

Free to Punish: A Motivated Account of Free Will Belief

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Belief in free will is a pervasive phenomenon that has important consequences for prosocial actions and punitive judgments, but little research has investigated why free will beliefs are so widespread. Across 5 studies using experimental, survey, and archival data and multiple measures of free will belief, we tested the hypothesis that a key factor promoting belief in free will is a fundamental desire to hold others morally responsible for their wrongful behaviors. In Study 1, participants reported greater belief in free will after considering an immoral action than a morally neutral one. Study 2 provided evidence that this effect was due to heightened punitive motivations. In a field experiment (Study 3), an ostensibly real classroom cheating incident led to increased free will beliefs, again due to heightened punitive motivations. In Study 4, reading about others' immoral behaviors reduced the perceived merit of anti-free-will research, thus demonstrating the effect with an indirect measure of free will belief. Finally, Study 5 examined this relationship outside the laboratory and found that the real-world prevalence of immoral behavior (as measured by crime and homicide rates) predicted free will belief on a country level. Taken together, these results provide a potential explanation for the strength and prevalence of belief in free will: It is functional for holding others morally responsible and facilitates justifiably punishing harmful members of society.

Keywords: free will, moral reasoning, moral responsibility, motivation, punishment

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Today we no longer have any pity for the concept of "free will": we know only too well what it really is—the foulest of all theologians' artifices, aimed at making mankind "responsible" in their sense. . . . Wherever responsibilities are sought, it is usually the instinct of wanting to judge and punish which is at work. (Nietzsche, 1889/1954, p. 499)

Philosophers have debated the existence of free will since before Aristotle (O'Connor, 2011), and in recent years, empirical social psychology has begun to have an important voice in this millennia-

long conversation. Thus far, social psychological research has focused on the question of whether and in what sense free will exists (e.g., Bargh, 2008; Baumeister, in press; Wegner, 2003) and on identifying the downstream consequences of diminished belief in free will (Baumeister, Masicampo, & DeWall, 2009; Shariff et al., 2013; Vohs & Schooler, 2008). The present investigation shifts the focus from whether free will exists to why people *believe* free will exists—and from the consequences to the causes of such beliefs. More precisely, we tested Nietzsche's hypothesis that free will beliefs flow, at least in part, from a fundamental desire to hold people morally responsible for their wrongful behaviors (see also Earp, 2011). We report five studies using experimental, survey, and archival data to test this motivated account of free will belief. In these studies, we seek to provide a potential explanation for the strength and prevalence of free will beliefs and support the view that belief in free will can be driven by social motives.

Free Will Belief

Despite Nietzsche's (1889/1954) assertion that people no longer have "pity" for the concept of free will, research has demonstrated

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that the vast majority of people do believe in free will (Nahmias, Morris, Nadelhoffer, & Turner, 2005), across cultures (Sarkissian et al., 2010) and at all ages (Nichols, 2004). But why are free will beliefs so pervasive? One hypothesis is that there is a strong subjective experience that human thoughts and actions are freely and intentionally enacted (Wegner, 2002). Indeed, past research indicates that having thoughts prior to corresponding actions can lead one to infer causal responsibility for those actions, sometimes erroneously (Wegner, 2003; Wegner, Sparrow, & Winerman, 2004; Wegner & Wheatley, 1999). It has also been proposed that free will is inferred by observing constraints, or the lack thereof, on others' behavior (Nichols, 2004). However, like many other commonly held beliefs and attitudes, there are likely multiple reinforcing factors involved, some of which may be motivationally driven. To be clear, we neither affirm nor deny that free will actually exists. Instead, we seek to elucidate the psychological factors that promote the belief that it does.

Free Will and Moral Responsibility

One aspect of Nietzsche's hypothesis that has received clear support from social psychological research is the intimate connection between free will and moral responsibility—specifically, that free will is a prerequisite for holding people morally responsible for their actions (e.g., Nichols & Knobe, 2007; Sarkissian et al., 2010). The capacity to do otherwise has long been an assumption underlying the assignment of moral responsibility (Aristotle, 1980; Kant, 1781/2005, 1785/1998), and this same assumption is clearly reflected in legal systems: If a person's capacity to do otherwise is weakened or diminished (e.g., by a psychological disorder, intense emotional upset at the time of the action, juvenile status, external constraints), punishment and moral condemnation are similarly reduced. Empirical work confirms that weakening free will beliefs, either in general or by offering evidence of a specific perpetrator's diminished decisional capacity, leads to less punitiveness (Aspinwall, Brown, & Tabery, 2012; Monterosso, Royzman, & Schwartz, 2005; Pizarro, Uhlmann, & Salovey, 2003; Shariff et al., 2013). Similarly, reduced belief in free will has been found to affect feelings of responsibility for one's own behavior, resulting in more dishonesty and cheating (Vohs & Schooler, 2008), increased aggression and reduced helpfulness (Baumeister et al., 2009), and less recycling (Stillman & Baumeister, 2010).

To condemn and punish someone who misbehaves, it is useful to attribute some degree of free action to that person. Condemnation and punishment are based on the conclusion that a person should have acted differently—and asserting that a person *should* have acted differently assumes that a person *could* have done so.

Motivated Free Will Belief

The rational norm to hold others responsible only for actions that are within the agent's control has deep roots in philosophical and legal reasoning, and is also firmly embedded in both general models of causal attribution (e.g., Heider, 1958, Chapter 4; Jones & Davis, 1965; Kelley, 1973) and specific normative models of responsibility and blame attribution (Alicke, 2000; Fincham & Jaspars, 1980; Shaver, 1985; Weiner, 1995). But moral reasoning does not always conform to rational guidelines, and is often shaped by intuitive and affective processes that tip the scales in support of

desired conclusions (Ditto, Pizarro, & Tannenbaum, 2009). In other words, reasoning is more like arguing than rational deliberation (Mercier & Sperber, 2011), and people tend to think more like intuitive lawyers than intuitive scientists (Baumeister & Newman, 1994; Ditto et al., 2009; Haidt, 2012). Although people prefer to see their reasoning as bottom-up, from evidence to conclusions, a large body of research suggests that the process flows the other way as well, with desired conclusions organizing judgment processes from the top-down in a way that privileges evidence for the conclusions people prefer (Ditto & Lopez, 1992; Haidt, 2001; Kunda, 1990; Liu & Ditto, 2013).

Research on attributions of intentionality and control has consistently demonstrated this motivated, top-down pattern: The desire to hold actors morally responsible for their behavior can lead to judgments that that behavior was intended and controllable (e.g., Alicke, 2000; Walster, 1966). For example, Knobe and colleagues have consistently found that people perceive more intention and personal causality for behaviors that produce harmful consequences than for behaviors that produce helpful consequences (e.g., Knobe, 2003; Knobe & Fraser, 2008; Leslie, Knobe, & Cohen, 2006). Similarly, Alicke (1992) found that greater causal control was attributed to a driver in a car accident that was said to have occurred when he was speeding home to hide a vial of cocaine from his parents than when he was said to be speeding home to hide their anniversary present. Researchers have explored a number of different ways of making sense of these findings (Guglielmo & Malle, 2010a, 2010b; Uttich & Lombrozo, 2010), but one prominent explanation is that the desire to blame the agent increases attributions of intention and causation (e.g., Alicke, 2000; Ditto et al., 2009).

The current research sought to investigate whether a similar top-down process occurs in generalized judgments about the existence of free will. The rational (bottom-up) process of inferring moral responsibility from free will has been shown a number of times (e.g., Shariff et al., 2013; Vohs & Schooler, 2008). Our goal was to explore the reverse (top-down) causal process: that people will affirm free will beliefs most strongly when they are motivated to hold others morally responsible for their actions. Such findings would suggest that free will beliefs are situationally dependent. Moreover, they would indicate that people respond to immoral actions not merely by altering their one-time judgments about specific actions, but by shifting their broad beliefs about all humankind.

Moral Responsibility, Punishment, and Social Control

Why should people be motivated to see others as morally responsible for wrongful behaviors? As social beings with limited resources, humans face a fundamental adaptive challenge to suppress selfish behavior and promote group cooperation and coordination (Haidt & Kesebir, 2010; Henrich et al., 2006). Unfortunately, people often try to contribute less than their share or take more than their share in group-based tasks (e.g., Kerr, 1983; Kerr & Bruun, 1983; Latané, Williams, & Harkins, 1979; Orbell & Dawes, 1981). Such antisocial behavior not only has its own immediate consequences, but can infect an entire group with selfish, uncooperative tendencies, making it all the more urgent to punish and prevent such actions. Broken windows theory (Kelling & Wilson, 1982) argues that when environmental cues suggest

high levels of crime (e.g., because of graffiti), people are more likely to commit crimes themselves, and this view has been supported by empirical research (Cialdini, Reno, & Kallgren, 1990; Kerr et al., 2009). Moreover, people perceive cooperation as more of a moral obligation when punishment is a possibility (Mulder, 2008) and are more inclined to behave selfishly when they know they will not be punished (Fehr & Gächter, 2002). Punishing transgressors is thus important not only to prevent a specific transgressor from committing further crimes, but also to shape joint expectations about appropriate behavior (Henrich et al., 2006).

One explanation for the impulse to punish is that it is rooted in material self-interest. Many theorists have argued, however, that humans have evolved to have a stake in the successful functioning of their social group (e.g., Haidt, 2012) and are therefore punitive toward rule breakers regardless of whether the infractions directly harm the self (e.g., Baumeister, 2005; Fukuyama, 2011). Indeed, Fehr and Gächter (2002) showed that people will punish rule breakers even when it comes at a clear cost to the punisher's self-interest, indicating that the motive to punish wrongdoers is deeply rooted in the human psyche.

In order to flourish, societies need to make the costs of rule breaking outweigh its benefits. Moral responsibility is a construct that permits societies (and individuals) to blame and punish others for their misdeeds. Insofar as free will is a prerequisite for moral responsibility, ascribing free will to criminals or other miscreants provides a crucial justification for punishing them for their actions. We propose that the pervasive belief in free will partially flows from a desire for moral responsibility in order to justify punishing others for their antisocial behaviors. Therefore, when there is a desire to punish, people should be motivated to believe in free will.

Immoral Behavior

The argument that “bad is stronger than good” (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) may be particularly powerful when it comes to moral judgment. In principle, free will is equally relevant to praiseworthy and blameworthy behaviors (O'Connor, 2011), but as outlined earlier, previous research has repeatedly shown that morally bad behaviors have a larger impact on perceptions of responsibility and control than neutral or morally good behaviors (e.g., Alicke, 1992; Cushman, Knobe, & Sinnott-Armstrong, 2008; Knobe & Fraser, 2008; Young & Phillips, 2011). This is consistent with other research showing that people fail to discount situational constraints on immoral behavior (Reeder & Spores, 1983), and that individual instances of immoral behavior are more heavily weighted in personality assessment than individual instances of morally good behavior (Reeder & Brewer, 1979; Reeder & Covert, 1986). At a more practical level, research has also demonstrated that juveniles whose crimes resulted in severe consequences were judged to be more competent than juveniles who committed identical acts with less severe consequences (Ghetti & Redlich, 2001).

Some suggestive evidence of a similar effect has also been found in the free will literature. Nichols and Knobe (2007) asked participants to imagine a deterministic universe and then asked whether people in that universe could be held morally responsible. When the question was framed abstractly, participants affirmed that moral responsibility was incompatible with a deterministic

universe. In contrast, when presented with a concrete instance of immoral behavior, participants judged the wrongdoer to be morally responsible even in a deterministic universe.

The moral valence of actions and outcomes seems to have a unique impact on moral responsibility judgments. Specifically, immoral behavior, more so than morally good or neutral behavior, evokes a desire to regard the behavior as intended, controllable, and caused by the actor. Our primary hypothesis was that considerations of morally bad behavior would motivate people not only to attribute a greater degree of free will to the specific actor, but to believe more in the free will of people generally.

The Present Studies

Four experiments and one correlational study tested our hypothesis that a key factor promoting belief in free will is a fundamental desire to hold others morally responsible for their wrongful behaviors. Study 1 was designed to test our basic hypothesis that people would believe more in free will after consideration of immoral behavior. Study 2 tested whether this effect was due to increased punitive motivations. Study 3 was a field experiment that manipulated whether an immoral act was punished and measured both desire to punish and free will beliefs. Study 4 used an indirect measurement approach to test whether immoral actions would lead to biased processing of scientific research arguing against the possibility of free will. Last, Study 5 investigated the link between free will beliefs and immoral behavior outside the laboratory to determine whether countries with higher crime rates also have higher country-level free will belief. Together, the studies represent a methodologically diverse test of our motivational account of free will belief.

Study 1

Study 1 served as a basic test of our hypothesis that free will beliefs are motivated by consideration of immoral behavior. Participants read either a newspaper article about a corrupt judge or a control article about a job search, and then reported their belief about the general existence of human free will. We predicted that free will beliefs would be higher after reading about the corrupt judge than after reading the control article.

Method

Participants. One hundred and seventy-one participants (86 females; $M_{\text{age}} = 34.48$ years) participated in a study on Amazon's Mechanical Turk in exchange for a small payment.

Procedure. Participants were told that they were participating in a study about memory and were randomly assigned to read one of two newspaper articles. Participants in the immoral condition read a newspaper article that was based on a true scandal that occurred in Luzerne County, Pennsylvania. The article described a corrupt judge who was caught jailing children in exchange for kickbacks from privately run juvenile detention centers. Participants in the control condition read an article that described a search for a new school superintendent in the same county.

Participants were then asked to fill out several “personality scales.” To avoid suspicion, participants were first asked to fill out a shortened version of the Social Desirability Scale, which asks

participants to rate four sentences like “I sometimes feel resentful when I don’t get my way” (Reynolds, 1982). Then participants reported their free will beliefs on the Free Will and Determinism Scale (FAD-Plus; Paulhus & Carey, 2011). The free will subscale consists of seven items designed to capture beliefs about people’s general capacity for free action (e.g., “People have complete free will,” “Strength of mind can always overcome the body’s desires”), each rated on a 5-point scale from *strongly disagree* to *strongly agree* ($\alpha = .86$).

Because the news article in the immoral condition was based on a real event, participants in the immoral condition were then asked whether they had heard of the case before. Lastly, participants filled out a demographic questionnaire.

Results

Sixteen participants indicated that they had previously heard of the case. Because having previously heard about the corrupt judge might constrain people’s responses, these participants were removed from our analysis. Participants who read about the corrupt judge reported significantly higher levels of free will belief ($M = 4.01$, $SD = 0.66$) than those who read about the job search ($M = 3.72$, $SD = 0.70$), $t(153) = 2.65$, $p = .009$, $d = 0.43$.¹

Discussion

In line with our main hypothesis, people believed more in free will after exposure to an immoral action than a morally neutral action. Extending work that has demonstrated motivated attributions of responsibility to specific perpetrators of immoral actions, Study 1 showed that immoral behavior can motivate broad beliefs about free will. Supporting our core prediction, reactions to misdeeds by others seemed to cause mental shifts that went beyond the specific incident to invoke broad assumptions about human nature and responsible action in general.

Study 2

Study 2 expanded upon Study 1 in a number of ways. First, a set of vignettes describing closely matched immoral and morally neutral behaviors was used in Study 2 to confirm the replicability of the effect of immoral behavior on free will belief found in Study 1. Second, to further explore the robustness of this effect, we asked participants in Study 2 to rate their degree of belief in free will generally and to make target-specific judgments about the freedom of action exhibited by the actor in the vignettes. That is, we obtained ratings of both general and specific free will. Third, and most importantly, in Study 2, we sought to illuminate why immoral behavior motivates free will belief. As proposed by Nietzsche, we hypothesized that this effect is due to participants’ desire to punish immoral actors. Accordingly, Study 2 tested whether participants’ self-reported desire to punish the perpetrator mediated the influence of immoral behavior on free will belief.

Method

Participants. Ninety-five undergraduates (79 females; $M_{\text{age}} = 20.13$ years) participated in an online study in exchange for course credit.

Procedure. Participants were asked to read a hypothetical scenario about an immoral behavior (a man robbing a home) or a morally neutral behavior (a man taking aluminum cans out of a recycling bin):

Immoral: Sam, a special education teacher, wakes up one morning and finds that someone robbed his home while he was sleeping. His window is broken and all of his valuables are missing. After a police investigation, he learns that the robber is unemployed, has two children, and sold all of his belongings on eBay.

Morally neutral: Sam, a special education teacher, wakes up one morning and finds that someone rooted through his recycling bin at the end of his driveway while he was sleeping. There is no mess, but all of his aluminum cans are missing. After talking to his neighbors, he learns that the person is unemployed, has two children, and sells the cans to a recycling company.

After imagining the scenario, participants rated the perpetrator’s free will by responding to three items (whether the action was freely chosen, whether the actor could have made other choices, and whether the actor exercised his or her own free will), each rated on a 7-point scale from *not at all* to *very much so* ($\alpha = .68$). After rating the perpetrator’s free will, participants reported the extent to which they thought the actor should be punished on a 7-point scale from *not at all* to *very severely*. Finally, participants reported their general free will beliefs on the FAD-Plus (Paulhus & Carey, 2011) and completed a demographics questionnaire.

Results

Replicating the results of Study 1, participants believed significantly more in free will after reading about the robber ($M = 3.68$, $SD = 0.70$) than the aluminum can forager ($M = 3.38$, $SD = 0.62$), $t(90) = 2.23$, $p = .029$, $d = 0.47$. The same pattern emerged for target-specific free will attributions: Participants attributed significantly more free will to the robber ($M = 5.33$, $SD = 1.29$) than to the forager ($M = 4.67$, $SD = 1.31$), $t(93) = 2.47$, $p = .015$, $d = 0.51$.

Participants also wanted to punish the robber ($M = 4.98$, $SD = 1.07$) more than the aluminum can forager ($M = 1.96$, $SD = 1.05$), $t(93) = 13.87$, $p < .001$. Two bootstrap mediation analyses (5,000 resamples; Preacher & Hayes, 2004) revealed that the desire to punish mediated the influence of the condition on both attributions of free will (99% CI [0.68, 2.36]) and general free will beliefs (95% CI [0.14, 1.07]; see Figure 1).

Discussion

Study 2 replicated the results of Study 1 with a different immoral action, on measures of both specific free will attributions and general free will beliefs. More importantly, it demonstrated that a heightened desire to punish accounts for the heightened levels of both specific free will attributions and general free will belief. Past research has shown that individuals who behave immorally are regarded as acting with a greater degree of control and intention than individuals behaving in virtually identical but more morally benign ways (Alicke, 1992; Knobe, 2003). Studies 1 and

¹ With all participants, $t(169) = 2.05$, $p = .042$.

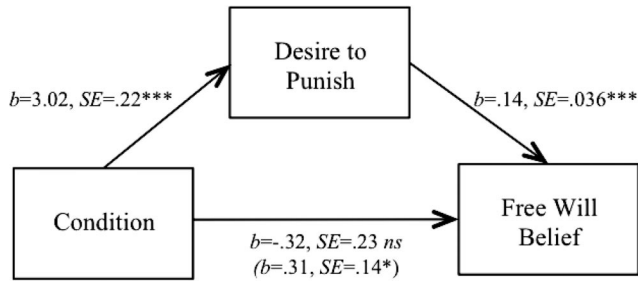


Figure 1. Influence of the condition on free will beliefs mediated by the desire to punish in Study 2. * $p < .05$. ** $p < .01$. *** $p < .001$.

2 extend these findings by showing that immoral behavior has analogous effects on beliefs about the human capacity for free action in general. Moreover, both the conditional differences and the mediation analyses from Study 2 provide initial evidence to support our contention that punitive motivations underlie the strength of free will beliefs.²

Study 3

The main goal of Study 3 was to take the research beyond the laboratory into a more realistic judgment context. In a field experiment, psychology students received one of three e-mail messages from their professor after a midterm exam. A control message merely stated that there would be a class activity at the next meeting. The other two messages stated that an incident of cheating had been uncovered on the exam and that the class would be discussing it at their next meeting. The latter two messages differed, however, as to whether it was said that the cheater had been caught and punished or that the cheater's identity remained unknown. We expected that providing punishment information would decrease participants' desire to punish relative to participants who were told that the cheater was unknown and therefore unpunished. This would enable us to test the role of punitive motivations experimentally.

In all conditions, the students were asked to complete an attached survey that included a measure of free will belief as well as questions about how severely a cheater should be punished. Thus, all participants responded to the same abstract questions about punishing cheaters, but some did so after being led to believe that someone had actually cheated in their class. Having all participants report their desire to punish identical cheating behaviors allowed us to determine whether becoming aware of a specific instance of immoral behavior actually increased the desire to punish (compared to the control condition), and whether knowing that the cheater had already been punished would mitigate this desire. We predicted that the impulse to punish (and consequently belief in free will) would be highest in the condition with the unpunished cheater, lower in the case of the punished cheater, and lowest when no actual cheater was involved.

Method

Participants. Two hundred and seventy-seven undergraduates in a social psychology course participated as part of a class exercise.

Procedure. Two days after the students had taken a midterm exam, they received one of three e-mail messages from their professor stating (a) that a cheat sheet was found in the room after the exam but the cheater was unknown (unpunished cheater condition), (b) that a cheat sheet was found and the cheater had been caught and appropriately punished (punished cheater condition), or (c) that they would be participating in an activity in the next class session (control). In all three conditions, participants were asked to complete an attached survey in order to facilitate discussion in the next class. The survey included the free will subscale of the FAD-Plus (Paulhus & Carey, 2011) and two punishment recommendation questions: how severely a student should be punished for using a cheat sheet on an exam (on a 5-point scale from *not at all* to *very severely*) and what the appropriate punishment is for using a cheat sheet on an exam (on a 6-point scale from *no punishment* to *fail the class and be put on academic suspension from the University*; $r = .60$, $p < .001$).

Results

Analysis of variance revealed a significant effect of condition on the desire to punish, $F(2, 284) = 20.84$, $p < .001$. Bonferroni post hoc tests revealed that participants in the unpunished cheater condition ($M = 4.23$, $SD = 0.75$) and the punished cheater condition ($M = 4.09$, $SD = 0.75$) gave significantly higher punishment recommendations than participants in the control condition ($M = 3.54$, $SD = 0.79$; $ps < .001$). The predicted difference between the two cheater conditions in the desire to punish, however, did not emerge ($p = .58$).

An analysis of variance also revealed a significant effect of condition on free will belief, $F(2, 276) = 8.72$, $p < .001$. Mirroring the pattern seen in punishment recommendations, Bonferroni post hoc tests revealed that participants in the unpunished cheater condition ($M = 3.76$, $SD = 0.62$) and the punished cheater

² We also ran an unreported study with the same immoral and neutral actions as in Study 2 that also manipulated the target of the actions. Specifically, participants read about the immoral or neutral act directed toward either a morally good other (as in Study 2), the self, or a morally bad other (a sex offender). We then measured attributions of free will to the perpetrator and free will beliefs on the FAD-Plus (Paulhus & Carey, 2011) and the Stroessner libertarianism subscale (Stroessner & Green, 1990). Replicating the results of Study 2, when the target was the good other, participants believed more in free will on the FAD-Plus ($p = .001$) and the Stroessner scale ($p = .004$) and attributed marginally more free will ($p = .069$) in the immoral condition than the morally neutral condition. In line with our predictions, when the target was morally bad himself, there were no differences between the immoral and neutral action on free will attributions or free will beliefs ($ps > .15$). As we suggest that motivated free will beliefs are socially—not selfishly—driven, our predictions for actions directed toward the self were less clear. However, we hypothesized that free will attributions and beliefs would likely be higher after considering an immoral action than a morally neutral action directed toward the self (similar to the results for the good other), but the results were mixed. When the target was the self, participants attributed more free will to the perpetrator in the immoral condition than the neutral condition ($p = .001$), in line with our predictions, but there were no differences in free will beliefs between the immoral and neutral conditions ($ps > .30$). Further research is needed to determine the reason for the discrepant findings between the free will attributions and free will belief measures when the target was the self. Nonetheless, this study replicated our findings when the target was the good other, extended our findings to another measure of free will belief, and demonstrated that the effect does not occur when the target of the harmful act is himself morally challenged.

condition ($M = 3.68$, $SD = 0.58$) believed significantly more in free will than participants in the control condition ($M = 3.39$, $SD = 0.64$; $p_s < .001$ and $= .005$, $d_s = 0.59$ and 0.47 , respectively). As with the desire to punish, there was no significant difference in free will beliefs between the two cheater conditions ($p = 1.00$, $d = 0.13$).

A bootstrap mediation analysis treating the condition as a categorical variable and the control condition as the reference category (5,000 resamples; Hayes, 2013; Preacher & Hayes, 2004) revealed that the desire to punish mediated the influence of the condition on free will beliefs (95% CI [0.012, 0.053]).

Discussion

Study 3 replicated the findings of Studies 1 and 2 with an ostensibly real event. Participants who had just learned that a fellow student in their class cheated on their midterm exam reported greater belief in free will than participants who believed they were completing the measure as part of a class exercise. This shows that the present findings of increased free will belief in response to immoral behaviors are likely to be present and relevant in the real world, not merely the laboratory.

Another goal of the study, however, was to provide additional evidence that heightened punitive motivation is the mechanism that links immoral behavior to free will beliefs. On this score, Study 3 had mixed success. It was hoped that exposing participants to an already punished cheater would reduce the desire to punish relative to the unpunished cheater condition and, consequently, reduce free will beliefs. Unfortunately, the desire to punish was not significantly lower in the punished cheater condition than in the unpunished cheater condition. This precluded our ability to demonstrate mediation experimentally. However, in both immoral behavior conditions, the desire to punish and free will beliefs were higher than in the control condition. More importantly, punishment recommendations mediated the influence of the condition on free will beliefs. Overall then, the results of Study 3 are consistent with the results of Study 2, suggesting that punitive motivations influence free will beliefs, although future research is needed to confirm this relation more conclusively.

A question that remains is why punishing a cheater was unsuccessful in diminishing the desire to punish. One possibility is that students wanted to justify the punishment that had already been administered. The just world hypothesis argues that people have a need to believe that the world is a place where people tend to get what they deserve (e.g., Lerner & Miller, 1978). When participants were told that the cheater had been punished, they may have maintained their belief that the person should be punished, rather than reduced it, so as to signify their approval that punishment was justified. This is another issue that could be addressed with future research.

Study 4

Thus far, we have measured free will beliefs by directly asking participants to rate their belief in free will on face-valid items and scales. However, due to their transparency, such explicit measures are vulnerable to demand characteristics and consistency pressures. For this reason, in Study 4, we sought to replicate the effect using an indirect measure of free will belief, thus decreasing the likelihood that participants would be aware of the experimenter's intentions.

A large body of research has found that people are more critical evaluators of scientific information that challenges rather than supports their prior beliefs (Lord, Ross, & Lepper, 1979; Munro & Ditto, 1997). A person's beliefs can therefore be inferred from his or her evaluation of scientific information that challenges or supports a particular position. Study 4 used this technique to indirectly measure free will beliefs. Participants read about an immoral or a morally neutral action, and then were told about the current debate in psychology over the existence of free will and read an argument for the anti-free-will side. We predicted that participants who had previously read about an immoral action would evaluate the passage more negatively.

Method

Participants. Two hundred and twenty-four participants were recruited via Amazon's Mechanical Turk. When asked whether they had taken the study seriously, 11 participants indicated that they had not and were therefore removed from analysis, yielding a final sample of 213 participants (85 females; $M_{age} = 30.80$ years).

Procedure. Participants were told they would be participating in a study about how people encode and remember information, and were asked to read, imagine, and remember one of two scenarios involving Sam, a special education teacher, in vignettes adapted from Study 2. Half the participants read about Sam having his valuables stolen in a home robbery (immoral condition), whereas the other half read about Sam having his aluminum cans taken (neutral condition).

Participants were then told that there was a current debate in psychology about the existence of free will. They were informed that they had been assigned to read one side of the debate and were told to remember the information, ostensibly because they would be asked about the information later. All participants were given an anti-free-will debate passage, which discussed real research in psychology on automaticity and unconscious processes. The debate excerpt focused primarily on the aspect of choice in free will and did not mention moral responsibility. Participants were asked to evaluate the anti-free-will argument by responding to seven questions ($\alpha = .80$): how convinced they were by the argument, how much they wanted to read more about the research mentioned, whether they thought the psychologist believed his or her argument, whether the psychologist was purposefully being controversial to get his or her name in the papers (reverse scored), how important research on automaticity and unconscious processes is, whether this type of research should receive more funding, and whether it should be a central area of research within psychology. Each question was answered on a 7-point scale from *not at all* to *extremely*. Lastly, participants completed a demographic questionnaire and indicated how seriously they filled out the survey on a 5-point scale from *not at all* to *extremely*. As indicated above, those who did not indicate a 4 or higher ($n = 11$) were removed from the analyses.

Results

There was a significant effect of condition, $t(211) = 2.02$, $p = .045$, $d = 0.37$.³ As predicted, participants who had previously

³ With all participants, $t(222) = 1.78$, $p = .077$.

read about the immoral act rated the debate and research on automaticity more negatively ($M = 4.29$, $SD = 1.05$) than those who read about the morally neutral act ($M = 4.68$, $SD = 1.04$).

Discussion

Study 4 demonstrated that consideration of immoral behavior led people to be relatively skeptical when evaluating an anti-free-will scientific argument. Based on past research showing motivated skepticism toward arguments that challenge current beliefs (e.g., Lord et al., 1979), skepticism regarding an anti-free-will argument can be taken as an indirect measure of free will belief. These findings suggest a potentially important downstream consequence of the motivation to believe in free will: It may affect people's evaluations of the scientific merit of psychological findings that challenge intuitive conceptions of freely chosen action.

Study 5

Study 3 provided some evidence that the hypothesized link between others' wrongful actions and beliefs about free will occurs outside the confines of the psychological laboratory. Study 5 examined whether additional support for our hypothesis could be found with actual crime rates and nation-level survey data. We predicted that people living in nations with relatively high rates of misbehavior (i.e., violent crime) would also have relatively strong beliefs in free will.

Method

Free will data were drawn from the 1981–1984, 1990–1993, 1994–1999, 1999–2004, and 2005–2007 waves of the World Values Survey (World Values Survey Association, 2009) using Item a173:

Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means “none at all” and 10 means “a great deal” to indicate how much freedom of choice and control you feel you have over the way your life turns out.

A single average score (range: 4.68–8.28) was created for each nation from that nation's respondents (the number of respondents per country ranged from 405 [Dominican Republic] to 8,556 [Mexico]). Per capita homicide rates across nations were drawn from the United Nations Office on Drugs and Crime (2011). For each country, the most recent available year of data was used (range: 2004–2010).

Several covariates were included in order to discount alternative explanations. Gross domestic product (GDP) per capita and the Gini index of income inequality, both of which have been tied to crime rates, were drawn from the 2011 World Factbook (Central Intelligence Agency, 2011; latest available estimates were used where 2011 estimates were not available). GDP per capita values were log transformed. In order to control for cross-national difference in political freedom, government type, and levels of education, three additional measures were included: the World Bank's Index for Voice and Accountability (Kaufmann, Kraay, & Mas-truzzi, 2009); the Economist's Regime Type Coding (Economist Intelligence Unit, 2013), which uses a composite of indicators to

classify governments from authoritarian to full democracy; and finally literacy rates as a proxy for education levels (Central Intelligence Agency, 2013). Data were all pulled from the latest available year.

To determine whether higher levels of immoral behavior predict greater free will beliefs on a country level, we regressed national free will beliefs on national homicide rates. As recommended by Simmons, Nelson, and Simonsohn (2011), separate regressions with and without covariates were run. Regressions employed list-wise deletion, such that only and all nations that had data for each variable were included in the analysis ($n = 74$ countries).

Results

Consistent with predictions, national homicide rates predicted free will beliefs, such that countries with higher homicide rates showed stronger beliefs in free will ($\beta = .27$, $p = .018$). This effect held after controlling for the covariates listed above ($\beta = .26$, $p = .042$).

Similar analyses were run with an index of other crimes (averaging z scores of robbery, rape, kidnapping, assault, theft, child sexual assault, burglary, auto theft, and human trafficking, all drawn from United Nations Office on Drugs and Crime, 2011), yielding similar results ($n = 59$, $\beta = .55$, $p < .001$; after including covariates, $\beta = .39$, $p = .007$). However, it should be noted that cross-national comparisons of these crimes are not deemed to be as reliable as those for homicide because of significant cross-national differences in how crimes other than homicide are defined and how frequently they are reported, detected, and recorded (Neopolitan, 1996). Thus, though these results can be illustrative, they should be interpreted with caution. The results for both homicide rates and the index of other crimes are reported in Table 1.

Discussion

Countries with higher murder rates have higher levels of belief in free will compared to other countries with lower murder rates. In parallel fashion, countries with relatively high overall crime

Table 1
Free Will Belief Regressed on Homicide Rates and Relevant Controls; and Free Will Belief Regressed on Nonhomicide Crime Rates and Relevant Controls in Study 5

Variable	<i>F</i>	<i>R</i> ²	β	<i>t</i>	<i>p</i>
Free will belief (model)	5.98	.39			<.001
Homicide rate			.26	0.208	.042
GDP per capita (log)			.44	2.43	.018
Gini coefficient			.32	2.64	.010
Voice of accountability			-.15	0.34	.734
Regime type			.36	1.29	.203
Literacy			-.04	0.27	.789
Free will belief (model)	6.37	.48			<.001
Nonhomicide crime index			.39	2.79	.007
GDP per capita (log)			.24	1.24	.221
Gini coefficient			.27	2.30	.026
Voice of accountability			-.38	0.79	.433
Regime type			.47	1.87	.068
Literacy			-.27	1.94	.058

Note. GDP = gross domestic product.

rates also have relatively high belief in free will. These findings are consistent with our contention that belief in free will is stimulated in part by exposure to others' harmful behaviors and the associated impulse to punish.

Our experimental studies provide evidence of a causal link between immoral behavior and free will belief, but their samples and artificial stimulus materials limit their external validity. In contrast, Study 5's use of real crime and economic statistics provides a higher level of external validity but cannot rule out alternative causal scenarios. In particular, one could speculate that causation goes in the other direction with this data set, such that belief in free will contributes to higher crime rates. Against that view, however, prior research has repeatedly found that lower free will beliefs lead to more immoral behaviors (e.g., Baumeister et al., 2009; Vohs & Schooler, 2008). Hence, it could be argued that if causation went from free will belief to violent behavior, we should have found a negative relationship between crime rates and free will beliefs rather than the positive relationship that we obtained.

Still, perhaps some third factor accounts for the observed relation between crime rates and free will beliefs. Comparisons across countries are fraught with potential confounds as countries vary on many dimensions that have been known to contribute to crime levels. To address this, we repeated our analyses controlling for a number of variables that have been linked to crime, including per capita wealth, wealth inequality, literacy/education, government type, and measures of political freedom. The links between violent crime and belief in free will remained significant, thereby boosting confidence that the link is not an artifact of other variables.

Another lingering issue is that the general crime index might be confounded by variations in how certain crimes are defined and how regularly they are reported. Homicide statistics, however, are much less susceptible to such variations in definition and reporting, which increases confidence that violence and beliefs about free will are indeed linked. The homicide correlation showed almost no change when the covariate controls were applied, whereas the general violent crime index lost some power when the controls were applied (though it remained significant, $p = .007$).

In sum, despite the inability to draw confident causal inferences from the data in Study 5, the most plausible and parsimonious interpretation is that causation operated as in our other studies, with perceived harmful actions increasing free will beliefs.

General Discussion

Five studies provided evidence that free will beliefs are situationally motivated by considerations of others' immoral behavior. The effect of moral misdeeds was broad and robust. Levels of free will belief were higher after reflecting on the immoral actions of others than after reflecting on morally neutral actions (Studies 1–4). This was true across different types of immoral behavior, including corruption (Study 1), robbery (Studies 2 and 4), and cheating (Study 3). We found motivated changes in beliefs about the free will of a specific perpetrator (Study 2), changes in general beliefs about the capacity of all people to behave freely (Studies 1–3), changes in general beliefs about the capacity of one's self to behave freely (Study 5), and changes in skepticism about free will research (Study 4). We found the effect in laboratory studies using both a real immoral action (Study 1) and hypothetical misdeeds

(Studies 2 and 4), and outside the lab in response to an immoral act that participants believed to have actually occurred (Study 3). We also found converging evidence linking the free will beliefs of entire national populations with their crime and homicide rates, using large-scale survey data and official crime statistics (Study 5). The consistency of our findings across a diverse array of methodological approaches (lab experiments, field experiments, surveys), a range of different samples (college students, Mechanical Turk workers, respondents to cross-national surveys), and across multiple measures of free will belief (target-specific free will attributions, a well-validated scale of belief in free will, skepticism about anti-free-will research, a one-item measure from the World Values Survey) provides strong empirical support for our core contention that exposure to immoral acts evoke a heightened sense that human behavior is freely chosen and thus subject to moral evaluation.

Rational norms dictate using a person's degree of choice and control to determine the appropriate punishment; when people believe that someone could not have done otherwise, they punish less (Shariff et al., 2013). Our findings, along with a wealth of past research (Alicke, 2000; Knobe, 2003; Walster, 1966), suggest that people may respect that principle by increasing their perception of intentionality, control, and even the human capacity for free action in order to justify the desire to punish by constructing morally culpable wrongdoers. This pattern of post hoc belief construction is the hallmark of research on motivated reasoning (e.g., Ditto et al., 2009; Haidt, 2001; Kunda, 1990) and coherence-based information processing (Read, Vanman, & Miller, 1997; Thagard, 2004), and may be particularly pronounced in moral judgments because of their highly affective nature (Ditto et al., 2009). For example, research has shown that people are held morally responsible for immoral behavior even when the harmful consequences of the action are clearly described as an unintended side effect (Knobe, 2003; Leslie et al., 2006) and when the evaluator is asked to assume that the untoward action occurs in a completely deterministic universe (Nichols & Knobe, 2007). Particularly important in the current context, our research shows that the desire to assign moral responsibility goes beyond the attribution of intention and control to one particular individual in one particular instance, to affect belief in free will as a general construct. In other words, the novel insight our research contributes to the literature is that when faced with a specific immoral action, people are not only likely to say that the wrongdoer had free will, but also likely to increase their belief that people in general (themselves included) have free will. As such, the current research shows that free will belief, which has traditionally been viewed as a stable worldview, can be situationally motivated.

The Role of Punitive Motivation

Nietzsche's insight was to recognize that the desire to ascribe moral responsibility for human action, particularly to blame and punish actions viewed as undesirable, was a driving motivational force supporting belief in free will. The results of the current studies are all generally consistent with Nietzsche's argument, and some provide specific support for the role of punitive motivations in increasing free will beliefs. Study 2 demonstrated that an increased desire to punish a wrongdoer accounted for motivated increases in free will belief following contemplation of an immoral behavior compared to a morally neutral behavior. Study 3 provided

additional evidence by demonstrating that both free will beliefs and the harshness of punishment recommendations for cheating on an exam were higher after hearing about an actual incident of cheating than when the measures were completed as part of an ostensible class exercise. Again, punishment recommendations mediated the relation between the experimental conditions and free will beliefs. We also attempted to decrease punitive motives by including a scenario in which the cheater was already punished, but providing punishment information did not decrease punitiveness, as we had anticipated, precluding our ability to test mediation experimentally. Future research should explore other ways of decreasing or increasing the desire to punish experimentally to more fully explore the role of punitive motivations in increasing free will beliefs.

Why Do People Believe in Free Will?

One goal of the present research was to begin to understand why free will beliefs are so strong and widespread, despite long-standing scientific and philosophical doubts. Wegner (2002, 2003) demonstrated that a key part of the answer lies in the powerful subjective experience that one spends one's days thinking, choosing, and acting. The core of our argument is that this subjective experience of free will gains motivational reinforcement by facilitating the assignment of moral responsibility, which in turn supports the crucial social task of punishing individuals who act in ways that are detrimental to cohesive group functioning.

Previous research has demonstrated that the capacity to hold others morally responsible and the subsequent capacity to punish delinquent members of a social group is beneficial for group functioning (e.g., Fehr & Gächter, 2002; Henrich et al., 2006), and that free will beliefs underpin moral responsibility and punishment (e.g., Baumeister et al., 2009; Nichols & Knobe, 2007; Sarkissian et al., 2010; Shariff et al., 2013; Stillman & Baumeister, 2010; Vohs & Schooler, 2008). Punitiveness extends beyond immediate personal concerns and material self-interest to reflect a general preference for just outcomes (Carlsmith, Darley, & Robinson, 2002; Lerner, 1980) and a desire to defend groups against antisocial rule breakers (Baumeister, 2005; Fukuyama, 2011; Haidt, 2012). For example, the phenomenon of altruistic punishment reveals that people punish norm violators even at cost to themselves and without any direct benefit (Fehr & Gächter, 2002). In conjunction with these findings, the present results suggest that free will beliefs are not solely about feelings of personal control and self-interest, but also about the social and cultural regulation of action (Baumeister, *in press*). For example, in Studies 1, 2, and 4, free will beliefs changed in response to reading about immoral actions directed toward other people that had no direct bearing on the self but instead victimized valued members of the culture (juveniles and a special education teacher).

Typically, motivational effects appear for attitudes and beliefs directly relevant to one's own self-interest (e.g., illusory superiority, correspondence bias, confirmation bias). However, the present results demonstrated that free will beliefs increase when others do bad things to other people. Though in need of further confirmation, our effects appear to flow less from the kind of egoistic, self-based motivations that have typically been the focus of social psychological research than from the more socially based moral motivation we propose.

People generally believe in free will in their everyday lives (e.g., Nahmias et al., 2005; Sarkissian et al., 2010). Our findings indicate that these beliefs are strengthened by situations in which it may be beneficial to punish: when others perform immoral behaviors. Study 5 demonstrated that the national prevalence of criminal behavior predicts free will beliefs (comparing across countries). These results suggest the possibility that criminal behavior within society may contribute to the strength of general day-to-day beliefs about free will. Though our studies were not designed to examine the original emergence of free will beliefs, our findings indicate that the strength and resilience of these beliefs may partially reflect a general desire to invest the world with moral significance—to hold people morally responsible for their actions by seeing them as having choice.

Theoretical Implications and Applications

Compatibilism versus incompatibilism. There is a deep philosophical divide over whether free will is compatible or incompatible with a deterministic universe. Compatibilists define free will as the ability to perform actions on the basis of rational deliberation, whereas incompatibilists define free will as having two or more options for action, even holding constant past events (Kane, 2011). Some researchers have found that laypeople tend to define free will as having options for action, being able to choose without (or even despite) external pressure, and having the ability to do otherwise (Nichols, 2004; Nichols & Knobe, 2007; Stillman, Baumeister, & Mele, 2011), supporting the incompatibilist side of the debate. Others have found that laypeople hold compatibilist intuitions about free will (e.g., Monroe & Malle, 2010; Nahmias et al., 2005; Woolfolk, Doris, & Darley, 2006).

As our research focuses specifically on self-reported free will beliefs, it is the lay conception of free will that is invoked in our studies, regardless of whether the lay conception is compatibilist or incompatibilist. Across our four measures of free will beliefs, only one of the individual items was clearly incompatibilist: "To what extent could this person have made other choices . . ." (one of the items from the free will attributions in Study 2). Other items were more ambiguous (e.g., "People have complete free will," "To what extent did this person exercise their own free will . . ."). This means that our participants were free to report free will beliefs based on their own personal definitions of the concept.

Of course, a central point of our analysis is that free will beliefs vary across situations, as the motivation to assign responsibility and punishment varies, so it makes little sense to talk about the nature of people's stable free will beliefs. In fact, our findings may provide a possible explanation for the discrepant findings found by researchers regarding the compatibilism versus incompatibilism debate.

A common method employed by researchers is to present participants with an immoral behavior and either information about external constraints or a description of a deterministic universe, and then measure whether participants perceive the person as "free" or "responsible." For example, Woolfolk et al. (2006) demonstrated that people assign responsibility to others even when their behavior is under constraint. However, the behavior of interest was an immoral one. Exposure to immoral behavior may have unintentionally increased participants' free will beliefs, thus ex-

plaining why participants still assigned moral responsibility to an actor despite the presence of external constraints.

Similarly, Nahmias et al. (2005) presented participants with a deterministic universe and then provided an example about Jeremy, who either robs a bank or saves a child. Though Jeremy is judged equally responsible in both cases (supporting compatibilism), the majority of participants believed that Jeremy, the bank robber, could have chosen not to rob the bank, while the majority of participants believed that Jeremy, the child saver, could not have chosen not to save the child. Viewed through the lens of the present findings, these results may indicate that participants were more motivated to believe in free will after reading about Jeremy's immoral behavior than about Jeremy's morally good behavior, and were therefore less compelled by the deterministic description.

When researchers provide examples of immoral behavior, they may be unwittingly evoking a desire to believe in free will, which may interfere with participants' ability or willingness to accept deterministic descriptions. Therefore, compatibilist findings may not necessarily show that laypeople are compatibilist, but rather that the motivation for moral responsibility is so strong after consideration of immoral behavior that participants are temporarily willing to disregard important aspects of the experiment or perhaps even disregard their own intuitions about the requirements for moral responsibility. Future research attempting to determine whether lay intuitions about free will are compatibilist or incompatibilist may consider avoiding the use of scenarios that lead to increased beliefs in free will and taking greater measures to ensure that participants are actually understanding and accepting deterministic descriptions.

Manipulating free will beliefs. To our knowledge, no prior research has shown that free will beliefs are susceptible to motivational influences; however, there is some evidence that free will beliefs are at least somewhat malleable. Whereas previous research has successfully altered free will beliefs through priming and argument techniques (e.g., Baumeister et al., 2009; Vohs & Schooler, 2008), the present work sought to change those beliefs by altering the motivational context, and reading about immoral actions appears to be an effective method of altering free will beliefs. Previously, only attempts to decrease free will beliefs versus a control condition have been successful, presumably due to ceiling effects, as most people already believe in free will. The present findings of increased belief in free will may be especially remarkable in the context of these prior failures and open up new avenues for future research by demonstrating a relatively easy and potent way of manipulating free will beliefs.

Alternative Explanations and Limitations

It may be argued that immoral behaviors increase attributions of responsibility (as shown by past research) and that these responsibility judgments simply spill over to free will beliefs. Though Study 2 may be susceptible to this criticism because participants attributed free will to the perpetrator before reporting their general free will belief, participants never explicitly contemplated the freedom or responsibility of the perpetrator in the remaining studies. Further, Study 4 avoided the limitations of self-report measures and found that participants who read about an immoral behavior tended to criticize and reject scientific research that argued against the reality of free will more than participants who

read about a morally neutral behavior. Because people selectively recruit information that supports what they want to believe (or criticize contrary arguments), these findings indicate that immoral behaviors motivated participants to believe more in free will and to maintain such beliefs. Though correlational, the results of Study 5 also cast doubt on this alternative explanation. Real-world levels of crime and homicide predicted country-level free will beliefs. Participants were likely not simultaneously attending to their country-level crime rates while reporting their beliefs; rather, the chronic moral state of one's nation appeared to have an independent influence on beliefs about the capacity for free action.

Unlike responsibility and control, free will is a capability, not a temporary conditional state (though the present results demonstrate that free will beliefs are conditional). In the present research, participants are not merely attributing greater freedom, responsibility, intention, or control to the perpetrator at the specific time of the incident, but to all people in general—including the self—at all points in their lives.

Another potential limitation of the current research has to do with the measurement of free will beliefs. The FAD-Plus (used in Studies 1–3) is perhaps the most widely used free will belief scale in psychological research, but it can be criticized for the overlap it contains between beliefs about free will and beliefs about moral responsibility. Scale items such as “People must take full responsibility for any bad choices they make” and “Criminals are totally responsible for the bad things they do” (Paulhus & Carey, 2011; Paulhus & Margesson, 1994) confound not just free will and moral responsibility generally, but free will and moral blame for “bad” behavior specifically. In a sense, the fact that researchers include aspects of responsibility and blame into their operational definition of free will can be taken as additional evidence of the deep psychological association between these constructs, but the conceptual slippage makes the FAD-Plus a less than optimal measure for research examining relationships between them. Despite this limitation, our use of multiple measures to tap free will beliefs make the current research less susceptible to the criticism that our findings are bolstered by methodological overlap between our independent and dependent variables.

Conclusion

There is no consensus among scientists and philosophers regarding the actual existence of free will or what form it might take, yet the vast majority of laypeople believe in free will (Nahmias et al., 2005). Moreover, recent empirical findings have shown that free will beliefs have behavioral consequences, mostly along the lines of making people act in accordance with cultural values (e.g., Baumeister et al., 2009; Vohs & Schooler, 2008). The findings that free will beliefs are so pervasive and have important behavioral consequences highlight the importance of understanding the factors that influence people to hold affirming versus skeptical beliefs about free will. We have reported five studies aimed at testing one explanation for the causation of free will beliefs. Specifically, we tested an idea dating back to Nietzsche (1889/1954): the idea that free will is embraced, at least partly, in order to justify holding others morally responsible for their wrongful behaviors. Our investigation has supported Nietzsche's hypothesis with multiple findings, diverse methods, and different populations.

There seems little doubt that the subjective experience of choosing and acting supports people's belief in free will, but our findings suggest another powerful motivating factor: the human impulse to blame and punish. People believe in free will—at least in part—because they wish to affirm that people who do immoral things could have and should have acted differently. Though questions remain, to our knowledge, the present research is first to demonstrate that free will beliefs can be motivated by situational factors and first to demonstrate a powerful and consistent way of increasing free will beliefs.

References

- Alicke, M. D. (1992). Culpable causation. *Journal of Personality and Social Psychology*, *63*, 368–378. doi:10.1037/0022-3514.63.3.368
- Alicke, M. D. (2000). Culpable control and the psychology of blame. *Psychological Bulletin*, *126*, 556–574. doi:10.1037/0033-2909.126.4.556
- Aristotle. (1980). *Nicomachean ethics* (W. D. Ross, Trans.). New York, NY: Oxford University Press.
- Aspinwall, L. G., Brown, T. R., & Tabery, J. (2012). The double-edged sword: Does biomechanism increase or decrease judges' sentencing of psychopaths? *Science*, *337*, 846–849. doi:10.1126/science.1219569
- Bargh, J. A. (2008). Free will is un-natural. In J. Baer, J. C. Kaufman, & R. F. Baumeister (Eds.), *Are we free? Psychology and free will* (pp. 128–154). New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780195189636.003.0007
- Baumeister, R. F. (2005). *The cultural animal: Human nature, meaning, and social life*. New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780195167030.001.0001
- Baumeister, R. F. (in press). Constructing a scientific theory of free will. In W. Sinnott-Armstrong (Ed.), *Moral psychology: Vol. 4. Free will and responsibility*. Cambridge, MA: MIT Press.
- Baumeister, R. F., Bratslavsky, C. F., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*, 323–370. doi:10.1037/1089-2680.5.4.323
- Baumeister, R. F., Masicampo, E. J., & DeWall, C. N. (2009). Prosocial benefits of feeling free: Disbelief in free will increases aggression and reduces helpfulness. *Personality and Social Psychology Bulletin*, *35*, 260–268. doi:10.1177/0146167208327217
- Baumeister, R. F., & Newman, L. (1994). Self-regulation of cognitive inference and decision processes. *Personality and Social Psychology Bulletin*, *20*, 3–19. doi:10.1177/0146167294201001
- Carlsmith, K. M., Darley, J. M., & Robinson, P. H. (2002). Why do we punish? Deterrence and just desserts as motives for punishment. *Journal of Personality and Social Psychology*, *83*, 284–299. doi:10.1037/0022-3514.83.2.284
- Central Intelligence Agency. (2011). *The world factbook*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>
- Central Intelligence Agency. (2013). *The world factbook*. Available from <https://www.cia.gov/library/publications/the-world-factbook//fields/2103.html>
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*, 1015–1026. doi:10.1037/0022-3514.58.6.1015
- Cushman, F., Knobe, J., & Sinnott-Armstrong, W. (2008). Moral appraisals affect doing/allowing judgments. *Cognition*, *108*, 281–289. doi:10.1016/j.cognition.2008.02.005
- Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: Use of different decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology*, *63*, 568–584. doi:10.1037/0022-3514.63.4.568
- Ditto, P. H., Pizarro, D. A., & Tannenbaum, D. (2009). Motivated moral reasoning. In D. M. Bartels, C. W. Bauman, L. J. Skitka, & D. L. Medin (Eds.), *Moral judgment and decision making* (pp. 307–338). San Diego, CA: Academic Press.
- Earp, B. D. (2011). Do I have more free will than you do? An unexpected asymmetry in intuitions about personal freedom. *The New School Psychology Bulletin*, *9*, 21–27.
- Economist Intelligence Unit. (2013). *Democracy index 2012: Democracy at a standstill*. London, England: Author.
- Fehr, E., & Gächter, S. (2002, January 10). Altruistic punishment in humans. *Nature*, *415*, 137–140. doi:10.1038/415137a
- Fincham, F. D., & Jaspars, J. M. (1980). Attribution of responsibility: From man the scientist to man as lawyer. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 81–138). New York, NY: Academic Press. doi:10.1016/S0065-2601(08)60131-8
- Fukuyama, F. (2011). *The origins of political order: From prehuman times to the French Revolution*. London, England: Profile Books.
- Ghetti, S., & Redlich, A. D. (2001). Reactions to youth crime: Perceptions of accountability and competency. *Behavioral Sciences & the Law*, *19*, 33–52. doi:10.1002/bsl.426
- Guglielmo, S., & Malle, B. F. (2010a). Can unintended side effects be intentional? Resolving a controversy over intentionality and morality. *Personality and Social Psychology Bulletin*, *36*, 1635–1647. doi:10.1177/0146167210386733
- Guglielmo, S., & Malle, B. F. (2010b). Enough skill to kill: Intentionality judgments and the moral valence of action. *Cognition*, *117*, 139–150. doi:10.1016/j.cognition.2010.08.002
- Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, *108*, 814–834. doi:10.1037/0033-295X.108.4.814
- Haidt, J. (2012). *The righteous mind: Why people are divided by politics and religion*. New York, NY: Penguin Books.
- Haidt, J., & Kesebir, S. (2010). Morality. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., Vol. 2, pp. 797–832). Hoboken, NJ: Wiley.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Heider, F. (1958). *The naive analysis of action. The psychology of interpersonal relations*. New York, NY: Wiley. doi:10.1037/10628-004
- Henrich, J., McElreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyanatz, A., . . . Ziker, J. (2006, June 23). Costly punishment across human societies. *Science*, *312*, 1767–1770. doi:10.1126/science.1127333
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 219–266). New York, NY: Academic Press. doi:10.1016/S0065-2601(08)60107-0
- Kane, R. (Ed.). (2011). *The Oxford handbook of free will* (2nd ed.). New York, NY: Oxford University Press. doi:10.1093/oxfordhb/9780195399691.001.0001
- Kant, I. (1998). *Groundwork of the metaphysics of morals* (M. Gregor, Ed. & Trans.). New York, NY: Cambridge University Press. (Original work published 1785)
- Kant, I. (2005). *The critique of pure reason* (P. Guyer & A. W. Wood, Trans.). New York, NY: Cambridge University Press. (Original work published 1781)
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2009). *Governance matters VIII: Aggregate and individual governance indicators, 1996–2008* (Policy Research Working Paper No. 4978). Washington, DC: World Bank.
- Kelley, H. (1973). The processes of causal attribution. *American Psychologist*, *28*, 107–128. doi:10.1037/h0034225
- Kelling, G. L., & Wilson, J. Q. (1982, March). Broken windows. *Atlantic Monthly*, *249*, 29–38.

- Kerr, N. L. (1983). Motivation losses in small groups: A social dilemma analysis. *Journal of Personality and Social Psychology*, *45*, 819–828. doi:10.1037/0022-3514.45.4.819
- Kerr, N. L., & Bruun, S. E. (1983). Dispensability of member effort and group motivation losses: Free-rider effects. *Journal of Personality and Social Psychology*, *44*, 78–94. doi:10.1037/0022-3514.44.1.78
- Kerr, N. L., Rumble, A. C., Park, E. S., Ouwerkerk, J. W., Parks, C. D., Gallucci, M., & van Lange, P. A. M. (2009). How many bad apples does it take to spoil the whole barrel? Social exclusion and toleration for bad apples. *Journal of Experimental Social Psychology*, *45*, 603–613. doi:10.1016/j.jesp.2009.02.017
- Knobe, J. (2003). Intentional action and side effects in ordinary language. *Analysis*, *63*, 190–194. doi:10.1093/analys/63.3.190
- Knobe, J., & Fraser, B. (2008). Causal judgment and moral judgment: Two experiments. In W. Sinnott-Armstrong (Ed.), *Moral psychology: Vol. 2. The cognitive science of morality: Intuition and diversity* (pp. 441–447). Cambridge, MA: MIT Press.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*, 480–498. doi:10.1037/0033-2909.108.3.480
- Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*, *37*, 822–832. doi:10.1037/0022-3514.37.6.822
- Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York, NY: Plenum Press. doi:10.1007/978-1-4899-0448-5
- Lerner, M. J., & Miller, D. T. (1978). Just world research and the attribution process: Looking back and ahead. *Psychological Bulletin*, *85*, 1030–1051. doi:10.1037/0033-2909.85.5.1030
- Leslie, A. M., Knobe, J., & Cohen, A. (2006). Acting intentionally and the side-effect effect: Theory of mind and moral judgment. *Psychological Science*, *17*, 421–427. doi:10.1111/j.1467-9280.2006.01722.x
- Liu, B. S., & Ditto, P. H. (2013). What dilemma? Moral evaluation shapes factual belief. *Social Psychological & Personality Science*, *4*, 316–323. doi:10.1177/1948550612456045
- Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, *37*, 2098–2109. doi:10.1037/0022-3514.37.11.2098
- Mercier, H., & Sperber, D. (2011). Why do humans reason? Arguments for an argumentative theory. *Behavioral and Brain Sciences*, *34*, 57–74. doi:10.1017/S0140525X10000968
- 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
- Monterosso, J., Royzman, E. B., & Schwartz, B. (2005). Explaining away responsibility: Effects of scientific explanation on perceived culpability. *Ethics & Behavior*, *15*, 139–158. doi:10.1207/s15327019eb1502_4
- Mulder, L. B. (2008). The difference between punishments and rewards in fostering moral concerns in social decision making. *Journal of Experimental Social Psychology*, *44*, 1436–1443. doi:10.1016/j.jesp.2008.06.004
- Munro, G. D., & Ditto, P. H. (1997). Biased assimilation, attitude polarization, and affect in reactions to stereotype-relevant scientific information. *Personality and Social Psychology Bulletin*, *23*, 636–653. doi:10.1177/0146167297236007
- 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
- Neopolitan, J. L. (1996). Cross-national crime data: Some unaddressed problems. *Journal of Criminal Justice*, *19*, 95–112.
- Nichols, S. (2004). The folk psychology of free will: Fits and starts. *Mind & Language*, *19*, 473–502. doi:10.1111/j.0268-1064.2004.00269.x
- Nichols, S., & Knobe, J. (2007). Moral responsibility and determinism: The cognitive science of folk intuitions. *Noûs*, *41*, 663–685. doi:10.1111/j.1468-0068.2007.00666.x
- Nietzsche, F. (1954). *Twilight of the idols* (W. Kaufmann, Trans.). New York, NY: Penguin Books. (Original work published 1889)
- O'Connor, T. (2011). Free will. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Retrieved from <http://plato.stanford.edu/archives/sum2011/entries/freewill/>
- Orbell, J., & Dawes, R. (1981). Social dilemmas. In G. Stephenson & H. H. Davis (Eds.), *Progress in applied social psychology* (Vol. 1, pp. 37–65). New York, NY: Wiley.
- Paulhus, D. L., & Carey, J. M. (2011). The FAD-Plus: Measuring lay beliefs regarding free will and related constructs. *Journal of Personality Assessment*, *93*, 96–104. doi:10.1080/00223891.2010.528483
- Paulhus, D. L., & Margesson, A. (1994). *Free Will and Determinism (FAD) Scale*. Unpublished manuscript, University of British Columbia, Vancouver, Canada.
- Pizarro, D., Uhlmann, E., & Salovey, P. (2003). Asymmetry in judgments of moral blame and praise: The role of perceived metadesires. *Psychological Science*, *14*, 267–272. doi:10.1111/1467-9280.03433
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717–731. doi:10.3758/BF03206553
- Read, S. J., Vanman, E. J., & Miller, L. C. (1997). Connectionism, parallel constraint satisfaction processes, and Gestalt principles: (Re)introducing cognitive dynamics to social psychology. *Personality and Social Psychology Review*, *1*, 26–53. doi:10.1207/s15327957pspr0101_3
- Reeder, G. D., & Brewer, M. B. (1979). A schematic model of dispositional attribution in interpersonal perception. *Psychological Review*, *86*, 61–79. doi:10.1037/0033-295X.86.1.61
- Reeder, G. D., & Covert, M. D. (1986). Revising an impression of morality. *Social Cognition*, *4*, 1–17. doi:10.1521/soco.1986.4.1.1
- Reeder, G. D., & Spores, J. M. (1983). The attribution of morality. *Journal of Personality and Social Psychology*, *44*, 736–745. doi:10.1037/0022-3514.44.4.736
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe–Crown Social Desirability Scale. *Journal of Clinical Psychology*, *38*, 119–125. doi:10.1002/1097-4679(198201)38:1<119::AID-JCLP2270380118>3.0.CO;2-I
- 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
- Shariff, A. F., Greene, J. D., Karremans, J. C., Luguri, J., Clark, C. J., Schooler, J. W., . . . Vohs, K. D. (2013). *Free will and punishment: Diminished belief in free will reduces punishment*. Manuscript submitted for publication.
- Shaver, K. G. (1985). *The attribution of blame: Causality, responsibility, and blameworthiness*. New York, NY: Springer-Verlag. doi:10.1007/978-1-4612-5094-4
- Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science*, *22*, 1359–1366. doi:10.1177/0956797611417632
- Stillman, T. F., & Baumeister, R. F. (2010). Guilty, free, and wise: Belief in free will facilitates learning from self-conscious emotions. *Journal of Experimental Social Psychology*, *46*, 951–960. doi:10.1016/j.jesp.2010.05.012
- 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
- Stroessner, S. J., & Green, C. W. (1990). Effect of belief in free will or determinism on attitudes toward punishment and locus of control. *Jour-*

- nal of Social Psychology*, 130, 789–799. doi:10.1080/00224545.1990.9924631
- Thagard, P. (2004). *Coherence in thought and action*. Boston, MA: MIT Press.
- United Nations Office on Drugs and Crime. (2011). *Crime and criminal justice statistics*. Retrieved from <http://www.unodc.org/unodc/en/data-and-analysis/statistics/crime.html>
- Uttich, K., & Lombrozo, T. (2010). Norms inform mental state ascriptions: A rational explanation for the side-effect effect. *Cognition*, 116, 87–100. doi:10.1016/j.cognition.2010.04.003
- Vohs, K. D., & Schooler, J. (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
- Walster, E. (1966). Assignment of responsibility for an accident. *Journal of Personality and Social Psychology*, 3, 73–79. doi:10.1037/h0022733
- Wegner, D. M. (2002). *The illusion of conscious will*. Cambridge, MA: MIT Press.
- Wegner, D. M. (2003). The mind's best trick: How we experience conscious will. *Trends in Cognitive Sciences*, 7, 65–69. doi:10.1016/S1364-6613(03)00002-0
- Wegner, D. M., Sparrow, B., & Winerman, L. (2004). Vicarious agency: Experiencing control over the movements of others. *Journal of Personality and Social Psychology*, 86, 838–848. doi:10.1037/0022-3514.86.6.838
- Wegner, D. M., & Wheatley, T. P. (1999). Apparent mental causation: Sources of the experience of will. *American Psychologist*, 54, 480–492. doi:10.1037/0003-066X.54.7.480
- Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. New York, NY: Guilford 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
- World Values Survey Association. (2009). *World Values Survey*. Retrieved from <http://www.worldvaluessurvey.org/>
- Young, L., & Phillips, J. (2011). The paradox of moral focus. *Cognition*, 119, 166–178. doi:10.1016/j.cognition.2011.01.004

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