

# Disassociating the Agent From the Self: Undermining Belief in Free Will Diminishes True Self-Knowledge

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## Abstract

Undermining the belief in free will influences thoughts and behavior, yet little research has explored its implications for the self and identity. The current studies examined whether lowering free will beliefs reduces perceived true self-knowledge. First, a new free will manipulation was validated. Next, in Study 1, participants were randomly assigned to high belief or low belief in free will conditions and completed measures of true self-knowledge. In Study 2, participants completed the same free will manipulation and a moral decision-making task. We then assessed participants' perceived sense of authenticity during the task. Results illustrated that attenuating free will beliefs led to less self-knowledge, such that participants reported feeling more alienated from their true selves and experienced lowered perceptions of authenticity while making moral decisions. The interplay between free will and the true self are discussed.

## Keywords

agency, authenticity, free will, self-knowledge, true self

He sat a long time and he thought about his life and how little of it he could ever have foreseen and he wondered for all his will and all his intent how much of it was his doing.

—Cormac McCarthy

The debate surrounding the existence of free will may never reach a proper conclusion. One central argument is that philosophers, psychologists, and laypersons disagree about whether the self, as the agent, or the self, a slave to one's social environment, is the true cause or the "originator" of one's own actions and behaviors (Bargh, 2008; Bergner & Ramon, 2013; Monroe & Malle, 2010; Stillman, Baumeister, & Mele, 2011). Advocates of free will contend that individuals are able to override the presence of social influence to freely behave according to their values, beliefs, and volition, while opponents suggest that social cues from the environment and previous experiences are too powerful to overcome, and we can never call the choices we make truly our own. Regardless of whether free will actually exists, the *belief* in free will has important consequences for our thoughts and behaviors. In the present research, we investigate how beliefs in free will are associated with perceived self-knowledge. Specifically, our studies examine the hypothesis that attenuating belief in free will reduces people's subjective experience of knowing their "true self."

## Beliefs About Free Will

Central to many lay beliefs about free will is the idea that individuals have the ability to freely choose their own actions and

determine their own outcomes (Aarts & van den Bos, 2011; Bergner & Ramon, 2013; Mele, 2006; Stillman & Baumeister, 2010). A fundamental attribute of free will is the notion that individuals have the opportunity to act in numerous ways in the same situation (Baumeister, Bauer, & Lloyd, 2010; Mackenzie, Vohs, & Baumeister, 2014). Previous research suggests that the belief in free will has important consequences on thoughts and behavior (Baumeister & Brewer, 2012). For example, research has found that attenuating free will beliefs increases cheating (Vohs & Schooler, 2008), aggression (Baumeister, Masicampo, & DeWall, 2009), and conformity (Alquist, Ainsworth, & Baumeister, 2013) and decreases gratitude (MacKenzie et al., 2014). Moreover, research suggests that believing in free will increases the severity of punishment toward people who commit immoral acts (Clark et al., 2014; see also Shariff et al., 2014), presumably because perceiving the transgressor's actions as freely chosen increases the culpability of their behavior.

A common thread among these studies is that the idea of free will implies that people are active agents in the social world. Indeed, Baumeister and Brewer (2012) identify personal

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agency as a cornerstone in explaining behaviors such as conformity and counterfactual thinking. For instance, Alquist, Ainsworth, and Baumeister (2013) argue that attenuating free will beliefs causes people to lose their motivation to exercise self-control and think for themselves, increasing the likelihood that they will conform to group norms. In other words, undermining the possibility that free will exists dampens one's sense of agency and autonomy, leading to normative behavior. Similarly, one explanation for why belief in free will leads to more counterfactual thinking about the self (Alquist, Ainsworth, Baumeister, Daly, & Stillman, 2015) is that free will helps make salient all of the alternative actions one might have taken. This generation of self-focused counterfactuals, in turn, helps individuals to believe they can *freely* choose, and enact, better actions in the future. In their provocative research on disbelief in free will and cheating behaviors, Vohs and Schooler (2008) further suggest that the absence of free will can undermine the self as an agent and provide people with a moral license to behave negatively. Overall, when individuals feel they freely choose their actions among potential alternatives and exercise control over the outcomes of a situation, they experience their self as the active agent that navigates their actions and decisions in everyday life.

### Free Will and True Self-Knowledge

The belief that one can freely will their actions suggests that the self plays an important role in everyday endeavors. Due to the strong overlap between believing in free will and personal agency, we believe that free will beliefs should bear on people's subjective understanding of the most essential aspects of who they think they are (Newman, Freitas, & Knobe, 2015; Schlegel & Hicks, 2011) or their avowed true self. According to different theoretical perspectives (e.g., Horney, 1950; Jung, 1953; Miller, 1979; Rogers, 1959; Winnicott, 1960), the true self consists of immutable characteristics and attributes within individuals that play an important role in healthy psychological functioning. Lay theories of the true self suggests that it is a relatively private entity that may be distinct from one's everyday behaviors (e.g., Laing, 1960) and may be an aspect of one's self that is often hidden and needs to be discovered (Schlegel, Vess, & Arndt, 2012).

According to many theorists, people's belief that they understand who they really are is related to psychological health and well-being (e.g., Rogers, 1961; see Freud, 1949, 1961, for an alternative perspective). Self-alienation refers to the extent to which one feels out of touch or disconnected with one's true self (Costas & Fleming, 2009; Rokach, 1988; Wood, Linley, Maltby, Baliousis, & Joseph, 2008). The experience of self-alienation is believed to evoke the feeling that one's conscious awareness is discrepant from one's actual experience of thoughts and emotions. Kernis and Goldman (2006) refer to the concept of true-self awareness as one's responsiveness and trust in one's core self. This includes the recognition of one's strengths and weaknesses and, importantly, feeling "in touch" with one's inner motives and desires. A plethora of

research supports the idea that feeling alienated from one's true self is associated with anxiety, depression, and dissatisfaction with one's decisions (Schlegel, Hicks, Davis, Hirsch, & Smith, 2013; Wood et al., 2008), while the subjective experience of knowing one's true self is related to many positive psychological outcomes including self-esteem and meaning in life (Kernis & Goldman, 2006; Lakey, Kernis, Lepper, & Lance, 2008; Schlegel, Hicks, Arndt, & King, 2009).

Like any type of self-concept, the true self-concept is very multifaceted (Markus & Wurf, 1987). Most researchers have focused on how personality traits align with people's true selves (e.g., Fleeson & Wilt, 2010; Schlegel et al., 2009), yet many theoretical perspectives state that a sense of personal agency represents a fundamental aspect of one's central identity (e.g., Ryan & Deci, 2000). After all, our sense of agency is believed to give rise to some of the most important aspects of the self such as personal strivings, desires, and aspirations (McAdams, 2013; McAdams & Cox, 2010; Ryan & Deci, 2006). In fact, Wegner (2003) argues that within every individual is a self-portrait that "we cause ourselves to behave," and our sense of self comes from how we assign authorship or agency to our actions (p. 1).

If our sense of agency is perceived as uniquely connected to the true self, then undermining this perception should have a profound influence on our self-evaluations. We believe that losing the feeling of agency is akin to losing a central part of our self, and that this void will subsequently make people less certain about who they really are. Therefore, weakening the belief in free will should similarly dampen the subjective sense that one is aware of their true self by dint of this loss of personal agency.

### Overview of the Current Studies

In the present research, we examined how free will beliefs influence true self-knowledge. True self-knowledge was assessed using a measure of self-alienation (Wood et al., 2008) and true-self awareness (Kernis & Goldman, 2006). In Study 1, we tested our prediction that undermining the belief in free will reduces the subjective experience that people know their true selves. It is important to note that true self-knowledge is a component of the broader construct of authenticity (Kernis & Goldman, 2006; Wood et al., 2008). In fact, many theorists argue that the experience of authenticity is contingent upon true self-knowledge (e.g., May, 1981; Yalom, 1980), and one downstream consequence of feeling alienated from one's true self is that one's behaviors feel inauthentic. In Study 2, we tested this possibility by manipulating the belief in free will and assessing participants' subjective sense of authenticity during a decision-making task.

### Pilot Study of Free Will Manipulation

Before testing our main hypothesis, we developed a new free will manipulation for two reasons. First, there is not an established way to manipulate free will. We, therefore, wanted to

create and validate a strong manipulation of this construct. Previous research has typically adapted the Velten-style manipulation (Velten, 1968) to induce belief in free will and determinism. For example, participants read a booklet containing free will or deterministic statements on each page and thought about each statement for 1 min before turning the page (e.g., Baumeister et al., 2009; Vohs & Schooler, 2008). In recent studies, participants are asked to read and rewrite these same sentences in their own words (e.g., Alquist et al., 2013; Crescioni, Baumeister, Ainsworth, Ent, & Lambert, 2016). Although these adaptations have been successful in inducing belief in free will, we aimed to develop a standard manipulation of this important construct.

To create a strong, reliable manipulation, we had participants reflect on their actual experiences with free will. The present manipulation used the same 10 statements about free will from Alquist et al. (2013) but instead asked participants to write about how these statements applied to their personal experiences. Our manipulation diverges from previous designs in two ways. First, we were interested in comparing high and low belief in free will as opposed to belief in free will and disbelief in free will (or determinism). Prior research suggests that most people believe in free will (Baumeister et al., 2009), and we were interested in whether a boost or reduction in free will beliefs would influence perceived self-knowledge and authenticity. Second, instead of rephrasing statements or reflecting on the statements' meaning, participants wrote about personal experiences associated with either high or low free will. Research suggests that personally relevant messages foster attitude change (e.g., Petty & Cacioppo, 1984; Petty, Cacioppo, & Goldman, 1981). Thus, we reasoned that when participants wrote about specific instances in which they experienced high or low free will, they would report a greater change in these beliefs.

### Free Will Manipulation Pilot Study

One hundred and forty-five participants from Texas A&M University (111 women;  $M_{\text{age}} = 19.14$ ,  $SD = 1.17$ ) completed the pilot study.

### Free Will Manipulation

Participants were randomly assigned to read a brief description about high or low belief in free will and were presented with statements that reflect beliefs in free will. Participants in the high belief in free will condition read:

Free will is defined as the ability to make our own choices and to determine our own outcomes. Most people believe in free will, and recent research supports this belief. For instance, even though some people still believe that their actions are greatly determined by outside influences (e.g., social pressures), behavioral economists at Stanford and Texas A&M University have published studies showing that most of our behavior is determined by personal choices (Baumeister et al., 2011).

Participants in the low belief in free will condition read:

Free will is defined as the ability to make our own choices and to determine our own outcomes. Most people do not believe our behavior is completely determined by free will, and recent research supports this belief. For instance, many people believe that their actions are often determined by outside influences (e.g., social pressures). In fact, behavioral economists at Stanford and Texas A&M University have even published studies showing that most of our behavior is determined by situational factors (Baumeister et al., 2011).

They were then presented with 10 statements used in previous research to induce free will beliefs (see Alquist et al., 2013; Vohs & Schooler, 2008). Participants were asked to think about “why these statements are true (false) based on [their] own experiences and select a couple of statements from the list below that have proven especially true (false) in [their] life” for high and low belief in free will conditions, respectively. Finally, they were asked to describe how each chosen statement is true (false) based on their own experiences and “think about specific examples from [their] life and provide as much detail as possible.”<sup>1</sup>

### Manipulation Check

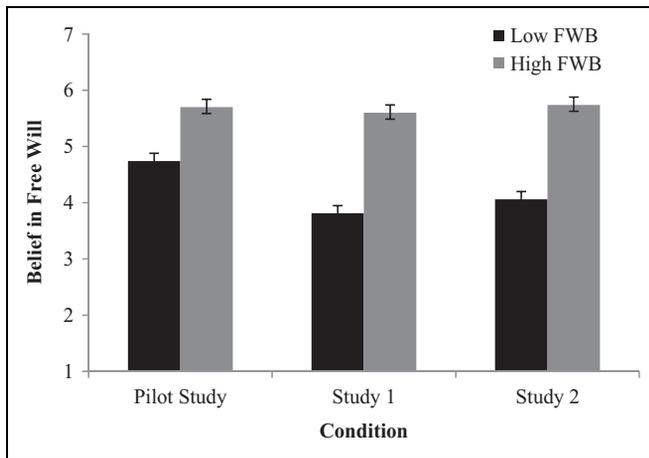
To ensure that high and low belief in free will was induced successfully, participants indicated their agreement with one face-valid statement (e.g., People have complete free will.) taken from the FAD-Plus (Paulhus & Carey, 2011) using a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). Higher values reflected greater belief in free will ( $M = 5.22$ ,  $SD = 1.46$ ).

### Results

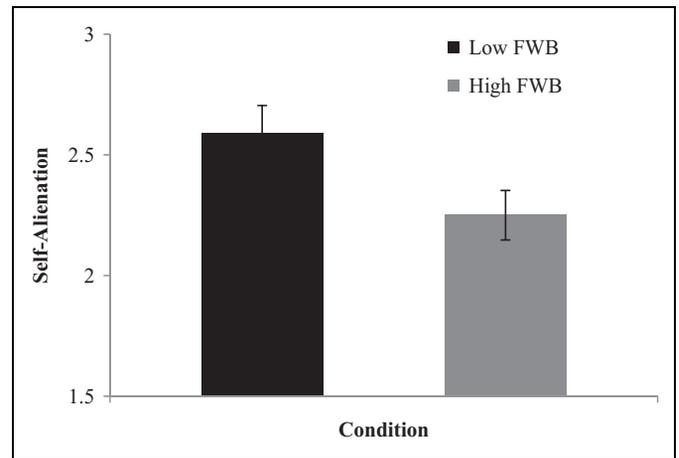
An independent samples *t*-test revealed a significant difference in free will beliefs,  $t(133) = -4.184$ ,  $p = .000$ ,  $d = .692$ , 95% CI [-1.418, -.507], such that participants in the high free will condition reported greater free will beliefs ( $M = 5.70$ ,  $SD = 1.19$ ) than participants in the low free will condition ( $M = 4.74$ ,  $SD = 1.56$ ). Thus, the pilot study of our manipulation was successful. See Figure 1 for results of the free will manipulation for all of the studies.

### Study 1

Study 1 was designed to test the hypothesis that lowering belief in free will would lead to less self-knowledge. We predicted that participants who wrote about instances in which they experienced low free will would feel an attenuated sense of personal agency and, therefore, report feeling more alienated from themselves (and less true-self awareness) compared to participants in the high free will condition.



**Figure 1.** Manipulation check illustrating differences in belief in free will by condition in the pilot study and in Studies 1 and 2. Standard errors are represented by the error bars.



**Figure 2.** Differences in self-alienation by condition in Study 1. Standard errors are represented by the error bars.

## Method

### Participants

Three hundred and four individuals<sup>2</sup> (161 female), recruited from Amazon Mechanical Turk, participated in the study and were compensated with a payment of US\$0.50. Participants were from the United States only, diverse in age ( $M_{age} = 35.23$ ,  $SD = 12.63$ ), and predominantly White (78%) and non-Hispanic (92%).

To provide adequate power to detect effect sizes, a sample size of over 100 participants per cell was determined for both studies in the current report before data collection based on recommendations in the psychological literature (e.g., Simmons, Nelson, & Simonsohn, 2011; VanVoorhis & Morgan, 2007). We aimed to collect 150 participants per cell. Data collection was terminated after this goal was met.

### Materials and Procedure

Participants completed the same free will manipulation except they were asked to select 2–3 statements from the list of 10 statements provided.<sup>3,4</sup> Then, they completed the manipulation check item ( $M = 4.76$ ,  $SD = 1.75$ ) described in the pilot study.

**Self-alienation.** Self-alienation was assessed using the 4-item self-alienation subscale of the Authenticity Scale (Wood et al., 2008). Responses (e.g., I feel as if I don't know myself very well.) were made on a 7-point scale (1 = *does not describe me at all* and 7 = *describes me very well*). Higher scores indicated greater self-alienation ( $M = 2.41$ ,  $SD = 1.33$ ,  $\alpha = .92$ ).

**True-self awareness.** True-self awareness was assessed using the 12-item awareness subscale of the Authenticity Inventory (Kernis & Goldman, 2006). Responses (e.g., I am able to distinguish those self-aspects that are important to my core or true self from those that are unimportant.) were made on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). Higher scores

indicated greater true-self awareness ( $M = 5.24$ ,  $SD = .91$ ,  $\alpha = .88$ ).

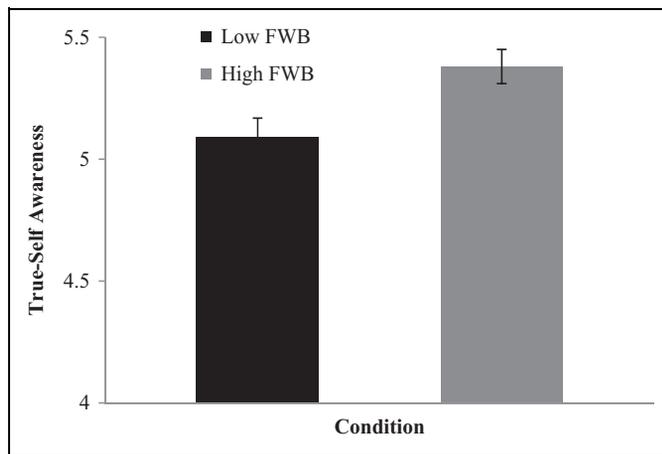
## Results and Discussion

We first ran an independent samples *t*-test to make sure our manipulation replicated previous effects. There was a significant difference in belief in free will,  $t(272) = -10.103$ ,  $p = .000$ ,  $d = -1.182$ , 95% CI [-2.137, -1.440]. Participants in the high free will belief condition reported greater free will beliefs ( $M = 5.60$ ,  $SD = 1.38$ ) than participants in the low free will belief condition ( $M = 3.81$ ,  $SD = 1.64$ ). The free will manipulation was again successful.

For our main analyses, we conducted an independent samples *t*-test to determine whether there were differences in self-alienation and true-self awareness, respectively. Indeed, there were significant differences in self-alienation,  $t(295) = 2.176$ ,  $p = .030$ ,  $d = .253$ , 95% CI [.032, .635], and true-self awareness,  $t(295) = -2.817$ ,  $p = .005$ ,  $d = -.327$ , 95% CI [-.502, -.089]. Participants who wrote about experiences involving low belief in free will reported greater self-alienation ( $M = 2.59$ ,  $SD = 1.35$ ) and less true-self awareness ( $M = 5.09$ ,  $SD = .93$ ) than participants who wrote about experiences with high free will ( $M = 2.26$ ,  $SD = 1.29$ , for self-alienation, and  $M = 5.38$ ,  $SD = .88$ , for true-self awareness). Together, these findings suggest that lowering belief in free will reduces feelings of self-knowledge.<sup>5</sup> See Figures 2 and 3 for results for self-alienation and true-self awareness, respectively.

### Study 2

Study 1 found support that reducing belief in free will attenuates feelings of self-knowledge. In Study 2, we wanted to extend our findings and more specifically examine how free will beliefs influence the authenticity of people's behaviors.<sup>6</sup> To accomplish this, participants completed a moral decision-making task and were asked to indicate whether their decisions were reflective



**Figure 3.** Differences in true-self awareness by condition in Study 1. Standard errors are represented by the error bars.

of their true selves. In particular, we chose a moral decision task, as previous research suggests that moral decisions are closely aligned with the true self. For instance, Newman, Bloom, and Knobe (2014) found that people believe that true selves are morally good, and Gino, Kouchaki, and Galinsky (2015) found that individuals felt worse about their moral character in situations where they had behaved less authentically. Thus, we believe a moral decision task would best capture whether people believe their decisions are indicative of their true selves.

It is important to note that we assessed state self-alienation and authenticity in Study 2. We measured state self-alienation following the free will manipulation to conceptually replicate the findings from Study 1. Critically, we reasoned that reducing belief in free will would increase state self-alienation to produce a downstream consequence of perceived inauthenticity. True self-knowledge is typically conceptualized as a component of the higher order construct of authenticity (see Kernis & Goldman, 2006; Wood et al., 2008). We reasoned that less self-knowledge should give rise to feelings of inauthenticity such that when you feel like you don't know who you are, you should experience or engage in less authentic behaviors. Overall, we predicted that participants experiencing lower free will beliefs would report less true self-knowledge and less authenticity during the decision-making task.

## Method

### Participants

Three hundred individuals<sup>7</sup> (140 female), recruited from Amazon Mechanical Turk, participated in the study and were compensated with a payment of US\$1.00. Participants were from the United States only, diverse in age ( $M_{age} = 33.56$ ,  $SD = 11.21$ ), and predominantly White (84%) and non-Hispanic (92%).

### Materials and Procedure

Participants completed the same free will manipulation described in the previous studies except they were asked to

write about three chosen statements.<sup>8</sup> Then, they completed the manipulation check item ( $M = 5.01$ ,  $SD = 1.70$ ) described in the previous studies.

**State self-alienation.** Participants completed the same measure of self-alienation except they were asked to think about how they currently feel “right now” (e.g., Right now, I feel as if I don't know myself very well.). Higher scores indicated higher state self-alienation ( $M = 2.16$ ,  $SD = 1.49$ ,  $\alpha = .94$ ).

**Decision-making task.** Participants then completed a decision-making task where they were presented with a choice between two monetary rewards. They were asked to choose between keeping a certain amount of money for themselves and donating a certain amount of money to a worthy charity (e.g., US\$50 for myself vs. US\$50 to a worthy charity, US\$100 for myself vs. US\$200 to a worthy charity, and US\$500 for myself vs. US\$450 to a worthy charity). They were told that any money kept for themselves could not be donated to a charitable organization. They were presented with 24 different scenarios, and all the scenarios were randomized for presentation. The amount of money for both choices ranged from US\$25 to US\$2,000.

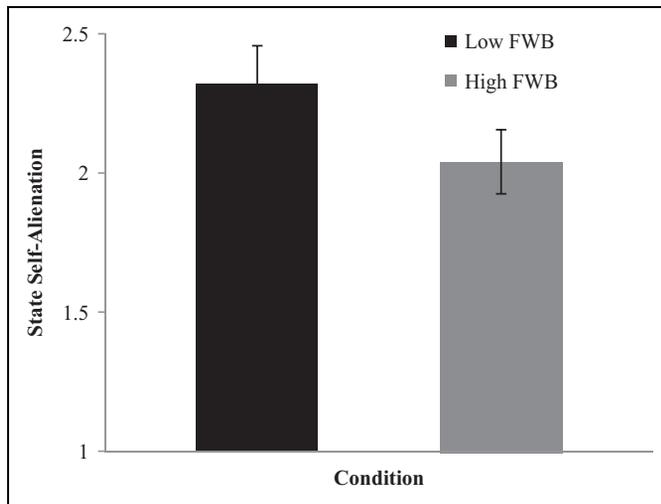
**Decision authenticity.** Participants completed three items to assess how authentic participants felt during the moral decision-making task. They indicated to what extent their choices were “an expression of [their] true self, or who [they] really are, ‘deep down inside,’” “align[ed] with [their] inner core values,” and “reflective of their central identity.” Responses were made on a 7-point scale (1 = *not at all* and 7 = *extremely*), and a composite score was created by averaging the three items. Higher scores indicated greater decision authenticity ( $M = 5.01$ ,  $SD = 1.46$ ,  $\alpha = .92$ ).

**Comprehension check.** To ensure that participants were completing the study thoughtfully, we included an 1-item comprehension check. Participants were asked to “select ‘somewhat agree’ from the options below” on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). Participants who did not select “somewhat agree” were excluded from analyses, as they were not following the directions provided.

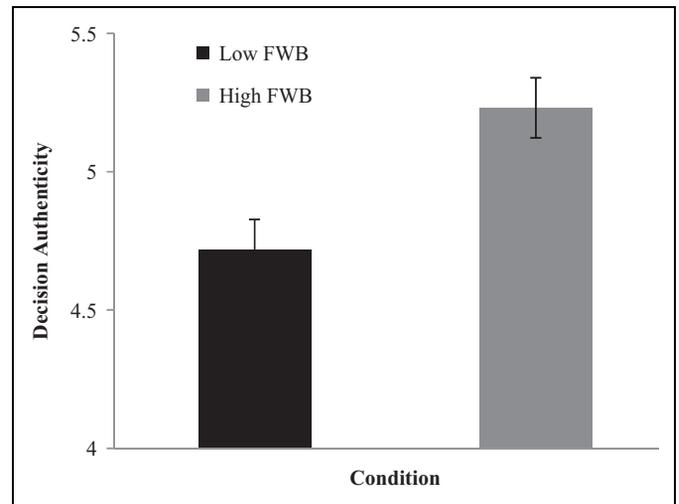
## Results and Discussion

We conducted the same independent samples *t*-test described in Study 1 to assess our free will manipulation. Replicating the results from Study 1, there was a significant difference in belief in free will,  $t(217) = -9.111$ ,  $p = .000$ ,  $d = -1.115$ , 95% CI [-2.044, -1.330]. Participants in the high free will belief condition reported greater free will beliefs ( $M = 5.74$ ,  $SD = 1.28$ ) than participants in the low free will belief condition ( $M = 4.06$ ,  $SD = 1.70$ ).

For our main analysis, unexpectedly, an independent samples *t*-test did not reveal a significant difference in state self-alienation,  $t(280) = 1.598$ ,  $p = .111$ ,  $d = .192$ , 95% CI [-.066, .635], although it was trending toward significance.



**Figure 4.** Differences in state self-alienation by condition in Study 2. Standard errors are represented by the error bars.



**Figure 5.** Differences in decision authenticity by condition in Study 2. Standard errors are represented by the error bars.

The pattern was in a similar direction, such that participants in the low belief in free will condition reported greater state self-alienation ( $M = 2.32$ ,  $SD = 1.51$ ) than participants in the high belief in free will condition ( $M = 2.04$ ,  $SD = 1.46$ ).

We also conducted an independent samples  $t$ -test to determine if there were differences in the perceived authenticity of participants' decision-making behaviors. There was a significant difference in how authentic participants felt during the moral decision task,  $t(280) = -2.958$ ,  $p = .003$ ,  $d = -.353$ , 95% CI  $[-.854, -.172]$ . Participants in the low free will belief condition reported less authenticity during the decision-making task ( $M = 4.72$ ,  $SD = 1.53$ ) than participants in the high free will belief condition ( $M = 5.23$ ,  $SD = 1.38$ ). These results suggest that attenuating belief in free will reduces true self-knowledge and the experience of authenticity in our behaviors. See Figures 4 and 5 for the results for state self-alienation and decision authenticity, respectively.

## General Discussion

The present research examined whether lowering belief in free will reduces self-knowledge, such that people feel an increasing disconnect between their acting agent and their self. Using a new, valid manipulation of free will beliefs, we found that attenuating belief in free will led to greater reports of self-alienation, less true-self awareness, and less perceived authenticity while engaging in decision-making behaviors. Together, these studies suggest that undermining the feeling that one has personal agency and control over one's actions produces the feeling of self-alienation and a sense of inauthenticity toward one's actions.

In order for actions and behavior to align with the self, people may need to feel that they are capable of overriding outside influences. We contend that lowering belief in free will leads to this loss of personal agency. Inherent in the understanding of free will is that individuals can perform numerous actions in

any situation (Baumeister et al., 2010; Mackenzie et al., 2014). People strongly associate belief in free will with making choices (Feldman, Baumeister, & Wong, 2014); moreover, belief in free will is positively associated with internal locus of control (Paulhus & Carey, 2011; Stillman et al., 2011), is argued to promote willingness to exercise effortful control over one's behavior (Stillman et al., 2010), and leads people to imagine more counterfactual possibilities that can guide better decision-making for the future (Alquist et al., 2015). When we feel that we no longer dictate our own actions, we lose our sense of autonomy and control needed to ensure that our actions are indicative of the values and beliefs central to our identity.

Disbelief in free will leads to a host of immoral behaviors such as cheating (Vohs & Schooler, 2008) and aggression (Baumeister et al., 2009). It is possible that people are more likely to engage in immoral behaviors when there is an increasing distance between their acting agent and self. Indirect support for this proposition comes from research suggesting that inauthentic behaviors (i.e., behaviors that are not indicative of one's true self) produce feelings of immorality and impurity (Gino, Kouchaki, & Galinsky, 2015). In line with our findings, it is plausible that when belief in free will is attenuated, and we feel that our behaviors are no longer representative of who we are, or our true self, we may act without a sense of moral self-regulation. Future research might explore this possibility.

While our findings support the notion that weakening belief in free will lowers self-knowledge and authenticity, future research is needed to address the limitations of the current research. One limitation is that our measure of state self-alienation did not replicate the findings from Study 1. There are two possibilities for the nonsignificant effect. First, we employed a state measure of self-alienation, whereas the previous study employed a trait measure of self-alienation. Second, in examining the raw data, more participants in this sample reported low levels of self-alienation compared to participants

in the other sample. Thus, it is plausible that the distribution of participants is driving the effect (see Supplemental Online Materials). Additionally, there was no control condition to determine whether it is lowering or strengthening free will beliefs that lead to changes in self-knowledge. Although the direction is unclear, previous research suggests that lowering belief in free will more strongly predicts these psychological consequences (see Alquist et al., 2013; Baumeister et al., 2009; MacKenzie et al., 2014; Vohs & Schooler, 2008). Moreover, prior research has also shown that belief in free will and control conditions yield similar statistical findings (see Baumeister et al., 2009; Vohs & Schooler, 2008), further suggesting that decreasing belief in free will is pivotal in explaining changes in thoughts and behavior. Furthermore, our current research focuses solely on the true self-concept, yet there are other aspects of self and identity that may be particularly relevant to beliefs in free will. For example, it is possible that a perceived lack of agency contributes to low self-concept clarity (Campbell et al., 1996) or attenuates the relationship between possible selves and other behavioral outcomes (Markus & Nurius, 1986). Future studies should examine how free will beliefs relate to other types of self-concepts.

## Conclusion

While the debate about the existence of free will is arguably one that will last for centuries, the belief that free will has important consequences for thoughts and behavior is less deniable. If threatening the belief in free will ignites existential crises such that people feel more disconnected from their self and are unable to trace the origins of their actions to their own internal standards, then it may be important to identify ways to reliably boost feelings of autonomy, control, and self-agency. After all, if individuals are not acting of their volition and living the life they intend to live, then what is the ultimate function of having a self and carefully crafting an identity?

## Declaration of Conflicting Interests

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## Notes

1. For a detailed description of the free will manipulation, other study materials, and supplementary analyses, see [https://osf.io/jxe62/?view\\_only=02b592bf2d6144d7a0e4b6682921c982](https://osf.io/jxe62/?view_only=02b592bf2d6144d7a0e4b6682921c982).
2. Seven participants were excluded from analyses for failing to follow instructions for completing the manipulation (e.g., wrote about how the statements are false instead of true in the high free will condition did not complete the writing task at all), leaving 297 individuals in the final sample. The effect of the main analyses remain significant when these participants were included,  $t(302) = 2.063$ ,  $p = .040$ ,  $d = .237$ , 95% CI [.014, .614], for self-alienation and,

$t(302) = -2.426$ ,  $p = .016$ ,  $d = -.279$ , 95% CI [-.466, -.049], for true-self awareness.

3. See Supplemental Online Materials for the content analyses for the free will manipulation.
4. In the pilot study of the manipulation, participants, on average, chose two to three statements to write about across both conditions. In Study 1, participants were instructed to select two to three statements for the manipulation.
5. To instill confidence in our findings, we conducted two additional replication studies. The analyses for these studies as well as a meta-analysis for all three studies can be found in our Supplemental Online Materials.
6. Study 2 was preregistered on Open Science Framework. For a detailed description of the report including analyses with other variables, see <https://osf.io/4b8y2>.
7. Eighteen participants were excluded from analyses for failing the comprehension check item or failing to follow instructions for completing the manipulation, leaving 282 individuals in the final sample. The effects of decision authenticity remained significant when including these participants,  $t(298) = -3.110$ ,  $p = .002$ ,  $d = -.359$ , 95% CI [-.844, -.190].
8. We standardized the free will manipulation by asking participants to write about the three chosen statements in each condition and included a second manipulation check item assessing personal beliefs in free will.

## Supplemental Material

The supplemental online materials are being hosted by the Open Science Framework and are available at [https://osf.io/jxe62/?view\\_only=02b592bf2d6144d7a0e4b6682921c982](https://osf.io/jxe62/?view_only=02b592bf2d6144d7a0e4b6682921c982).

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