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Being active and impulsive: The role of goals for action and inaction in self-control

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Abstract Although self-control often requires behavioral inaction (i.e., *not eating* a piece of cake), the process of inhibiting impulsive behavior is commonly characterized as cognitively active (i.e., *actively exerting* self-control). Two experiments examined whether motivation for action or inaction facilitates self-control behavior in the presence of tempting stimuli. Experiment 1 used a delay discounting task to assess the ability to delay gratification with respect to money. Experiment 2 used a Go/No-Go task to assess the ability to inhibit a dominant but incorrect motor response to the words "condom" and "sex". The results demonstrate that goals for inaction promote self-control, whereas goals for action promote impulsive behavior. These findings are discussed in light of recent evidence suggesting that goals for action and inaction modulate physiological resources that promote behavioral execution.

Keywords Self-control · Inhibition · Action · Inaction · General goals

Introduction

Imagine you are at a party and the hosts have graciously supplied an extensive selection of hors d'oeuvres and desserts for the guests to enjoy. Unfortunately, you have just gone on a diet, and you are now confronted with a common and unpleasant dilemma: you need to exert self-control and overcome your desire to indulge in a piece of chocolate cake so you can get in shape and look good this bathing suit season. How should you proceed? Common parlance would urge you to "exert" your willpower, "fight" the temptation, "overcome" your desire, "control" your impulse, and other variations on the theme of actively countering your urge to eat. Although action in the face of a temptation seems like a plausible route to self-control success, self-control itself often requires behavioral inaction. That is, to succeed in your diet, you must *not eat*, which is an inaction. Due to this paradox it is unclear whether self-control is better accomplished through goals to be active or inactive.

Self-control can be defined as the ability to delay gratification and pursue long-term goals over short-term goals (Ainslie 1975), as well as the ability to inhibit dominant responses (Logan and Cowan 1984; Swann et al. 2002). Overall then, self-control requires the inhibition of one response (the short-term or dominant) in pursuit of another response (the long-term or non-dominant). Despite large amounts of research on self-control, the relation between these responses and motivation for action and inaction has not been investigated. Specifically, is self-control facilitated more by goals for action or goals for inaction? This is an important question, as recent empirical work has demonstrated that behavior can often be guided by broad goals to be generally active or inactive, regardless of the specific behavior that is ultimately pursued (for a recent review, see Albarracin et al. 2011). Lab studies have demonstrated that priming goals for general action (by presenting words related to action, such as "active" and "go") leads to more active behavioral pursuit than priming goals for general

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inaction (by presenting words related to inaction, such as “rest” and “stop”). These effects have been shown on a diverse range of motor and cognitive behaviors, including the following: drawing, hand movements, learning, and problem solving (Albarracin et al. 2008); consumption of fruits and candy (Albarracin et al. 2009); retrieval of attitudes and resistance to persuasion (Albarracin and Handley 2011); decision making (Laran 2010); and intentions to vote in political elections and volunteer for political causes (Noguchi et al. 2011). In these same studies, general inaction goals have led to corresponding decreases in all of these behaviors, as well as an increased preference for rest over behavioral activity (e.g., Experiment 1 of Albarracin et al. 2008).

This line of research consistently demonstrates that exposure to general action and inaction concepts results in goal priming rather than semantic priming. As discussed by Förster et al. (2007), goal priming and semantic priming can be differentiated by examining whether a primed concept is accompanied by self-regulatory processes, such as (a) increased effect strength of the prime with delayed behavioral execution (b) prime satisfaction (deactivation) in response to the execution of prime-relevant behaviors, and (c) rebound effects of non-focal behaviors after the execution of prime-relevant behaviors. If these forms of self-regulation are observed in response to a primed concept, then it is generally accepted that the prime activates a motivational goal rather than mere semantic knowledge (Förster et al. 2007). Past research has consistently found these goal-related properties in response to priming concepts of general action and inaction (e.g., Experiments 6 and 7 in Albarracin et al. 2008; Experiment 7 in Albarracin and Handley 2011; Experiments 5 and 6 in Laran 2010). Further, when an individual is motivated to actively pursue an upcoming behavior, the individual will unconsciously “mobilize effort” for the task by increasing activity in the sympathetic nervous system, which is the branch of the nervous system that supports high-effort, active behaviors (Brehm et al. 1983; Wright et al. 1989; Wright and Kirby 2001). Recent evidence has demonstrated that subliminally priming concepts of general action (vs. general inaction and control) during a cognitive reaction-time task resulted in increased effort mobilization for the task, operationalized via performance changes in the sympathetic nervous system; oppositely, subliminally priming concepts of general inaction (vs. general action and control) led to effort withdrawal (lower sympathetic nervous system reactivity; Gendolla and Silvestrini 2010). This is further support for the claim that exposure to action and inaction concepts can result in goal activation and actually motivates individuals to flexibly pursue active or inactive behaviors, rather than resulting in semantic activation that will only be expressed if the situation affords an easy opportunity. Thus, the effects of action and inaction goals are clear—action goals result in automatic effort mobilization that leads to increased motor and cognitive output, whereas inaction goals result in automatic effort withdrawal that leads to decreased motor and cognitive output.

What is not clear is whether action goals or inaction goals will facilitate self-control. Although most self-control models are not focused on the effects of action and inaction on self-control, most of these models actually discuss the role of action within the self-control process. However, different models conceptualize this role in radically different ways, with some models claiming that motivation for action is necessary for self-control success (e.g., Baumeister et al. 1998) and others claiming that motivation for action is a critical factor that leads to self-control failures (e.g., Dickman 1990). Despite these diametrically opposed conceptualizations, no prior research has explicitly examined whether motivation for action or inaction actually improves self-control. To address this issue, we present two experiments in which motivation for action and inaction are manipulated and the effects on self-control are examined. Before presenting this work, we will briefly review two models of self-control that make opposite predictions concerning the role of action and inaction goals in self-control success—during this review, we will highlight the ways these models explicitly and implicitly conceptualize action and inaction in relation to self-control.

According to the strength model of self-control (Baumeister et al. 1998), self-control is very effortful and requires the mobilization of physiological resources (e.g., Gailliot et al. 2007; cf. Job et al. 2011). Under this model, self-control has been compared to a muscle—effective use requires “active volition” that is supported by the availability of physiological resources that allow for effortful behavior (Baumeister et al. 1998). This model also states that just as muscles require periods of rest (inaction) to recover from previous activity, self-control also requires periods of rest (inaction) to recover from previous activity. Further, the authors of this model have explicitly stated that the energy used for self-control is “the same energy used… for active rather than passive responses” (Baumeister et al. 2007, p. 354). Overall, this model characterizes self-control and action as compatible forces: self-control is a process of “active volition” that draws on the same pool of physiological resources used to support “active rather than passive” behaviors (Baumeister et al. 1998, 2007). Oppositely, this model characterizes self-control and inaction as incompatible forces: self-control failures occur when individuals are not able to exert “active volition” because their pool of physiological resources is not effectively mobilized for the task at hand. Therefore, the strength model of self control would predict that action goals will lead to increased self-control success whereas inaction goals will lead to decreased self-control success. Although the derivation of these predictions from the strength model is relatively straightforward, there has not been any prior research that has explicitly tested whether manipulating action and inaction motivation results in these predicted outcomes.

In contrast to the strength model, the functional model of self-control (Dickman 1990) posits that self-control requires individuals to delay behavior until sufficient pre-action information processing has occurred. Under this model, self-control failures are thought to occur when individuals experience too much pressure to act and subsequently take action without adequate forethought. Of relevance to this point, the physiological resources that are mobilized by priming action and withdrawn by priming inaction (Gendolla and Silvestrini, 2010) are typically used to promote immediate responses to environmental stimuli. For example, in Study 2 of Brehm et al. (1983), participants were told they would perform a memory task either immediately or thirty minutes later, and their effort mobilization (sympathetic nervous system reactivity) was measured immediately after receiving these instructions. The results indicated that participants only mobilized effort if they expected to act immediately, which supports the idea that the type of sympathetic nervous system activity moderated by action and inaction goals is used for immediate behavioral execution. This is further supported by the findings of Gendolla and Silvestrini (2010), who demonstrated that action primes led to faster reaction times on a memory task than inaction primes, and that these reaction time measures were predicted by participants' sympathetic nervous system reactivity. Overall, then, the functional model of self-control characterizes self-control and inaction as compatible forces: self-control is a process of remaining inactive until sufficient information processing has occurred, which is a result that will be facilitated by withdrawing effort that is used for immediate behavioral execution. Oppositely, this model characterizes self-control and action as incompatible forces: self-control failures occur when individuals act without adequate forethought because the pressure to act immediately is too high, which is an outcome that will be facilitated by mobilizing effort that is used for immediate behavioral responses. Therefore, the functional model of impulsivity would predict that inaction goals will lead to increased self-control success whereas action goals will lead to decreased self-control success. Again, although the derivation of these predictions is relatively straightforward, prior research has not explicitly tested whether manipulating action and inaction motivation results in these predicted outcomes.

Because these two models make competing predictions concerning action/inaction goals and self-control, the present research was designed to test whether action goals or inaction goals would facilitate self-control behaviors in situations involving tempting stimuli. In Experiment 1, we primed participants with a goal for action or inaction and then assessed their preference for immediate versus delayed monetary gratification using a delay discounting task (Ainslie 1975; Kirby et al. 1999), which has been shown to predict self-control behavior in a variety of important domains, including illicit drug use (Kirby et al. 1999), alcohol abuse and dependence (Dom et al. 2006), binge eating (Yeomans et al. 2008), violent behavior (Cherek et al. 1997), and risky sexual activities (Lawyer 2008). In Experiment 2, we primed participants with a goal for action, a goal for inaction, or no goal and then assessed their ability to inhibit a dominant response to a tempting stimulus using a Go/No-Go task, which is a task associated with self-control behavior in various domains, including alcohol abuse (Dom et al. 2006), nicotine use (Mitchell 2004), and violence (Dolan and Fullam 2004). Thus, the present work serves as an initial test of competing predictions made from different models of self-control.

Experiment 1

Method

Participants and overview

Twenty-nine undergraduates participated in this experiment for partial course credit. The sample was 79% female, ranged in age from 18 to 22 years ($M = 19.25$, $SD = 1.32$), and was 72% Caucasian, 14% African-American, 7% Asian, and 7% Hispanic. The design included two cells: action goal primes and inaction goal primes.

Procedures and measures

After entering the testing laboratory and being seated at a computer, participants were informed that they would complete a "verbal ability" task, which in reality served as a priming manipulation. After priming, participants completed a delay discounting task that was used to assess self-control.

Priming task Participants were randomly assigned to an action ($n = 16$) or inaction ($n = 13$) goal prime condition, and primes were presented in a word-completion task. Participants were presented with 24 words that had certain letters missing and were asked to fill in the remaining letters to complete the words. Of the 24 words, ten were "critical words" for each group, whereas the remaining 14 were fillers. The critical words differed between action (e.g., "start", "active") and inaction (e.g., "stop", "pause") conditions, and were the same prime words used in previous research (Albarracin et al. 2008). The primes have been extensively pretested in previous research and produce no mood effects, and prior use has confirmed that their presentation typically results in goal priming rather than semantic priming (Albarracin et al. 2008; Albarracin and Handley 2011; Laran 2010). During debriefing, no participants reported a belief that their responses to any of the earlier tasks influenced their performance on later tasks, suggesting that participants were unaware of the nature of the goal priming task.

Delay discounting task In delay discounting tasks, participants are presented with a series of choices between two hypothetical rewards—one is small and available relatively soon, whereas the other is large and available after some time delay. The purpose of the task is to assess an individual's preference for immediate versus delayed gratification. In a typical delay discounting task, a question could be "Would you prefer $11 now or $30 in 7 days from now?", and participants are considered self-controlled when they choose the larger, delayed option (in this case, $30). In the present experiment, participants responded to a series of 27 such questions from Kirby et al. (1999), in which the monetary values (the tempting stimuli) ranged from $11 to $85 and the time delays ranged from 7 to 186 days. Based on participants' response patterns, researchers can generate a parameter representing impulsive decision making. Two common parameters derived from delay discounting tasks are k values (e.g., Kirby et al. 1999) and the area under the discounting curve (AUC; Green et al. 1997). In the present experiment, both estimates yielded identical results, and thus only k values will be discussed.

k value estimation To estimate the k value for each participant, we used the following procedure: First, k values for each of the 27 questions were calculated, using the following formula (for a full discussion of this parameter, see Kirby et al. 1999):

$$k = ((\text{Large reward in dollars})/(\text{Small reward in dollars}) - 1)/(\text{Time delay in days})$$

The higher the k value, the more impulsive (less self-controlled) someone would have to be to choose the smaller, sooner option in that question. Thus, when someone chooses the smaller reward on a question with a k value of 0.25, this person is behaving much more impulsively than someone who chooses the smaller reward on a question with a k value of 0.04. When assessing k values, it is generally assumed that individuals' behavior will conform to some specific k value estimate, and thus participants should choose the larger reward for all questions with a larger k value than this estimate and the smaller reward for all questions with a smaller k value than this estimate. Therefore, after calculating the k value for each question, we ordered the questions from smallest to largest k value, and examined each participant's data for a "switch point." The switch point was defined as the question on which a participant stopped choosing the smaller reward and began choosing the larger reward once the questions were ordered based on k value (note that the questions were randomly ordered when presented to participants). Because participants' responses were not perfectly consistent with this hypothetical pattern, we found the point that minimized discrepant responses—that is, we found the k value for each participant that corresponded to a minimum number of large-reward choices for smaller k values and small-reward choices for larger k values. This k value estimate was then assigned to the participant. This procedure is similar to the one used by Kirby et al. (1999), and as mentioned, identical results were obtained with a non-parametric AUC analysis (for details on AUC, see Green et al. 1997).

Results and discussion

A one-way analysis of variance (ANOVA) on k values using goal-prime as a between-subjects factor revealed that participants in the action-goal condition ($M_{k \text{ value}} = 0.033$; SD = 0.022) were significantly more impulsive in their choices than participants in the inaction-goal condition ($M_{k \text{ value}} = 0.010$; SD = 0.011), $F(1,27) = 11.39$, $p = .002$, partial $\eta^2 = 0.30$.[1] These results, which are summarized in Panel A of Fig. 1, suggest that motivation for inaction facilitates self-control relative to motivation for action. Therefore, these results provide support in favor of the conceptualization of action/inaction espoused by the functional model of self-control (Dickman 1990) rather than the strength model of self-control (Baumeister et al. 1998). Unfortunately, this experiment's lack of a control condition prevents us from knowing whether general inaction goals facilitate self-control, general action goals impair self-control, or both effects occur. To resolve this ambiguity, Experiment 2 includes a control condition.

[1] There was a main effect of gender on the delay discounting task, such that males ($M = 0.044$; SD = 0.024) were significantly more impulsive than females ($M = 0.017$; SD = 0.017), $F(1,25) = 8.30$, $p < .01$. However, gender did not interact with prime to influence impulsivity, $F(1,25) = 0.78$, $p = .39$.

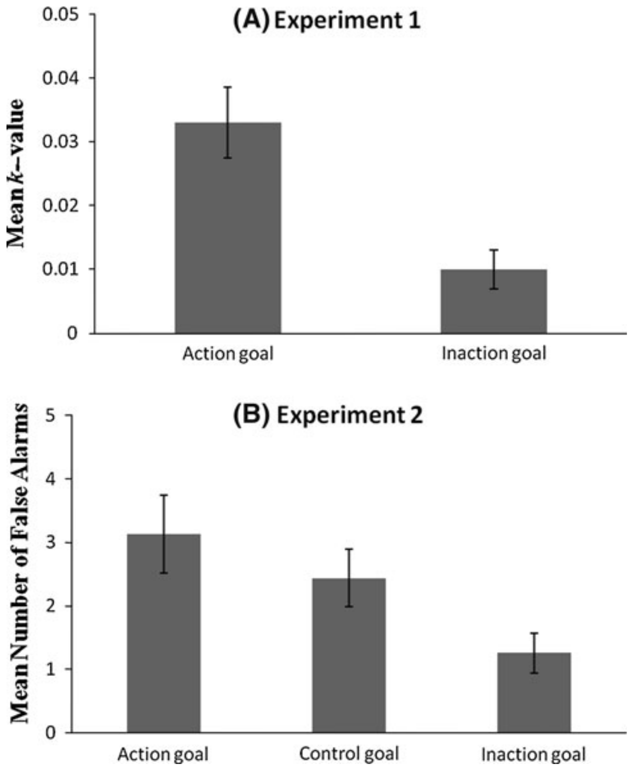

Fig. 1 **a** Displays the findings from Experiment 1, in which participants were primed with action or inaction goals during a word completion task and then completed a delay discounting measure. The vertical axis displays mean *k* values from the delay discounting task, with higher values indicating less self-control. **b** Displays the findings from Experiment 2, in which participants were subliminally primed with action, control, or inaction goals and then completed a Go/No-Go task. The vertical axis displays mean number of false alarms on the Go/No-Go task, with higher values indicating less self-control. All *error bars* represent standard errors

Experiment 2

Method

Participants and overview

Sixty-one male and female undergraduates participated in this experiment in return for partial course credit. The sample was 78% female, ranged in age from 18 to 24 years ($M = 19.16$, $SD = 1.39$), and was 55% Caucasian, 24% Asian, 15% Hispanic, and 6% other. Participants whose responses to the main dependent task indicated that they failed to read and understand the instructions were excluded from all analyses (i.e., these participants had error rates on the critical block of the Go/No-Go task that approached 100%). This excluded a total of 10 participants who were evenly distributed across prime conditions (3 action, 3 inaction, and 4 control).

Procedures and measures

Upon entering the testing laboratory and being seated at a computer, participants were informed that they would complete two Go/No-Go (GNG) training blocks, an ostensible "visual perception" task that served as a subliminal priming manipulation, and a final GNG block. The last GNG block provided our dependent measures.

GNG task In GNG tasks, participants are presented with a series of stimuli on a computer and are instructed to respond to certain stimuli ("go"), but to withhold responding to all other stimuli ("no-go"). The dependent measures that are available from this task are false alarms (FA), misses (MI), and mean reaction time to respond to "go" stimuli (RT). FAs (trials on which a participant should have withheld a response but did not) measure a lack self-control, as they represent an inability to inhibit the dominant "go" response. MI (trials on which a participant should have responded but did not) are related to inattention (Derefinko et al. 2008). Based on the results of Experiment 1, we hypothesized that inaction goals would lead to fewer FA than action goals. Because MI are not directly related to inhibitory behavioral control, we did not predict differences on this measure. Although RT is not a direct measure of self-control, previous work has demonstrated that the resources mobilized by action goals can lead to faster response times on certain tasks (Gendolla and Silvestrini 2010). Therefore, it is possible that action goals may lead to quicker RT than inaction goals, and this RT difference may thus be related to FA. However, the previous work demonstrating effects of action-inaction goals on RT used a memory recall task rather than a motor inhibition paradigm, and thus this prediction is somewhat speculative and secondary to the current aims of uncovering the effects of action/inaction goals on self-control.

Because of our hypothesis that action/inaction motivation should moderate self-control behavior, we wanted to use targets in the GNG tasks that held some important motivational relevance for our participants. Therefore, each block of GNG consisted of 60 trials, and on each trial the word "condom" or "sex" was presented. During a pre-test, 100 participants evaluated each of these terms using three 7-point scales that ranged from: *very negative—very positive*; *very undesirable—very desirable*; *want to avoid—want to approach*. Responses to the first two items were averaged together for condom and sex separately to form an attitude measure ($\alpha_{condom} = 0.83$; $\alpha_{sex} = 0.88$), whereas the last item was used as a measure of approach/avoidance motivation for these concepts. Participants' attitudes toward condoms ($M = 5.06$; $SD = 1.86$) and sex ($M = 5.87$; $SD = 1.24$) were significantly above the scale midpoint, $t(93) = 5.50$, $p < .001$, and $t(94) = 14.78$, $p < .001$, respectively. Further, attitudes toward sex were significantly more positive than attitudes toward condoms, $t(93) = 3.66$, $p < .001$. Additionally, participants' approach/avoidance motivation for condoms ($M = 5.02$; $SD = 2.03$) and sex ($M = 5.67$; $SD = 1.57$) were significantly above the scale midpoint, $t(95) = 4.92$, $p < .001$, and $t(96) = 10.46$, $p < .001$, respectively. Further, approach motivation for sex was significantly stronger than approach motivation for condoms, $t(95) = 2.52$, $p = .01$. Therefore, "condom" and "sex" are both positive attitude-objects that evoke approach motivation in participants, though "sex" is both more positive and more approach-eliciting than "condom." Because of this difference, it is possible that participants will be particularly likely to incorrectly "go" to sex rather than condom, but it is also possible that the nature of the stimulus will not influence self-control success in a GNG paradigm. These possibilities will be explored in the analyses.

In the first block of practice GNG, half of the participants were randomly assigned to respond to "condom" but not "sex", and the other half to "sex" but not "condom". Within each block, 45 trials were "go" trials that required participants to respond by clicking the computer mouse, whereas the remaining 15 trials were "no-go" trials that required participants to withhold responding. This ratio was used to establish "go" as the dominant response. Words were presented for 200 ms, and there was a 2-second interval between word presentations. For the second GNG training block, response patterns were switched, so that participants who initially responded to "condom" responded to "sex", and vice versa. The switch was intended to ensure that each group had been exposed to "condom" and "sex" an equal number of times before the critical GNG block. Participants were given two full practice GNG blocks before the goal manipulation.

Priming task Participants were randomly assigned to an action goal ($n = 19$), inaction goal ($n = 22$), or control prime condition ($n = 20$). As part of an ostensible visual perception task, participants were instructed to carefully watch the computer screen and respond by pressing the space bar immediately each time they saw a string of asterisks appear (******). Each trial was separated by a 2 s interval and consisted of a fixation cross presentation, followed by a 60 ms forward mask of ampersands (&&&&&&), a 25 ms goal prime, a 60 ms backward mask of ampersands, and then a 200 ms presentation of asterisks. The goal primes differed between conditions and were words that denoted action (e.g., "start", "active"), inaction (e.g., "pause", "still"), or neutral concepts (e.g., "square", "candle"). During debriefing, no participants reported awareness of the subliminal primes or indicated a belief that their responses to any of the earlier tasks influenced their performance on later tasks, suggesting that participants were unaware of the nature of the goal priming task.

Critical GNG block After the goal prime task, participants completed a final GNG block. The response pattern was the same one used in the second GNG training block, such that participants who were asked to respond to "condom" in the second training block were again asked to respond to "condom" but not "sex", and vice versa. As before, there were 45 "go" trials and 15 "no-go" trials. We computed three dependent variables: FA, MI, and RT.

Results and discussion

A 3 (goal prime: action, control, inaction) × 2 (go stimulus: "condom", "sex") ANOVA on FA revealed a main effect of prime, $F(2,45) = 3.78$, $p < .05$, partial $\eta^2 = 0.14$, a main effect of go stimulus, $F(1,45) = 4.03$, $p = .05$, partial $\eta^2 = 0.08$, but no significant interaction of prime and go stimulus, $F(2,45) = 0.01$, $p = .99$.[2] An identical ANOVA on RT revealed no main effect of prime, $F(2,45) = 1.81$, $p = .18$, no main effect of go stimulus, $F(1,45) = 0.07$, $p = .79$, and no interaction, $F(2,45) = 0.22$, $p = .81$. Additionally, an identical ANOVA on MI revealed no main effect of prime, $F(2,45) = 0.32$, $p = .73$, no main effect of go stimulus, $F(1,45) = 0.16$, $p = .70$, and no interaction, $F(2,45) = 0.29$, $p = .75$.

A post hoc Tukey test for goal-prime condition on FA revealed that participants with an inaction goal were significantly more successful at self-control ($M_{FA} = 1.26$; $SD = 1.37$) than participants with an action goal ($M_{FA} = 3.13$; $SD = 2.42$). Although neither inaction nor action differed significantly from control ($M_{FA} = 2.44$; $SD = 1.79$), the pattern of means indicates that inaction goals led to more self-controlled behavior, whereas action goals led to less self-controlled behavior.

The main effect of go stimulus on FA indicates that participants were more impulsive when they had to respond to "sex" ($M_{FA} = 2.84$; $SD = 2.27$) than "condom" ($M_{FA} = 1.62$; $SD = 1.53$). As previously indicated, this effect did not interact with goal condition, suggesting that action/inaction goals exert strong, independent effects on self-control above and beyond the nature of the stimulus at hand. Overall, this result suggests that action/inaction motivation may be fundamentally important in self-control situations.

[2] There was no main effect of gender, $F(1,39) = 1.16$, $p = .29$, no gender by prime interaction, $F(2,39) = 0.00$, $p = .99$, no gender by stimulus interaction, $F(1,39) = 1.33$, $p = .26$, and no gender by prime by stimulus interaction, $F(2,39) = 0.60$, $p = .56$.

These results, which are summarized in Panel B of Fig. 1, support and extend the findings of Experiment 1, and suggest that self-control is facilitated by goals for inaction and hindered by goals for action. Although the difference in RT did not reach significance, the pattern of means was in a meaningful direction, such that action goals led to quicker responding ($M = 333$ ms; SD = 39 ms) and inaction goals to slower responding ($M = 365$ ms; SD = 49 ms) compared to control ($M = 340$ ms; SD = 62 ms). To further explore the relation between RT and FA, we calculated the Pearson correlation between these variables: $r = -0.41$, $p = .003$. This correlation indicates that participants who were quicker to respond in the GNG task also tended to make more FA. Considering this fact together with the pattern of RT means in the prime conditions suggests that goals for action may lead to quick, impulsive responding, whereas goals for inaction may lead to slower, more reasoned behavior.

General discussion

Previous research has not addressed the question of how motivation for action vs. inaction influences the success of self-control attempts. This is an interesting question because different models of self-control actually conceptualize the role of action vs. inaction within self-control in very different ways. According to the strength model of self-control (Baumeister et al. 1998, 2007), self-control is a process of "active volition" and it relies on the same physiological resources that promote "active rather than passive" behaviors. Furthermore, the strength model views periods of inaction as a time during which self-control resources are being replenished and are unavailable for current use (Gailliot et al. 2007). Thus, the strength model would predict that increased motivation for action (vs. inaction) would result in increased self-control success. Oppositely, according to the functional model of self-control (Dickman 1990), self-control requires individuals to delay behaviors until sufficient pre-action information processing has occurred. Under this model, self-control failures occur when individuals experience too much motivation to be active and subsequently act without adequate forethought. Thus, the functional model would predict that increased motivation for inaction (vs. action) would result in increased self-control success. Although the derivation of these predictions is straightforward, previous research has not explicitly tested how manipulating motivation for action and inaction impacts self-control success. The present work was undertaken to test the competing predictions made by different models of self-control to discover whether goals for action or goals for inaction facilitate self-control success. The results of both experiments suggest that motivation for inaction facilitates self-control, whereas motivation for action hinders self-control, thus providing support for the functional model of self-control (Dickman 1990). Because self-control consists of the preference for larger, delayed gratification compared to immediate gratification (Ainslie 1975), as well as the ability to inhibit dominant but inappropriate responses (Logan and Cowan 1984; Swann et al. 2002), we used separate tasks to measure both facets. In Experiment 1, participants with a goal for inaction (vs. action) displayed significantly stronger preferences for delayed gratification. In Experiment 2, participants with a goal for inaction were significantly more capable of inhibiting a dominant motor response, whereas participants with a goal for action were less capable of inhibiting this response. Furthermore, this pattern occurred regardless of the stimulus to be avoided ("sex" vs. "condom"). Overall then, these experiments suggest that goals for inaction can facilitate self-control, whereas goals for action can hinder self-control.

Although the reaction time measures in Experiment 2 were in a theoretically meaningful pattern (action < control < inaction) that conceptually replicated previous work (Gendolla and Silvestrini 2010), the differences did not reach significance. Nonetheless, this pattern suggests that motivation for action mobilizes resources that encourage rapid behavioral execution, whereas motivation for inaction de-mobilizes these behavior-execution resources. This is one potential mechanism for the present findings—that is, motivation for inaction facilitates self-control by down-regulating resources that are used to execute behaviors in a rapid manner. This extra time between stimulus onset and behavioral execution may allow "cool" cognitions to override initial "hot" responses to stimuli (Metcalfe and Mischel 1999). However, in the present studies physiological measures were not used and the reaction time measure did not quite reach significance. Therefore, the claim that inaction leads to increased self-control by de-mobilizing resources that encourage immediate, impulsive responding requires further support, though the present studies provide some initial evidence for this claim.

A strength of the present experiments was operationalizing self-control with two distinct measures—Experiment 1 measured preference for delayed gratification, whereas Experiment 2 measured the ability to inhibit a dominant motor response. Additionally, the first experiment used a supraliminal word completion task to prime action/inaction goals, whereas the second experiment used a subliminal priming procedure. The difference in effect size for prime condition between the two experiments (partial $\eta^2 = 0.30$ in Experiment 1 vs. partial $\eta^2 = 0.14$ in Experiment 2) may be due to this difference in goal priming procedure and/or operationalization of self-control. In light of these differences between experiments, the consistent effects of action/inaction motivation on self-control are particularly persuasive and suggest that motivation for inaction facilitates self-control, whereas motivation for action hinders self-control. The magnitude of this effect may vary depending on the strength of the motivation and the nature of the self-control behavior, but the existence of the effect is clear.

The current work also provides evidence in support of the auto-motive model of intentions and goals (Bargh 1990; Chartrand and Bargh 1996). Under this model, goals are stored in memory as schemas and are capable of being nonconsciously activated when an individual encounters environmental stimuli that are related to the goal. Most work on the auto-motive model primes individuals with stimuli that are designed to elicit a specific goal that is focused on a particular behavioral domain (e.g., achievement; Bargh et al. 2001). However, in the present research, we primed individuals with stimuli that are designed to elicit more general goals that are not associated with a particular behavioral domain, but that are related to any potential behavior (Albarracin et al. 2008). The success of this manipulation demonstrates that the principles of the auto-motive theory apply not only to specific goals, but also to broad, domain-independent motives.

Concluding remarks

Taken together, the present experiments suggest that self-control is facilitated by motivation for inaction and hindered by motivation for action. This effect is robust and is found when examining different forms of self-control behavior and when instilling this motivation both supra- and subliminally. One possible mechanism for this effect is the modulation of resources that encourage behavioral execution, but further work is needed on this point. For now, the implications are clear: when presented with a self-control dilemma, a goal to be inactive will lead to more self-control success than a goal to be active. Instead of listening to common wisdom and “fighting” your urges by “exerting” your willpower to counter a temptation, you may fare much better in your quest to not eat that piece of chocolate cake by simply relaxing and adopting a goal to be inactive.

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