# Professional judges' disbelief in free will does not decrease punishment

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Abstract

There is a debate in psychology and philosophy on the societal consequences of casting doubts about individuals' belief in free will. Research suggests that experimentally reducing free will beliefs might affect how individuals evaluate others' behavior. Past research has demonstrated that reduced free will beliefs decrease laypersons' tendency towards retributive punishment. This finding has been used as an argument for the idea that promoting anti-free will viewpoints in the public media might have severe consequences for the legal system, because it may move judges towards softer retributive punishments. However, actual implications for the legal system can only be drawn by investigating professional judges. In the present research, we investigated whether judges ($N$ = 87) are affected by reading anti-free will messages. The results demonstrate that although reading anti-free will texts reduces judges' belief in free will, their recommended sentences are not influenced by their (manipulated) belief in free will.

*Keywords*: Belief in free will; social perception; punishment; judges; offenders

Belief in free will is a cornerstone of our society and touches nearly everything we care about. From morality, politics, public policy, and intimate relationships, to punishing and rewarding behavior—"most of what is distinctly human about our life depends upon our viewing one another as autonomous persons, capable of free choice" (Harris, 2012, p. 1). Thus, not surprisingly, independent of culture (Sarkissian et al., 2010) and age (Nichols, 2004), most people believe that they have free will (e.g., Baumeister, Masicampo, & DeWall, 2009; Nahmias, Morris, Nadelhoffer, & Turner, 2005).

However, whether free will actually exists is a longstanding controversy in philosophy (Dennett, 2015; Van Inwagen, 1983). Within the last decades cognitive neuroscientists have entered this debate by putting forward the idea that free will might be nothing more than an illusion (e.g., Crick, 1994; Harris, 2012; Wegner, 2002). Interestingly, such anti-free will viewpoints did not only become in vogue in academia (e.g., Greene & Cohen, 2004), but maybe even more so in the popular press (e.g., Chivers 2010; Griffin, 2016; Wolfe, 1997). This raises the question of whether it matters if people believe in free will or not.

Philosophers have debated whether a world without free will would lead to negative or positive societal consequences. Some philosophers have put forward the notion that anti-free will viewpoints should be kept away from the public, because undermining people's belief in free will may have catastrophic consequences, as people would no longer try to control their behavior and would start acting immorally (e.g., Smilansky, 2000, 2002). Other philosophers argue that not believing in free will would lead to overall positive effects, as people may abandon inadequate retribution-based morality and illusory beliefs in a just world (Caruso, 2014; Greene & Cohen, 2004; Nadelhoffer, 2011).

The question of whether the existence of free will has implications for our legal system has been strongly debated in the literature. Some philosophers and neuroscientists argue that because criminal behavior is caused by events beyond the offender's control, such

as non-conscious events, genetic make-up, or environmental factors, nobody deserves to be punished (e.g., Greene & Cohen, 2004; Harris, 2012; Pereboom, 2006; Strawson, 2002). Yet other philosophers deny the general premise that moral responsibility for criminal behavior depends on the existence of free will. For example, Morse (2013) and Moore (2010) argue that the law as it stands permits offenders to be punished when they are capable of making choices. Thus, punishment should depend on the choice someone made, but not on its causes (see also Bok, 1998; Korsgaard, 1996).

Without a doubt, this philosophical debate would benefit from psychological research experimentally testing the influence of challenging people's belief in free will. In this respect, past research already indicates that weakening individuals' belief in free will has several downstream social consequences. For example, reducing individuals' belief in free will increases antisocial behavior, such as cheating (Vohs & Schooler, 2008), racism (Zhao, Liu, Zhang, Shi, & Huang, 2014), and aggressiveness towards others (Baumeister et al., 2009), and decreases prosocial behavior (Protzko, Ouimette, & Schooler, 2015). These effects might potentially be driven by the fact that free will beliefs increase perceived intentionality (Genschow, Rigoni, & Brass, 2017, 2019).

In line with this notion, researchers found that reducing participants' belief in free will decreases punishing behavior. For example, Shariff et al. (2014) asked participants to read a text from Francis Crick's Astonishing Hypothesis (Crick, 1994). While half of the participants read a passage in which Francis Crick argued against the plausibility of free will, the other half of participants read a passage in which Francis Crick did not mention free will. Afterwards, participants read a fictional vignette involving an offender who beat a man to death and then recommended the length of the prison sentence that this offender should serve. Participants who read the anti-free will passage recommended lighter prison sentences than participants who read the control passage. The authors replicated this finding in two other

studies in which anti-free will belief was manipulated by exposing participants to newspaper articles or university lectures featuring neuroscience findings implying that human behavior is caused mechanistically.

More recently, Martin, Rigoni, and Vohs (2017) analyzed data from the World Values Survey of 46 countries. The authors conceptually replicated Shariff et al.'s findings by demonstrating that free will beliefs predict support for criminal punishment. Going one step further, Genschow et al. (2017) investigated the underlying mechanisms of the link between free will beliefs and punishment. Their results indicate that when reducing belief in free will, individuals perceive others' behavior as less strongly driven by internal forces (e.g., personality) than by external forces (e.g., situation). Moreover, the degree to which participants perceived a behavior as driven by internal versus external factors mediated the effect of free will beliefs on punishment.

Based on these findings, researchers argued that promoting anti-free will viewpoints in the public media may have severe consequences for society and especially for the legal system (Genschow et al., 2017; Martin et al., 2017; Shariff et al., 2014). For example, Shariff et al. (2014) argued that these "findings suggest that merely presenting such a perspective [i.e., anti-free will messages] may move judges and jurors toward being less punitive and less retributive in general" (p. 1596). While such a perspective is reasonable based on previous evidence, the question arises as to whether professional judges are as susceptible to such anti-free will messages as laypeople. Indeed, it might well be that their professional education prevents judges from being easily influenced by anti-free will messages. While studies with non-professionals are important to establish a potential link between disbelief in free will and retributive punishment, the implications for the legal system can only be judged by investigating law professionals. This of course implies compromising on some methodological aspects of the investigation such as sample size, because getting access to a

large sample of professional judges is challenging.

To directly investigate the influence of disbelief in free will on punishment in law professionals, we tested whether judges are influenced in their sentences when being exposed to anti-free will messages. In our experiment we first manipulated disbelief in free will within professional judges. Afterwards, the judges recommended the length of the prison sentence that different criminal offenders should serve. At the end, we measured belief in free will as part of a manipulation check. The experiment was conducted according to the ethical rules presented in the General Ethical Protocol of the Faculty of Psychology and Educational Sciences at Ghent University.

## Method

### Open science statement

We report all measures, conditions, data exclusions, and how we determined our sample size. Data and stimulus material are available on the Open Science Framework (OSF; https://osf.io/st9gh/?view_only=9cdd4a1289834899872053fe0f62dfba).

### Participants

When assessing the influence of reading anti-free will messages on laypeople's recommended sentences, Shariff et al. (2014) detected an average effect size of $d = .64$. To detect such an effect with 80% power and an alpha error probability of $\alpha = .05$ (two-tailed), 80 participants are needed. With this estimation in mind, we collected participants. In particular, the third author of this paper—an experienced professional judge—invited professional judges via different e-mailing lists to take part in an online study. Eventually, 91 judges participated into the experiment. We discarded four judges who indicated that they had not read the text in which we manipulated belief in free will. The final sample consisted of 87 judges (47 female, 37 male, 3 not reported). 84 judges reported German as their mother tongue (3 not reported). Age ranged from 29 to 67 ($M = 50.58$, $SD = 8.89$). On average the

judges had 16.39 years (*SD* = 11.07) experience in private law, 1.30 years (*SD* = 5.02) experience in administrative law and 2.83 years (*SD* = 5.66) experience in criminal law.

**Procedure**

At the beginning of the experiment, participants were informed about the general procedure of the experiment and then gave informed consent. Afterwards, we manipulated belief in free will in line with the procedure used by Shariff et al. (2014, Study 2), which is one of the most often used manipulations in the literature on free will beliefs. That is, participants read a passage of Francis Crick's (1994) book "The Astonishing Hypothesis". Participants in the anti-free will group read a text claiming that scientists now recognize that free will is an illusion. Participants in the control group read a passage from the same book. However, in this passage Francis Crick did not mention free will at all. We told participants to read the text carefully. To strengthen the manipulation, we ostensibly told participants that they had to answer some questions on the text at the end of the experiment. A recent meta-analysis (Genschow et al., 2017) across all published and unpublished studies that have been conducted in our own research group supports the effectiveness of this procedure.

After participants had read the text passage, they were presented with ten scenarios in which a person behaved criminally (e.g., strangle somebody to death, contract killing, killing somebody in a car accident, shooting somebody, stabbing somebody to death). To ensure the real-life character of the scenarios, we created them together with an actual professional judge (i.e., the third author of this paper). For each scenario, participants recommended the length (in years and months) of the prison sentence that an offender should serve.

Afterwards, as a manipulation check, we measured participants' belief in free will by letting participants fill in the German translation (Genschow et al., 2019) of the Free Will Inventory (FWI; Nadelhoffer, Shepard, Nahmias, Sripada, & Ross, 2014). The FWI includes 15 items measuring the strength of the belief in free will and related constructs such as

dualism/non-reductionism and determinism. In line with previous research (e.g., Baumeister et al., 2009; Genschow et al., 2017; Goodyear et al., 2016; Lynn, Van Dessel, & Brass, 2013; Rigoni, Kühn, Gaudino, Sartori, & Brass, 2012; Rigoni, Pourtois, & Brass, 2015), we computed a belief in free will score by averaging the free will items with the dualism/non-reductionism items and the reversed determinism items to obtain a global measure of how participants view their behavior as caused by their own free choice and independent from prior events and their biological makeup (Van Inwagen, 1983).

At the end of the experiment, participants indicated basic demographics, were thanked and debriefed.

## Results

### Manipulation check

Firstly, we analyzed whether the anti-free will manipulation had an effect on judges' belief in free will assessed with the FWI (Nadelhoffer et al., 2014). A *t*-test for independent samples indicated that judges in the anti-free will group reported weaker belief in free will ($M$ = 4.48, $SD$ = 0.70) than judges in the control group ($M$ = 4.86, $SD$ = 0.65), $t$ (85)= 2.67, $p$ = .009, $d$ = .56, 95% CI [.10, .67][1].

### Disbelief in free will and recommended sentences

Secondly, we tested the effect of the anti-free will manipulation on recommended sentences. A t-test for independent samples yielded no significant result between judges who read the anti-free will text ($M_{months\ recommended\ sentences}$ = 110.22, $SD$ = 37.12) and judges who read the control text ($M_{months\ recommended\ sentences}$ = 115.49, $SD$ = 47.77), $t$ (85)= 0.62, $p$ = .540.

### Bayesian analyses

The above-reported analysis indicates that although judges' belief in free will can be reduced by letting them read a scientific text that argues against the plausibility of free will, the manipulation does not influence their recommended sentences. To confirm this interpretation,

we ran additional Bayesian statistics using JASP (Love et al., 2015) and tested evidence in favor of H0. We set the Cauchy prior width to the default prior of .707 and report $BF_{01}$, which gives the ratio with which the null hypothesis is favored over the alternative hypothesis (i.e., a larger $BF_{01}$ argues in favor of the null hypothesis; see Dienes, 2011, for an overview). The analysis yielded a $BF_{01} = 2.64$. A Bayes factor of 1 is conventionally considered as no evidence, a Bayes factor between 1 and 3 is considered as anecdotal evidence, and a Bayes factor between 3 and 10 is considered as moderate evidence (Andraszewicz et al., 2015; Jeffreys, 1961).

**Explorative analyses**

To further explore the obtained null finding, we ran a series of additional explorative analyses. In a first series of analyses we tested the correlation between belief in free will and recommended sentences. The correlation was not significant, $r = .06$, $p = .601$[2]. In an additional Bayesian analysis we tested the H0 for the same correlation by setting the Cauchy prior width to default priors of .707. The analysis yielded a $BF_{01} = 4.68$.

In a second series of analyses, we explored the judges' focus while they recommended the sentences. The German legal system differentiates between retributivism (called "Sühne") and deterrence (called "Abschreckung"). Deterrence is further divided into specific deterrence (called "Spezialprävention") and general deterrence (called "Generalprävention"). Specific deterrence is aimed at the actual dangerousness of the offender and thus aims to protect the general public from the perpetrator and to dissuade the offender, via punishment, from committing another offense. General deterrence aims to protect the general public by discouraging society from committing an act by raising awareness of what penalties may follow. At the end of our experiment, the judges rated on a scale from 1 (not at all) to 7 (very much) how strongly they had focused on retributivism, specific deterrence, and general deterrence while recommending the sentences. In multiple explorative analyses, we tested

whether judges' focus on retributivism, general deterrence, or specific deterrence allows explaining our found null effects.

First, a one-way ANOVA detected a weak linear trend indicating that when judges recommended the sentences, they focused most strongly on retributivism ($M$ = 5.26, $SD$ = 1.60), less strongly on general deterrence ($M$ = 5.03, $SD$ = 1.57), and the least strongly on specific deterrence ($M$ = 4.79, $SD$ = 1.56), $F(1, 85) = 3.17$, $p = .079$, $\eta_p^2 = .04$. More interestingly, a 3 (focus: retributivism vs. general deterrence vs. specific deterrence) x 2 (Manipulation: anti free will vs. control) ANOVA yielded a weak, but significant interaction, $F(2, 83) = 3.21$, $p = .045$, $\eta_p^2 = .07$. This indicates that judges in the anti-free will condition focused more strongly on retributivism ($M$ = 5.49, $SD$ = 1.50) than on general deterrence ($M$ = 4.69, $SD$ = 1.81), $t$ (44)= 2.19, $p = .034$, $d = .48$, 95% CI [.06, 1.54], and specific deterrence ($M$ = 4.71, $SD$ = 1.63), $t$ (44)= 2.16, $p = .036$, $d = .50$, 95% CI [.05, 1.50]. The same comparisons were not significant for judges in the control condition, $ts < 1.33$, $ps > .19$.

Third, we tested whether the different foci are related to judges' recommended sentences. Correlational analyses indicate that only retributivism ($r = .27$, $p = .012$), but neither general deterrence ($r = .03$, $p = .780$), nor specific deterrence ($r = -.04$, $p = .744$) correlated with recommended sentences.

Fourth, in separate regression analyses we tested whether judges' focus on retributivism, general deterrence, or specific deterrence would moderate the effect of the free will belief manipulation on recommended sentences. To run these moderation analyses, we $z$-standardized all continuous variables (Aiken & West, 1996). The recommended sentences served as the dependent measure. As predictors, we entered the dummy-coded free will belief manipulation (1 = *anti-free will*, 0 = *control*), judges' focus (either retributivism, general deterrence, or specific deterrence), and the interaction between these variables. The results

indicate that neither one of the foci moderated the effect of the free will belief manipulation on recommended sentences, $\beta$s < .36, $t$s < 1.61, $p$s > .11.

## General Discussion

Past research has indicated that letting laypeople read anti-free will viewpoints decreases their belief in free will and subsequently their tendency to retributively punish criminal offenders. This finding has been used as an argument for the idea that promoting anti-free will viewpoints in the public media might have severe consequences for the legal system, because it may move judges towards softer retributive punishments (Genschow et al., 2017; Martin et al., 2017; Shariff et al., 2014). However, actual implications for the legal system can only be drawn by investigating professional judges. Thus, in the present paper we tested whether weakening belief in free will affects the degree to which professional judges would punish criminal offenders. The results of our experiment demonstrate that although reading an anti-free will text reduces judges' belief in free will, they were not affected by their (manipulated) belief in free will when recommending sentences for criminal offenders.

These results raise the question of why the judges' judgments were not influenced by the anti-free will manipulation and their belief in free will. A potential explanation is that the judges' professional education prevented them from being easily influenced by the anti-free will messages. That is, it might well be that in comparison to laypeople, when recommending sentences for criminal offenders, judges more strongly follow clear rules and relay their sentences based on previous published sentences. As a result, judges should be better calibrated and their judgments should less strongly deviate from each other.

These findings contribute to the debate on whether publishing anti-free will viewpoints in the popular press has positive or negative societal consequences. While some philosophers argued that disbelieving in free will leads to overall positive effects, as people would abandon inadequate retribution-based morality (Caruso, 2014; Greene & Cohen, 2004;

Nadelhoffer, 2011), other philosophers put forward that anti-free will viewpoints should be kept away from the public, because people would no longer control their behavior and start acting immorally (e.g., Smilansky, 2000, 2002). Similar to the latter notion, some psychologists highlighted the risk that anti-free will viewpoints could affect judges and jurors, because research has shown that reducing individuals' belief in free will decreases the tendency to punish others (Genschow et al., 2017; Martin et al., 2017; Shariff et al., 2014). Our research suggests that this risk is not as high as has been suggested, because professional judges were not influenced by their belief in free will.

**Limitations and future directions**

Besides these implications, we need to acknowledge several limitations that call for further investigations. First, one may argue that the effect of free will belief on judges' recommended sentences depends on the legal system. That is, it could be that in countries where the legal system does not take into account retributivism, free will beliefs have no influence on judges' sentences. However, it is important to note that in Germany, where we conducted the experiment, the legal system relies on a similar differentiation between retributivism and deterrence as the legal system in the US. Moreover, our explorative analyses suggest that although the anti-free will belief manipulation slightly increased judges' focus on retributivism, this focus did not influence the relation between the free will belief manipulation and recommended sentences. Nevertheless, it might be that in countries in which the legal system is more strongly related to retributivism, one would find a relation between belief in free will and recommended sentences.

Second, it is quite possible that the failure to find an effect of the free will belief manipulation on recommended sentences is neither specific to the population of judges nor specific to recommending sentences, but reflects a general inefficacy of the manipulation. Indeed, several researchers recently reported difficulties in replicating some downstream

consequences of free will belief manipulations (Giner-Sorolla, Embley, & Johnson, 2016; Monroe, Brady, & Malle, 2017; Open Science Collaboration, 2015; Schooler, Nadelhoffer, Nahmias, & Vohs, 2014; Shariff & Vohs, 2014). For example, Nadelhoffer et al.'s (2019) results suggest that manipulating free will beliefs in a robust way is more difficult than has been implied by previous work, and that the proposed link with immoral behavior, such as cheating, might be similarly tenuous (see also Crone & Levy, 2019). In light of these failed replications, our research adds to the general call for replications of psychological findings (e.g., Lakens & Evers, 2014) and particularly to replications of findings in the field of free will beliefs.

Third, one might argue that our claims are based on a rather small sample size and may, thus, be difficult to interpret. Moreover, the Bayesian analyses suggest that evidence for H0 is not very strong. Thus, collecting more participants might actually allow detecting a significant effect. It is important to note, though, that assessing professionals, such as judges, is always a challenging task, and getting access to such a limited group of people is rather difficult. At the same time, we have to note that our sample size of nearly 100 judges is, compared to other research in the domain of free will beliefs, rather high. Indeed, based on power analyses, it would have allowed us to detect a medium-sized effect similar to the effects detected by Shariff et al. (2014). Thus, we would like to argue that even if one would find a significant effect within a larger sample of judges, the effect would be rather small and, thus, most likely negligible. Nevertheless, future research may aim to collect data from a larger sample of judges. Such research should then also test whether the effect of manipulated free will beliefs on judges' sentences depend on the legal system.

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Footnotes

[1]Separate t-tests on the different subscales of the FWI indicated that the free will manipulation significantly affected the dualism subscale ($M_{anti\text{-}free\ will}$ = 3.93, $SD$ = 1.33; $M_{control}$ = 4.67, $SD$ = 1.06), $t$ (85)= 2.82, $p$ = .006, $d$ = .62, 95% CI [.22, 1.25], tendentially the determinism subscale ($M_{anti\text{-}free\ will}$ = 2.40, $SD$ = 1.01; $M_{control}$ = 2.06, $SD$ = 0.69), $t$ (85)= 1.79, $p$ = .078, $d$ = .39, 95% CI [-.04, .19], and non-significantly the free will subscale ($M_{anti\text{-}free\ will}$ = 3.89, $SD$ = 1.04; $M_{control}$ = 3.98, $SD$ = 1.19), $t$ (85)= 0.39, $p$ = .70.

[2]When correlating the recommended sentences with the different subscales of the FWI, we found a marginal significant negative correlation between recommended sentences and the free will subscale, $r$ = -.21, $p$ = .051. The other subscales did not correlate with recommended sentences, $rs$ < .17, $ps$ > .120