unrenowable nature, has often been called an equalizing resource. Though objectively, time is identical for everyone, time perception has been found to be a subjective experience that can be distorted by psychological cues; however, little research has examined individual and situational factors that influence time availability. Based on past research on power and illusory control, we hypothesized that powerful individuals would perceive having more available time as a consequence of their perceived control over time. Four studies experimentally demonstrated that power increases perceptions of available time, and that perceived control over time underlies this effect (Study 3). Finally, we provided initial evidence that increases in perceived time availability leads powerful individuals to feel less stressed (Study 5).

Keywords: Power; Time; Control; Stress

### The Power to Control Time: Power Influences How Much Time (You Think) You Have

In the dystopian world of the movie "In Time," time is currency. The time-poor live minute to minute, trying to earn enough time to live another day, whereas the time-rich have enough time saved up to live forever. Of course, in reality, the powerful don't control time and unlike other resources, such as food or money, time is an equalizer: for all people, high and low in power alike, time is constantly being spent and can never be replaced. Due to the ever-diminishing nature of time, people often complain that they don't have enough time, and people who feel this time pressure are more likely to report being stressed (Carroll, 2008; Roxburgh, 2004).

Psychological time can be parsed into many different elements, and one element that is associated with well-being is that of perceived time availability (also known as time affluence and future time perspective and the counterpart to time scarcity). Perceived time availability is distinct from both time orientation (whether a person is focused on the past, present, or future), subjective duration (how long a stimulus is estimated to have occurred or to occur in the future), and temporal distance (the psychological distance to a particular event). Though perceived time availability is thought to be important in other disciplines, such as sociology and clinical psychology, there is a relative dearth of social psychological research on this topic. Virtually no research has examined whether there are situational or individual differences that cause one to perceive having more or less available time.

Despite the fact that everyone *objectively* has the same amount of time, powerful individuals could *subjectively* perceive having more time. Why might power increase one's perceived amount of time? We propose that power leads people to feel as though they have more *control* over their time, which results in more optimistic time assessments. In fact, powerful

individuals believe they have control over outcomes that they could not possibly control, such as the outcome of a die roll (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009). If powerful individuals also feel they have control over their time, it stands to reason that they may also feel they *have* more time. For example, the CEO who can delegate her tasks to her subordinates may feel she has more available time than the assistant who has to follow his supervisor's orders and undertake additional tasks.

While no research has explicitly examined power and perceived time availability, a growing literature on power and time-related phenomena converges with the idea that power may increase one's perception of time. For instance, high-power individuals, compared to low-power individuals, have been found to be especially biased in underestimating the amount of time they expect tasks to take (Weick & Guinote, 2010). These optimistic predictions of task durations could lead high-power individuals to also feel as though they have more time. Power has also been found to decrease temporal discounting (Joshi & Fast, 2013). Because past research indicates that having an expanded time horizon (i.e., feeling as though you have more time) leads to less discounting (Zauberman, Kim, Malkoc, & Bettman, 2009), an increase in perceived time availability could also contribute to power's effect on temporal discounting. Though the aim of this paper is not to replicate the already established effects of power on these time-related phenomena, these results are consistent with our hypothesis that power may be related to an increase in perceived time availability.

In the present research, we tested the hypothesis that power increases one's perceived amount of time due to increased perceived control over time. Across studies, we also ruled out the alternate explanation of optimism. In addition, we pinpointed a possible downstream consequence of perceived time availability – namely, stress. Lack of time has long been

considered a substantial stressor (e.g., Hamilton & Fagot, 1988), and research suggests that both power (Sapolsky, 2005; Sherman et al., 2012; Carney et al., 2012) and perceived control over time (Macan, Shahani, Dipboye, & Phillips, 1990) are associated with reduced stress.

We first conducted a pilot study in which 56 undergraduate students completed an online questionnaire. Trait power was measured using the eight-item Personal Sense of Power Scale (Anderson, John, & Keltner, 2012), and perceived time availability was measured using a seven-item scale combining select items from the Future Time Perspective Scale (Carstensen & Lang, 1996) and a Perceived Time Availability Index (Rudd, Vohs, & Aaker, 2012)<sup>1</sup>. The items were: “I feel like most of my life lies ahead of me,” “I feel like there is plenty of time left in my life to make new plans,” “I have the sense that time is running out” (reverse-scored), “My future seems infinite to me,” “Time is expanded,” “Time is slipping away” (reverse-scored) and “I have a lot of time in which to get things done.” Higher trait power was associated with greater perceived time availability,  $r(56)=.38, p=.004$ , even when controlling for trait optimism (Scheier, Carver, & Bridges, 1994),  $r(53)=.28, p=.04$ . Encouraged by these initial results, Study 1 was designed to test the causal relationship between power and perceived time availability.

### **Study 1: Power Increases Perceived Time Availability**

#### **Method**

##### **Participants**

One hundred and two undergraduates (77.5% female; mean age=20.0 years) completed an online survey via the Psychology Department subject pool on “how visualization influences

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<sup>1</sup> In separate studies, we found the same significant results when using Carstensen and Lang (1996)’s full scale (both correlationally and experimentally), but decided that the full scale overlapped too much with the construct of optimism. Therefore, we used the scale that we constructed for all studies.

attitudes” for course credit. Four participants in the high-power condition were excluded, because they failed an attention check (see Online Supplementary Material for details); the results remained significant when including these participants.

### **Procedure**

Participants were primed with either a high-power ( $n=50$ ) or low-power ( $n=52$ ) role by visualizing themselves in an interview scenario as either the interviewer (high-power role) or the interviewee (low-power role; see Online Supplementary Material for additional details). Afterward, they completed a manipulation check and reported their perceived time availability and optimism using the same scales as in the pilot study. For all ratings participants were asked to respond in terms of how much they agreed with the statements “right now” – that is, how they felt in that moment (and not as part of the visualization).

### **Results and Discussion**

Participants rated their agreement with the manipulation-check item “I feel like I have a great deal of power” on a 5-point scale. High-power participants felt they had more power ( $M=3.83$ ;  $SD=0.80$ ) than low-power participants ( $M=2.27$ ;  $SD=0.82$ ),  $F(1, 96)=90.38$ ,  $p<.001$ .

As expected, high-power participants felt they had more time ( $M=4.51$ ;  $SD=0.93$ ) than low-power participants ( $M=3.98$ ;  $SD=1.01$ ),  $F(1, 96)=7.10$ ,  $p=.01$  (see Figure 1). This result held even when controlling for optimism,  $F(1,95)=4.29$ ,  $p=.04$ , suggesting that optimism did not account for the relationship between power and time availability.

### **Study 2: Replicating Study 1 in the Laboratory**

Study 2 aimed to replicate Study 1 in a controlled laboratory setting, using a power manipulation in which participants were led to believe they would be interacting with another

participant in a power-relevant setting, as opposed to the hypothetical power prime scenario used in Study 1.

## Method

### Participants

One hundred and four undergraduates (66.3% female; mean age=19.2 years) from the Psychology Department subject pool completed a lab session for course credit.

### Procedure

Participants came into the lab for an ostensible interaction study on how personality compatibility influences team problem-solving ability and were told that their partner was in the other room. After signing a consent form, participants were told that they would be solving brain teaser problems with the participant in the other room, and that for this interaction they would be assigned to one of two roles: boss (high-power) or employee (low-power). Once assigned to their roles, participants completed the dependent variables.

*Power manipulation.* Participants were randomly assigned to a high- (n=53) or low-power (n=51) role, and were given a folder containing a description of their role and a leadership survey (for similar methods, see, e.g., Anderson & Berdahl, 2002; Chen, Langner, & Mendoza-Denton, 2009). The boss-role description explained that the participant would direct the employee in the task, selecting which problems to attempt to solve, what to submit as final answers, and how to divide up the candy reward at the end of the task. The employee-role description explained that the participant would be directed by the boss, would not be able to select which problems to attempt or what to submit as answers, and would not have control over the division of the candy reward at the end of the task.



To further reinforce the power manipulation, once participants were assigned to their role, the experimenter directed them to either the high-power chair (one that was cushioned and adjusted so that it sat higher than the low-power chair) if they were assigned to be the boss, or the low-power chair (an ordinary desk chair) if they were assigned to be the employee (for similar methods, see Chen, Lee-Chai, & Bargh, 2001). Participants then filled out the side of the leadership survey included in the folder that corresponded to their role. To emphasize that there were two roles differing in power, the leadership survey included both employee and boss columns, and the experimenter directed participants to fill out only the side pertinent to their role. Moreover, each column of the survey asked participants to list a time in their lives they had been in a similar role (similar to the experiential prime used by Galinsky, Gruenfeld, & Magee, 2003), and indicate how they would divide (high-power) or anticipate the boss dividing (low-power) a seven-piece candy reward between themselves and their partner. To assess the effectiveness of our manipulation, participants were also asked to indicate to what extent in their assigned role they would be making the decisions in the upcoming task (1 = Not at all, 5 = Very much). Participants also rated the same manipulation-check item from Study 1. Finally, participants completed the same perceived time availability measure as in Study 1.

### **Results and Discussion**

In the analyses presented below, we excluded nine participants: four because they did not complete the leadership questionnaire, and five because the experimenter started the study 10 minutes or more after the 30-minute experiment was supposed to begin. The results remained significant when including these participants.

Supporting the effectiveness of our role-power manipulation, high-power participants reported that they would have greater control over the decision-making during the next task

( $M=3.71$ ,  $SD=.50$ ) than low-power participants ( $M=2.26$ ,  $SD=.74$ ),  $F(1, 93)=126.52$ ,  $p<.001$ .

High-power participants also reported that they felt they had more power ( $M=3.35$ ,  $SD=.60$ ) than low-power participants ( $M=2.87$ ,  $SD=.90$ ),  $F(1, 93)=9.46$ ,  $p=.003$ .

Replicating Study 1's key finding using a different manipulation of power, high-power participants felt they had more time ( $M=4.39$ ,  $SD=0.79$ ) than low-power participants ( $M=3.99$ ,  $SD=0.96$ ),  $F(1, 93)=4.88$ ,  $p=.03$  (see Figure 1).<sup>2</sup>

### **Study 3: Power Increases Perceived Time Availability By Increasing Perceived Control Over Time**

Study 3 aimed to replicate Studies 1 and 2 using a community sample and to investigate whether the underlying mechanism for the relationship between power and perceived time availability is perceived control over time.

#### **Method**

##### **Participants**

One hundred and three adults (43.7% female; mean age=32.2) from the U.S. were recruited from Amazon's Mechanical Turk (see Buhrmester, Kwang, & Gosling, 2011) to complete an online survey for \$0.50. Seven participants (three in the high-power and four in the

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<sup>2</sup> We also included a control over time measure (described in Study 3). Although providing evidence for mediation was not the main purpose of this study, high- and low-power participants did not differ in their perceived control over time. In retrospect, we realized that this was likely because the undergraduate participants in this study were asked about how much they had control over their time "right now", in the context of the experiment—a context in which the experimenter, and not participants, had control over time. To correct for this methodological oversight, we tested for mediation in Study 3 in which the context of the experiment allowed for participants to feel that they had control over their time (i.e., an internet survey that they completed at the time they chose to take it).

low-power conditions) were excluded because they failed an attention check (the same as in Study 1). The results remained significant when including these participants.

### Procedure and Measures

The procedure and materials were the same as in Study 1 with the addition of one measure. Before reporting their perceived time availability, high- (n=54) and low-power (n=49) participants also completed a state measure of perceived control over time, the five-item Perceived Control Over Time scale (Macan, 1994). On a 7-point scale, participants rated how much they agreed “right now” with items such as “I feel in control of my time,” “I find it difficult to keep to a schedule because others take me away from my work,” and “I must spend a lot of time on unimportant tasks” ( $\alpha=.75$ ).

### Results and Discussion

On the manipulation-check item, high-power participants reported they had more power ( $M=3.71$ ;  $SD=1.05$ ) than low-power participants ( $M=2.58$ ;  $SD=0.89$ ),  $F(1, 94)=31.93$ ,  $p<.001$ .

High-power participants felt they had more control over their time ( $M=4.95$ ;  $SD=1.06$ ) than low-power participants ( $M=4.41$ ;  $SD=1.18$ ),  $F(1, 94)=5.48$ ,  $p=.02$ . Replicating Studies 1 and 2, high-power participants also felt they had more time ( $M=4.74$ ;  $SD=1.25$ ) than low-power participants ( $M=4.16$ ;  $SD=1.12$ ),  $F(1, 94)=5.64$ ,  $p=.02$  (see Figure 1).<sup>3</sup>

As hypothesized, perceived control over time fully mediated the effect of power condition on perceived time availability (Preacher & Hayes, 2004; 95% confidence interval=[.0187, .2394]). In two additional studies, we took an experimental causal chain approach (Spencer, Zanna, & Fong, 2005) of mediation to bolster the hypothesis that perceived

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<sup>3</sup> Both the effect of power on perceived time availability,  $F(1, 93)=7.64$ ,  $p=.01$ , and the effect of power on perceived control over time,  $F(1, 93)=6.49$ ,  $p=.01$ , held when controlling for optimism.

control over time mediates the relationship between power and perceived time availability. Converging with the results of Study 3, manipulating perceived control over time increased participants' perceived time availability, supporting the notion that perceived control over time mediates the power-time availability link. On the other hand, manipulating perceived time availability did not affect participants' perceived control over time, suggesting that the relationship between perceived control over time and perceived time availability was not bidirectional. In fact, several of the participants who were asked to recall incidents in which they had greater time availability expressed themes of *low* control over their available time. For example, one participant wrote, "I had too much time. I didn't know what to do... I was bored." This provides evidence against the notion that perceived time availability mediates the relationship between power and perceived control over time.

#### **Study 4: Conceptually Replicating with A New Measure of Time**

In Studies 1 – 3, we established that power increases perceived time availability and established a mechanism (perceived control over time). One limitation of the previous studies, however, is that we used the same measure of perceived time availability in all of them. In Study 4, we aimed to conceptually replicate our key power-perceived time availability finding using a different measure of perceived time availability.

#### **Participants**

One hundred and one adults (38.6% female; mean age=35.02 years) from the U.S. were recruited from MTurk to complete an online survey for \$0.50. Two participants (one from each condition) were excluded because they failed an attention check (the same as in Studies 1, 3A, and 4). The results remained significant when including these participants.

#### **Procedure and Measures**

Participants completed a study ostensibly studying how visualization influences thoughts and feelings. The power manipulation was the same as in Studies 1 and 3. After the manipulation, participants completed the same attention check and manipulation checks as in Studies 1 and 3 and reported their perceived time availability. For all ratings, participants were asked to respond in terms of how much they agreed with the statements “right now.” Finally, participants completed a suspicion probe.

To measure perceived time availability, participants were told “People often think about time as a resource. Thinking about how much time you feel like you have for the future, please use the sliding scale below to indicate how much time you feel like you have.” The 101-point scale was labeled from “Very Little” to “A Lot”. Participants dragged the sliding scale to correspond to how much time they felt they had for the future.

To ensure that the purpose of the study was not overly obvious, raising the possibility of demand effects, we included a two-part suspicion probe. The items were: “Did you find anything strange or unusual about the study? If no, please state so,” and “What did you think was the main purpose of the study? If you have no idea, please state so.” Only three participants guessed the true purpose of the study. All analyses reported below exclude the three participants who guessed the purpose of the study and the two participants who incorrectly answered the same attention check as in the previous studies; however, the results remained significant and all conclusions were the same when including these participants.

### **Results and Discussion**

On the manipulation-check item, high-power participants reported they had more power ( $M=4.23$ ;  $SD=0.61$ ) than low-power participants ( $M=2.36$ ;  $SD=0.87$ ),  $F(1, 94)=151.91$ ,  $p<.001$ .

Conceptually replicating

our previous studies with a different measure of perceived time availability, high-power participants' dragging responses to the sliding time scale indicated that they felt they had more time ( $M=64.52$ ;  $SD=24.85$ ) than low-power participants' responses to this sliding scale ( $M=51.14$ ;  $SD=23.86$ ),  $F(1, 94)=7.17$ ,  $p=.01$ .<sup>4</sup>

### **Study 5: Power Decreases Stress by Increasing Perceived Time Availability**

Taken together, Studies 1-4 provided evidence that power increases perceived time availability by increasing perceived control over time. In Study 4, we examined a potential downstream consequence of perceived time availability. Specifically, based on past research showing that both power (Sapolsky, 2005; Sherman et al., 2012; Carney et al., 2012) and perceived control over time (Macan, Shahani, Dipboye, & Phillips, 1990) reduce stress, we tested whether power leads to lower levels of stress by virtue of greater perceived time availability.

Moreover, because in the previous studies we only contrasted high- and low-power conditions, we added an equal-power condition to determine whether high- and/or low-power were driving the effect of power on perceived time availability. We expected that the equal-power condition would fall in between the high- and low-power conditions.

## **Method**

### **Participants**

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<sup>4</sup> We included one additional measure of perceived time availability in this study that was more indirect. The 3 items included in this measure were: "I have time to make mistakes," "It's ok if I take time to explore what type of dating partner is right for me," and "I don't have time to waste on courses or activities that are not directly relevant to my career goals." We chose not to report on this measure because the reliability of this measure was low ( $\alpha = .49$ ). Nevertheless, replicating our previous studies, high-power participants reported higher perceived time availability on this 3-item measure compared to low-power participants,  $F(1, 94)=6.65$ ,  $p=.01$ .

One hundred and forty-seven adults (49.0% female; mean age=32.4 years) from the U.S. were recruited from MTurk to complete an online survey for \$0.50. One participant from the equal-power condition was excluded because he failed an attention check (the same one used in Studies 1, 3, & 4). The results remained significant when including this participant.

### Procedure and Measures

The procedure and materials were the same as Studies 1 and 3 with two exceptions: (1) In addition to the high-power ( $n=48$ ) and low-power ( $n=53$ ) conditions, we added a condition in which participants visualized themselves in an equal-power role ( $n=46$ ), and (2) participants reported their current stress level after reporting their perceived time availability. Stress was measured on a 5-point scale using the 20-item State subscale of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970;  $\alpha=.95$ ) which asked participants to rate “right now” how much they felt emotions such as “anxious” or “relaxed” (reverse-scored).

### Results and Discussion

On the manipulation-check item, high-power participants reported they had more power ( $M=3.63$ ;  $SD=0.82$ ) than equal-power participants ( $M=3.22$ ;  $SD=0.67$ ),  $t(91)=2.59$ ,  $p=.01$ , and equal-power participants reported they had more power than low-power participants ( $M=2.43$ ;  $SD=0.91$ ),  $t(96)=4.81$ ,  $p<.001$ .

Replicating Studies 1 – 4, high-power participants felt they had more time ( $M=4.51$ ;  $SD=.98$ ) than low-power participants ( $M=4.05$ ;  $SD=1.14$ ),  $t(99)=2.20$ ,  $p=.03$ . As expected, equal-power participants fell in between high- and low-power participants ( $M=4.31$ ;  $SD=0.99$ ). Although the equal-power condition did not differ significantly from either of the other conditions,  $ps>.22$ , the linear trend was significant,  $F(1,143)=5.05$ ,  $p=.03$  (see Figure 1).

Consistent with past research (Sapolsky, 2005; Sherman et al., 2012; Carney et al., 2012), high-power participants reported feeling marginally less stressed ( $M=2.18$ ;  $SD=0.67$ ) than low-power participants ( $M=2.46$ ;  $SD=0.81$ ),  $t(99)=1.86$ ,  $p=.07$ . Equal-power participants again fell in between high- and low-power participants ( $M=2.29$ ;  $SD=0.61$ ). Although the equal-power condition did not differ significantly from either of the other conditions,  $ps>.25$ , the linear trend was significant,  $F(1, 143)=3.86$ ,  $p=.05$ . Furthermore, extending existing research, we found that the effect of high- versus low-power on stress was fully mediated by perceived time availability (95% confidence interval= $[-.1458, -.0075]$ ).

### General Discussion

Given that the objective experience of time is uniform for everyone, it would seem safe to assume that all people perceive time in the same way. Instead, across 557 participants, five studies, and several ancillary studies, we established that power leads to an increase in perceived time availability, and in Study 3, we found that this effect was due to one's perceived control over time. Additionally, we explored a possible downstream consequence of the power-time relationship. Extending research showing that power is associated with decreased stress (Sherman et al., 2012; Sapolsky, 2005; Carney et al., 2012), in Study 5, we found that the effect of power on stress was mediated by perceived time availability.

Though our findings are interesting and novel, there are some limitations to the current studies. For example, we included a stringent control condition (the equal-power condition) to determine whether high-power individuals perceived having more time or low-power individuals perceived having less time. Although we discussed our findings in terms of high-power individuals perceiving more time, the equal-power participants did not differ from either the



high- or low-power participants. Additional research is needed before firm conclusions can be drawn about the locus of the present effects.

Another remaining question is whether powerful people *actually* have more control over their time, thus having more time to spend as they please. For instance, a CEO may be able to cancel meetings whenever he wants, whereas an assistant may not have that luxury. If it is the case that *objective* control over time explains our effects, then this suggests that high-power individuals could correctly be perceiving more available time. Although it's possible that both *objective* and *subjective* control over time influence powerful people's perceived time availability, in our studies, we found that even when manipulating power in a context in which participants did not actually have more available time, high-power individuals still perceived greater control over time and greater perceived time availability. This suggests that it isn't simply the case that powerful people *actually* have more control over their time, but that powerful people also *perceive* having control over time even when they don't.

In our studies, we operationalized perceived time availability as referring to a broad sense that one has more time remaining in life. Greater perceived time availability operationalized in the present way has been linked with important implications, such as more time spent helping others (Rudd et al., 2012) and with the pursuit of knowledge-related (vs. emotional) goals (Carstensen, Isaacowitz, & Charles, 1999). Nevertheless, future research should examine whether this expanded time horizon relates to more concrete measurements of time, such as hurriedness and impatience. Finally, our stress finding in Study 4 was marginal, suggesting that future research should continue to explore stress alongside other potential downstream consequences of the link between power and perceived time availability.

The present research extends the growing evidence that power influences perceptions of control by demonstrating that the illusory control that powerful individuals experience has important consequences. Not only does power influence perceived control over time, but perceiving control over time leads to a subjective sense that more time is available. Though the movie “In Time” intended to create a science fiction dystopia in which high-power people controlled time, reality may not be as far off as the movie depicted. Our studies demonstrate that even in real life, the powerful have a monopoly on time.<sup>5</sup>

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<sup>5</sup> Though useful as an example, we would like to caution readers that the movie “In Time” (2011) has a RottenTomatoes rating of 36%.

### Acknowledgments

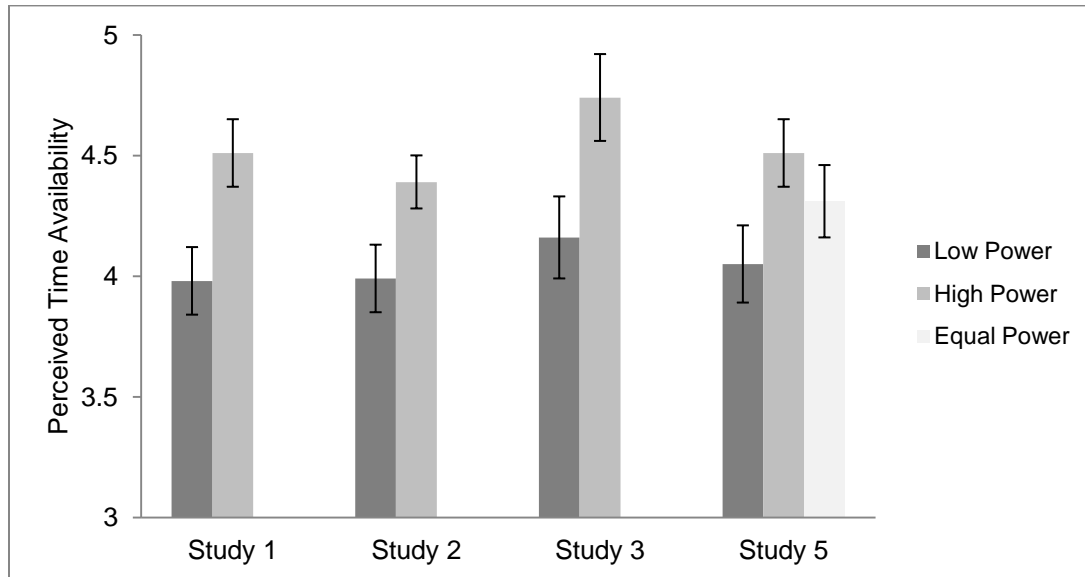
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**Figure 1.** Manipulated Power Increases Perceived Time Availability

**Highlights**

- Power increases perceived time availability.
- Perceived control over time mediates the power-time availability link.
- Power results in decreased stress due to increased perceptions of available time.