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Abstract

According to previous research, threatening people's belief in free will may undermine moral judgments and behavior. Four studies tested this claim. Study 1 used a Velten technique to threaten people's belief in free will and found no effects on moral behavior, judgments of blame, and punishment decisions. Study 2 used six different threats to free will and failed to find effects on judgments of blame and wrongness. Study 3 found no effects on moral judgment when manipulating general free will beliefs but found strong effects when manipulating the perceived choice capacity of the judged agent. Study 4 used pretested narratives that varied agents' apparent free will and found that perceived choice capacity mediated the relationship between free will and blame. These results suggest that people's general beliefs about whether free will exists have no impact on moral judgments but specific judgments about the agent's choice capacity do.

Keywords

free will, morality, blame, punishment, mental states, folk concepts

Over the last decade, interest in free will has exploded. Since 2004, scholarly publications on the topic have quadrupled, and debates about free will have been repeatedly featured in the popular press (e.g., Nahmias, 2011; Overbye, 2007; Stafford, 2013). For many, questions concerning free will are important because free will is believed to underpin human morality and legitimize punishment (Darwin, 1840; Dennett, 1984; Nichols, 2011). Some scholars have even worried that should the existence of free will be disproven it would provide the ultimate excuse for people to behave immorally, and it would undermine (or at least fundamentally change) legal and social institutions (Greene & Cohen, 2004; Vohs & Schooler, 2008).

Indeed, in one of the first demonstrations of manipulating free will beliefs, Vohs and Schooler (2008) showed that threatening people's belief in free will made people more likely to steal and cheat compared to people whose belief remained intact. A complementary set of findings on free will and moral judgment showed that threatening belief in free will caused people to become more permissive in their moral judgments, to attribute less moral responsibility to others, and to endorse weaker forms of punishment for serious moral violations (Krueger, Hoffman, Walter, & Grafman, 2013; Shariff et al., 2014).

However, some of these findings have been recently called into question. In a major effort to replicate 100 prominent

findings in psychology, Nosek and colleagues (Open Science Collaboration, 2015) failed to replicate the seminal finding by Vohs and Schooler (2008), and other researchers have documented similar difficulties in finding behavioral effects of manipulated free will beliefs (Schooler, Nadelhoffer, Nahmias, & Vohs, 2014). In the current work, we present four studies that investigate whether threats to free will affect moral judgments of blame and punishment. However, in addition to replicating previous findings, we offer an explanation for why manipulations of free will beliefs may be ineffective. We suggest that manipulating people's belief in free will has weak or no effect on moral judgment because such a general belief does not enter people's actual judgments of an agent's immoral behavior; by contrast, an agent's choice capacity does (Monroe, Dillon, & Malle, 2014; Monroe & Malle, 2010, 2014).

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What is Free Will?

The primary approach to study the impact of free will on moral judgment has been to manipulate and measure people's general "belief in free will." This belief is said to be grounded in the assumption that human action is metaphysically special, immune to the laws of causality (Wegner, 2002), and incompatible with science (Cashmore, 2010; Montague, 2008). Therefore, researchers attempt to manipulate this general belief using statements arguing that people "are nothing but a pack of neurons" (Crick, 1995, p. 3) or "free will is a side effect of the architecture of the mind" (Vohs & Schooler, 2008, p. 50).

A different approach is to consider free will not as a metaphysical phenomenon that people (may or may not) believe in, but as a folk concept that carries psychological assumptions about human action. Along these lines, Monroe and Malle (2010) probed people's concept of free will by inviting them to report "what you think it means to have free will" (p. 214). This study revealed a surprisingly straightforward (and psychologically tractable) concept of free will. People defined free will as the ability to make a choice while being reasonably free of coercion. Similarly, Stillman, Baumeister, and Mele (2011) asked participants to produce autobiographical accounts of behaviors that were "of their own free will" and found that participants reported pursuing goals, making choices, and resisting temptation as examples of freely willed behaviors. Further, experiments using community interviews and reaction-time measures (Monroe & Malle, 2014) and work in experimental philosophy (Nahmias & Thompson, 2014) present a picture of free will that is "psychological"—defined not by metaphysical assumptions but by a capacity for choice and freedom from constraint.

Recent work by Nahmias, Shepard, and Reuter (2014) suggests that this folk concept strongly influences intuitions about moral responsibility. In a series of studies, they showed that when a person's behavior is coerced (e.g., through neural manipulation), perceivers deny that the person had free will or was morally responsible for her actions (for similar findings, see Woolfolk, Doris, & Darley, 2006). Additionally, the effect of neural manipulation on free will attributions is mediated by whether perceivers believe that the person's ability to choose was bypassed (Nahmias et al., 2014). Thus, determining whether a person has free will and is morally responsible depends on her mental states. If one's desires and choices are efficacious for causing action, then free will and morally responsibility are affirmed; if those psychological capacities are disabled or bypassed, then free will and moral responsibility are left in question. Moreover, pitting free will against the components of people's folk concept of free will showed that only the folk concept predicted blame (Monroe et al., 2014).

These data suggest that the psychological components of people's folk concept of free will drive people's moral intuitions over and above people's general belief in free will. We therefore designed four studies that assess moral judgment (and, in one study, moral behavior¹) and pit the efficacy of

general free will beliefs against the efficacy of perceived choice capacity—the core of people's folk concept of free will—in influencing moral judgments.

Study 1 uses the ubiquitous Velten (1968) free will manipulation to threaten people's belief in free will (Vohs & Schooler, 2008) and examines the effects on moral behavior (stealing), moral judgments of blame, and punishment decisions. Study 2 probes the effects of six different threats to free will beliefs on moral judgments of blame and wrongness. Study 3 assesses how blame and punishment are affected by either a manipulation of general free will belief or a manipulation of an agent's perceived choice capacity. Finally, Study 4 employs pretested vignettes that vary agents' apparent free will to examine whether perceptions of choice capacity mediate the relationship between variations in apparent free will and judgments of blame.

Study 1

Method

Design and Participants

The design of the study was a 2 (free will threat vs. control) × 3 (moral decision task: moral behavior, moral judgment, punishment) between-subjects design. We conducted an a priori power analysis to determine the sample size necessary for detecting an effect of the free will manipulation. A survey of the free will literature revealed highly variable effects of free will manipulations with effect sizes ranging between $d = 1.32$ (Vohs & Schooler, 2008, Study 2) to $d = .45$ (Shariff et al., 2014, Study 3). Given this variability, we used a conservative estimate of the effect size ($d = .40$) and desired power of .90. The power analysis revealed a minimum required sample size of 133 per cell. We oversampled slightly because the study was online.

Participants ($n = 1,080$, 53% female) were recruited via Amazon Mechanical Turk and paid US\$1.00. Participants' average age was 33.4 years ($SD = 12.1$), they were moderately religious ($M = 2.35$, $SD = 1.41$; 1 = *not at all religious*, 5 = *very religious*), and politically slightly left-of-center ($M = 3.34$, $SD = 1.58$; 1 = *very liberal*, 7 = *very conservative*).

Procedure

Participants completed the study online. They read 15 statements and rewrote them in their own words. Participants in the free will threat condition ($n = 512$) read deterministic statements designed to reduce belief in free will (Vohs & Schooler, 2008), such as: "All behavior is determined by brain activity, which in turn is determined by a combination of environmental and genetic factors." Participants in the control group ($n = 512$) read neutral scientific statements (e.g., "Oceans cover 71% of the Earth's surface."). Participants then responded to a manipulation check question,

which asked to which extent they agreed with the statement “I have free will” (scale: 0 = *disagree* to 100 = *agree*), followed by the Positive and Negative Affect Schedule (PANAS), and the Free Will and Determinism subscales of the Free Will Inventory (Nadelhoffer, Shepard, Nahmias, Sripada, & Ross, 2014).

Afterward, participants were assigned to one of three tasks: moral behavior ($n = 363$), moral judgment ($n = 352$), or punishment ($n = 365$). In the moral behavior task, participants could earn a cash bonus by stealing money from another person. Participants were informed that they would be paired with another person and randomly assigned to either the role of Worker 1 or Worker 2. Worker 1 would have the opportunity to earn a bonus payment by stealing from Worker 2. The study explained that this was a one-shot, anonymous interaction. Worker 2 would not find out their identity nor would Worker 2 have an opportunity to retaliate.

Once the participants read these instructions, they saw a screen with an animated loading bar and the text “searching for other workers” displayed for 12 s, followed by a screen that read: “connecting to other worker.” Participants then learned that they had been assigned to the role of Worker 1 and could earn a bonus by stealing from Worker 2. Participants decided how much to steal using a slider bar incremented by US\$0.10 between US\$0.00 and US\$1.00.

In the moral judgment and punishment conditions, participants were told that they would be paired with two other workers and randomly assigned to the role of Worker 1, 2, or 3. The roles of Workers 1 and 2 were described identically to the moral behavior condition. Worker 3’s task was to evaluate the interaction between Worker 1 and Worker 2. Following this description, participants saw the animated screens: “looking for workers” and “connecting to workers” and learned that they had been assigned to the role of Worker 3.

Participants then read a description of the interaction between Worker 1 and Worker 2 indicating that Worker 1 had stolen US\$0.80 from Worker 2. In the *moral judgment* condition, participants were asked “How much do you blame Worker 1 for stealing from Worker 2?” (scale: 0 = *no blame at all* to 8 = *the most blame possible*). In the *punishment* condition, participants were told “You can punish Worker 1 for stealing from Worker 2 by taking away part of Worker 1’s payment.” Participants decided how much to punish Worker 1 using a slider bar incremented by US\$0.10 between US\$0.00 and US\$0.80. After their assigned task, participants completed a brief reactance measure, a demographic questionnaire, and were debriefed.

Results

Manipulation Check

Participants in the free will threat condition reported lower agreement with the statement I have free will than participants in the control condition, $t(1,078) = -10.5, p < .0001, d = .64,$

Table 1. Descriptive Statistics for Study 1 Manipulation Check Variables.

Dependent Measure	Free Will Threat	Control
Self-reported free will belief	66.8 (28.9)*	82.6 (20.0)*
Free Will Inventory		
Free Will subscale	4.77 (1.25)*	5.03 (1.17)*
Determinism subscale	3.24 (1.26)*	3.06 (1.16)*
Negative emotion (PANAS)	1.38 (0.62)*	1.28 (0.51)*
Reactance	3.01 (0.57)	3.00 (0.59)

Note. PANAS = Positive and Negative Affect Schedule.
* $p < .05$.

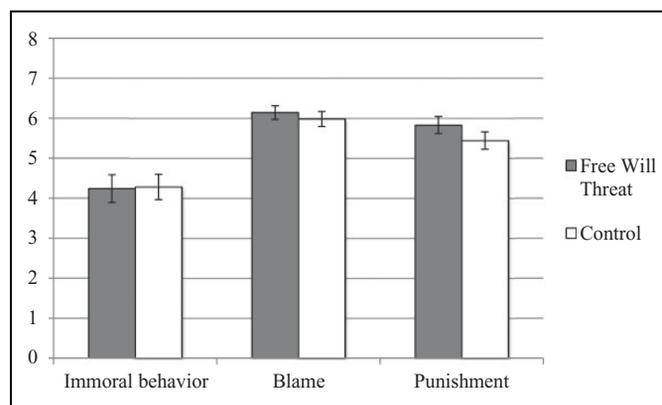


Figure 1. Study 1 ($n = 1,024$): Threatening free will beliefs using Vohs and Schooler’s (2008) Velten technique did not significantly affect participants’ immoral behavior (stealing from another participant), their moral judgments of blame, or their punishment decisions. Error bars = ± 1 SE.

95% confidence interval (CI) [0.52, 0.76] (see Table 1 for means). Further, relative to control, participants in the free will threat condition had significantly reduced scores on the Free Will subscale, $t(1,078) = -3.52, p = .0004, d = .21, 95\% \text{ CI } [0.09, 0.33]$ and increased scores on the Determinism subscale, $t(1,078) = 2.51, p = .012, d = .15, 95\% \text{ CI } [0.03, 0.27]$. The free will threat also significantly increased negative emotion as measured by the PANAS, $t(1,078) = 2.90, p = .004, d = .18, 95\% \text{ CI } [0.06, 0.30]$; however, the free will manipulation did not affect reactance, $t(1,078) = .26, p = .798, d = .01, 95\% \text{ CI } [-0.1, 0.13]$.

Moral Behavior, Blame, and Punishment

The main goal of the study was to examine whether, consistent with previous research, threatening free will beliefs would increase immoral behavior (i.e., stealing from other participants) and decrease the severity of people’s blame judgments and punishment. Neither prediction was confirmed. Free will threat had no effect on immoral behavior, $t(361) = -.77, p = .94, d = .08, 95\% \text{ CI } [-0.12, 0.29]$; no effect on blame, $t(350) = -.60, p = .55, d = .06, 95\% \text{ CI } [-0.14, 0.27]$; and no effect on punishment, $t(363) = 1.27, p = .20, d = .13, 95\% \text{ CI } [-0.07, 0.34]$ (see Figure 1).

Discussion

We attempted a conceptual replication of previous studies in which threatening people's belief in free will increased immoral behavior (Vohs & Schooler, 2008) and reduced punitive moral judgments and punishment (Krueger et al., 2013; Shariff et al., 2014). Despite evidence that the manipulation successfully threatened people's free will beliefs, there was no discernable effect on people's moral judgments or moral behavior.

Two potential explanations for the lack of significant findings are apparent. First, our study may have employed the wrong threat to free will manipulation. While the Velten procedure is the most successful and widely used free will manipulation, other researchers have employed different types of threats (e.g., a description of determinism, a future-predicting supercomputer, or a description of neural causality; see Greene & Cohen, 2004; Nahmias, Morris, Nadelhoffer, & Turner, 2005; Nichols & Knobe, 2007). One of these manipulations may be more effective.

Second, although the free will manipulation successfully shifted people's endorsements of general free will beliefs, it failed to make a difference for how people experienced their own or another person's immoral behavior. If moral assessments are based primarily on ascriptions of the psychological constituents of free will, and if these constituents are unaffected by a free will manipulation, then this would explain the failure of free will manipulations to alter people's moral assessments.

Study 2

We explored both possibilities in Study 2 by testing a broader array of free will challenges and their effects on both people's moral judgments and folk-psychological judgments (of choice, intentionality, and free will) of a fictitious target person.

Method

Participants

Data were collected at a Rhode Island public beach ($n = 275$). Researchers approached potential participants individually, confirmed that they were at least 18 years old, and obtained verbal consent. To minimize demands on participants' time and to guarantee anonymity, researchers did not collect any demographic information.

Materials

Participants were randomly assigned to one of eight conditions: one of six free will threat conditions, a profree will condition, or a no-claim control. In the threat conditions, participants read a brief claim arguing against the existence of free will (though free will was never mentioned); in the profree will condition, participants read a brief claim buttressing belief in free will; in the no-claim control condition, participants did not read any claim. All participants then considered a description of an agent's blameworthy behavior and completed the dependent

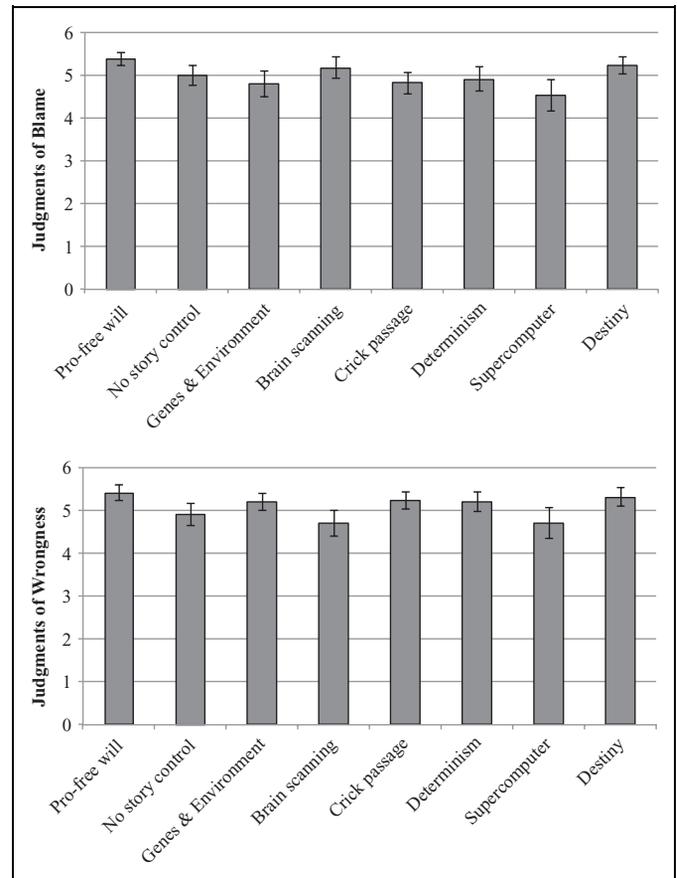


Figure 2. Study 2 ($n = 275$): Testing six distinct free will threats against a profree will and a no-statement control revealed no effects on moral judgments of blame and wrongness. Error bars = ± 1 SE.

measures (see Supplemental Materials for the specific claims and the behavior description).

Dependent measures included ratings of blame for the agent (0 = *no blame at all* to 6 = *very much blame*) and judging the wrongness of the agent's behavior (0 = *not wrong at all* to 6 = *very wrong*). Finally, participants evaluated a list of three folk-psychological descriptions of the agent's behavior (e.g., "acted intentionally") and whether the agent had free will, using a scale from 1 (*not at all correct*) through 2 (*maybe correct*) to 3 (*certainly correct*).² Note that this free will question does not assess people's own *belief* in free will, but their inclination to *ascribe* free will to the agent.

Results

As in Study 1, there was no effect of free will threats on people's judgments of blame, $F(7, 266) = 1.07, p = .38, \eta^2 = .03, 95\% \text{ CI } [0.00, 0.05]$ or wrongness, $F(7, 265) = 1.18, p = .31, \eta^2 = .03, 95\% \text{ CI } [0.00, 0.05]$. None of the claims about the nonexistence of free will altered people's moral judgments. Across conditions, participants made strong blame judgments and labeled the target person's behavior as morally wrong (see Figure 2). We also compared pooled data from the six free will threat conditions against the profree will

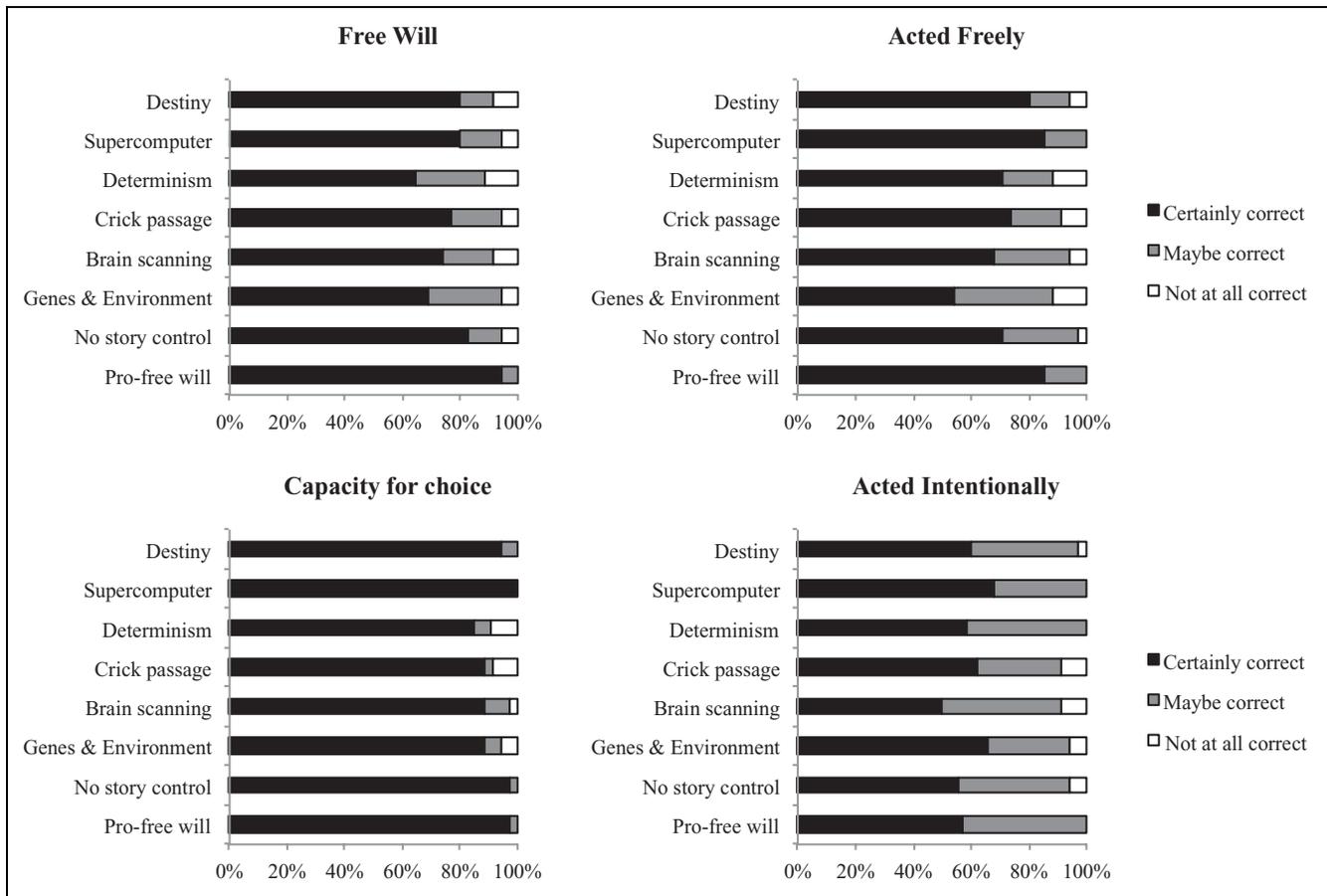


Figure 3. Study 2 ($n = 275$): Ascriptions of free will and endorsements of folk-psychological descriptions of behavior (choice, intention, and acting freely) remained high and robust across free will threat conditions.

and control conditions and found no effect on blame or punishment ($t_s < 1.30, p_s > .2$).

Similarly, assessments of the folk-psychological descriptions of the target person’s behavior were unaltered by the free will challenges (see Figure 3). Regardless of condition, most participants found it “certainly correct” that the person had free will (78%), $\chi^2(14, n = 275) = 13.4, p = .49$; had the capacity for choice (92%), $\chi^2(14, n = 275) = 16.4, p = .29$; acted freely (73%), $\chi^2(14, n = 275) = 19.0, p = .16$; and acted intentionally (60%), $\chi^2(14, n = 275) = 12.1, p = .60$.

Discussion

Two studies failed to find evidence for the hypothesis that threats to belief in free will influence people’s moral judgments of others (Studies 1 and 2) or their own moral behavior (Study 1). Study 2 tested a broad set of free will threats and showed that moral judgments were unaffected. While we caution against strong interpretations of any one challenge, a post hoc power analysis showed that our pooled analysis had 80% power to detect effect sizes of $d = .40$.

Across manipulations, people also steadfastly endorsed folk-psychological descriptions of the agent’s behavior. This result may explain why manipulations of free will beliefs do

not influence moral judgments, namely, because they do not alter the critical elements in moral assessments—people’s judgment of whether *the observed agent* acted on their own free will. That judgment, according to people’s folk concept of free will, is constituted by the judgments of choice and the absence of constraints (Monroe & Malle, 2010, 2014). If this explanation is correct, then manipulating the core of these constitutive judgments (choice capacity), not the social perceiver’s general belief in free will, should be effective in changing people’s moral judgments. Study 3 tested this prediction by pitting a manipulation of an observed agent’s ability to choose (to bring about a desired outcome) against an in-lab manipulation of the observer’s general free will belief.

Study 3

Method

Participants

Two hundred participants were recruited at a Southeastern state university. Our sample was based on an a priori power analysis ($d = .40$; power = .80) which revealed a required sample size of 199. During the experiment, nine participants reported

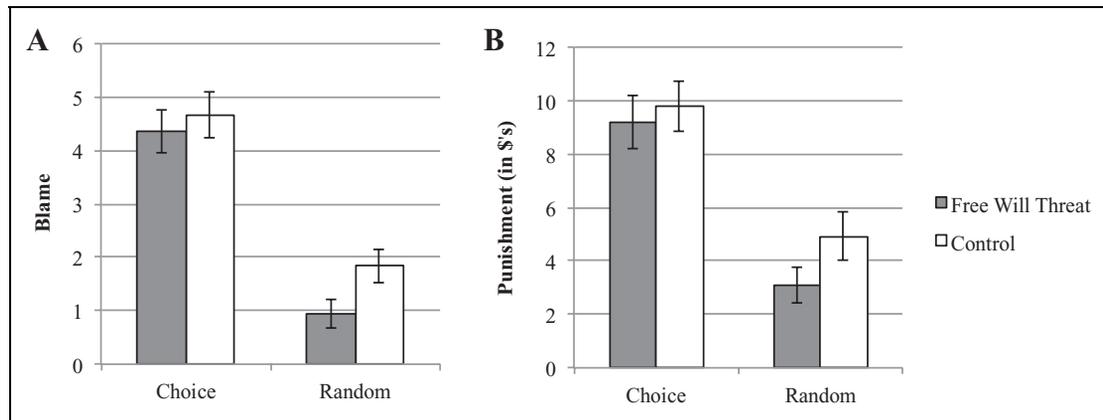


Figure 4. Study 3 ($n = 191$): A threat to participants' general belief in free will (gray vs. white bars) failed to significantly affect blame judgments (Panel A) and punishment decisions (Panel B). By contrast, the perceived difference between the agent exerting choice versus randomly causing harm (separated on each panel's x-axis) strongly influenced blame and punishment. Error bars = ± 1 SE.

knowing one of the three people in the stimulus video and were disallowed from completing the experiment. Of the final 191 participants, 130 were females. Average age was 19.1 years ($SD = 1.08$), and participants tended to be politically liberal ($M = 3.33$, $SD = 1.57$; 1 = *very liberal*, 7 = *very conservative*).

Materials and Procedure

Upon arriving in the lab, participants were told that they would be taking part in the two separate experiments. The first tested reading fluency; the second examined judgments of other people. The free will manipulation was embedded in the first part of the experiment and identical to the manipulation used in Study 1. Immediately following the free will manipulation, participants responded to a manipulation check asking to what extent they agreed with the statement I have free will (0 = *disagree* to 100 = *agree*). Participants also completed the PANAS and the Free Will and Determinism subscales of the Free Will Inventory (Nadelhoffer et al., 2014).

Participants were then taken to a different testing room where they learned that they were going to watch a brief video recorded during a previous experiment in the lab and make judgments of the people in the video. The video depicted three people: an experimenter and two participants. In the video, the experimenter explained that the participants were going to play a competitive game for a chance to increase their payment for the study (they had already been paid US\$10 for participating). In the *choice* condition, the video explained that one randomly chosen participant would have the opportunity to steal from her partner. The participant could choose to steal as much or as little as she wanted from the partner. The *random* condition was identical except that the amount stolen from the partner was determined by a die roll (1–2 = *she steals nothing*; 3–4 = *she steals US\$5*; and 5–6 = *she steals all her partner's US\$10*) rather than being chosen by the participant.

In both conditions, the video showed the target acquires US\$10 from her partner. Participants were asked to make two judgments: (1) How much blame the participant deserves for taking the other person's money (0 = *no blame at all* to 8 = *the*

most blame possible) and (2) how much money they would take away from the participant as punishment (on a slider bar incremented by US\$1 and ranging from US\$0 to US\$20). Afterward participants completed a brief demographic questionnaire and were debriefed.

Results

Manipulation Check

Replicating the findings from Study 1, the free will manipulation significantly reduced self-reported belief in free will, $t(189) = -4.89$, $p = .00002$, $d = .71$, 95% CI [0.42, 1.01]. Threatened participants reported less agreement with the statement I have free will ($M = 66.7$, $SD = 27.6$) than control participants ($M = 82.9$, $SD = 18.0$). Also, though negative emotion was generally near floor, free will threat significantly increased negative emotion ($M = 1.49$, $SD = .73$) relative to control ($M = 1.24$, $SD = .48$), $t(189) = 2.82$, $p = .005$, $d = .33$, 95% CI [0.04, 0.62]. In contrast to Study 1, the free will manipulation had no significant effects on the Free Will ($t = -.23$, $p = .82$) or the Determinism subscales ($t = .30$, $p = .77$) of the Free Will Inventory.

Effects of Free Will Belief and Agent's Choice on Blame and Punishment

Depicting the observed agent as having choice substantially increased the amount of blame participants assigned to her, $F(1, 187) = 67.9$, $p < .0001$, $\eta^2 = .27$, 95% CI [0.16, 0.36] (see Figure 4). By contrast, manipulating participants' general free will beliefs had no impact on blame judgments, $F(1, 187) = 2.59$, $p = .11$, $\eta^2 = .01$, 95% CI [0.00, 0.06]. Likewise, the choice manipulation increased recommended punishment, $F(1, 187) = 34.5$, $p < .0001$, $\eta^2 = .16$, 95% CI [0.07, 0.25], whereas the free will manipulation did not, $F(1, 187) = 1.66$, $p = .20$, $\eta^2 = .009$, 95% CI [0.00, 0.05]. The interactions between the two manipulations had no impact on either blame or punishment, $F_s < .57$, $p_s > .45$.

Discussion

Study 3 pitted an observed agent's ability to choose a desired outcome against a manipulation of observers' free will belief. As in the previous studies, the free will manipulation altered participants' declared free will beliefs but failed to affect their moral judgments. By contrast, manipulating the agent's choice dramatically influenced both judgments of blame and recommended punishment. These results suggest that people understand people's free will as a chosen action absent constraints (Monroe & Malle, 2010, 2014) and that perceivers' abstract free will beliefs have no residual effect on moral judgment.

Study 4 examined more closely the relationship between people's perceptions of an observed agent's free will, choice, and their moral judgments of the agent's behavior. Specifically, we tested the hypothesis that variations in an agent's apparent free will influence people's moral judgments primarily by means of perceptions of the agent's choice capacity.

Study 4

Method

Pretest

We constructed several stories in which an agent commits an immoral act (assault) but experiences some degree of free will incapacitation (*weak, moderate, strong, or no-incapacitation control*; Supplemental Materials). Each incapacitation category was represented by two different stories; the control category was represented by one story. To establish that the stories reduced perceptions of the agent's free will, we asked 55 participants to read 4 stories (1 from each category plus the control story) and to answer the question: "Does [agent] have free will?" (1 *definitely no* to 4 = *not sure* to 7 = *definitely yes*). People reliably differentiated between the four conditions, $F(3, 162) = 37.6, p < .001, \eta^2 = .41$. Planned contrasts showed that participants judged the agent to have most free will in the no-incapacitation control condition ($M = 6.60, SD = .99$), followed by the weak ($M = 6.16, SD = 1.32$), moderate ($M = 5.73, SD = 1.45$), and strong incapacitation conditions ($M = 4.51, SD = 1.70$), $F_s > 4.7, p_s < .04$.³

Participants

Participants ($n = 282, 51\%$ male) were recruited via Amazon Mechanical Turk and received US\$0.20. Average age was 33.7 years ($SD = 11.3$). Participants were weakly religious ($M = 2.15, SD = 1.38$; 1 = *not at all religious, 5 very religious*) and politically liberal ($M = 3.02, SD = 1.62$; 1 = *very liberal, 7 = very conservative*).

Procedure

Participants were randomly assigned to one of the four free will incapacitation conditions (weak, moderate, strong, or no-incapacitation control). After reading the corresponding story,

participants were asked to make a moral judgment of the agent: "How much blame does [agent] deserve?" (scale: 1 = *no blame at all* to 7 = *maximum blame*) and to evaluate the agent's choice capacity: "Does [agent] have the capacity for choice?" (scale: = 1 *definitely no* to 4 = *not sure* to 7 = *definitely yes*). The order of the two questions was counterbalanced. Finally, participants completed a short demographic questionnaire and were debriefed.

Results

Impairments to agents' free will significantly influenced judgments of blame, $F(3, 278) = 46.7, p < .001, \eta^2 = .34$, as well as ascriptions of choice, $F(3, 278) = 56.7, p < .001, \eta^2 = .38$. The central prediction in this study, however, was that the effects of the (pretested) free will manipulation on moral judgment would be mediated by the agent's perceived choice capacity. A mediation model using bootstrapping with 10,000 samples (Preacher & Hayes, 2008) confirmed this prediction. The initial effect of agents' free will on perceivers' judgment of blame ($b = .80, p < .0001, r^2 = .30$) was significantly reduced (final $b = .35, p < .0001, \text{semipartial } r^2 = .04$), once perceptions of agents' capacity for choice ($b = .55, p < .0001, \text{semipartial } r^2 = .23$) was entered into the model, $R^2 = .53, F(2, 279) = 158.0, p < .0001$. Overall, ascriptions of choice explained more than 5 times the amount of variance explained by free will. Moreover, the final model included a substantial portion of predictive variance shared between manipulation and perceived choice ($r^2 = .26$), interpretable as the aspects of the manipulation that directly translate into choice perceptions.

General Discussion

Four studies examined the relationship between free will beliefs and morality. Previous research suggested that threatening people's belief in free will can undermine moral behavior and moral judgment (Shariff & Vohs, 2014; Vohs & Schooler, 2008). Our data did not confirm such an impact. Despite evidence of successfully manipulating free will beliefs, we failed to find any significant effect on judgments of blame and punishment (Studies 1–3) and on moral behavior (Study 1). Further, these null effects appeared in student and community samples as well as in online and lab studies.

People may widely believe in free will (Sarkissian et al., 2010); however, the present data make it unlikely that this abstract belief plays an outsized role in people's everyday expressions of morality. Indeed, it would be odd if, when people are attempting to adjudicate blame, they reflect on whether they or others are the ultimate causes of their actions. This is not to say that free will lacks any role in human morality. Once free will is deconstructed into its psychological components (with choice at the core), the components predict moral judgments (Monroe et al., 2014). Accordingly, we show that manipulated (Study 3) and measured (Study 4) perceptions of agents' choice capacity exert a powerful effect on moral judgments. These findings suggest that people solve the problem of

free will and morality in the same way they solve everyday questions of blame and moral responsibility—by reflecting on the mental states that guided an action (Malle, Guglielmo, & Monroe, 2014). This interpretation is consistent with previous research on judgments of blame and punishment (Cushman, 2008; Lagnado & Channon, 2008; Martin & Cushman, 2016; Woolfolk et al., 2006; Young & Saxe, 2009) and highlights the psychological, rather than an abstract metaphysical, nature of people's concept of free will.

Additionally, these studies challenge the concern that evidence from the sciences (and neuroscience in particular) will overturn people's belief in free will, leading to drastic consequences for how society deals with moral responsibility (Greene & Cohen, 2004; Vohs & Schooler, 2008). Science may indeed threaten (and potentially overturn) a metaphysical belief in free will; however, most people do not seem to subscribe to such a metaphysical notion (Monroe & Malle, 2010, 2014), and our data suggest that, whatever concept of free will they do have, it appears to be largely unrelated to human morality.

The conclusion that free will doesn't matter for morality may be controversial. How can the assumption of free will be irrelevant to moral judgments? We suggest that free will is a shorthand people use for ascribing choice and lack of constraints. Once free will is unpacked into these psychological constituents, there is little left for an abstract concept to predict.

Authors' Note

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Supplemental Material

The online supplements are available at <http://spps.sagepub.com/supplemental>.

Notes

1. We included moral behavior in Study 1 to try to replicate Vohs and Schooler's (2008) study, which recently failed to replicate (Open Science Collaboration, 2015).
2. Participants were also asked about four metaphysical descriptions of the agent's behavior (see Supplemental Materials).
3. Stories within each category were comparable and were collapsed in all analyses.

References

Cashmore, A. R. (2010). The Lucretian swerve: The biological basis of human behavior and the criminal justice system. *Proceedings*

of the National Academy of Sciences of the United States of America, *107*, 4499–4504. doi:10.1073/pnas.0915161107

Crick, F. (1995). *Astonishing hypothesis: The scientific search for the soul*. New York, NY: Simon and Schuster.

Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, *108*, 353–380. doi:10.1016/j.cognition.2008.03.006

Darwin, C. R. (1840). Old and useless notes about the moral sense and some metaphysical points (P. H. Barrett, Trans.). Retrieved from <http://darwinonline.org.uk/>

Dennett, D. C. (1984). *Elbow room: The varieties of free will worth wanting*. Cambridge, MA: The MIT Press.

Greene, J. D., & Cohen, J. D. (2004). For the law, neuroscience changes nothing and everything. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, *359*, 1775–1785. doi:10.1098/rstb.2004.1546

Krueger, F., Hoffman, M., Walter, H., & Grafman, J. (2013). An fMRI investigation of the effects of belief in free will on third-party punishment. *Social Cognitive and Affective Neuroscience*. doi:10.1093/scan/nst092

Lagnado, D. A., & Channon, S. (2008). Judgments of cause and blame: The effects of intentionality and foreseeability. *Cognition*, *108*, 754–770. doi:10.1016/j.cognition.2008.06.009

Malle, B. F., Guglielmo, S., & Monroe, A. E. (2014). A theory of blame. *Psychological Inquiry*, *25*, 147–186. doi:10.1080/1047840X.2014.877340

Martin, J. W., & Cushman, F. (2016). Why we forgive what can't be controlled. *Cognition*, *147*, 133–143. doi:10.1016/j.cognition.2015.11.008

Monroe, A. E., Dillon, K. D., & Malle, B. F. (2014). Bringing free will down to Earth: People's psychological concept of free will and its role in moral judgment. *Consciousness and Cognition*, *27*, 100–108. doi:10.1016/j.concog.2014.04.011

Monroe, A. E., & Malle, B. F. (2010). From uncaused will to conscious choice: The need to study, not speculate about people's folk concept of free will. *Review of Philosophy and Psychology*, *1*, 211–224. doi:10.1007/s13164-009-0010-7

Monroe, A. E., & Malle, B. F. (2014). Free will without metaphysics. In A. R. Mele (Ed.), *Surrounding free will* (pp. 25–48). New York, NY: Oxford University Press.

Montague, R. P. (2008). Free will. *Current Biology*, *18*, R584–R585.

Nadelhoffer, T., Shepard, J., Nahmias, E., Sripada, C., & Ross, L. T. (2014). The free will inventory: Measuring beliefs about agency and responsibility. *Consciousness and Cognition*, *25*, 27–41. doi:10.1016/j.concog.2014.01.006

Nahmias, E. (2011). Is neuroscience the death of free will? *The New York Times*. Retrieved from <http://nyti.ms/1cEaqZ9>

Nahmias, E., Morris, S., Nadelhoffer, T., & Turner, J. (2005). Surveying freedom: Folk intuitions about free will and moral responsibility. *Philosophical Psychology*, *18*, 561–584. doi:10.1080/09515080500264180

Nahmias, E., Shepard, J., & Reuter, S. (2014). It's OK if "my brain made me do it": People's intuitions about free will and neuroscientific prediction. *Cognition*, *133*, 502–516. doi:10.1016/j.cognition.2014.07.009

Nahmias, E., & Thompson, M. (2014). A naturalistic vision of free will. In E. O'Neill & E. Machery (Eds.), *Current*

- controversies in experimental philosophy* (pp. 86–103). New York, NY: Routledge.
- Nichols, S. (2011). Experimental philosophy and the problem of free will. *Science*, *331*, 1401–1403. doi:10.1126/science.1192931
- Nichols, S., & Knobe, J. (2007). Moral responsibility and determinism: The cognitive science of folk intuitions. *Nous*, *41*, 663–685.
- Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*, aac4716. doi:10.1126/science.aac4716
- Overbye, D. (2007, January 2). Free will: Now you have it, now you don't. *The New York Times*, F1.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891. doi:10.3758/BRM.40.3.879
- Sarkissian, H., Chatterjee, A., De Brigard, F., Knobe, J., Nichols, S., & Sirker, S. (2010). Is belief in free will a cultural universal? *Mind & Language*, *25*, 346–358. doi:10.1111/j.1468-0017.2010.01393.x
- Schooler, J., Nadelhoffer, T., Nahmias, E., & Vohs, K. D. (2014). Measuring and manipulating beliefs and behaviors associated with free will. In A. R. Mele (Ed.), *Surrounding free will: Philosophy, psychology, neuroscience* (pp. 72–94). New York, NY: Oxford University Press.
- Shariff, A. F., Greene, J. D., Karremans, J. C., Luguri, J. B., Clark, C. J., Schooler, J. W., . . . Vohs, K. D. (2014). Free will and punishment: A mechanistic view of human nature reduces retribution. *Psychological Science*, *25*, 1563–1570. doi:10.1177/0956797614534693
- Shariff, A. F., & Vohs, K. D. (2014). The world without free will. *Scientific American*, *310*, 76–79. doi:10.1038/scientificamerican.0614-76
- Stafford, T. (2013). Does non-belief in free will make us better or worse? *The BBC*. Retrieved from <http://www.bbc.com/future/story/20130924-how-belief-in-free-will-shapes-us>.
- Stillman, T. F., Baumeister, R. F., & Mele, A. R. (2011). Free will in everyday life: Autobiographical accounts of free and unfree actions. *Philosophical Psychology*, *24*, 381–394. doi:10.1080/09515089.2011.556607
- Velten, E. (1968). A laboratory task for induction of mood states. *Behaviour Research and Therapy*, *6*, 473–482. doi:10.1016/0005-7967(68)90028-4
- Vohs, K. D., & Schooler, J. W. (2008). The value of believing in free will: Encouraging a belief in determinism increases cheating. *Psychological Science*, *19*, 49–54. doi:10.1111/j.1467-9280.2008.02045.x
- Wegner, D. M. (2002). *The illusion of conscious will*. Cambridge, MA: MIT Press.
- Woolfolk, R. L., Doris, J. M., & Darley, J. M. (2006). Identification, situational constraint, and social cognition: Studies in the attribution of moral responsibility. *Cognition*, *100*, 283–301. doi:10.1016/j.cognition.2005.05.002
- Young, L., & Saxe, R. (2009). Innocent intentions: A correlation between forgiveness for accidental harm and neural activity. *Neuropsychologia*, *47*, 2065–2072. doi:10.1016/j.neuropsychologia.2009.03.020

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