Social and Personality Psychology Compass 6/10 (2012): 736–745, 10.1111/j.1751-9004.2012.00458.x

Believing versus Disbelieving in Free Will: Correlates and Consequences

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Abstract

Some people believe more than others in free will, and researchers have both measured and manipulated those beliefs. Disbelief in free will has been shown to cause dishonest, selfish, aggressive, and conforming behavior, and to reduce helpfulness, learning from one's misdeeds, thinking for oneself, recycling, expectations for occupational success, and actual quality of performance on the job. Belief in free will has been shown to have only modest or negligible correlations with other variables, indicating that it is a distinct trait. Belief in free will has correlated positively with life satisfaction and finding life meaningful, with self-efficacy and self-control, with low levels of stress, and (though not entirely consistently) with internal locus of control. High belief in free will has been linked to a punitive attitude toward wrongdoers and lower forgiveness toward them. The belief seems to involve a sense of agency and expecting others to behave in morally responsible fashion.

The existence and possible nature of free will have been debated for centuries by scholars in diverse fields. These debates continue today, not necessarily in the same form but rather changing as emerging evidence from social psychology, neuroscience, and other topics provides new perspectives. As the experts continue to argue, ordinary citizens and laypersons likewise continue to shift their views about whether free will is a reality, and their beliefs vary.

A startling new direction was initiated by an article by Vohs and Schooler (2008). Rather than contributing directly to the debate about the existence of free will, they focused on the belief in it. More precisely, they conducted experimental studies based on manipulating people into believing or disbelieving in free will, and they showed that people's behavior changed as a result. Thus, belief versus disbelief in free will is more than a matter of idle philosophical opinion or religious doctrine. Rather, variations in such belief have behavioral consequences. Although Vohs and Schooler manipulated belief in free will, that level of belief is stable in many cases, so that personality psychologists can assess individual differences and track their effects (e.g., Paulhus & Carey, 2011).

The purpose of this article is to review recent evidence about individual differences in belief in free will. As such, it is officially agnostic as to whether and to what extent such beliefs are correct, plausible, or justified by objective facts. If there is some objective truth, then some people's beliefs will turn out to be more correct than others, but that is irrelevant to our review. Our focus is on how people who believe more in free will think, feel, and act differently from people who believe less in it.

Layperson Conceptualizations of Free Will

The very concept of free will is debated by experts and defined in different ways. Laypersons would presumably have less consensus and less sophisticated conceptualizations than experts. Colloquially, philosophers often bemoan the common tendency to conflate determinism

(belief in inevitable causation of all events) with fatalism (believing that the outcome will be the same regardless of what one does). Also, laypersons tend to assume that rigid causal determinism is incompatible with free will, whereas philosophers often manage to reconcile the two in subtle ways. In the work reviewed below, determinism is generally regarded as antithetical to free will, although some trait measures treat the two as largely independent if not fully orthogonal (e.g., Paulhus & Carey, 2011). Manipulations and trait measures of free will generally represent a compromise between expert knowledge of philosophical subtleties and simple, even simplistic layperson understandings.

Only a few studies have investigated how people actually define or understand free will. In the most direct attempt to study this, Monroe and Malle (2010) asked student participants what they thought it meant to have free will and then coded their open-ended responses. People most often defined free will as choice, as doing things to fulfill one's desires, and as lack of external coercion (or indeed going against external pressure). Metaphysical issues were rarely mentioned.

Another approach to elucidating lay conceptions of free will was taken by Stillman, Baumeister, and Mele (2011), who instructed people to write about their own actions that were done either of their own free will or not of their free will. These accounts were then coded, and systematic differences were tallied up to furnish a picture of how people understand free will in their own daily lives. Common themes that characterized free action (as different from unfree action) included reaching goals, achieving positive outcomes, working toward long-term and distal goals, making decisions based on conscious thought and deliberate reflection, behaving consistently with one's own moral values, resisting external influences and overcoming obstacles, and avoiding harm to one's social group. These are presumably the phenomena that are involved when researchers study lay beliefs about free will.

Multiple lines of evidence suggest that baseline belief in free will is somewhat high, but with complications, qualifications, and variations. One sign is that in many of the studies reported below, manipulations aimed at increasing belief in free will yielded behavioral outcomes identical to the no-manipulation control group (whereas manipulated disbelief produced departures from the baseline). That suggests that control participants already believed in free will. In other work, Nahmias, Morris, Nadelhoffer, and Turner (2005) have shown that most people report believing in free will, though these authors concluded that people also express some deterministic belief and therefore should perhaps be described as naïve compatibilists. Sarkissian et al. (2010) showed that majorities in quite different cultures believe in free will and consider the world to be essentially indeterministic. Pronin and Kugler (2011) showed that people tend to believe themselves to have more free will than other people. Vonasch and Baumeister (2011) found that people believe some people (such as mentally retarded persons) have less free will than others. Ent, Baumeister, and Lambert (2011) found that people's belief in their own free will fluctuated across time according to changing circumstances. Thus, belief in free will was lower on days during which they had vomited, and likewise lower when they had a concurrent urge to urinate or a strong desire for sexual intercourse. Meanwhile, intriguing studies by Ebert and Wegner (2011) concluded that people sometimes mistake random action for free will. For example, robots that exhibited seemingly random actions were rated as higher on free will than more predictable, patterned ones.

Methods for Studying Differences in Free Will Beliefs

There are several ways researchers have gone about studying the correlates and consequences of belief in free will. Both measurement and experimental manipulation have

been used. The combination is useful, because measurement furnishes insight into genuine and presumably stable individual differences, while experimental manipulation makes it possible to establish causality.

Vohs and Schooler (2008) manipulated belief in free will in two ways. One was to have participants read a passage that either impugned the very notion that free will exists or covered neutral, irrelevant material. The other, based on the classic Velten mood-induction manipulation, was to have participants read and ponder a series of statements. By random assignment, participants heard a sequence that affirmed the reality of free will, or denied and rejected that reality, or expressed scientific facts irrelevant to free will. A more recent variation on this procedure consists of having participants read those statements and re-state them in their own words (Alquist, Ainsworth, Baumeister, Stillman, & Daly, 2010).

To measure free will belief, researchers tend to rely on either the Free Will and Determinism Plus Scale (FAD+; Paulhus & Carey, 2011) or the Free Will and Determinism Scale (FWDS; Rakos, Laurene, Skala, & Slane, 2008). The FAD+ is a recently revised and psychometrically validated version of an earlier Free Will and Determinism 4 Scale (FAD; Paulhus & Margesson, 1994) that was used in many studies but was never officially published. It has one main subscale devoted specifically to measuring free will belief, as well as three other subscales focusing on related constructs: fatalistic determinism, scientific determinism, and unpredictability. One advantage of the FAD+ is that it measures free will belief and deterministic beliefs with separate scales, allowing for any degree of compatibilism. In contrast, the FWDS treats determinism as the polar opposite of free will, such that increases in one belief necessarily reflect decreases in the other. A particular advantage of FWDS is that it has separate subscales for measuring belief in free will generally and for measuring the specific sense of oneself as having free will. Because people may have specific beliefs about themselves that depart to some degree from their abstract views about people in general (see Pronin & Kugler, 2011), researchers can use whichever is more relevant to their investigation.

These are the most popular methods. Other measures, including one-item or two-item questions about whether one believes in free will, are also sometimes used. As always, reliance on psychometrically validated full scales is considered the best method for reliable results, though simpler approaches can be useful too.

Behavioral Effects of Free Will

We turn now to the main purpose of our review, namely the correlates and consequences of free will beliefs. The seminal studies by Vohs and Schooler (2008) showed that inducing disbelief in free will caused participants to lie, cheat, and steal. In several different procedures, participants performed tasks with financial incentives and had the opportunity to take home extra money by overreporting their performance or seeing a display of the correct answers during the test (which they had been explicitly told not to do). Those who had been led to disbelieve in free will took more advantage of these illicit opportunities for gain than did people whose free will beliefs had been bolstered.

Using similar procedures, Baumeister, Masicampo, and DeWall (2009) demonstrated other shifts toward antisocial behavior. In one study, induction of disbelief in free will caused participants to behave more aggressively than control participants toward another person, measured by administering food with unpleasant and unwelcome hot sauce during an ostensible taste test. In another, the same manipulated disbelief caused persons to

express lesser willingness to help a fellow (hypothetical) student, such as by letting the student use a personal cell phone. In yet another study, dispositional belief in free will, measured by the FAD, predicted whether people would actually volunteer time to help another student suffering from personal and financial difficulties stemming from death of parents and the requirements of supporting siblings. Thus, less belief in free will led to more aggression and less helping toward non-acquainted others.

The theme that disbelief in free will reduces prosocial behavior was extended by Stillman and Baumeister (2010). Students in their study heard a message designed to induce guilt about the environmental degradation caused by non-recycled waste products from student activities. Those who had been induced to disbelieve in free will were less likely than others to volunteer for a campus recycling program. Students with psychopathic tendencies were especially prone to show this effect. The pattern that free will manipulations have especially high impact on individuals with psychopathic tendencies seems an intriguing issue for further study.

We noted earlier that people associate free will with resisting external, social pressures and with deliberately choosing one's actions. Consistent with those themes, evidence suggests that belief in free will reduces conformity. Alquist and Baumeister (2010) found a positive correlation between measured belief in free will and a questionnaire measure of tendency to conform. They also provided experimental evidence that inducing disbelief in free will caused participants to conform. Specifically, participants furnished ratings of art works while they could see what ratings had ostensibly been given by previous participants. Disbelief in free will made participants furnish ratings that echoed the prior ratings, as compared to other conditions, who were more likely to express novel, independent judgments different from the prior ones.

These findings suggest that believing in free will contributes to willingness to exert oneself to be a good citizen and an upstanding participant in society. Most studies have used student samples. Converging evidence, using a very different population, emerged from a field study by Stillman et al. (2010), who measured variations in free will beliefs among mostly poor, low educated, non-white day laborers. Individuals who believed more in free will performed better in these actual jobs, as indicated by ratings by their supervisors. The effects of belief in free will remained significant after controlling for a host of other variables, including Protestant work ethic, vitality, and life satisfaction. Not only did relatively high levels of free will belief predict good job performance, but they also predicted having a more positive impact on other workers, putting more effort into the job, and even just showing up for work consistently.

Another study in that investigation indicated that students with higher dispositional belief in free will reported greater expectations of future occupational success, measured with items such as ''I will be a success in the workplace'' and (reverse scored) ''Whoever hires me will regret it.'' This significant prediction was specific to free will and remained intact after controlling for intelligence (SAT score), Big Five personality traits, and locus of control (Stillman et al., 2011).

There is even some evidence that disbelief in free will contributes to passive inaction. Rigoni, Kühn, Sartori, and Brass (2011) induced disbelief in free will with the essay manipulation and then obtained brain scans while participants performed a Libet clock task in which they made an arbitrary decision to make a finger movement. Disbelief in free will reduced the so-called readiness potential effect, in which the decision to move is preceded by an increase in neural activity. The implication is that brain activity that prepares to initiate movement is reduced when people disbelieve in free will.

Judgments of Others

The behavioral effects covered in the previous section link believing in free will to socially desirable, prosocial actions. Attempts to find undesirable or antisocial consequences of free will beliefs have focused mainly on whether people punish or forgive those who misbehave. Shariff, Karremans, Greene, Schooler, and Vohs (2012) used a variation of the essay procedure that emphasized either links between free will and moral responsibility or links between determinism and the impropriety of holding people responsible for misdeeds. They found that the essay upholding hard determinism (and thus reducing responsibility) caused participants to assign lighter prison sentences as punishment for a retaliatory violent crime, as compared to the essay holding people responsible. In further studies, high belief in free will led to relatively low forgiveness both of transgressors in hypothetical vignettes (i.e., assigning lighter prison sentences for fictional murderers) and actual transgressions in incidents recalled from the participant's own life.

Similar results emerged from studies measuring free will beliefs with the FAD+. Carey and Paulhus (2011) had participants read a vignette about a child molester and recommended a prison sentence. Later they were given additional information that the molester had himself been abused as a child and suffered from psychopathology, after which participants could revise their prison recommendations. The greater the belief in free will, the longer the prison sentence people recommended on both occasions. Scientific determinism and fatalism had no effect. Along the same lines, Rakos et al. (2008) found that both the personal will and general will subscales of the FWDS were positively correlated with dispositional tendencies toward retribution. The main exception to this pattern was in studies by Crescioni, Baumeister, Ent, Ainsworth, and Lambert (2011), who found positive correlations between free will beliefs and self-reported tendencies to forgive relationship partners.

Whether these findings really indicate a kinder, gentler side of deterministic beliefs is debatable. In our view, they suggest that the upshot of believing in free will is not best conceptualized in terms of niceness but rather in terms of moral responsibility, which is an important precondition for culture. That is consistent with the view that the evolved purpose of free will (and by extension the social function of the very widespread belief in free will) is to facilitate human society in the form of culture. Culture can only function to the extent that people respect its rules and perform their roles properly, and so cultures tend to punish and exclude individuals who fail to do this (see Baumeister, 2008). Retribution rather than forgiveness may reflect the attitude of holding wrongdoers responsible for violating the culture's rules. The contrary finding (that belief in free will positively correlates with forgiving relationship partners) may reflect different goals. Within a close relationship, one's goal may be to maintain the relationship, and so one may want to believe that the partner has sufficient free will to be able to change so as not to repeat the transgression. In contrast, with a stranger or distant acquaintance, the goal is presumably to uphold the moral and legal system by punishing wrongdoers.

Direct evidence linking free will belief to moral responsibility was provided by our own recent investigations (Brewer & Baumeister, 2010a). We replicated some of the findings of Shariff et al. (2012) and also found that both measured and manipulated beliefs in free will were linked to holding people in general more responsible for their actions. Reducing belief in free will undercuts judgments of moral responsibility, making people more willing to forgive others.

Carey and Paulhus (2009) found that high belief in free will was associated with a tendency to believe that the world was generally just and fair – but only for other people.

Belief in justice for oneself was unrelated to belief in free will, possibly because many other motivations and rationalizations enter into perception of whether oneself has been treated fairly in life. These findings likewise suggest that the primary impact of believing in free will is to support abiding by the rules of culture, especially in regard to judging others and holding them responsible.

The idea that belief in free will fosters unfairness, intolerance, and oppression was asserted passionately by Miles (forthcoming), but his conclusions appear based on misinterpretation of unpublished survey findings. Systematic attempts to test Miles's hypotheses by Vonasch and Baumeister (forthcoming) found that more belief in free will was linked to greater belief in social mobility and even to desire for greater income equality, and it had no relation to sympathy for poor people, disadvantaged individuals, and minority group members.

Beliefs and Attitudes

Belief in free will correlates with (and in some cases has been shown to cause) an assortment of other beliefs about self and life. A series of investigations by Crescioni et al. (2011) found higher belief in free will was correlated with finding life as more meaningful, with higher life satisfaction (see also Stillman et al., 2011), with greater relationship satisfaction and relationship commitment, with greater dispositional willingness to forgive relationship partners, with greater self-efficacy, and with greater intrinsic religiosity. These may suggest that it simply correlates with many things that people consider positive, but free will beliefs were uncorrelated with some things often regarded as desirable: sense of humor (self-rated) personal attractiveness, empathy, and extrinsic religiosity. Belief in free will was also linked to a dispositional tendency to be grateful to others, which is of conceptual interest because gratitude may imply a recognition that one's benefactor could have done otherwise.

Belief in free will was negatively correlated with life stress, which might simply imply that suffering through misfortunes calls attention to the limits of one's ability to control one's life. It is difficult to know whether the belief in free will was cause or effect. An experimental study by the same authors showed, however, that inducing disbelief in free will caused persons to perceive their lives as less meaningful. Apparently, finding life as meaningful is partly a matter of believing oneself is able to make choices.

Thoughts about Self

Beliefs about free will seem to alter how people think about and process information about themselves. Several studies by Alquist et al. (2010) studied counterfactual thinking, such as by having participants recall an incident from their own lives in which they had hurt someone and then make a list of things they might have done differently. Participants who had previously been induced to disbelieve in free will generated fewer such counterfactual possibilities, as compared to those whose belief in free will had been bolstered by having them re-write statements affirming free will. One interpretation of this is that people were simply being consistent with the philosophical beliefs. By definition, those who disbelieve in free will and embrace determinism think they could not possibly have acted differently than they did, given those circumstances (so there are no genuine counterfactual possibilities). More likely, though, belief in free will simply promotes thinking of multiple possibilities and taking responsibility for one's actions, and hence it promotes consideration of alternative and potentially more desirable actions.

Guilt is likewise often associated with believing one should have acted differently. One benefit of guilt is that it motivates people to reflect on their misdeeds, learn moral lessons from them, and resolve to behave differently in the future (Baumeister, Stillwell, & Heatherton, 1994). Stillman and Baumeister (2010) had participants reflect on past actions about which they felt guilty and articulate any lessons they had drawn. Judges blind to condition and hypotheses coded the quality of these lessons. Participants who believed in free will (and who felt substantially guilty) extracted higher quality, more valuable lessons than participants with lesser belief. There was some evidence that belief in free will even had similar effects on learning lessons from experiences marked by emotions other than guilt.

Although the studies on guilt and counterfactual thinking relied on thinking about past events, they explored implications for the future. The future was more centrally studied in recent work by Crescioni et al. (2011), who manipulated free will beliefs and then asked participants to list three things they would like to do (and when they would like to do them). Responses were coded by judges blind to condition. Belief in free will led to setting goals farther into the future than disbelief in free will, as well as setting more goals and more meaningful goals. Thus, believing in free will was conducive to pursuing long-term goals.

Relation to Other Traits

The various measures of free will have been checked against other personality traits. Free will belief, as measured by the FAD+, has been shown to correlate positively with measures of extraversion, agreeableness, and right wing authoritarianism (Paulhus & Carey, 2011). These further the view that belief in free will is part of a general attitude of wanting to participate in society and expecting others to behave in morally responsible fashion. The correlation with agreeableness may seem surprising, because free will belief supports punitive attitudes toward wrongdoers (see previous section) whereas agreeable people are reputedly nice. But recent work by Kammrath and Scholar (2011) has shown that agreeable people are punitive toward antisocial behaviors, and so agreeableness may be understood, like free will belief, as a trait that is conducive to cultural participation and good behavior. The authoritarianism correlation may also seem surprising, insofar as authoritarians may reduce the freedom of individuals. Possibly this trait also reflects an expectation of moral responsibility. Some thinkers believe that liberal political views are inimical to individual responsibility, seeing people instead as victims of social forces and their actions as externally caused.

In a student sample, Stillman et al. (2011) found that belief in free will was positively correlated with three of the Big Five traits, namely Conscientiousness, Emotional Stability, and Openness to Experience. The correlations with the other two dimensions were near zero. They also found a modest correlation with internal locus of control but not with intelligence. In their non-student (day laborer) sample, they found free will beliefs to be uncorrelated with vitality and with endorsement of the Protestant Work Ethic.

Conflicting findings have emerged regarding the relationship to internal locus of control. Paulhus and Carey (2011) found that internal locus of control correlated positively with belief in free will on the FAD+, Stillman et al. (2011) likewise found a small positive correlation. But Rakos et al. (2008) found that internal locus of control correlated negatively with both the personal will and general will subscales of the FWDS.

Conceptually, self-control is a close relative to free will, and indeed Baumeister's (2008) research program on free will grew out of his initial studies on self-control.

Measured belief in free will has been shown to correlate both with trait self-control and with a recent measure of desire for self-control (Brewer & Baumeister, 2010b). That is, believers in free will claim to have better self-control and to be more motivated to exert and maintain control over themselves, as compared to disbelievers in free will. There is also some evidence that higher belief in free will is correlated with a higher sense of self-efficacy (Crescioni et al., 2011). All these results invoke agency. Believing in free will is apparently tied to a broad sense of wanting to exert control over one's life and believing that one can.

Conclusion

Belief in free will is both a stable dimension of individual differences and a flexible opinion subject to influence and fluctuation. It does not have any strong links to other traits. Modest correlations with some Big Five traits (unfortunately differing across samples and measures) have been found. Free will beliefs are also not the same as locus of control, self-efficacy, Protestant Ethic endorsement, vitality, and self-control, though again modest correlations have been found.

High belief in free will produces effects that can mostly be described as prosocial, but pro-cultural may be an even more apt characterization. Belief in free will seems to promote a less forgiving and more punitive attitude toward people who break rules and thus undermine the implicit social contract that underlies culture. In general, disbelief in free will is linked to disregard for societal rules and norms, as indicated by increased propensities to engage in aggression, cheating, stealing, and slacking off at work, as well as reduced helpfulness. Belief in moral responsibility appears to be closely linked to belief in free will. Baumeister (2008) has proposed that the concept of free will is linked to a new form of action control that evolved in connection with the human propensity to reinvent social life as culture. That belief in free will supports cultural activities is conducive to that view, though it cannot be taken as proof of any evolutionary argument or of the reality of free will.

A second theme is personal agency. High free will belief has been linked to thinking for oneself instead of mindlessly conforming to the opinions of others, to counterfactual thinking and learning from one's mistakes, to self-efficacy and (sometimes) internal locus of control, as well as to brain activity associated with initiating movement and to actual behavior. Disbelief in free will appears to foster an attitude of passivity, indifference, and perhaps wide-ranging disregard for moral responsibility.

The two themes may be interrelated. Personal agency may be useful for culture, as long as it is tempered by recognition of the moral and legal rules and other norms that specify proper courses of action.

Several directions for future research emerged from this review. Briefly, differences between manipulated versus measured beliefs in free will require further theory and elaboration. (Among other differences, the manipulations may threaten cherished beliefs, whereas measurement alone is presumably non-threatening.) There is not yet a clear consensus on what exactly is the construct of free will that people believe in to varying degrees, though some work has moved the field closer to this understanding (Monroe & Malle, 2010). We noted that believing in free will seemed to increase forgiveness toward relationship partners but decrease forgiveness of strangers and others, and further work should resolve and explain this seeming inconsistency. Also, this review is only one step toward integrating the dimension of belief in free will into the broader understanding of individual differences. Further work may examine why it does vs. does not correlate with

other constructs (such as locus of control, autonomy, and even attributional style) that have some conceptual overlap.

It seems unlikely that the definitive answer to age-old questions of whether and in what sense people have free will is likely to emerge soon. In the mean time, variations and fluctuations in subjective beliefs about free will may continue to exert influence on how people think, feel, and behave.

Acknowledgement

We gratefully acknowledge grant support from the Templeton Foundation.

Short Biographies

Roy F. Baumeister is currently the Eppes Eminent Professor of Psychology and head of the social psychology graduate program at Florida State University. He received his Ph.D. in social psychology from Princeton in 1978 and did a postdoctoral fellowship in sociology at the University of California at Berkeley. He spent over two decades at Case Western Reserve University, where he eventually was the first to hold the Elsie Smith professorship. He has also worked at the University of Texas, the University of Virginia, the Max-Planck-Institute, the VU Free University of Amsterdam, the University of California at Santa Barbara, and Stanford's Center for Advanced Study in the Behavioral Sciences. Baumeister's research spans multiple topics, including self and identity, self-regulation, interpersonal rejection and the need to belong, sexuality and gender, aggression, self-esteem, meaning, and self-presentation. He has received research grants from the National Institutes of Health and from the Templeton Foundation. He has over 470 publications, and his 30 books include *Evil: Inside Human Violence and Cruelty*, *The Cultural Animal*, *Meanings of Life*, and the New York Times bestseller *Willpower: Rediscovering the Greatest Human Strength*. Google Scholar calculates his H as over 100, which means 100 of his publications have been cited in other works 100 times each. He has received lifetime achievement awards from the Society for Personality and Social Psychology and from the International Society for Self and Identity. He lives by a small lake in Florida with his beloved family. In his rare spare time, he enjoys windsurfing, skiing, and jazz guitar.

Lauren Brewer is a graduate student at Florida State University. Her research interests include free will belief and self-control. In her spare time, Lauren enjoys traveling, modern dancing, and playing trivia.

Endnote

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