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# The Effects of Free Will Beliefs in Japan: Disbelief in Free Will Impairs Overriding Impulsive Decisions

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## Abstract

The present research aims at testing the effects of disbelief in free will on overriding impulsive decisions in Japan. Past research conducted in Western countries has found that induced disbelief in free will can weaken motivation of self-control. In the present research, the authors tested the generalizability of the findings in a study involving Japanese students. Results show that participants whose belief in free will was challenged reported less likelihood and desirability of overriding the impulsive decision. These findings suggest that some basic assumptions of the effects of disbelief in free will could be generalized across cultures.

## Introduction

The concept of free will has been widely debated over the ages by philosophers. While a variety of definitions of the term “free will” have been suggested and differing opinions about this still exist (*e.g.*, Haggard, Mele, O’Connor, & Vohs, 2010; Kane, 2005), the free will generally defined as possessing two components of alternative possibilities (the ability to choose actions from at least two options) and agency (the ability to cause intended actions). According to Monroe and Malle (2010), even ordinary people agree with this definition. They asked the participants the open-ended question, “*What do you think it means to have free will?*” and coded their responses. The results revealed that the most frequent responses were (a) the ability to make a decision/choice, (b) doing what you want, and (c) acting without internal or external constraints. The first response is considered to represent the concept of alternative possibility while the latter two responses are related to agency. In short, it seems fair to say that people think of free will as alternative possibility and agency.

Given that philosophers and lay people share the concept of free will, we still have to ask if people believe in free will as such. According to previous research, most people do believe in free will and accept the idea that we have the abilities to choose actions among possible options and to cause intended actions. For example, Paulhus and Carey (2011) showed that people’s mean score is above the conceptual midpoint of the free will scale. In similar research, Rakos and colleagues found that people tend to agree with the statements that support the existence of free will, and this tendency can be attributed to imprisoned adolescent and adult offenders as well (Laurene, Rakos, Tisak, Robichaud, & Horvath, 2011; Rakos, Laurene, Skala, & Slane, 2008). These findings

are consistent with the idea that people generally believe in the existence of free will.

### **Effects of Disbelief in Free Will**

What if people's belief in free will is challenged? Some scientists state that there is no such thing as free will either because human actions are determined by previous events or at random (*e.g.*, Crick, 1994; Wegner, 2002). These statements could pose threats to people's belief in free will, leading to potential changes in social judgments and behaviors. In line with this argument, Vohs and Schooler (2008) demonstrated that disbelief in free will has effects on willingness to cheat. In their second experiment, participants read one of three statements according to their assigned condition. In the free will condition, the statements supported the existence of free will, whereas in the determinism condition, the statements denied the existence of free will. Participants in the control condition read statements which are irrelevant to the existence of free will. In a subsequent, ostensibly unrelated task, participants completed a cognitive test and they were provided opportunities to overpay themselves. The dependent measure was the amount of money they took from the researchers. Results indicated that participants in the determinism condition took more money than those in the free will or control conditions. These findings suggest that disbelief in free will facilitates cheating.

Baumeister, Masicampo and DeWall (2009) extended the findings of Vohs and Schooler (2008). In a first study, they examined the effects of disbelief in free will on intention to help in a hypothetical scenario. The results revealed participants in the determinism condition reported less likelihood to help others than those in the free will or control conditions. In a third experiment, they focused on the relationship between free will beliefs and aggression. This experiment demonstrated that participants in the determinism condition served up more hot sauce to another person who they knew was disliking it. Taken together, the data indicate that disbelief in free will decreases helping and increases aggression.

Why do these changes occur? According to Baumeister *et al.* (2009), disbelief in free will functions as a prime that encourages people to respond impulsively rather than exerting self-control (overriding impulse for desirable behavior). That is, if people believe in the assertion that they could not choose their actions and their intentions have no effect on them, there would be less motivation to alter their actions so as to pursue desirable results. Presumably, participants in the determinism condition were less likely to exert self-control, and as a result, helping was decreased and aggression was increased because helping and restraining aggression require self-control.

### **Cross-cultural Generalizability**

Although research suggests that disbelief in free will contributes to less willingness to exert self-control, it remains unclear whether these findings can be generalized across cultures (almost every participant in past studies was from Western countries). As East



Asians tend to show lower control beliefs than Westerners (Evans, 1981; Na & Loftus, 1998) and the concepts of control and free will are mutually related, belief in free will might be weaker in East Asia. In contrast, the cross cultural research on correspondence bias has demonstrated that East Asians, as well as Westerners, are likely to explain behaviors in terms of internal traits rather than external constraints (Choi, Nisbett, & Norenzayan, 1999; Miyamoto & Kitayama, 2002). This indicates that East Asians also have strong free will beliefs because free will is the ability to make choices without external constraints. All in all, the studies suggest that East Asians believe in free will though their beliefs might be weaker than those of Westerners.

Still, since East Asians generally endorse the existence of free will, disbelief in free will might have the same inhibiting effect on self-control in East Asians. Indeed, the results of Zhao, Liu, Zhang, Shi and Huang (2014) support this argument. They conducted experiments involving Chinese people and examined the effects of disbelief in free will on prejudice. The results indicated that participants in the determinism condition reported stronger racial bias than those in the free will condition. Thus, disbelief in free will could reduce willingness to exert self-control, leading to enhanced racial prejudice. However, the study fails to draw a distinction of effects between belief and disbelief in free will because there was no control condition. Therefore, one could not determine if disbelief in free will reduced the willingness to exert self-control or the belief in free will increase the willingness to exert it. In fact, Zhao *et al.* (2014) interpreted their findings from the point of the effects of belief in free will, and the cultural universality regarding the effect of disbelief in free will is unwarranted.

Thus we attempt to test the generalizability of the effects of disbelief in free will on self-control in research involving Japanese participants. Specifically, we ask participants the likelihood and desirability of overriding impulsive decisions (the self-control measure) and compare them in three conditions (free will, determinism, or control). Our prediction is that participants in the determinism condition would report less likelihood and desirability of overriding the impulsive decision compared to those in the free will and control conditions.

## Method

### Participants and Procedure

Participants were 80 Japanese undergraduates at the University of Tokyo (48 men, 32 women,  $M_{age} = 21.03$  years,  $SD = 1.17$ ). We included free will manipulation as an independent variable, and participants were randomly assigned to one of the three conditions (free will, control, or determinism). Dependent variables were participants' positive and negative affect reactions after the free will manipulation, and rational decisions in a hypothetical scenario as the measure of self-control. The experiment involved, in the following order, the free will manipulation, the positive and negative affect measures, and the self-control measure.

## Free Will Belief Manipulation

Participants completed the computer-based tasks in a small room. Following several screens with instructions, the free will belief manipulation was introduced. Participants were asked to translate English sentences into Japanese according to their assigned condition. Specifically, participants in the free will condition translated sentences such as “To be morally responsible, I have to be the ultimate source of my behavior (Dennett, 2003).” In the control condition, participants were asked to translate sentences irrelevant to free will such as “Volcanoes are formed when a plate is pushed below another plate, or at a mid-ocean ridge or hotspot” (Mountain, 2013). Participants in the determinism condition translated sentences such as “The experience of conscious will comes up at some point after the brain has already started preparing for the action” (Wegner, 2002). Note that some original sentences were rewritten in order to enhance simplicity.

## Positive and Negative Affects

After the free will manipulation, participants completed the Japanese version of Positive and Negative Affect Schedule (PANAS; Sato & Yasuda, 2001). The PANAS scale was introduced to examine the possibility that the free will manipulation affected participants’ mood.

## Self-control

Participants then read the hypothetical scenario describing an impulse purchaser. In the scenario, participants go out for shopping and impulsively add unnecessary but good looking ice cream to their shopping cart. Participants were asked to rate the likelihood and desirability of avoiding such an impulse purchase. Sample items were “Can you deny yourself ice cream in the situation?” and “Is not buying ice cream considered desirable?” Participants rated the likelihood and desirability of avoiding the impulsive purchase on a 5-point scale (1 = *not at all likely* and 5 = *very likely*; 1 = *not at all desirable* and 5 = *very desirable*). Responses to seven items were averaged to form the dependent measure of self-control (higher scores indicate more self-control). At the end of experiment, participants were probed for suspicion and debriefed.

## Results

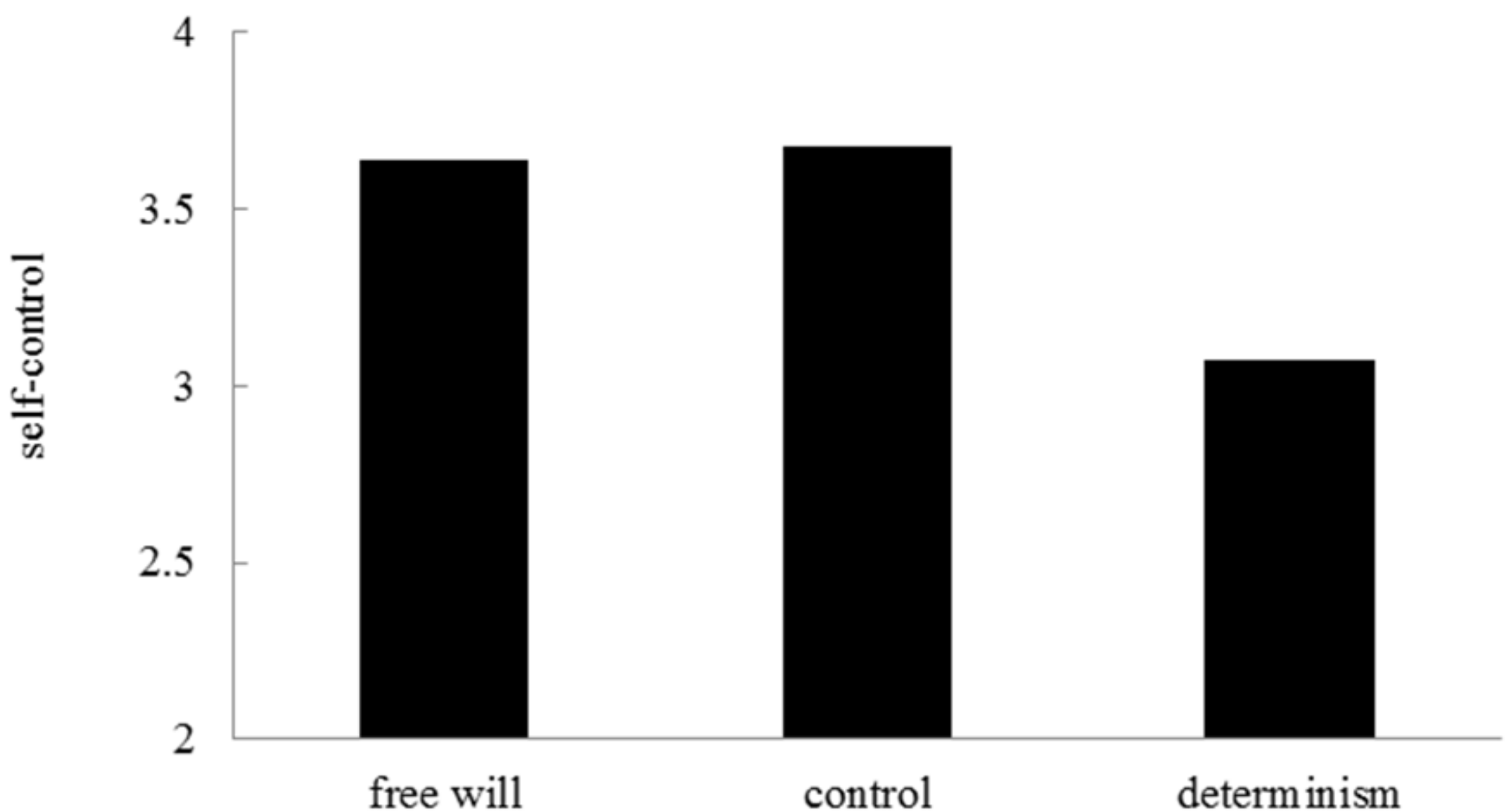
### Preliminary Analysis

Participants’ responses to the positive affect scale (Cronback’s  $\alpha = .86$ ), negative affect scale (Cronback’s  $\alpha = .84$ ), and self-control measure (Cronback’s  $\alpha = .84$ ) were each highly reliable. Before testing the substantive hypothesis, we first examined the possible influence of the free will belief manipulation on positive and negative affect. As expected, the manipulation did not alter participants’ positive and negative emotions ( $F(2, 77) = 1.89, p = .16, \eta^2 = .05$ ;  $F(2, 77) = 1.77, p = .18, \eta^2 = .04$ ). Consequently, this issue will not be discussed further in this paper.



## Self-control

The mean scores for the self-control measure are presented in Figure 1. An ANOVA on this measure yielded a significant main effect of free will belief ( $F(2, 77) = 4.46, p = .02, \eta^2 = .10$ ). In order to investigate the nature of this effect further, planned contrasts were conducted. Consistent with the hypothesis that disbelief in free will encourages impulsive behavior, participants in the determinism condition ( $M = 3.07; SD = 0.84$ ) reported less self-control than those in the free will condition ( $M = 3.64; SD = 0.67; t(77) = 2.48, p = .02, r = .27$ ) and control condition ( $M = 3.68; SD = 0.97; t(77) = 2.68, p = .01, r = .29$ ). In contrast, the free will condition and control condition did not differ from each other in self-control ( $t(77) = 0.17, p = .86, r = .02$ ).



**Figure 1**

Mean self-control scores as a function of free will belief

## Discussion

### Hypothesis Testing

This study examined the effects of disbelief in free will on self-control. In line with our prediction, Japanese participants who were induced to disbelieve in free will reported less likelihood and desirability of overriding the impulsive behavior than those whose belief in free will was bolstered or unaltered. This result can be interpreted as that disbelief in free will reduces Japanese people's willingness to exert self-control. If people do not believe in free will, they might think that their actions have no options and are not caused by their own intentions. Thus people would not be willing to exert self-control and would rather act on impulse because they cannot choose intended actions for desirable behavior. Whereas previous studies conducted in Western countries have shown that disbelief in free will alters social judgments and behaviors related to

self-control (*e.g.*, Baumeister *et al.*, 2009; Vohs & Schooler, 2008), this study replicated the findings with Japanese people. Thus, it could be concluded that the effect of disbelief in free will is generalized across cultures.

### Effects of Belief in Free Will

In the present research, inducing disbelief in free will reduced the motivation of self-control compared with the control condition. In contrast, inducing belief in free will did not enhance motivation of self-control. This overall pattern of results generally replicated previous findings in which the induced belief in free will has the same results as the control condition. As discussed in the introduction, belief in free will seems to be endorsed by most people (Laurene *et al.*, 2011; Paulhus & Carey, 2011; Rakos *et al.*, 2008), so people's free will beliefs and their judgments do not radically change under the manipulation of inducing belief in free will. Although East Asians might have somewhat weaker belief in free will than Westerners (Evans, 1981; Choi *et al.*, 1999; Miyamoto & Kitayama, 2002; Na & Loftus, 1998), previous findings conducted in Western countries seem to be apply to East Asians as well. In the light of our findings, findings of studies involving Chinese samples (Zhao *et al.*, 2014) could be reinterpreted: participants in the determinism condition displayed stronger prejudice and it is not that participants in the free will condition showed weaker prejudice.

### Limitations

Caution must be applied as the findings of the present research do not say anything about the existence or nonexistence of free will. Philosophers and scientists have been debating for a long time about whether free will actually exists or not (*e.g.*, Kane, 2011; Libet, Gleason, Wright, & Pearl, 1983), and some of them insist that free will is an illusion and people cannot help but take determined or random actions (Crick, 1994; Wegner, 2002). As far as we can tell, however, it is almost impossible for psychological research to answer the question of free will's existence because it cannot prove the possibility of multiple acts or causal effects of intentions. Even though the present study does not say anything about the existence or nonexistence of free will, it still contributes to the understanding of psychological processes which influence how people react to the "no free will" argument. Specifically, if researchers argue that they discovered that there is no free will, people would be less likely to exert self-control. As a result, denying the existence of free will might have adverse impacts on social judgments and behaviors, such as decreasing helping behaviors or increasing aggression. Therefore, future studies need to replicate and further clarify the link between free will beliefs and people's self-control, such as obtaining empirical data from a different cultural area or a wide age range.



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