**Divine Forgiveness and Mortal Support for State-Sanctioned Punishment**

Keywords: *punishment, forgiveness, God concepts, prosociality, priming*

**Abstract**

Laurin, Shariff, Henrich & Kay (2012) found that beliefs in powerful Gods (both in general and when made salient) reduce people’s endorsement of state-sanctioned punishment. Here we investigate whether the specific manner in which a powerful God responds to moral infractions (via forgiveness or punishment) influences people’s endorsement of state-sanctioned punishment. Across four studies we explored whether endorsement of state-sanctioned punishment is increased a) when participants are primed with the notion of a forgiving (*cf*. punitive) God (Studies 1 & 2) and b) when beliefs in a forgiving God are made salient (Studies 3a & 3b). A forgiving God might lead people to view punishment as their responsibility rather than one to be outsourced to God. Our results revealed no evidence for effects of forgiving God primes or salient forgiving god beliefs on endorsement of state-sanctioned punishment. However we did find that *both* forgiving and punishing God beliefs, when salient, were significant predictors of endorsement of state-sanctioned punishment in response to a victim-directed transgression. We discuss the implications of these findings for extant theories of religious prosociality. In particular, we suggest that existing accounts of human prosociality and cooperation have underestimated the role of divine forgiveness in favour of a focus on divine punishment.

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*‘I believe that forgiving them is God’s function. Our job is simply to arrange the meeting.’*

*~* General Norman Schwarzkopf, when asked about forgiving those who abetted and harboured the 9/11 perpetrators.

*‘To err is human; To forgive, divine.’*

*~* Alexander Pope.

Recent studies have found that beliefs in powerful, intervening Gods (both in general and when made salient) reducepeople’s engagement in, and endorsement of, punishment (Laurin, Shariff, Henrich & Kay 2012). Those who believe in a powerful, morally interested God may view punishment as God’s remit and ‘outsource’ it to Him. In the present studies we investigate whether the specific manner in which God responds to moral infractions would affect people’s willingness to endorse state-sanctioned punishment. Reminding people of God’s punitive nature might indeed weaken endorsement of state-sanctioned punishment; but would being reminded of a God who responds to moral infractions with forgiveness *increase* support for punishment?

**1. Theoretical Background**

Humans are unique among species in their engagement in large-scale cooperation. Previous biological theories of cooperation (e.g., kin selection, reciprocal altruism, indirect reciprocity) have failed to fully explain this type of cooperation because it exists in circumstances where these theories predict it should not, i.e., between non-genetic relatives often in one shot interactions and in the absence of material or reputational gain (see Johnson & Krüger 2004). What has become apparent is the critical role of punishment (Barclay 2006; Boyd, Gintis, Bowles & Richerson 2003; de Quervin *et al.* 2004; Fehr & Gächter 2000, 2002; Johnson 2005; Ostrom*,* Walker & Gardner 1992; Sober & Wilson 1998) in large-scale cooperation, in particular *altruistic punishment* (Fehr & Gächter 2000, 2002, 2003). However, the cost of punishment very quickly escalates (Dreber*,* Rand, Fudenberg & Nowak 2008; Herrmann, Thöni & Gächter 2008; Nikiforakis 2008; Nikiforakis & Engelmann 2011). As Johnson and Krüger point out ‘while punishment appears to be necessary, there is no incentive for anyone to do it’ (Johnson & Krüger 2004: 162). If altruistic punishment is necessary for human cooperation, then how is *that* sustained?

**1.1. Supernatural Punishers**

One solution invokes the notion of culturally evolved (Norenzayan & Shariff 2008; Norenzayan *et al*. 2016) or elaborated concepts of supernatural deities who punish non-cooperation (Bering 2006, 2011; Johnson & Bering 2006; Johnson 2009, 2011, 2016; Johnson & Krüger 2004; Schloss & Murray 2011). An inevitable consequence of living in large groups is that individuals cannot monitor others, all of the time. This allows for transgressions to go both undetected and unpunished therefore increasing the incentive to engage in norm-violating behaviors. Beliefs in a powerful and morally concerned God, however, provide a convenient ‘eye in the sky’ (Gervais & Norenzayan 2012a). Such a deity can observe all actions, at all times. Moreover, such a God has the power to administer punishment in this life *or* the next, meaning that punishment of defectors is inevitable (Johnson 2016; Johnson & Krüger 2004).

**1.2. Supernatural Punishment and Cooperation**

At the societal level there is some evidence to suggest that positive effects of religion on prosocial behavior are driven by supernatural punishment. The national crime rate in the U.S., for example, is negatively correlated with a belief in hell but positively correlated with a belief in heaven (Shariff & Rhemtulla 2012). Belief in a punitive God was found to be associated with both a decrease in selfish behavior and an increase in cooperation in a sample of 186 cultures (Johnson 2005, Atkinson & Bourrat 2011). Furthermore, Shariff and Norenzayan (2011) found that people who thought of God as a primarily punitive and wrathful agent tended to cheat less on an experimental academic task, while those who thought of God as essentially forgiving tended to cheat moreon the same task. Similarly, Yilmaz and Bahçekapili (2016) found that after being both explicitly and implicitly primed with punishing religious andsecular authorities (as opposed to non-punishing and neutral primes), individuals showed stronger prosocial intentions. Taken together, these findings suggest that beliefs in supernatural agents can enhance prosociality to the extent that those agents have the capacity for punishment*.* Moreover, beliefs in a punitive God provide a way for individuals to offload individual responsibility for punishment to divine hands without compromising cooperation (Laurin *et al*. 2012).

**1.3. Punitive and Forgiving God Concepts**

Laurin *et al.* (2012) reasoned that belief in morally concerned Gods with the power to dispense punishments and rewards might undermine incentives to engage in, or support, earthly punishment. Across a series of five studies, these authors found evidence that beliefs in a powerful God (both in general and when salient) reduce people’s support for both altruistic punishment and state-sanctioned punishment. The idea that belief in God undermines earthly punishment seems, however, to apply only to belief in a powerful and *punitive* God. This highlights a systematic tendency in the literature to conflate a powerful and moralizing God with an exclusively punitive one (Johnson *et al*. 2017; Johnson & Cohen 2016).[[1]](#footnote-1) The concept of an omnipotent, authoritarian God as *both* wrathful and benevolent is a feature of many world religions (Johnson *et al.* 2017; Johnson, Yexin, Cohen & Morris 2013; Johnson & Cohen 2016; McCullough, Bono & Root 2005; Rye *et al.* 2000). The God of the Old Testament, for example, is mercurial and at least as likely to respond to human moral infractions with forgiveness as with punishment, and can even convey both natures within the same dictate (see Exodus 34:6-8). In Islam too the concept of a powerful God as both punitive and forgiving is a central part of the religious experience, ‘Despair not of the God of Mercy: verily, God forgives all sins. Truly He is Oft-forgiving, Most Merciful’ (Qu’ran 39:53). The Hindu pantheon includes at least two forgiving Gods who are further distinguished by the type of forgiving nature they possess.[[2]](#footnote-2)

**1.4. Divergent Effects of Forgiving and Punitive God Concepts**

Across a variety of domains and in particular with regards to prosociality,[[3]](#footnote-3) concepts of God as forgiving or punitive appear to be associated with divergent patterns of behavior, social attitudes, well-being and even disease progression (Ironson *et al.* 2011; Johnson *et al.* 2017; Johnson *et al.* 2013; Sherman *et al*. 2015). Despite evidence suggesting that punishing Gods promote prosociality (Shariff & Norenzayan 2011; Yilmaz & Bahçekapili 2016), there is evidence suggesting punitive God concepts provoke distinctly antagonistic behavior (Bushman, Ridge, Das, Key & Busath 2007; Johnson *et al.* 2013). Positive religious primes (as opposed to neutral religious primes) however, have been found to positively affect prosociality by increasing charitable giving (Pichon, Boccato & Saroglou2007). Similarly, Harrell (2012) found that priming the reward related aspects of religious and secular authority led to an increase in prosociality.

**1.5. Priming Methodologies: Delineating the Dimensions of Religious Cognition**

The use of priming methodologies has allowed researchers to experimentally manipulate religious concepts and make headway in revealing the underlying causal effects of religious cognition on prosociality (see Ritter & Preston 2013). Yet there are many inconsistencies. For example, religious primes have been found to increase honesty and prosociality and curtail selfish impulses (Ahmed & Salas 2011; Shariff & Norenzayan 2007; Randolph-Seng & Nielsen 2007), yet at the same time religious primes have also been found to *decrease* prosocial attitudes and behavior in some contexts (e.g., Ginges, Hansen & Norenzayan 2009; Johnson, Rowatt & LaBouff 2010; Saroglou, Corneille & Van Cappellen 2009). A recent meta-analysis (Shariff, Willard, Andersen & Norenzayan 2016) found that religious primes in general only work to the extent that the participants are religious themselves. However other studies observe similar effects of religious priming on non-believers and believers alike (e.g., Laurin, Kay, & Fitzsimons 2012) while others show mixed effects across different studies (e.g., Gervais & Norenzayan 2012b; Shariff & Norenzayan 2007).

These seemingly contradictory findings may be due to priming multiple religious concepts at once, using the erroneous assumption that all these primes activate a monolithic religious prosociality construct (Preston & Ritter 2013). Research suggests that different religious concepts can activate different prosocial goals (see Preston & Ritter 2013). For example, Laurin *et al.* (2012) consistently found that being religious, distinct from holding beliefs in a powerful God, was a *positive* predictor of costly punishment. Preston and Ritter (2013) found that *religion* primes enhance parochial altruism (that is, prosocial behavior preferentially directed to the ingroup), whereas *God* primes directed prosocial impulses towards religious outsiders (these effects were seen even in participants who reported no belief in God or religious affiliation). Therefore, if *religion* primes trigger concerns related to ingroup prosociality, it is not surprising that they would also strengthen support for state-sanctioned punishment, in so far as punishment benefits the group at large and is thereby prosocial (McKay & Whitehouse 2015; 2016). What is clear is that people hold nuanced conceptualisations of the divine and this extends to the nature of God.

**1.6. God as a Behavioral Model**

Rather than outsourcing punitive responsibility to God one possibility is that instead, he provides a behavioral model (Lipsey, Pogge, Shepperd & Miller 2016; Preston, Ritter & Hernandez 2010; Unnever, Cullen & Bartkowski 2006). In this case, forgiving God concepts would *decrease* support for state-sanctioned punishment because God models forgiveness and people follow his divine example. There is some evidence to support this; previous research has found consistent associations between images of God as wrathful and judgemental and support for capital punishment and with stronger punitive attitudes in general (Bader, Desmond, Mencken & Johnson 2010; Evans & Adams 2003; Unnever & Cullen 2006). In contrast, images of God as gracious and loving have been found to be negatively associated with these variables (Unnever, *et al.* 2006).

However, the findings of Laurin *et al.* (2012) suggest that beliefs in a powerful God, both in general and when made salient, *reduce* people’s support for state-sanctioned punishment. Rather than beliefs in a powerful God promoting punitiveness as an appropriate response to wrongdoing, Laurin *et al.* argue that people view punishment as the remit of God, as is made explicit in much Christian scripture.[[4]](#footnote-4)

**1.7. Current Research**

Given the findings of Laurin *et al.* (2012), we sought to examine whether forgivingGod concepts and (salient) beliefs would affect people’s endorsement of state-sanctioned punishment. The rationale for Laurin *et al.’s* (2012) studies implies that people will only ‘outsource’ to the extent that the God they believe in is punitive. A God who ultimately responds to human wrongdoing with forgiveness, on the other hand,may make human responsibility for restoring fairness salient, thus *increasing* support for state-sanctioned punishment. We tested this prediction across four studies. In Studies 1 and 2, passages adapted from the parable of Lazarus (Luke 16: 19-31) were used to explicitly prime either the forgiving or punitive nature of God. Together these two studies investigated the effects of the experimental manipulation on support for state-sanctioned punishment in response to a corporate crime (Study 1) and a victim-directed transgression (Studies 2). In Studies 3a and 3b, we manipulated the salience of forgiving God beliefs and examined the effects of this manipulation on support for state-sanctioned punishment. We expected that participants explicitly primed with the forgiving nature of God would show increased support for state-sanctioned punishment compared to participants administered punitive God primes. Second we predicted that, when made salient, forgiving God beliefs would increase individuals’ support for state-sanctioned punishment.

**2. Study 1**

In this study we examined the effect of explicit forgiving (*cf*. punitive) God primes on endorsement of state-sanctioned punishment. We predicted that participants exposed to a forgiving God prime would show more support for state-sanctioned punishment than participants exposed to a punitive God prime. We also included measures of self-reported religious affiliation and strength of belief in God in our analyses to explore the moderating effects of these variables and to further investigate the positive religiosity-punishment association found in previous research (de Quervain *et al.* 2004; Grasmick*,* Davenport, Chamlin & Bursik 1992; Grasmick, Kinsey & Cochran, 1991; but see Henrich, Heine & Norenzayan 2010).

**2.1. Method**

**2.1.1. Participants**. Our participants were 403 Amazon Mechanical Turk workers who took part in exchange for $1 (203 females, 199 males and 1 who identified as Other; *Mage =* 35.12 years, *SD* = 11.79). Sample sizes throughout are based on power analyses performed using GPower (Mayr, Erdfelder, Buchner & Faul 2007). For Study 1, a power analysis recommended an *N* of 398 to attain 80% power (*α* = .05, one-tailed) to detect a small effect of *d* = .25[[5]](#footnote-5) (see Thalheimer and Cook 2002). We added an additional 15% (59) to account for potential attrition on MTurk, thus 457 participants were recruited in total. Of these, 29 participants did not complete the study, 21 failed the comprehension check, and four were removed for providing illegitimate responses on the religious affiliation measure (e.g., Satanist, Wiccan, Witch). None of the participants guessed the hypothesis.

**2.1.2. Measures.**

*Self-reported religious affiliation*

Participants were asked to choose their religious affiliation from a list of twelve items (Appendix A). Any participants who selected “Other” were prompted to describe their affiliation in more detail and coded accordingly.

*Strength of belief in God*

Participants were administered the Strength of Belief in God scale (Gervais 2014). This asked them to indicate on a scale of 0-100 the extent to which they believe in God (or gods). They were told that if they felt certain that God (or gods) did *not* exist, to report this as ‘0’ and if certain that God (or gods) *did* exist, then to rate this as ‘100’. Any participants who were absolutely uncertain either way were instructed to put ‘50’.

*Forgiving and punishing God primes*

Our priming methodology was based on that of Yilmaz and Bahçekapili (2016: Study 2) who adapted extracts of religious texts that made clear either the punishing or forgiving nature of God. We created two short passages adapted from the parable of Lazarus (Luke 16: 19-31) that outlined the story of a recently deceased rich and immoral man. As his coffin is paraded through the streets, a child observing the event asks his father what will become of the man’s soul? The two vignettes were identical except for the last sentence; the child’s father refers to either God’s forgiving nature (*‘Our Lord is merciful and forgiving, my son*’) (Appendix B) or his punishing nature *(‘God will punish the world for its evil, and the wicked for their sins, my son’)* (Appendix C).

*Endorsement of state-sanctioned punishment*

Participants read a short vignette about a protagonist who steals from his company in order to fund his gambling habit (adapted from Carlsmith, Darley & Robinson 2002) (Appendix D). Participants were then asked to indicate, using a seven-point scale (*1 = ‘the lowest possible’ and 7 = ‘the highest possible’*) how many of their tax dollars they would like to see put towards the state (a) *catching* and (b) *punishing* the transgressor. Responses to these items were then averaged to yield a *punishment index* for each participant, ranging from 1-7.

**2.1.3. Design and procedure***.* Participants completed a series of demographics questions including a measure of self-reported religious affiliation and strength of belief in God (taken from Gervais 2014). All participants were then randomly assigned to one of two conditions; *forgiving God prime* (*N* = 195) or *punishing God prime* (*N* = 208). All participants then underwent a comprehension check before completing a two-item punishment task (adapted from Carlsmith *et al.* 2002 and used in Laurin *et al.* 2012). They then completed a funnel debrief that included a suspicion probe which allowed us to assess whether participants had guessed the true purpose of the study.

**2.2. Results and Discussion**

We predicted that participants exposed to the *forgiving God* prime would show stronger support for state-sanctioned punishment compared to those exposed to the *punishing God* prime. Due to issues of non-normality, we conducted a non-parametric Mann-Whitney *U* test to check for differences in support for state-sanctioned punishment between conditions. Distributions of support for state-sanctioned punishment for the *forgiving God* prime and the *punishing God* prime conditions were similar, as assessed by visual inspection, therefore Medians are reported (Means and standard deviations are reported in the footnote below).[[6]](#footnote-6) There was no significant difference in punishment indices between the *forgiving God prime* (*Mdn* = 3) and *punishing God prime* (*Mdn* = 2.50) conditions, *U =* 18744, *z* = -1.32, *p* = .185.

To check for any effects of self-reported religious affiliation on punishment indices, a hierarchical multiple regression was conducted. In the first block we entered a dummy variable for *self-reported religious affiliation.* We did this by transforming *self-reported religious affiliation* into a binary variable. We coded Atheist, Agnostic and None as 0 *(non-religious affiliation*) and the remainder (Catholic, Protestant, Christian (other), Hindu, Buddhist, Muslim, Jewish and Sikh) as 1 *(self-reported religious affiliation*). We checked the written responses of participants who had indicated ‘Other’ and re-coded them accordingly. In the second block, we simultaneously entered a dummy variable for participation in the *forgiving God prime* condition (participants in the *forgiving God prime* condition were coded as 1, all others coded as 0) and the interaction of this dummy with the self-reported religious affiliation variable. Model 1, with self-reported religious affiliation as the only predictor, was statistically significant, *p* = .029, (self-reported religious affiliation positively predicted punishment indices). The full model was not significant (*p* = .051) though religious affiliation emerged as a significant predictor of punishment indices (*p* = .019) (see Table 1). This is in line with previous research that has found evidence of a positive association between general religiosity and punishment (de Quervain *et al.* 2004; Grasmick *et al.* 1992; Grasmick *et al*. 1991).

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|  |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.009 |  |  | 4.80 | 0.029 | 0.007 |  |  | 2.62 | 0.051 |
| **Predictor** | **B** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | **B** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 2.78 | 0.12 |  | 23.95 | 0.001 | 2.63 | 0.15 |  | 17.91 | 0.001 |
| Self-reported religious affiliation | 0.35 | 0.16 | 0.11 | 2.19 | 0.029 | 0.42 | 0.18 | 0.13 | 2.35 | 0.019 |
| Dummy forgiving prime |  |  |  |  |  | 0.25 | 0.16 | 0.08 | 1.55 | 0.123 |
| Dummy x self-reported religious affiliation |  |  |  |  |  | -0.004 | 0.003 | -0.05 | -0.85 | 0.396 |
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Table 1. Multiple hierarchical regression (predicting endorsement of state-sanctioned punishment from self-reported religious affiliation, dummy forgiveness and their interaction).

To check for effects of strength of belief in God on punishment indices, a second hierarchical multiple regression was conducted. In the first block, we entered *strength of belief in God (mean-centered).* In the second block, we simultaneously entered a dummy variable for participation in the *forgiving God prime* condition and the interaction of this dummy with the *strength of belief in God (mean-centered)* variable. Neither regression model was significant (see Table 2).

Table 2. Hierarchical multiple regression analysis for Study 1 (predicting endorsement of state-sanctioned punishment from strength of belief in God, dummy forgiveness and their interaction).

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|  |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.001 |  |  | 1.44 | 0.231 | 0.006 |  |  | 1.38 | 0.25 |
| **Predictor** | **B** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | **B** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 2.97 | 0.08 |  | 37.05 | 0.001 | 2.86 | 0.11 |  | 25.63 | 0.001 |
| Strength of belief in God (mean-centered) | 0.002 | 0.002 | 0.06 | 1.20 | 0.231 | 0.004 | 0.003 | 0.09 | 1.36 | 0.176 |
| Dummy forgiving prime |  |  |  |  |  | 0.23 | 0.16 | 0.07 | 1.46 | 0.146 |
| Dummy x strength of belief in God (mean-centered) |  |  |  |  |  | -0.003 | 0.004 | -0.05 | -0.76 | 0.449 |
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**3. Study 2**

The type of crime outlined in the punishment scenario in Study 1 was a corporate crime, detailing a perpetrator who steals from a large company to fund his gambling habit. One potential limitation of this vignette is that the indirect, ‘white-collar’ nature of the crime means it is not the type of wrongdoing that our cognitive system evolved to have intuitive responses to (Buss 1999; Cosmides & Tooby 1987) (notwithstanding that Laurin *et al.* found significant effects with the original vignette). In Study 2, we addressed this issue by altering the type of wrongdoing in the vignette so that it involved direct harm to specified vulnerable victims.

**3.1. Methods**

**3.1.1. Participants.** Our participants were 396 MTurk workers who participated in exchange for $1 (145 females, 251 males; *Mage =* 35.95 years, *SD* = 11.49). An a priori power analysis indicated a sample size of 398, (parameters set at d = 0.25 α =. 05, power = 0.8, one-tailed). An additional 15% of the recommended N was added (59) to account for potential attrition on MTurk, thus 457 were recruited in total. Participants who failed the comprehension check (43) or did not complete the study (18) were removed from subsequent analyses. The study hypotheses, design, data collection, and analyses plan were pre-registered with AsPredicted (ref no: 3510; see https://aspredicted.org/wa6q6.pdf).

**3.1.2. Measures.**

*Religiosity measure*

This was a single item asking participants to rate how religious they were on a scale of 1-5 (1 = *Not at all religious* to 5 = *Very religious*) (taken from Laurin *et al*. study 1, 2012).

*Endorsement of state-sanctioned punishment*

In this version, participants were presented with the story of a trusted, local handyman (John) who steals from his elderly clients once inside their homes (Appendix E). Participants were again asked to rate how many of their tax dollars they would like to see put towards the state a) catching and b) punishing John on a scale of 1-7. These scores were then averaged to yield a punishment index for each participant, ranging from 1-7.

**3.1.3. Design and procedure.** Participants completed a general religiosity measure (taken from Laurin *et al.* 2012) and a measure of political affiliation (to reduce demand characteristics by making religion less salient). Participantswere then randomly assigned to one of two conditions; a *forgiving God prime (N* = 192) and a *punishing God prime* (*N* = 204) condition where they read the same respective vignettes as in Study 1. Participants completed a comprehension check, then completed a victim-directed version of the punishment task from Study 1. Finally, participants completed a funnel debrief that included a suspicion probe to assess whether they had, in our judgement, guessed the true purpose of the experiment.

**3.2. Results and Discussion**

We conducted a confirmatory analysis to check for differences in punishment indices between the two priming conditions. Due to issues of non-normality, we conducted a non-parametric Mann-Whitney *U* test to check for differences in support for state-sanctioned punishment between conditions. Distributions of support for state-sanctioned punishment for the *forgiving God* prime and the *punishing God* prime conditions were similar, as assessed by visual inspection, therefore Medians are reported (Means and standard deviations are reported in the footnote).[[7]](#footnote-7) There was no significant difference in levels of endorsement of state-sanctioned punishment between *forgiving God prime* (*Mdn* = 4) and *punishing God prime* (*Mdn* = 4) conditions, *U =* 18760.50, *z* = -.726, *p* = .468.

We ran an exploratory hierarchical multiple regression to check for effects of self-reported religiosity on punishment indices. In the first block we entered the religiosity variable (mean-centred), adding a dummy variable for participation in the *forgiving God prime* condition and the interaction of this variable with self-reported religiosity (mean-centred) in the second block. The full model was not statistically significant, though *self-reported religiosity* emerged as a significant predictor of punishment indices (*p* = .036) (See Table 3).

We did find that endorsement levels of state-sanctioned punishment were higher in this study *(forgiving God prime* *M* = 4.09; *punishing God prime* *M* = 3.94) than in Study 1 (*forgiving God prime M* = 3.09; *punishing God prime M* = 2.85). This lends preliminary support to our suggestion that punitive responses may be more pronounced for victim-directed transgressions rather than for corporate crimes.

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|  |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.014 |  |  | 6.69 | 0.010 | 0.003 |  |  | 2.48 | 0.060 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 8.03 | 0.18 |  | 45.95 | 0.001 | 7.89 | 0.24 |  | 32.37 | 0.001 |
| religiosity (mean-centered) | 0.3 | 0.11 | 0.13 | 2.59 | 0.010 | 0.34 | 0.16 | 0.15 | 2.1 | 0.036 |
| Dummy forgiving prime |  |  |  |  |  | 0.28 | 0.35 | 0.04 | 0.809 | 0.419 |
| Dummy x religiosity (mean-centered) |  |  |  |  |  | -0.08 | 0.23 | -0.03 | -0.37 | 0.715 |
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Table 3. Hierarchical multiple regression analysis for Study 2 (predicting state-sanctioned punishment).

**4. Studies 3a and 3b**

Laurin *et al.* (2012) found that, when activated, beliefs in a powerful interventionist God reduced people’s endorsement of state-sanctioned punishment. In Studies 1 and 2, we attempted to build on this finding by priming participants with the notion of a God with specific characteristics (either forgiving or punitive) and measuring endorsement of state-sanctioned punishment. Our experimental manipulation had no effect. One possibility is that whereas we primed the notion of a certain type of God, Laurin *et al.* measured existing beliefs in God and manipulated when this measure was taken (either before the punishment measure, so as to render the beliefs salient when punishment was measured; or after the measure). There is both a methodological and conceptual difference between priming the notion of *x* and activating an existing belief in *x*. So as to achieve a closer replication of Laurin *et al.’s* methodology, in Studies 3a and 3b, we measured existing beliefs in a forgiving (*vs.* punitive) God and manipulated whether this measure was taken before or after the punishment measure (the victim-directed transgression in Study 3a; the corporate crime in Study 3b). We predicted that participants whose forgiving God beliefs were made salient (measured before administration of the punishment measure) would show higher levels of endorsement of state-sanctioned punishment compared to those whose beliefs were not made salient.

**4.1. Method (Study 3a)**

**4.1.1. Participants.** Our participants were197 MTurk (82 females, 114 males, 1 who identified as Other; *Mage=* 34.21 years, *SD*= 11.46). In the salient condition (*N* = 95) the gender breakdown was as follows: Female, 34; Male, 60; Other, 1. In the non-salient condition (*N* = 102) the gender breakdown was: Female, 54; Male, 48. The hypotheses, design, data collection, and analysis plan for both studies were pre-registered with AsPredicted (ref no: 3583; see https://aspredicted.org/a8pi5.pdf).

**4.1.2. Measures**

*Forgiving God Scale*

This scale was adapted from the 12-item ‘View of God Inventory’ (Ironson *et al.* 2011) (Appendix F). Our final scale was comprised of eight items.[[8]](#footnote-8) Four of these items assessed forgiving God beliefs (e.g., *‘ I believe God is all forgiving’*), and the other four assessed punishing God beliefs (e.g., *‘ I think God will punish people for what they have done’*). Participants were asked to rate, on a 5-point Likert scale, how much they agreed with each statement (*1 = Strongly disagree,* to *5 = Strongly agree*). The forgiving and punishing items were averaged to create, respectively, a *Forgiving God average* and *Punishing God average*. The *Punishing God average* was then subtracted from the *Forgiving God average* to yield an overall *Forgiving God Score*, with larger numbers indicating stronger forgiving God beliefs

**4.1.3. Design and procedure.** Participants were randomly assigned to one of two conditions: *salient* or *non-salient*. In the *salient* condition participants were asked to complete the forgiving God scale before completing the victim-directed transgression scenario (the same as in Study 2). In the *non-salient* condition, participants completed the forgiving God scale *after* the DV.

**4.2. Results and Discussion**

As a confirmatory analysis, a hierarchical multiple regression was conducted predicting participants’ endorsement of state-sanctioned punishment. In the first block, we entered *forgiving God score (mean-centered)*. In the second block, we simultaneously entered a dummy variable for experimental condition (coded as *0 = not-salient, 1 = salient*) and the interaction between the dummy and *forgiving God score (mean-centered)*.

Model 1, with *forgiving God score* as the only predictor, was not statistically significant. The full model was not significant either, however *forgiving God score (mean-centered)* emerged as a significant predictor of punishment indices (*p* = .049) (see Table 4).

Table 4. Hierarchical multiple regression analysis for Study 3a (predicting state-sanctioned punishment from forgiving God score, dummy salience and their interaction).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.01 |  |  | 2.9 | 0.09 | 0.006 |  |  | 2.1 | 0.11 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 4.09 | 0.12 |  | 35.24 | 0.001 | 4.22 | 0.16 |  | 26.10 | 0.001 |
| Forgiving God score (mean-centered) | -0.14 | 0.08 | -0.12 | -1.7 | 0.090 | -0.23 | 0.12 | -0.20 | -2.00 | 0.049 |
| Dummy salience |  |  |  |  |  | -0.3 | 0.23 | -0.10 | -1.3 | 0.194 |
| Dummy x forgiving God score (mean-centered) |  |  |  |  |  | 0.21 | 0.17 | 0.13 | 1.26 | 0.210 |
|  |  |  |  |  |  |  |  |  |  |  |

We conducted two further exploratory analyses to check for any individual effects of a) *punishing god average* and b) *forgiving god average* on punishment indices. These were calculated by averaging responses to a) punishing God items and b) forgiving God items. First, we conducted a hierarchical multiple regression predicting punishment indices from *punishing god average (mean-centered),* the dummy salience variable and their interaction. Both models were highly significant, and *punishing god average* emerged as a significant predictor of punishment indices, (*p =* .001 in both models; see Table 5).

Second, we conducted a hierarchical multiple regression predicting punishment indices from *forgiving god average (mean-centered)*, the dummy salience variable and their interaction. Model 1 with *forgiving God average* as the only predictor was not significant. The full model was not significant, however *forgiving god average* emerged as a significant predictor of punishment indices (*p =* .046) (see Table 5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |
| **Punishing god average** |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.073 |  |  | 16.51 | 0.001 | 0.009 |  |  | 6.11 | 0.001 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***P*** |
| Intercept | 4.10 | 0.11 |  | 36.44 | 0.001 | 4.13 | 0.16 |  | 25.77 | 0.001 |
| Punishing god average (mean-centered) | 0.40 | 0.10 | 0.28 | 4.06 | 0.001 | 0.51 | 0.15 | 0.36 | 3.52 | 0.001 |
| Dummy salience |  |  |  |  |  | -0.15 | 0.23 | -0.04 | -0.63 | 0.530 |
| Dummy x punishing god average (mean-centered) |  |  |  |  |  | -0.25 | 0.20 | -0.12 | -1.20 | 0.230 |
|  |  |  |  |  |  |  |  |  |  |  |
| **Forgiving god average** |  |  |  |  |  |  |  |  |  |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.012 |  |  | 3.33 | 0.07 | 0.015 |  |  | 2.10 | 0.102 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 4.09 | 0.12 |  | 35.28 | 0.001 | 4.24 | 0.16 |  | 26.29 | 0.001 |
| Forgiving god average (mean-centered) | 0.19 | 0.1 | 0.13 | 1.83 | 0.070 | 0.23 | 0.11 | 0.16 | 2.01 | 0.046 |
| Dummy salience |  |  |  |  |  | -0.28 | 0.24 | -0.09 | -1.18 | 0.240 |
| Dummy x forgiving god average (mean-centered) |  |  |  |  |  | -0.14 | 0.13 | -0.10 | -1.10 | 0.284 |

Table 5. Predicting state-sanctioned punishment from punishing and forgiving God average, salience and their interaction.

**4.3. Methods (Study 3b)**

**4.3.1. Participants.** Our participants were 211 MTurk workers (70 females, 140 males, 1 who identified as Other; *Mage=* 34.31 years, *SD*= 10.05). In the salient condition (*N* = 98), the gender breakdown was as follows: Female, 34; Male, 63; Other, 1. In the non-salient condition (*N* = 113), the gender breakdown was: Female, 36; Male, 77.

**4.3.2. Measures**

*Forgiving God Scale*

This was the same scale used in Study 3a. As before, the forgiving and punishing items were averaged to create, respectively, a *Forgiving God average* and *Punishing God average*. The *Punishing God average* was then subtracted from the *Forgiving God average* to yield an overall *Forgiving God Score*, with larger numbers indicating stronger forgiving God beliefs.

**4.3.3. Design and procedure.** As in Study 3a, participants were randomly assigned to one of two conditions: *salient* or *non-salient*. In the *salient* condition, participants were asked to complete the forgiving God scale before completing the corporate crime punishment scenario (the same as in Study 1). In the *non-salient* condition, participants completed the forgiving God scale *after* the DV.

**4.4. Results and Discussion.**

A hierarchical multiple regression was conducted predicting participants’ endorsement of state-sanctioned punishment. In the first block, we entered the *forgiving God score (mean-centred)*. In the second block, we simultaneously entered a dummy variable for experimental condition (*0 = not-salient, 1 = salient*), and the interaction between the dummy and the *forgiving God score (mean-centred)*. Neither model was significant (see Table 6).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **STUDY 3b)** |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | -0.001 |  |  | 0.7 | 0.40 | 0.01 |  |  | 0.93 | 0.43 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 2.90 | 0.54 |  | 5.42 | 0.001 | 3.42 | 0.73 |  | 4.72 | 0.001 |
| Forgiving God score (mean-centered) | -0.07 | 0.09 | -0.06 | -0.84 | 0.403 | -0.01 | 0.12 | -0.01 | -0.06 | 0.953 |
| Dummy salience |  |  |  |  |  | -1.17 | 1.08 | -0.34 | -1.09 | 0.278 |
| Dummy x forgiving God score (mean-centered) |  |  |  |  |  | -0.15 | 0.18 | -0.28 | -0.86 | 0.393 |

Table 6. Hierarchical multiple regression analysis for Study 3b (predicting state-sanctioned punishment from forgiving God score, dummy condition and their interaction).

We conducted exploratory analyses to check for effects of both the *punishing god average* and the *forgiving god average* on punishment indices. In each case we conducted a hierarchical multiple regression predicting punishment indices from the relevant average score (punishing or forgiving), the dummy salience variable and their interaction. Neither model was significant in either case (see Table 7).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |
| **Punishing god average** |  |  |  | **Model 1.** |  |  |  |  | **Model 2.** |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | 0.011 |  |  | 3.41 | 0.066 | 0.005 |  |  | 1.48 | 0.22 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 3.34 | 0.12 |  | 28.71 | 0.001 | 3.45 | 0.16 |  | 21.60 | 0.001 |
| Punishing god average (mean-centered) | 0.20 | 0.11 | 0.13 | 1.85 | 0.066 | 0.21 | 0.15 | 0.13 | 1.35 | 0.178 |
| Dummy salience |  |  |  |  |  | -0.24 | 0.23 | -0.07 | -1.01 | 0.313 |
| Dummy x punishing god average (mean-centered) |  |  |  |  |  | -0.02 | 0.22 | -0.01 | -0.10 | 0.919 |
|  |  |  |  |  |  |  |  |  |  |  |
| **Forgiving god average** |  |  |  |  |  |  |  |  |  |  |
|  | **Adj *R2*** |  |  | ***F*** | ***p*** | ***R2* change** |  |  | ***F*** | ***p*** |
|  | -0.002 |  |  | 0.56 | 0.454 | 0.013 |  |  | 1.13 | 0.339 |
| **Predictor** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** | ***B*** | ***s.e.*** | ***Beta*** | ***t*** | ***p*** |
| Intercept | 3.34 | 0.12 |  | 28.52 | 0.001 | 3.44 | 0.16 |  | 21.4 | 0.001 |
| Forgiving god average (mean- centered) | 0.08 | 0.11 | 0.05 | 0.75 | 0.454 | 0.24 | 0.17 | 0.15 | 1.41 | 0.160 |
| Dummy salience |  |  |  |  |  | -0.25 | 0.24 | -0.07 | -1.05 | 0.297 |
| Dummy x forgiving god average mean-centered) |  |  |  |  |  | -0.29 | 0.22 | -0.14 | -1.03 | 0.195 |

Table 7. Predicting state-sanctioned punishment from punishing and forgiving God average, dummy salience and their interaction (Study 3b).

Of note was the unexpected significant *positive* correlation between punishing God average and forgiving God average: Study 3a *rs*(195) = .178, *p* = .012; Study 3b *rs*(209) = .136, *p* = .049 in both Study 3a and 3b. It is of course possible that people who believe God is punitive also believe he is forgiving. The two are not mutually exclusive; people hold nuanced conceptions of the divine, therefore the nature of God can be multifaceted.

Arguably however, our measure consisted of two separate scales; one that measured forgiving God beliefs and the other that measured punitive God beliefs, each consisting of four items. It is possible therefore that, due to framing effects, both sets of beliefs were made salient to participants. In light of this, we conducted an exploratory correlational investigation between forgiving God beliefs, punitive God beliefs and support for state-sanctioned punishment (see Table 8 below.)

Table 8. Correlation matrix and descriptive statistics for Study 3b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | 1 | 2 | 3 | Mean | *SD* |
| 1. forgiving God average | 1.00 |  |  | 3.40 | 1.09 |
| 2. punishing God average | 0.217\*\* | 1.00 |  | 2.95 | 1.06 |
| 3. punishment index | 0.052 | 0.127 | 1.00 | 3.30 | 1.70 |

\*\* *p* < .001 level (two-tailed)

**5. General Discussion**

We predicted that participants exposed to a forgiving (*vs*. punitive) God prime (Studies 1 & 2), or whose forgiving God beliefs were made salient (*vs.* were not made salient; Studies 3a & 3b) would make stronger endorsements of state-sanctioned punishment. However, we found no significant difference between conditions in any of these four well-powered studies. First, we consider two reasons why forgiving God concepts and beliefs might not lead to increased support for punishment. Second, we discuss conceptual issues related to the distinction between divine and state-sanctioned punishment. Third, we suggest that the emotional framing of the punitive decision may be an important factor in forgiving God concepts reducing support for state-sanctioned punishment in the way we hypothesised at the outset. Fourth, we discuss the role of forgiving God beliefs and concepts in relation to prosociality and human cooperation.

**5.1. God as a Behavioral Model**

First, if God provides a behavioral model (Lipsey *et al.* 2016; Preston, *et al.* 2010; Unnever *et al.* 2006), then forgiving God concepts and beliefs would decrease support for state-sanctioned punishment because God models forgiveness and people follow his divine example. There is evidence to support this, for example, people who stated they had a personal relationship with a loving God showed decreased support for capital punishment (Unnever *et al*. 2006). However, if God provides a behavioral model, then we would expect punitive God concepts and beliefs to (contra Laurin *et al*.) *increase* support for punishment. In other words, we would still expect a difference in endorsement of state-sanctioned punishment between conditions, just not in the direction we predicted based on Laurin *et al.* (2012).

**5.2. Second Order Free-rider Problem and the Supernatural Punishment Hypothesis**

Second, if the Supernatural Punishment Hypothesis (SPH) is construed as a solution not just to first-order free riding but also *second-order* free riding (Johnson 2005, 2016), then punitive God beliefs and concepts should (contra Laurin *et al.* 2012) *increase*support for punishment because people fear divine sanction themselves for not supporting punishment. But again, under this scenario, we would still expect a difference in levels of endorsement of state-sanctioned punishment between conditions, just not in the predicted direction.

Alternatively, the *Do not play God* principle (Gangemi & Mancini 2013; Sunstein 2005) stipulates a tendency to refrain from engaging in morally relevant actions that disrupt the “natural order” and therefore makes an alternative prediction to the SPH with regards to second-order free riding. If God is ultimately responsible for the order of the universe, including the distribution of punishment, then people may be unwilling to engage in punishment themselves, as they may not want to interfere in God’s work (Barak-Corren & Bazerman 2017). Moreover, exposing people to an “authority” presence leads to a reduction in decisional autonomy and therefore a preference for inaction as it interferes less with a given order (Gangemi & Mancini 2013). Punishing Gods, as both exemplars of divine order and authority may, contrary to the SPH’s prediction, lead to an inversion of the second-order free riding problem whereby individuals are punished for punishing.

**5.3. A Mutualistic Moral Framework**

We dismiss both of these alternate explanations, because not only are they contradicted by the findings of Laurin *et al.* (2012), but they also predict a difference between conditions, which was not supported by our findings.

Our null findings may be more understandable if interpreted within a mutualistic moral framework (Baumard, André & Sperber 2013) where morality is about demonstrating and enforcing fairness (Baumard 2011; Baumard & Sheskin 2015). A transgression creates an imbalance between the perpetrator and victim. Accordingly, people will act to restore the balance of interests either by a) harming the criminal or b) compensating the victim (Baumard & Sheskin 2015). In both punishment scenarios in Studies 1 and 2, a supernatural mediator is available to redress the imbalance caused by the wrongdoing; either via punishment *or* forgiveness i.e., God can punish John, or he can forgive him. What matters, is that the inequality caused by the transgression has been addressed, thus satiating the intuitive desire for redress. In a scenario where people’s intuitions about fairness are not satisfied or left ambiguous, support for state-sanctioned punishment may increase. Uncertain to God’s response to the wrongdoing, individuals may take it upon themselves to restore equilibrium and thus demonstrate more motivation to invest in state-sanctioned mechanisms for punishment. Future studies may seek to investigate whether priming the *unknowable or mysterious* nature of God (e.g., *‘God moves in mysterious ways, my son’)* increases support for state-sanctioned punishment of transgressors.

**5.4. The Divine Origins of State-sanctioned Punishment**

One of our goals in conducting this research was to follow the methodology and rationale of Laurin *et al.* (2012) as closely as possible. However, while Laurin *et al.* (2012) reasoned that belief in punitive Gods might demotivate earthly punishment, one cannot discount the historical evidence that suggests state-sanctioned punishment was originally construed as *the same* as God’s judgement (see Exodus 24:3, Deuteronomy 16-18). In the Abrahamic religions, for example, it is made explicit that God himself is the supreme lawgiver, and earthly bodies of law are not only sanctioned by him but also administered in his name (e.g., Mosaic law and Beth Din courts in Judaism, Sharia Law in Islam). Even today in many courtrooms across the globe, oaths are sworn on sacred texts and punishment is often administered *in the name of God*. This apparent conflation of earthly and divine punishment belies the potential of *outsourcing* punishment to God.

**5.5. Complex Systems of Law as a Product of Large-scale Societies**

One might also contest the sequencing of events implied by Laurin *et al.’s* argument. Their reasoning implies that large-scale societies with moralizing High Gods would have less incentive to invest in and develop mechanisms of state-sanctioned punishment. Therefore we might reasonably expect that such societies would have *fewer* sophisticated or complex systems of state-sanctioned punishment than smaller, non-‘high god’ societies. But this does not seem to be the case; complex systems of law and punishment seem to be a *product* of such societies.

**5.6. Impersonal versus Personal Punitive Decision-making.**

There is some evidence in mock juror studies that God concepts do play some role in punitive decision-making in the way we hypothesised. For example, in Miller and Bornstein’s (2006) mock jury study of death penalty sentencing, participants were the most punitive towards a defendant whose attorney quoted Biblical scripture prescribing mercy (i.e., a Forgiving God prime). Although other interpretations of these results are possible (jurors may have found this a cynical legal ploy, for instance), this finding raises the possibility that when the stakes are high, or *when an individual plays some role in the punitive outcome*, then forgiving God concepts *do* increase support for earthly punishment in the way we hypothesised.There is a considerable difference between having to take a personal decision to determine the severity of John’s punishment and deciding how many of your tax dollars you would like put towards an institutional 3rd party (i.e., the state) punishing John. Indeed, previous research has revealed that similar distinctions in moral judgement are underpinned by distinct neural activity (Greene, Sommerville, Nystrom, Darley & Cohen 2001).

**5.7. Forgiving Gods and Cooperation**

Given that a) we found no significant difference in endorsement of state-sanctioned punishment between forgiving and punishing conditions, and b) the body of research that has highlighted the profound effects of forgiveness on prosociality (Karremans*,* Van Lange & Holland 2005; Karremans & Van Lange 2004; McCullough, Fincham & Tsang 2003; Pargament, McCullough & Thoresen 2000), one possibility is that *both* forgiving and punishing God concepts promote co-operation. There was some support for this notion in our results as *both* punishing and forgiving God beliefs (when salient) were significant predictors of support for state-sanctioned punishment in response to a victim-directed transgression (Study 3a). Therefore we are sympathetic to researchers who have claimed that extant theories of the evolution of human co-operation have focussed on supernatural punishment to the detriment of the role of divine forgiveness (Johnson *et al.* 2017; Johnson & Cohen 2016). A multitude of God representations are available in the historical and cross-cultural record, and as Johnson and Cohen (2016) argue, an authoritarian ‘Big’ God is only part of the story. Although punishing Gods may well have been a factor in driving large-scale cooperation, they do not, single-handedly, sustain it (Johnson *et al.* 2017; Johnson & Cohen 2016).

The threat of supernatural punishment may curtail unethical behavior but does not prevent it altogether. Given that people will invariably transgress, a mechanism that reconciles those who have transgressed with the group becomes necessary (Wilson 2002). If not, the cost of punishment and subsequent exclusion rate would be so high that the stability of the group would be jeopardised. Beliefs in forgiving Gods could be one such mechanism. We therefore stress the importance of fully exploring the cohesive role of forgiving God beliefs, for example, their re-integrative function (McCullough *et al.* 2005). For less heinous wrongdoings, it is more advantageous to rehabilitate and reconcile such individuals back into the group. This reconciliation often includes a renewed sense of commitment to the group and shared norms (see McCullough *et al.* 2005).

**6. Limitations**

We acknowledge several limitations in this series of studies. First, none of the studies included a manipulation check. Therefore, it is not possible to know whether the null results we found in Studies 1 and 2, for example, were due to the experimental manipulation having no effect or whether the prime itself failed. This is closely related to the second limitation: the passages we used for the explicit primes in Studies 1 and 2 were subtle and perhaps too weak to have the intended effect. Moreover, both passages contained references to death that could have inadvertently primed terror management concerns (i.e., mortality salience has been shown to have an effect of increasing prosociality, especially towards the ingroup) (Jonas, Schimel, Greenberg & Pyszczynski 2002; Zaleskiewicz, Gasiorowska & Kesebir 2015). On reflection, the use of previously used priming methods that have been shown to activate the relevant aspects of God (e.g., Harrel 2012; Yilmaz and Bahçekapili 2016) may have been preferable. Future research should take this into account when using priming methodologies to explore the effects of different God concepts on prosociality.

A third potential limitation for (all) studies was the lack of a neutral condition. Our initial aim was simply to establish whether there was a difference in support for state–sanctioned punishment between the forgiving God and punishing God primes. Our results revealed no significant difference between the two conditions in both Study 1 and 2. Had we found such a difference it would then have been appropriate to run a follow-up with a neutral prime to clarify this. The fact that we did not find a difference between the two prime conditions, in our view, makes the absence of a neutral condition less problematic than it otherwise would have been.

One final point of note was the gender disparity seen in Study 3b (and in the Salient condition in Study 3a). At an approximate ratio of 2:1 (males to females), our sample is atypical of the MTurk population. The normal gender breakdown on MTurk is roughly equal (51% female; 49% male), though significant deviations from the average have been noted across countries (see Difallah, Filatova & Ipeirotis 2018). We acknowledge this as a potential limitation given the evidence suggesting reliable gender differences in religiosity (e.g., De Bono & Kuschpel 2014; Roth & Kroll 2007; Stark 2002; Sullins 2006; Thompson 1991; Walter & Davie 1998).

**7. Conclusion**

Across four well-powered studies, we found no significant differences between punitive or forgiving God representations on the endorsement of state-sanctioned punishment. Our results suggest that in response to a victim-directed transgression, both punishing *and* forgiving God beliefs (when salient) are significant predictors of endorsement of state-sanctioned punishment. Therefore future research should investigate in more detail the role of divine forgiveness in human prosociality and cooperation. Extant theories (e.g., the Supernatural Punishment Hypothesis) might have systematically over-emphasised the role of divine punishment to the detriment of divine forgiveness.

**References**

Ahmed, Ali. M and Osvaldo Salas. (2011). “Implicit influences of Christian religious representations on dictator and prisoner’s dilemma game decisions.” *Journal of Socio-Economics* 40: 242-246.

Atkinson, Quentin. D and Pierre Bourrat. 2011. “Beliefs about God, the afterlife and morality support the role of supernatural policing in human cooperation.” *Evolution and Human Behavior,* 32 (1): 41-49.

Bader, Christopher D., Scott A. Desmond, F. Carson Mencken and Byron R. Johnson. 2010. “Divine Justice: The Relationship Between Images of God and Attitudes Toward Criminal Punishment.” *Criminal Justice Review* 35: 90–106. https://doi.org/10.1177/0734016809360329

Barak-Corren, Netta and Max. H. Bazerman. 2017. “Is saving lives your task or God’s? Religiosity, belief in God and moral judgment.” *Judgment and Decision Making* 12 (3): 280-296.

Barclay, Pat. 2006. “Reputational benefits for altruistic punishment.” *Evolution and Human Behavior* 27 (5): 325–344. https://doi.org/10.1016/j.evolhumbehav.2006.01.003

Baumard, Nicolas. 2011. “Punishment is not a group adaptation: Humans punish to restore fairness rather than to support group cooperation.” *Mind and Society* 10(1): 1-26. https://doi.org/10.1007/s11299-010-0080-3

Baumard, Nicolas., Jean-Baptiste André and Dan Sperber. 2013. “[A Mutualistic Approach to Morality](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxuaWNvbGFzYmF1bWFyZHxneDo3OGFmMmYwOTAyOTc2NDhk" \t "_blank).” *Behavioral and Brain Sciences* (target article), 36 (1): 59-122. https://doi.org/10.1017/S0140525X11002202

Baumard, Nicolas and Mark Sheskin. 2015.“[Partner Choice and the Evolution of a Contractualist Morality](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxuaWNvbGFzYmF1bWFyZHxneDozMGI5YmE2MjFiMzBhZmUw" \t "_blank).” In *The Moral Brain*, edited by Jean Decety and Thalia Wheatley, 35-48. M.I.T. Press.

Bering, Jesse M. 2011. *The Belief Instinct: The Psychology of souls, destiny, and the meaning of life.* WW Norton & Company.

Bering, Jesse M. 2006. “The folk psychology of souls.” *Behavioral and Brain Sciences* 29:453-98. https://doi.org/[10.1017/S0140525X06009101](https://doi.org/10.1017/S0140525X06009101)

Boyd, Robert., Herbert Gintis, Samuel Bowles and Peter J. Richerson. 2003. “The evolution of altruistic punishment.” *Proceedings of the National Academy of Sciences. USA*, 100:3531–3535. https://doi.org/10.1073/pnas.0630443100

Bushman, Brad J., Robert D. Ridge, Enny Das, Colin W. Key and Gregory L. Busath. 2007. “When God sanctions killing: Effect of scriptural violence on aggression.” *Psychological Science* 18: 204 –207. https://doi.org/10.1111/j.1467-9280.2007.01873.x

Buss, David M. 1999. *Evolutionary psychology: the new science of the mind*. London: Allyn and Bacon.

Carlsmith, Kevin M., John M. Darley and Paul H. Robinson. 2002. “Why do we punish? Deterrence and just desserts as motives for punishment*.” Journal of Personality and Social Psychology* 83:284–299.

Cosmides, Leda and John Tooby. 1987. “From evolution to behavior: evolutionary psychology as the missing link.” In *The latest on the best: essays on evolution and optimality*, edited by John Dupre, 277 306. Cambridge, MA: MIT Press.

De Bono, Kenneth and Anja Kuschpel. 2014. “Gender Differences in Religiosity: the Role of Self-monitoring.” *North American Journal of Psychology,* 16(2): 415-425.

de Quervain, Dominique J. F., Urs Fischbacher, Valerie Treye, Melanie Schellhammer, Ulrich Schnyder, Alfred Buck and Ernst Fehr. 2004. “The neural basis of altruistic punishment.” *Science* 305*:* 1254–1259 http://doi.org/[10.1126/science.1100735](https://doi.org/10.1126/science.1100735)

Difallah, Djellel,. Elena Filatova and Panos Ipeirotis. 2018. Demographics and Dynamics of Mechanical Turk Workers. In *Proceedings of WSDM 2018: The Eleventh ACM International Conference on Web Search and Data Mining, Marina Del Rey*, CA, USA, February 5–9, 2018 (WSDM 2018).

Dreber, Anna., David G. Rand, Drew Fudenberg and Martin A. Nowak. 2008. “Winners don’t punish.” *Nature* 452 (7185): 348–351. https://doi.org/[10.1038/nature06723](https://dx.doi.org/10.1038%2Fnature06723" \t "pmc_ext)

Evans, T. David and Mike Adams. 2003. “Salvation or damnation? Religion and correctional ideology”. *American Journal of Criminal Justice* 28: 15-35.

Fehr, Ernst and Simon Gächter. 2003. “The Puzzle of Human Cooperation—A Reply.” *Nature* 421: 912. https://doi.org/10.1038/421912a

Fehr, Ernst and Simon Gächter. 2002. “Altruistic punishment in humans.” *Nature* 415 (6868): 137-140. https://doi.org/[10.1038/415137a](https://doi.org/10.1038/415137a)

Fehr, Ernst and Simon Gächter. 2000. “Cooperation and Punishment in Public Goods Experiments.” *American Economic Review* 90 (4): 980-994. https://doi.org/10.1257/aer.90.4.980

Gangemi, Amelia and Francesca Mancini. 2013. “Moral choices: the influence of the do not play god principle.” In *Proceedings of the 35th Annual Meeting of the Cognitive Science Society*, *Cooperative Minds: Social Interaction and Group Dynamics*, edited by M. Knauff, M. Pauen, N. Sebanz, and I. Wachsmuth, 2973 2977. Austin, TX: Cognitive Science Society.

Gervais, Will M. 2014. “Everything Is Permitted? People Intuitively Judge Immorality as Representative of Atheists.” PLoS ONE 9 (4): e92302. https://doi.org/10.1371/journal.pone.0092302

Gervais, Will. M and Ara Norenzayan. 2012a. “Like a camera in the sky? Thinking about God increases public self-awareness and socially desirable responding.” *Journal of Experimental Social Psychology* 48: 298–302. https://doi.org/10.1016/j.jesp.2011.09.006

Gervais, Will. M., and Ara Norenzayan. 2012b. “Analytic thinking promotes religious disbelief”. *Science* 336 (6080): 493–6.

https://doi.org/10.1016/j.jesp.2011.09.006

Ginges, Jeremy., Ian Hansen and Ara Norenzayan. 2009. “Religion and support for suicide attacks.” *Psychological Science* 20: 224-230.

Grasmick, Harold G., Elizabeth Davenport, Mitchell B. Chamlin and Robert J. Bursik. 1992. “Protestant fundamentalism and the retributive doctrine of punishment.” *Criminology* 30 (1): 21-46.

Grasmick, Harold G., Karyl Kinsey and John K. Cochran. 1991. “Denomination, religiosity and compliance with the law: A study of adults.” *Journal for the Scientific Study of Religion* 30: 99-107.

Greene, Joshua D., R. Brian Sommerville, Leigh E. Nystrom, John M. Darley and Jonathon D. Cohen. 2001. “[An fMRI Investigation of Emotional Engagement in Moral Judgment](https://static.squarespace.com/static/54763f79e4b0c4e55ffb000c/t/5477ccc3e4b01fb132f9bcc3/1417137347517/an-fmri-investigation-of-emotional-engagement-in-moral-judgment.pdf" \t "_blank)**”**. Science, 293: 2105-2108.

Harrell, Ashley. 2012. “Do religious cognitions promote prosociality?” *Rationality and Society* 24 (4): 463–482. https://doi.org/10.1177/1043463112463930

Henrich, Joseph., Steve J. Heine and Ara Norenzayan. 2010. “Beyond WEIRD: towards a broad-based behavioral science.” *Behavioral and Brain Sciences* 33: 111–135. https://doi.org/10.1017/S0140525X10000725

Herrmann, Benedikt., Christian Thöni and Simon Gächter. 2008. “Antisocial punishment across societies.” *Science* 319*:* 1362–1367. https://doi.org/[10.1126/science.1153808](https://doi.org/10.1126/science.1153808)

Ironson, Gail., Rick Stuetzle, R, Dale Ironson, Elizabeth Balbin, Heidemarie Kremer, Annie George, Neil Schneiderman and Mary Ann Fletcher. 2011. “View of God as benevolent and forgiving or punishing and judgmental predicts HIV disease progression.” *Journal of Behavioral Medicine* 34 (6): 414-425. https://doi.org/10.1007/s10865-011-9314-z

Johnson, Dominic D.P. 2016. *God is watching you* (1st ed.). Oxford: Oxford University Press.

Johnson, Dominic D.P. 2011. “Why God is the best punisher*.*” *Religion, Brain and Behavior* 1: 77–84. https://doi.org/10.1080/2153599X.2011.558714

Johnson, Dominic D.P. 2009. “The error of God: Error management theory, Religion and the evolution of cooperation.” In *Games, groups and the global good*, edited by Simon A. Levin, 169-180. Springer-Verlag.

Johnson, Dominic D. P. 2005. “God’s punishment and Public Goods: A test of the supernatural punishment hypothesis in 186 world countries.” *Human Nature* 16 (4): 410–446. https://doi.org/[10.1007/s12110-005-1017-0](https://doi.org/10.1007/s12110-005-1017-0)

Johnson, Dominic D. P and Jesse M. Bering. 2006. “Hand of God, Mind of Man: Punishment and Cognition in the Evolution of Cooperation.” *Evolutionary Psychology* 4 (1): 219-233. https://doi.org/10.1177/147470490600400119

Johnson, Dominic D. P. and 0liver Krüger. 2004. “The God of wrath: Supernatural punishment and the evolution of cooperation.” *Political Theology* 5 (2): 159-176. https://doi.org/10.1558/poth.2004.5.2.159

Johnson, Kathryn A., Richie Liu, Elizabeth A. Minton, Darrell E. Bartholomew, Mark Peterson, Adam B. Cohen and Jeremy, Kees. 2017. “Citizens’ representations of God and support for sustainability policies.” *Journal of Public Policy and Marketing* 36 (2): 362- 378. https://doi.org/10.1509/jppm.16.108

Johnson, Kathryn A. and Adam B. Cohen. 2016. “Authoritarian and benevolent god representations and the two sides of prosociality.” *Behavioral And Brain Sciences* 39: 32. https://doi.org/10.1017/S0140525X15000461

Johnson, Kathryn. A., Yexin Jessica Li, Adam B. Cohen and Morris A. Okun. 2013. “Friends in high places: The influence of authoritarian and benevolent god-concepts on social attitudes and behaviors.” *Psychology of Religion and Spirituality* 5 (1): 15–22. https://doi.org/[10.1037/a0030138](http://dx.doi.org/10.1037/a0030138)

Johnson, Megan K., Wade C. Rowatt and Jordan LaBouff. 2010. “Priming Christian religious concepts increases racial prejudice.” *Social Psychological and Personality Science* 1 (2): 119-126. https://doi.org/10.1177/1948550609357246

Jonas, Eva., Jeff Schimel, Jeff Greenberg and Tom Pyszczynski. 2002. “The Scrooge Effect: Evidence that mortality salience increases prosocial attitudes and behavior.” *Personality and Social Psychology Bulletin* 28: 1342-1353.

Karremans, Johan C., Paul A. M. Van Lange and Rob W. Holland. 2005. “Forgiveness and its association with prosocial thinking, feeling and doing beyond the relationship with the offender.” *Personality and Social Psychology Bulletin* 31 (10):1315-1326. https://doi.org/10.1177/0146167205274892

Karremans, Johan C and Paul A. M. Van Lange. 2004. “Back to caring after being hurt: The role of forgiveness.” *European Journal of Social Psychology* 34: 207-227. https://doi.org/10.1002/ejsp.192

Laurin, Kristin., Azim F. Shariff, Joseph Henrich and Aaron C. Kay. 2012. “Outsourcing punishment to God: beliefs in divine control reduce earthly punishment.” *Proceedings Of The Royal Society B: Biological Sciences* 279 (1741): 3272-3281. https://doi.org/10.1098/rspb.2012.0615

Laurin, Karin., Aaron C. Kay and Gráinne M. Fitzsimons. 2012. “Divergent effects of activating thoughts of God on self-regulation.” *Journal of Personality and Social Psychology* 102: 4-21.

Lipsey, Nikolette., Gabrielle Pogge, James Shepperd and Wendi Miller. 2016 January. “*Views of God and Consequences for Behavior.”* Poster session presented at 17th Annual meeting of the Society for Personality and Social Psychology, San Diego, CA.

Mayr, Susanne., Edgar Erdfelder, Axel Buchner and Franz F. Faul. 2007. “A short tutorial of GPower.” *Tutorials In Quantitative Methods For Psychology* 3 (2): 51-59.

McCullough, Michael E., Giacomo Bono and Lyndsey M. Root. 2005. “Religion and Forgiveness.” In *Handbook of the Psychology of Religion and Spirituality*, edited by Raymond F. Paloutzian and Crystal L. Park, 394-411. New York: Guilford.

McCullough, Michael. E., Frank D. Fincham and Jo-Ann Tsang. 2003. “Forgiveness, forbearance, and time: The temporal unfolding of transgression-related interpersonal motivations.” *Journal of Personality and Social Psychology* 3: 540-557. https://doi.org/[10.1037//0022-3514.84.3.540](http://dx.doi.org/10.1037//0022-3514.84.3.540)

McKay, Ryan., and Harvey Whitehouse. 2016. “Religion promotes a love for thy neighbour: But how big is the neighbourhood.” *Behavioral and Brain Sciences,* 39: 35. https://doi.org/10.1017/S0140525X15000503

McKay, Ryan., and Harvey Whitehouse. 2015. “Religion and Morality.” *Psychological Bulletin,* 141 (2): 447-473. https://doi.org/10.1037/a0038455

Miller, Monica and Brian H. Bornstein. 2006. “The Use of Religion in Death Penalty Sentencing Trials.” *Law and Human Behavior* 30: 675-684.

Nikiforakis, Nikos. 2008. “Punishment and counter-punishment in public good games: Can we really govern ourselves?” *Journal Of Public Economics* 92 (1-2): 91-112. https://doi.org/10.1016/j.jpubeco.2007.04.008

Nikiforakis, Nikos and Dirk Engelmann. 2011. “Altruistic Punishment and the Threat of Feuds.” *Journal of Economic Behavior and Organization* 78 (3): 319-332.

Norenzayan, Ara., Azim Shariff, Will M. Gervias, Aiyana Willard, Rita A. McNamara, Edward Slingerland and Joseph Henrich. 2016. “The cultural evolution of prosocial religions.” *Behavioral and Brain Sciences* 39: 1-19.https://doi.org/10.1017/S0140525X14001356

Norenzayan, Ara and Azim F. Shariff. 2008. “The origin and evolution of religious prosociality.” *Science* 322: 58–62. https://doi.org/10.1126/science.1158757

Ostrom, Elinor., James Walker and Roy Gardner. 1992. “Covenants With and Without a Sword: Self Governance Is Possible.” *American Political Science Review* 86: 404-417.

Pargament, Kenneth I., Michael E. McCullough and Carl E. Thoresen. 2000. “The frontier of forgiveness: Seven directions for psychological study and practice.” In *Forgiveness: Theory, research and practice*, edited by Michael McCullough, Kenneth Pargament, and Carl Thoresen, 299-320. New York: Guilford.

Pichon, Isabelle., Giulio Boccato and Vassilis Saroglou. 2007. “Nonconscious influences of religion on prosociality: A priming study.” *European Journal of Social Psychology* 37(5): 1032–1045. https://doi.org/10.1002/ejsp.416

Preston, Jesse. L. and Ryan S. Ritter. 2013. “Different Effects of Religion and God on Prosociality With the Ingroup and Outgroup”. *Personality and Social Psychology Bulletin* 39 (11): 1471-1483. https://doi.org/10.1177/0146167213499937

Preston, Jesse L., Ritter Ryan S. and Hernandez J. Ivan. 2010. “Principles of religious prosociality: A review and reformulation”. *Social and Personality Psychology Compass* 4(8): 574-590.

Randolph-Seng, Brandon and Michael E. Nielsen. 2007. “Honesty: One effect of primed religious representations.” *International Journal for the Psychology of Religion* 17: 303-315.

Ritter, Ryan. S. and Jessie. L. Preston. 2013. “Representations of Religious Words: Insights for Religious Priming Research”. *Journal for the Scientific Study of Religion* 52: 494-507.

Roth, Louise Marie and Jeffrey C. Kroll. 2006. “Risky Business: Assessing Risk-Preference Explanations for Gender Differences in Religiosity”. *American Sociological Review* 72(2): 205-220.

Rye, Mark .S., Kenneth I. Pargament*,* M. Amir Ali, Guy L. Beck, Elliot N. Dorff, Charles Hallisey, Vasudha, Narayanan and James G. Williams*.* 2000. “Religious perspectives on forgiveness.” In *Forgiveness: Theory, research and Practice* edited by Michael McCullough, Kenneth Pargament and Carl Thoresen, 17-40. New York: Guilford Press.

Saroglou, Vassilis., Olivier Corneille and Patty Van Cappellen. 2009.“‘Speak, Lord, your servant is listening’: Religious priming activates submissive thoughts and behaviors.” *International Journal for the Psychology of Religion* 19: 143-154.

Schloss, Jeffrey and Michael J. Murray. 2011. “Evolutionary Accounts of Belief in Supernatural Punishment: A Critical Review.” *Religion, Brain and Behavior* 1 (1): 46-66. https://doi.org/10.1080/2153599X.2011.558707

Shariff, Azim and Ara Norenzayan. 2011. “Mean gods make good people.” *International Journal for the Psychology of Religion* 21:85–96*.* https://doi.org/10.1080/10508619.2011.556990

Shariff, Azim F. and Ara Norenzayan. 2007. “God is watching you: Priming god concepts increases prosocial behavior in an anonymous economic game.” *Psychological Science* 18: 803-809.

Shariff, Azim and Mijke Rhemtulla. 2012. “Divergent effects of beliefs in heaven and hell on national crime rates.” *PloS One* 7 (6): e39048. https://doi.org/10.1371/journal.pone.0039048

Shariff, Azim F., Aiyana K. Willard, Teresa Andersen, and Ara Norenzayan. 2016. “Religious Priming: A Meta-Analysis With a Focus on Prosociality.” Personality and Social Psychology Review 20 (1): 27–48. https://doi.org/10.1177/1088868314568811

Sherman, Allen C., Thomas V. Merluzzi, James E. Pustejovsky, Crystal L. Park, Login George, George Fitchett, Heather S. L Jim, Alexis R. Munoz, Suzanne C. Danhauer, Mallory A. Snyder and John M. Salsman. 2015. “A meta‐analytic review of religious or spiritual involvement and social health among cancer patients.” *Cancer* 121 (21): 3779-3788. https://doi.org/10.1002/cncr.29352

Sober, Elliot and David S. Wilson. 1998. *Unto Others: The Evolution and Psychology of Unselfish Behavior.* Cambridge, MA: Harvard University Press.

Stark, Rodney. 2002. “Physiology and Faith: Addressing the “Universal” Gender Difference in Religious Commitment”. *Journal for the Scientific Study of Religion,* 41(3): 495-507.

Sullins, D. Paul. 2006. “Gender and religion: Deconstructing universality, constructing complexity.” *American Journal of Sociology* 112 (3): 838-880.

Sunstein, C. 2005. “Moral heuristics.” *Behavioral and Brain Sciences* 28: 531–573.

Thalheimer, Will and Samantha Cook. 2002. “How to calculate effect sizes from published research: A simplified methodology.” *Work-Learning Research* :1-9.

Thompson, Edward, H., Jr. 1991. “Beneath the status characteristic: Gender variations in religiousness”. *Journal for the Scientific Study of Religion* 30 (4): 382-394.

Unnever, James D. and Francis. T. Cullen. 2006. “Christian fundamentalism and support for capital punishment”. *Journal of Research in Crime and Delinquency*, 43: 169-197.

Unnever, James D., Francis T. Cullen and John P. Bartkowski. 2006. “Images of God and capital punishment: Does a close relationship with a loving God matter?” *Criminology* 44 (4): 835-866. https://doi.org**/**10.1111/j.1745-9125.2006.00065.x

Walter, Tony and Grace Davie. 1998. The religiosity of women in the modern west. *British Journal of Sociology* 49 (4): 640-660.

Wilson, David S. 2002. *Darwin’s cathedral: Evolution, religion and the nature of society.* Chicago: University of Chicago Press.

Yilmaz, Onurcan and Hasan G. Bahçekapili. 2016. “Supernatural and secular monitors promote human cooperation only if they remind of punishment.” *Evolution and Human Behavior* 37 (1): 79-84. https://doi.org/10.1016/j.evolhumbehav.2015.09.005

Zaleskiewicz, Tomasz., Agata, Gasiorowska and Pelin, Kesebir. 2015. “The Scrooge effect revisited: Mortality salience increases the satisfaction derived from prosocial behavior.” *Journal of Experimental Social Psychology* 59: 67-76.

**Appendices**

*Appendix A. Self-reported religious affiliation measure*

What is your religious affiliation?

1. Christian (Catholic)
2. Christian (Protestant)
3. Christian (Other)
4. Hindu
5. Buddhist
6. Muslim
7. Jewish
8. Sikh
9. None
10. Atheist
11. Agnostic
12. Other (please describe)

*Appendix B. Forgiving God prime*

There was a rich man in the town that dressed in fine clothes and lived in luxury every day.  At his gate the poor of the village came to beg for food, desperate to feed their starving children. He would turn them away scornfully and lived his life apart from God. The time came when the rich man died. His coffin was carried through the town and the people lined the streets to see. A young boy turned to his father and asked what would become of the rich man’s soul. His father replied “Our Lord is merciful and forgiving, my son”.

*Appendix C. Punishing God prime*

There was a rich man in the town that dressed in fine clothes and lived in luxury every day.  At his gate the poor of the village came to beg for food, desperate to feed their starving children. He would turn them away scornfully and lived his life apart from God. The time came when the rich man died. His coffin was carried through the town and the people lined the streets to see. A young boy turned to his father and asked what would become of the rich man’s soul. His father replied, “God will punish the world for its evil, and the wicked for their sins, my son”.

*Appendix D. Original punishment scenario*

John was a corporate executive who worked in a section of his international corporation that dealt with currency conversion. The section was responsible for converting local currencies to U.S. dollars to be returned as profits to the company headquarters. The system worked by tracking what are called “bands” of conversions ratios on a daily basis for each conversion, and making the conversions at a rate somewhere within those bands. John needed money, and he arranged to cheat on the system to get it. He made the conversions at a slightly below-average level in the daily band. He did this to create small surpluses of money that he then kept. This occurred before the profits were entered on the corporate books. The reason he needed money was for debts he had run up with loan sharks. He had a habit of betting on football games and had started to run losses. To keep betting he borrowed from these loan sharks, while continuing to maintain his extravagant style of living.

*Appendix E. Victim-directed punishment scenario*

John is a handyman who lives and works in a medium-sized town in the U.S. He is well known in the local area and has for many years been employed by residents, especially the more elderly ones. They trust him because they know him well and as a result he is regularly employed to carry out various repairs on their homes that they can't do themselves. John needs money and steals from his elderly clients to get it. He has figured out that they are the most likely to keep large sums of cash in their homes rather than in bank accounts. Once he's employed by them he can then easily access this cash while he's working in their homes and steal it.

*Appendix F. Forgiving God scale*

All items are measured on the following scale:

*(1) Strongly disagree, (2) Somewhat disagree, (3) Neither agree nor disagree, (4) Somewhat agree, (5) Strongly agree.*

1. I see God as merciful
2. I believe people will be forgiven for what they have done
3. I see God as a harsh judge
4. I believe God is all forgiving
5. Despite their shortcomings, I believe people will be forgiven
6. Some people will go to hell when this life is over
7. I think God will punish people for what they have done
8. God will ultimately condemn those who do wrong

1. For example, Yilmaz and Bahçekapili (2016) only made a binary distinction between a punishing and a ‘non-punishing’ God. A non-punishing God prime conveys information about the *absence* of a feature as opposed to information about an alternative feature, e.g., benevolence/forgiveness. [↑](#footnote-ref-1)
2. The God *Vishnu* is only forgiving if wrongdoers repent for their transgressions. The goddess *Lakshmi*, however, is forgiving even if wrongdoers show no remorse. [↑](#footnote-ref-2)
3. In line with previous research (McKay & Whitehouse 2015, 2016), we disagree with the common construal of ‘prosocial’ behaviors as essentially ‘nice’ behaviors. Punishment is undoubtedly an essential mechanism for reinforcing cooperation and therefore benefits the group at large, yet it is by no means *nice*. To the extent that punishment benefits the group at large we categorise it as a type of prosocial behavior. [↑](#footnote-ref-3)
4. Some examples: “There is only one lawgiver and judge, he who is able to save and destroy. But who are you to judge?” (James 4:12); “But it is God who executes judgement, putting down one and lifting up another” (Psalm 75:7); “Why do you pass judgment on your brother? Or you, why do you despise your brother? For we will all stand before the judgment seat of God” (Romans 14:10). [↑](#footnote-ref-4)
5. This effect size was based on the results of Laurin *et al*. (2012, Study 3: 3276). They reported a significant condition (salient vs. not-salient) x God beliefs interaction, *β* = -0.55*, t*(49) = 2.08, *p* = 0.04. Using this information as a guideline for entering parameters into an effect size calculator in G\*Power (Mayr *et al*. 2007) we received an effect size of *Cohen’s* *f2=* 0.27. We used this effect size as a guide for all the studies reported in this article. [↑](#footnote-ref-5)
6. forgiving God prime (*M* = 3.09, *SD* = 1.68), punishing God prime (*M* = 2.85, *SD* = 1.53). [↑](#footnote-ref-6)
7. forgiving God prime (*M* = 4.09, *SD* = 1.79), punishing God prime (*M* = 3.94, *SD* = 1.71). [↑](#footnote-ref-7)
8. We removed four items we considered to be redundant *(‘I am afraid God will judge me harshly for what I have done’, ‘I believe God is all merciful’, ‘My beliefs help me believe God will forgive my shortcomings’* and *‘God will judge me harshly one day’*). We also changed several items from the first person to the third person e.g., *‘Despite my shortcomings, I feel I will be forgiven’ 🡪 Despite their shortcomings, I feel people will be forgiven.* Finally, we changed several verbs e.g., ‘feel’ to ‘believe’. [↑](#footnote-ref-8)