



Offloading punishment to karma: Thinking about karma reduces the punishment of transgressors

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ABSTRACT

Punishment and the threat thereof can help enforce social norms, but enacting punishment is often costly. To avoid these costs, individuals may prefer to offload the responsibility of punishment to others or to cultural institutions. We propose that shared beliefs about supernatural punishment contribute to minimizing the costs of interpersonal punishment by allowing people to offload punishment to supernatural entities. In a Third Party Punishment Game, we specifically test in a pre-registered experiment ($N = 1603$ Americans and Singaporeans adults, recruited through Qualtrics' online panels) whether thinking about karma (a supernatural force that punishes misdeeds) reduces punishment. Results confirm that being prompted to consider karma reduces inclinations to punish selfishness in a Third Party Punishment Game. A second pre-registered study using a subtler prime of karma replicated this effect. These findings suggest that karma beliefs may have played a role in the cultural evolution of human cooperation by reducing the costs of human norm enforcement while maintaining incentives for prosocial behaviour through the threat of supernatural punishment.

1. Introduction

Punishment decreases the likelihood that undesirable responses will recur (Boyd, Gintis, Bowles, & Richerson, 2003; dos Santos & Wedekind, 2015) and serves as a form of social feedback that signals the desirability of actions to both the transgressors and the witnesses (Ho, Cushman, Littman, & Austerweil, 2019). However, people may often be reluctant to punish or confront norm-violators due to the psychological, physical, and social costs of punishment. In part, punishment aversion may arise from a general reluctance to harm others (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001). Punishing a wrongdoer can also backfire with negative physiological and emotional consequences such as guilt (Baumeister, Stillwell, & Heatherton, 1994), anxiety, and distress (Clark, Baumeister, & Ditto, 2017). Importantly, while punishment can serve prosocial functions by deterring norm violations and upholding group-beneficial outcomes, it is often perceived by others, including potential punishers, as a behaviour that risks social disapproval. Punishers may be concerned that other people will perceive them negatively, as untrustworthy or fearsome (Atwater, Waldman, Carey, & Cartier, 2001), less likable (Vaccaro & Kawakami, 2021), and less favourable to befriend (Garcia, Schmitt, Branscombe, & Ellemers,

2009; Kaiser, Hagiwara, Malahy, & Wilkins, 2009; for a review, see Adams & Mullen, 2012). This perception could lead to the view that punishment itself may invite retribution, particularly when the punitive act is seen as aggressive or harmful, even if the punisher's intent is prosocial. Thus, although the existence of punishments may have many benefits to social cooperation (Barclay, 2006; Gürek, Irlenbusch, & Rockenbach, 2006), the perceived costs associated with the confrontation may deter individuals from enacting it themselves and lead them to offload this responsibility to external entities, such as supernatural forces.

When transgressors are deemed punishable but punishing them is too costly, people may turn to authoritative third parties, such as legal institutions or supernatural forces, to serve justice. While state-sponsored punishment can be ineffective, corrupt, and limited, supernatural agents are typically perceived as morally infallible and trustworthy in administering justice, making supernatural punishment an attractive alternative. For instance, Laurin, Shariff, Henrich, and Kay (2012) found that people who were reminded about a moralizing and controlling God punished selfish behaviours less in a wealth-allocation game and endorsed state-sponsored punishment less against criminals than those who were not reminded of God.

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Beyond God, individuals may also turn to other supernatural punishers for justice – one of which is karma. Unlike theistic beliefs that often involve a personal deity, karma is typically conceptualized as an impersonal force that operates automatically, ensuring moral equilibrium by rewarding virtuous behaviour and penalizing transgressions. This distinction sees karma as a unique moral system that emphasizes justice through cause-and-effect principles, ensures that norm followers experience good outcomes and norm violators face misfortune, either within one's current lifetime or across lifetimes (White & Norenzayan, 2019).

As an explicitly endorsed, culturally transmitted belief, the process of karma posits that people's actions lead to valence-congruent outcomes (Baumard & Chevallier, 2012; Callan, Sutton, Harvey, & Dawtry, 2014; Converse, Risen, & Carter, 2012; Hafer & Rubel, 2015). Both karma and God involve a supernatural power that oversees human morality and intervenes to restore justice, including by punishing wrongdoers (Laurin & Kay, 2017; White & Norenzayan, 2022; White, Sousa, & Prochownik, 2016). Given these features, karma might influence punitive behaviour similarly to beliefs in divine punishment. Karma's distinct cultural heritage and its portrayal as an impersonal process might, however, differentially shape believer's moral judgements and expectations of justice restoration compared to more commonly examined theistic beliefs. This study aimed to test predictions about these dynamics, addressing a gap in the literature by investigating how reminders of karma shape decisions to punish selfish behaviours.

There are two primary mechanisms through which thinking about karma might reduce people's inclination to punish wrongdoers. First, a shared belief in karma might reduce individual motivations to punish transgressions by virtue of expectations of supernatural justice that will be served without a need of their own direct intervention. This off-loading mechanism alleviates the personal and social costs associated with administering punishment, while still maintaining the threat of punishments to deter transgressors and the reassurance that the world is a just place where misdeeds are eventually punished, thus simultaneously satisfying several personal and social motives. Second, individuals might fear future karmic retribution for the actions required for meting out punishment. The belief that their own punitive actions might invite their own future misfortune could deter individuals from engaging in punishment, as they seek to avoid negative karmic consequences for themselves. These mechanisms suggest that reminders of karma could lead to reductions in interpersonal punishment by framing justice as a cosmic process overseen by impersonal and morally infallible force, rather than individual responsibility.

Alternatively, thinking about karma may prompt strong karma believers to see themselves as agents of karmic retribution and become more likely to punish others than the average person. Strong believers in karma, who view karma as real, personally-relevant, and integral to their life outcomes, may be more likely to feel that punishment is an appropriate, desirable part of that cosmic plan, and feel a moral responsibility to act as an agent of karmic justice and ensure that wrongdoers face appropriate consequences. Consistent with this logic, McKay, Efferson, Whitehouse, and Fehr (2010) found that religious individuals with strong commitments to their faith punished transgressors more harshly when primed with 'religion.' By extension, reminders of karma could prompt believers to administer harsher punishments, perceiving themselves as agents in upholding the moral order. This potential result may be prompted by several motives. One motive is that individuals who strongly believe in karma may perceive their participation in the administration of justice as a demonstration of their commitment to moral principles, thus garnering favour or avoiding disfavour from the supernatural entity that oversees karmic justice. Another explanation is that thinking about karma can activate norms about fairness and justice. For strong believers, the concept of karma is intertwined with a moral code that emphasizes the importance of retributive justice (Burley, 2013; White & Norenzayan, 2019). By punishing wrongdoers, they might perceive themselves as upholding these

moral norms, thereby contributing to a just world where actions have appropriate consequences.

Thus, while it is plausible that thinking about karma will decrease punitive actions due to the offloading of responsibility or fear of karmic retribution, it may also have the opposite effect. For strong karma believers, reminders of karma might reinforce their role as enforcers of moral order, prompting them to administer harsher punishments to ensure that justice is served. These alternative predictions underscore the complexity of how supernatural justice systems shape human behaviour, and warrant the investigation of how individual or cultural variation in karmic belief can influence decisions to punish moral transgressions.

1.1. Culture, karma, and punishment

The impact of karma on punishment is also likely to be influenced by believers' cultural contexts, due to how karmic principles are conceptualized in different cultural traditions (White, Willard, Baimel & Norenzayan, 2021). For example, while karma is deeply embedded in everyday life and popular religion across many Asian cultures, it is less prominent in the Western world (White, Norenzayan & Schaller, 2019a). Specifically, North American Christian-heritage populations may accept karmic causality within a single lifetime but are less likely to endorse its intergenerational implications (White & Norenzayan, 2019). Despite this difference, the perception of karma being a principle of moral balance, where good actions lead to good outcomes and bad actions lead to bad outcomes, is culturally widespread (Willard, Baimel, Turpin, Jong, & Whitehouse, 2020). These shared conceptions suggest that karma, in both Eastern and Western contexts, is understood as a moralized system of causality (White & Norenzayan, 2019; White, Norenzayan & Schaller, 2019a; Willard et al., 2020), and it is this basic idea that should be relevant to punishment behaviour. Cultural differences in attitudes towards punishment can also shape these perceptions. While belief in God predominates in Abrahamic traditions and Western contexts, karma is more prominent in religious and secular settings in South and East Asian cultures. Many East Asian societies, such as Singapore, emphasize collective welfare over individualistic concerns (Liu, Wang, Sun, & Wei, 2021; Nisbett, Peng, Choi, & Norenzayan, 2001), exhibit lower tolerance for deviant behaviours (Gelfand et al., 2011), and show greater willingness to punish transgressors (Feinberg, Fang, Liu, & Peng, 2018; Salvador et al., 2025). As a result, East Asians, who generally perceive punishment as more appropriate, may be less inclined to reduce punitive behaviour when considering karma. By considering these culturally distinct moral systems, this work fills a gap in the literature on the cultural variability in supernatural beliefs and morality.

Despite variations in the specific networks of beliefs, values, and rituals tied to karma across cultures (Keyes & Daniel, 1983), there are widespread similarities in the belief that karma operates as a non-agentic moralized causality, where good actions lead to positive outcomes and bad actions to negative ones (White & Norenzayan, 2022). This justice-oriented notion, that karma holds individuals accountable for their actions, influences punishment beliefs by emphasizing personal responsibility and inevitability of consequences, in contrast to placing trust in God's divine intervention. Together, these distinctions highlight the fundamental differences between karma and God as moral systems, suggesting that they could elicit contrasting moral responses, particularly in how individuals see themselves as agents of justice and punishment.

A notable distinction between karma and God, highlighted in prior research, is that while God is often conceptualized as a personal, anthropomorphic entity who selectively intervenes based on divine will, karma represents an impersonal moral force, operating automatically through cause-and-effect principles. This distinction underscores the differing orientations of these moral systems: beliefs in a morally-invested God may reduce punitive behaviour by eliciting expectations regarding divine intervention. In contrast, a belief in karma, which

emphasizes long-term moral accountability in which punishment will always follow misdeeds, remains ambiguous as to whether this punishment should come at the hands of other people or unseen cosmic forces.

1.2. The present research

The current studies extend prior research in four ways. First, we investigate whether thinking about karma decreases interpersonal punishment behaviours, in a Third Party Punishment game in which half of the participants were explicitly instructed to think about karma while making their punishment decisions. Such explicit requests to think about supernatural forces while making decisions provide a powerful, reliable, and replicable experimental method to examine the consequences of religious concepts on behaviour (Billingsley, Gomes, & McCullough, 2018; Pasek et al., 2023; White & Norenzayan, 2019). These explicit reminders are also ecologically valid, as people commonly prompt themselves and make appeals for others to consider supernatural influences in everyday life. Secondly, we test our hypotheses across samples recruited from the United States and Singapore to test for variability in effects across cultures with diverse histories of karmic beliefs and punishment norms. Singapore was specifically chosen from East Asian nations due to its ethnic and religious diversity (Liu, 2014), high proficiency in English, and tight cultural norms favouring punishment (Gelfand et al., 2011). Following our pre-registration, we assess whether cultural background and degree of selfishness moderate the effects of thinking about karma on punishment. Thirdly, we investigated whether individuals' strength of belief in karma (i.e., their belief that karmic causality is real and personally relevant) predicts their punishment behaviour and moderates any experimental effects. And lastly, we examined whether scepticism towards the plausibility of the paradigm influenced the karma-framing effect on punishment. We hypothesized that individuals from both the United States and Singapore will punish moral transgressors less when considering karma, as karmic justice offers an alternative means to have moral transgressors face inevitable consequences without the need for human intervention.

1.3. Open practices

This article's research questions, methods, data exclusion criteria, analysis plan and hypotheses were pre-registered prior to data collection at Open Science Framework (OSF): <https://osf.io/zdvs5/>. All materials, raw data, and the analysis script in R are publicly available at the link above as well.

Study 1

2. Method

2.1. Participants

Based on a power analysis using a planned sample size of 1600 (400 participants per country per karma framing condition), our study had 80 % power to detect Cohen's $d > 0.14$ in a between-condition t -test. This indicates that our study is adequately powered to detect small effects. All participants were recruited online through Qualtrics' Panels between January and March 2023. Participants received base compensation for completion and an entry to an additional lottery of a \$100 Amazon gift card (3 per country). Raffle entries were tied to decisions in the third-party punishment game.

Following pre-registered criteria, we removed and replaced 263 participants who failed at least one of the attention checks, an additional 92 participants who failed an English-language comprehension check, and an additional 10 participants who completed the experiment in less than half of the median completion time. We conducted analyses on a final sample of 1603 participants from the United States ($n = 806$; $M_{\text{age}} = 51.41$, $SD_{\text{age}} = 27.51$; 549 women, 247 men, 8 non-binary, 2 other

gender identities) and Singapore ($n = 797$; $M_{\text{age}} = 37.29$, $SD_{\text{age}} = 71.52$; 363 women, 427 men, 1 non-binary, 1 other gender identity, 5 prefer not to say). Regarding ethnicity, 84.6 % of Americans were White, followed by Black (9.6 %), mixed ethnicity (1.7 %), other ethnicities (1.2 %), East Asians (0.9 %), Latin Americans (0.9 %), South Asians (0.6 %), Aboriginals (0.4 %), and Middle Eastern participants (0.1 %). The Singaporean sample was predominantly of Chinese ethnicity (68.7 %), followed by Malay (24.3 %), Indian (4.6 %), and mixed or other ethnicity (2.4 %). Regarding religiosity, the majority of the American sample identified as Christian (60.3 %), followed by non-religious (15.0 %), others (8.2 %), agnostics (7.3 %), Atheists (4.1 %), and Jews (3.3 %). The Singaporean sample was more religiously diverse and was composed of Buddhists (31.0 %), Christians (27.0 %), non-religious (13.2 %), Agnostics (9.5 %), Muslims (9.5 %), Atheists (3.9 %), Others (2.9 %), and Hindus (2.6 %).

2.2. Procedure

All procedures were approved by the Ethics Review Board at York University (#e2022-067). Participants first reported their nationality and country of current residence. They then completed an English comprehension check ("If you know how to speak English, please select three as the answer to this question"). We only retained responses from Singaporeans and Americans who passed the English comprehension check and self-declared to be currently living in Singapore or the United States. The survey was administered in English to Singaporeans because it is the official main language and the most frequently spoken language at home (48.3 %), significantly surpassing the second-ranked Mandarin (29.9 %), and third-ranked Malay (9.2 %; Department of Statistics Singapore, 2021). Singaporeans' capability to speak English is further evidenced by their second-place ranking among 113 non-native English-speaking countries in the EF English Proficiency Index (English First, 2023).

Participants next viewed the rules related to the Third-Party Punishment Game (3PPG). They were told they would anonymously interact with two other participants from their country, who would be randomly assigned the roles of Player A, Player B, and Player C. All participants were assigned to the role of Player C. In this task, Player A receives 50 points and must decide whether to share none, some, or all the points between themselves and Player B in 5-point increments. Then, Player C receives 25 points and decides whether to spend none, some, or all points to reduce the payout of Player A. For every 1 point Player C spends, Player A loses 3 points, a typical ratio in the 3PP game (Chen, Zeng, & Ma, 2020; Fehr & Fischbacher, 2004; Laurin et al., 2012; Leibbrandt & López-Pérez, 2012). To familiarize participants with the rules of the 3PP game, they completed two practice trials where they needed to correctly determine the final payout of Players A, B, and C after one full round of choices. If they answered any questions incorrectly, they were presented with the correct answer screen that explained the final payout of each player.

Participants were told that their decision in one trial would not carry over to the subsequent trial and that their chances of winning the additional lottery depended on their final payout of one randomly selected trial, with 1 point equating to 1 chance to win. To test whether thinking about karma influences punishment, we manipulated between subjects whether participants were reminded about karma before making their decisions. Half of the participants proceeded directly to the 3PP game while the other half viewed a passage related to karma before the game:

"Before you make the following decisions, please think about karma. Some form of the law of karma exists in many different religious traditions. Karma involves belief in a law of cause and effect through which doing good deeds makes a person more likely to experience good outcomes and doing bad makes a person more likely to experience bad outcomes. This can operate over long timescales, so that even if an action doesn't have immediate consequences, it will eventually generate

the good outcomes that people deserve. Think about how karma affects your life, and the lives of others, before continuing on with the task”.

Participants then viewed 11 randomized trials, featuring each possible way Player A could divide the money with Player B (i.e., keep 50 points, give zero; keep 45 points, give 5...give 50 points, keep nothing). Participants indicated how much they would spend to reduce Player A's payout in each trial. Participants in the karma framing condition were reminded about karma before spending the deduction points in every trial (“After thinking about karma, how many points would you spend to reduce Player A's payout?”), while participants in the control condition were not (“How many points would you spend to reduce Player A's payout?”). The number of deduction points spent in each trial is our key measure of punishment.

After the 3PPG, all participants reported their stance on who should be responsible for punishing Player A (participant vs. others' responsibility). They also reported to what extent they believed the other players in the study were real people, with responses ranging from 1 (*very skeptical that other players are real*) to 7 (*very confident that other players are real*), and their belief in karma and a just world through a shortened version of the karma belief scale (White & Norenzayan, 2019; $\alpha = 0.92$) and the belief in a just world scale (Dalbert, Montada, & Schmitt, 1987; $\alpha = 0.82$). The karma belief scale is a seven-item scale that aligns closely with the content and themes of the karma framing prompt, capturing the core beliefs associated with karmic punishments and rewards. Example items include “When people experience good fortune, they have brought it upon themselves by previous behaviour in their life” and “If a person does something bad, even if there are no immediate consequences, they will be punished for it in some future time in their life.” All seven items of the Karma Belief Scale are inter-correlated with a mean inter-item correlation of 0.46, further supporting the coherence of the items in measuring karma belief. Finally, they completed a demographic questionnaire and left an email for entries for the lottery prize upon completing the study.

3. Results

3.1. Preliminary analyses

We examined whether participants spent more points to punish Player A in selfish trials (where Player A gave less than half of the points to Player B) than in the non-selfish trials (where Player A gave half or more than half of the points to Player B). Participants spent significantly more points to punish Player A in the selfish trials ($M = 8.63$, $SD = 5.03$) than in the non-selfish trials ($M = 4.36$, $SD = 5.54$), $t = 22.87$, $p < .001$, Cohen's $d = 0.81$, 95 % CI [0.74, 0.88]. Even within the selfish trials, participants imposed harsher punishments on Player A if they witnessed increasingly selfish decisions $r = 0.28$, $t(8013) = 26.46$, $p < .001$. Thus, the participants understood the difference in Player A's decisions among scenarios and viewed punishment as more appropriate for selfish than non-selfish decisions by Player A.¹

¹ Among the unselfish trials, where Player A gives at least half of the points to Player B, punishment also decreased as trials become less selfish in both control and karma conditions. Furthermore, karma framing consistently reduced punishment across all unselfish trials. While most participants refrained from punishing Player A in fair distributions, low levels of punishment were still observed. This pattern aligns with established dynamics where even overly altruistic actions can provoke antisocial punishment, driven by motives such as revenge, do-gooder derogation, or normative conformity (Fehr and Gächter, 2002; Herrmann, Thöni, & Gächter, 2008; Minson & Monin, 2012). These findings highlight the complex interpersonal and societal factors influencing punishment behaviour.

3.2. Reminders of karma reduce punishment in both countries

Our primary pre-registered hypothesis assessed whether thinking about karma reduces punishment for participants from both the United States of America and Singapore. We averaged deduction points spent to punish Player A in selfish trials and conducted two-sample t -tests to compare punishment from participants across karma framing conditions in each country. For Americans, thinking about karma ($m = 6.81$, $sd = 4.94$) significantly reduced their punishment of the moral transgressor compared to the control condition ($m = 9.09$, $sd = 4.68$), $t(803) = 6.72$, $p < .001$, Cohen's $d = 0.47$, 95 % CI [0.33, 0.61]. Similarly, Singaporeans who thought about karma ($m = 8.62$, $sd = 5.26$) also exhibited less punishment compared to Singaporeans in the control condition ($m = 9.98$, $sd = 4.69$), $t(771) = 3.84$, $p < .001$, Cohen's $d = 0.27$, 95 % CI [0.13, 0.41]. We next conducted mixed-effects multiple regressions analyses to test the robustness of these effects.

3.3. Thinking about karma, nationality, karma belief, and punishment

To examine whether the participant's level of karma belief moderated the karma framing effect, in addition to an effect of nationality and karma framing, we regressed average deduction points spent in selfish trials on karma reminder (Control = -0.5 , Karma = 0.5), nationality (American = -0.5 , Singaporean = 0.5), belief in karma (mean-centred), the two-way interaction between karma reminder and nationality, and between karma reminder and karma belief, and the three-way interaction between karma reminder, karma belief, and nationality. This model replicated the previously-described karma framing effect: Participants who were reminded about karma punished Player A less ($b = -1.82$, 95 % CI [-2.30 , -1.34], $SE = 0.25$, $t(1594) = -7.42$, $p < .001$). Furthermore, we found a significant nationality effect, Singaporeans spent more points to punish Player A than the Americans ($b = 1.13$, 95 % CI [0.65, 1.61], $SE = 0.25$, $t(1596) = 4.63$, $p < .001$). We also found a significant karma framing condition $\times$ nationality interaction ($b = 1.00$, 95 % CI [0.04, 1.96], $SE = 0.49$, $t(1596) = 2.04$, $p = .042$; Fig. 1): reminding American participants about karma reduced their punishment to a greater extent ($b = -2.32$, 95 % CI [-2.98 , -1.65], $SE = 0.34$, $t(801) = -6.81$, $p < .001$) compared to Singaporeans ($b = -1.32$, 95 % CI [-2.01 , -0.63], $SE = 0.35$, $t(793) = -3.73$, $p < .001$, Cohen's $d = 0.27$), although the karma frame effect remained significant in both countries.

Finally, we found a karma belief main effect such that participants who believed in karma more also spent more points to punish Player A ($b = 0.14$, 95 % CI [0.09, 0.19], $SE = 0.03$, $t(1596) = 5.53$, $p < .001$). Notably, karma belief did not moderate the karma framing effect ($b = 0.01$, 95 % CI [-0.07 , 0.10], $SE = 0.04$, $t(1596) = 0.27$, $p = .790$), nationality effect ($b = 0.00$, 95 % CI [-0.09 , 0.08], $SE = 0.04$, $t(1596) = -0.12$, $p = .905$), nor the two-way interaction term of karma framing and nationality ($b = -0.09$, 95 % CI [-0.26 , 0.08], $SE = 0.09$, $t(1596) = -1.06$, $p = .288$) suggesting the impact of karma belief on punishment is similar across countries and karma framing conditions. That is, even though karma belief was higher among Singaporeans ($m = 2.72$, $sd = 5.50$, on a scale of -14 to 14) compared to Americans ($m = 1.02$, $sd = 5.68$), ($t(1597) = 6.03$, $p < .001$, Cohen's $d = 0.30$, 95 % CI [0.20, 0.40]), the positive association between karma belief and punishment was not simply driven by Singaporeans being more punitive. Karma belief predicted punishment in both American ($r = 0.12$, $p < .001$) and Singaporean samples ($r = 0.14$, $p < .001$). Because the observed effects of karma framing and nationality on punishment were not associated with individual differences in karma belief, this suggests that cultural differences in punishment behaviour are not driven by variations in karma belief but instead reflect broader contextual or cultural factors.

3.4. Moderation by study plausibility

We also conducted a pre-registered analysis of whether the condition effect depended on plausibility (i.e., whether participants believe the

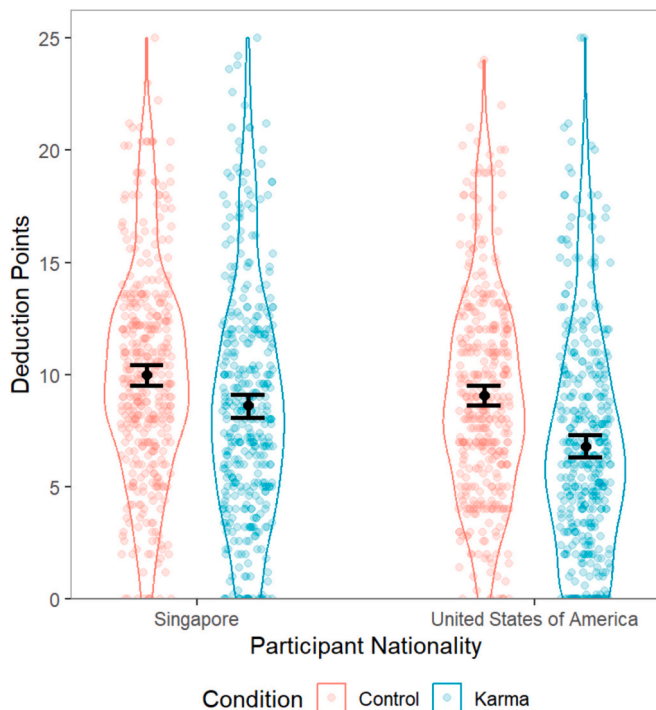


Fig. 1. Mean deduction points spent by participants averaged across selfish trials in the control condition (coral) and karma condition (turquoise). Black dots and error bars represent means and 95 % bootstrapped confidence intervals within each trial. Coloured dots represent deduction points spent by each participant. A wider contour indicates more participants who spent the corresponding deduction points as punishment. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

other players in the study are real people, with higher scores indicating greater confidence that the other players are real). We regressed deduction points as a function of karma reminder, nationality, perceived plausibility (all centred at their means), interactions between karma reminder and nationality, and between karma reminder and perceived plausibility.

Once again, the karma reminder $\times$ nationality interaction was significant. Follow-up analyses on the karma reminder $\times$ nationality interaction ($b = 1.00$, 95 % CI [0.05, 1.95], $SE = 0.48$, $t(1597) = 2.07$, $p = .039$) showed that reminding participants about karma reduced punishment among Americans ($b = -2.28$, 95 % CI [-2.95, -1.62], $SE = 0.34$, $t(802) = -6.73$, $p < .001$) more than among Singaporeans ($b = -1.33$, 95 % CI [-2.00, -0.66], $SE = 0.34$, $t(793) = -3.92$, $p < .001$). Although participants' belief that other players are real positively predicted deduction points spent to punish Player A ($b = 0.43$, 95 % CI [0.30, 0.55], $SE = 0.06$, $t(1597) = 6.58$, $p < .001$), such belief did not significantly moderate the karma effect ($b = 0.16$, 95 % CI [-0.09, 0.42], $SE = 0.13$, $t(1597) = 1.26$, $p = .208$). In other words, although participants spent more points on punishment when they found the study more plausible, plausibility did not impact the effect of thinking about karma on decisions to punish.

3.5. Moderation by the level of selfishness

Finally, we examined how thinking about karma and nationality influenced punishment across trials varying in selfishness. We introduced a continuous variable that ranked all five selfish trials (i.e., where Player A shares less than half of the points with Player B) on a scale of selfishness, ranging from 1 (least selfish: Player A keeps 30 points and gives away 20 points to Player B) to 5 (most selfish: Player A keeps all points to themselves). We conducted a two-level multilevel model,

predicting punishment in selfish trials as a function of random intercept by participants to account for the repeated measures of the trials, trial selfishness (mean-centred), karma reminder, nationality (centred around 0), and all possible two-way and three-way interactions between trial selfishness, karma reminder, and nationality, using the *lme4* (Bates, Mächler, Bolker, & Walker, 2015) and *lmerTest* (Kuznetsova, Brockhoff, & Christensen, 2017) packages in R.

The results indicated that trial selfishness level significantly predicted greater punishment ($b = 1.27$, 95 % CI [1.21, 1.33], $SE = 0.03$, $t(6408) = 42.07$, $p < .001$). Again, we found a clear karma effect such that participants who were reminded about karma punished the target less than those who were not reminded about karma ($b = -1.82$, 95 % CI [-2.30, -1.33], $SE = 0.24$, $t(1599) = 7.46$, $p < .001$), and a nationality effect such that Singaporeans punished Player A more than Americans ($b = 1.36$, 95 % CI [0.88, 1.83], $SE = 0.24$, $t(1599) = 5.54$, $p < .001$). Notably, although the karma reminder $\times$ nationality interaction was not significant, the two-way interaction was qualified by a significant three-way interaction of selfishness, karma reminder, and nationality ($b = 0.25$, 95 % CI [0.01, 0.49], $SE = 0.12$, $t(6408) = -2.08$, $p = .038$), displayed in Fig. 2. We conducted simple slope analyses to interpret the two-way interaction in the karma group with the *emmeans* package in R (Lenth, 2023). Our results indicated that while selfishness influences punishment from Americans and Singaporeans similarly in control trials, in the karma-framed trials, selfishness had a significantly stronger

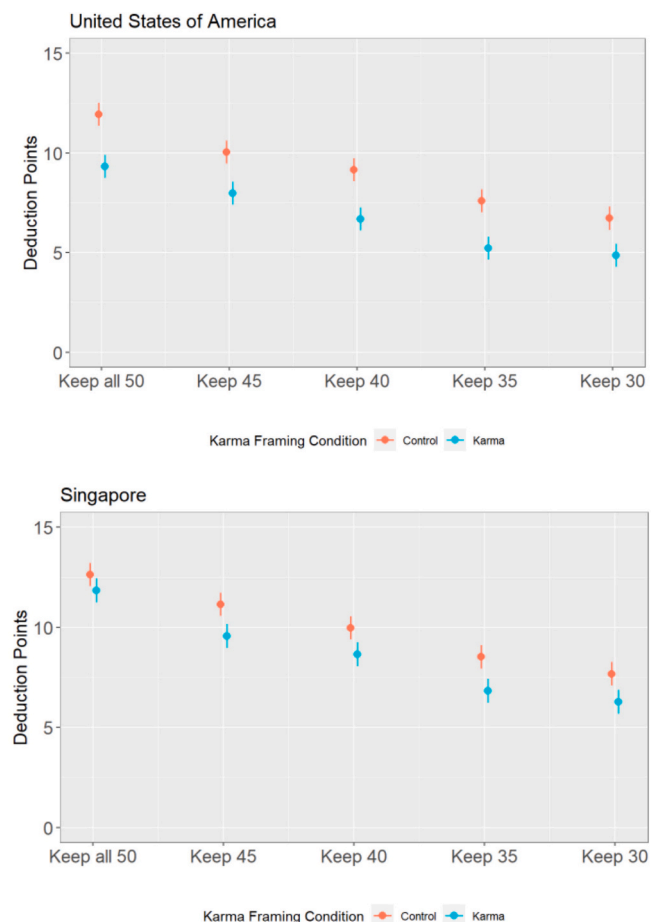


Fig. 2. Mean deduction points spent across karma framing conditions (turquoise) and control condition (coral), as well as five scenarios featuring selfish decisions for American (above) and Singaporean (below) participants. An increase in selfishness predicts a more significant increase in punishment from Singaporeans than Americans when reminded about karma, but not in the control condition. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

impact on punishment from Singaporeans ($b = 1.38$, 95 % CI [1.26, 1.51], $SE = 0.06$, $t(3170) = 22.84$, $p < .001$) than Americans ($b = 1.17$, 95 % CI [1.05, 1.28], $SE = 0.06$, $t(3170) = 19.75$, $p < .001$). Consequently, for the most selfish trials, karma framing had a weaker impact on punishment for Singaporeans than for Americans.

Study 2

The goal of Study 2 was to replicate Study 1 using a subtler experimental reminder of karma. The karma prompt in Study 1 provided an explicit definition of karma (i.e., “Karma involves belief in a law of cause and effect through which doing good deeds makes a person more likely to experience good outcomes and doing bad makes a person more likely to experience bad outcomes.”), which was consistent with lay people’s typical understanding of karma (White & Norenzayan, 2019; White & Norenzayan, 2022; Zhang & Cui, 2025). Although this description of karma did not explicitly describe how karma should influence punishment, it remains possible that participants’ behaviour reflected their compliance with the experimenters’ instructions. Their responses may have been based on experimenters’ definition of karma, which may or may not align with their own conceptualization of karma. To address this concern, Study 2 used a subtler manipulation that asked participants to reflect on their own understanding of karma prior to completing the punishment task.

4. Method

4.1. Participants

We pre-registered our sample size and analytic plans on the OSF (<https://osf.io/b6pwc/>). A sensitivity analyses with G*Power (Faul et al., 2009) revealed our planned sample of 600 participants can detect a between subject effect as low as Cohen’s $d = 0.18$, which corresponds to the lower bound of effect sizes estimated in Study 1. All participants were recruited online through Prolific in July 2025. Participants received base compensation for completion and an entry to a lottery for a \$100 bonus prize, based on their decisions in the third-party punishment game.

Following pre-registered criteria, we removed 19 participants who failed the only attention check embedded in the study (“Please select the second option from the left for this question”). We conducted analyses on a final sample of 581 participants, who are citizens of the United States of America residing in the United States ($M_{age} = 44.10$, $SD_{age} = 19.00$; 305 women, 269 men, 4 non-binary, 3 other gender identities). Regarding ethnicity, 75.4 % of participants were White, followed by Black (13.6 %), East Asian (3.1 %), Polynesian (2.9 %), mixed ethnicity (2.2 %), Southeast Asian (1.2 %), South Asians (0.7 %), Latin Americans (0.3 %), Middle Eastern participants (0.3 %), other ethnicities (0.3 %), and Aboriginals (0.2 %). Regarding religiosity, the majority of the sample identified as Christian (56.6 %), followed by agnostics (14.1 %), Atheists (13.1 %), non-religious (8.8 %), others (4.1 %), Buddhists (1.2 %), Jews (0.7 %), Muslim (0.7 %), Shinto (0.2 %).

4.2. Procedure

As with Study 1, participants first reported their nationality and country of current residence. They then completed an English comprehension check (“If you know how to speak English, please select three as the answer to this question”). Participants then viewed the rules related to the Third-Party Punishment Game (3PPG) and completed the practice trials, following instructions from Study 1.

Half of the participants proceeded directly to the 3PP game while the other half were presented with a brief prompt about karma before the game, and asked to provide an open-ended response: “Before you make the following decisions, please take a moment to think about karma.

In the box below, describe what karma means to you”.

The manipulation did not define karma or suggest, in any way, how it should influence behaviour. The meaning of karma was left entirely to

participants’ interpretation. After the 3PPG, all participants rated to what extent a variety of thoughts related to karma may have influenced their decision in the game, and reported their perceived plausibility that other players were real, belief in karma, and the demographic questionnaire.

5. Results

5.1. Preliminary analyses

Two research assistants blind to the nature of the study coded each open-ended description of karma for alignment with several different themes, with any discrepancies resolved by the first author. Most participants (89.7 %) mentioned the cyclical idea of karmic consequences in their description, such as saying “getting what one deserves based on their actions” or “good and bad actions have future consequences.” 39.7 % of participants specifically mentioned bad deeds leading to bad outcomes, and 28.3 % mentioned good deeds leading to good outcomes, with the remainder simply stating that actions lead to deserved consequences without specifically mentioning valence. Some participants (22.0 %) noted karma refers to a universal rule or presence. A few participants (7.0 %) reported not believing in karma or mentioned other themes (8.7 %). Notably, only a handful of participants (2.7 %) suggested that karma is enacted by the people themselves. Most participants therefore spontaneously describe karma as something akin to our description in Study 1’s manipulation, as “a law of cause and effect through which doing good deeds makes a person more likely to experience good outcomes and doing bad makes a person more likely to experience bad outcomes.”

As in Study 1, participants spent significantly more points to punish Player A in the selfish trials ($M = 5.17$, $SD = 4.48$) than in the non-selfish trials ($M = 1.24$, $SD = 3.03$), $t = 17.48$, $p < .001$, Cohen’s $d = 1.03$, 95 % CI [0.90, 1.15]. Within the selfish trials, participants imposed harsher punishments on Player A as they considered increasingly selfish decisions $r = 0.35$, 95 % CI [0.32, 0.38], $t(2903) = 20.10$, $p < .001$.

5.2. Karma framing effect

Following our pre-registered analysis plan, we conducted a two-sample t -test comparing average punishment in selfish trials across framing conditions as a preliminary test. Thinking about karma ($m = 4.92$, $sd = 4.14$) did not significantly reduce their punishment of the moral transgressor compared to the control condition ($m = 5.41$, $sd = 4.78$), $t(570) = 1.32$, $p = .189$, Cohen’s $d = 0.11$, 95 % CI [−0.05, 0.27]). While this difference was not statistically significant in the t -test, we turn next to pre-registered multilevel modelling analyses to more sensitively examine responses across each selfish trial.

We first tested the main effect of the karma framing manipulation by running a multilevel model predicting punishment decisions from karma reminder (Control = −0.5, Karma = 0.5) alone, with a random intercept for participants. This model revealed a significant effect of karma framing replicating Study 1, $\beta = -0.50$, 95 % CI [−0.91, −0.08], $t(2899) = -2.34$, $p = .019$, such that participants who thought about karma before the game punished less on average than those not reminded of karma, Fig. 3.

We next tested for moderation of the karma effect by selfishness level of each trial. Once again, the model revealed participants who thought about karma punished significantly less compared to those not reminded of karma, $\beta = -0.49$, 95 % CI [−0.88, −0.11], $t(2900) = -2.49$, $p = .013$. Participants also spent more deduction points in more selfish trials, $\beta = 1.41$, 95 % CI [1.28, 1.55], $t(2801) = 20.89$, $p < .001$, but there was no interaction between selfishness and karma reminders, $p = .121$.

Further, we examined whether the karma reminder effect is moderated by participants’ level of karma belief. Again, there was a significant negative effect of karma reminders on punishment, $\beta = -0.61$, 95 % CI [−1.02, −0.20], $t(2892) = -2.90$, $p = .004$, and

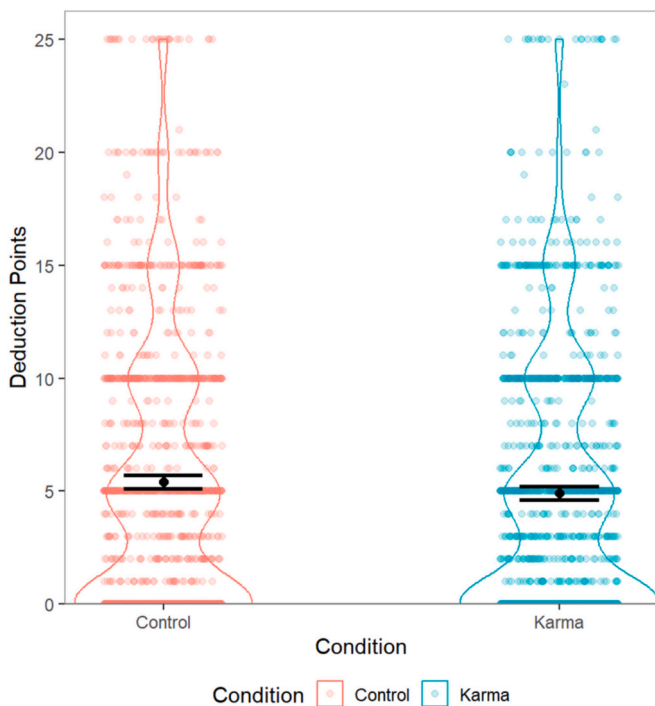


Fig. 3. Mean scores and standard error bars of the mean deduction points spent in selfish trials.

replicating Study 1, karma belief positively predicted punishment $\beta = 1.00$, 95 % CI [0.79, 1.21], $t(2817) = 9.40$, $p < .001$. However, the karma framing effect was not moderated by karma belief, $p = .328$,

Finally, we examined whether the perceived plausibility of the paradigm moderated the effect of karma. A significant karma framing by plausibility interaction emerged, $\beta = 0.65$, 95 % CI [0.23, 1.07], $t(2877) = 3.07$, $p = .002$. Simple slope analyses revealed while perceived plausibility did not influence punishment from participants in the control condition, $\beta = 0.20$, 95 % CI [−0.10, 0.49], $t(2892) = 1.30$, $p = .192$, higher perceived plausibility of the paradigm (i.e., that other players were real) predicted greater punishment from participants in the karma condition, $\beta = 0.85$, 95 % CI [0.55, 1.15], $t(2874) = 5.61$, $p < .001$. Additionally, participants who thought about karma again punished less than those in the control group, $\beta = -0.49$, 95 % CI [−0.91, −0.08], $t(2897) = -2.35$, $p = .019$, and participants who perceived the paradigm to be more plausible punished more than those who did not, $\beta = 0.52$, 95 % CI [0.31, 0.73], $t(2873) = 4.91$, $p < .001$.

5.3. Post-game reflections

After completing the 3PPG, all participants responded to five reflection questions assessing the extent to which various considerations influenced their decisions. These items reflected beliefs related to consequences, potential backfire, personal responsibility, moral justification, and whether it was their place to punishing someone. Two sample t -test analyses revealed significant difference only for the consequence item (“I believed that wrongdoers would eventually face consequences.”) Participants in the karma framing condition ($m = 4.61$, $sd = 1.94$) agreed more on this item than those in the control condition ($m = 3.93$, $sd = 1.96$), $t(579) = -4.25$, $p < .001$. Participants did not differ in their views on whether they saw themselves as upholding justice, believed punishment would backfire, considered it morally right, or felt it was their responsibility to act, $ps > 0.07$.

These results suggest thinking about karma has prompted participants to consider the involvement of external, karmic justice to punish the transgressor. Participants did not differ in the extent to which they

felt personally responsible, morally justified, or entitled to deliver punishment. These findings support our hypothesis that karma manipulation specifically encourages outsourcing of punishment to supernatural beings, rather than changing perceptions that punishment is justified or making people feel responsible for punishing themselves.

6. General discussion

Our two studies tested how thinking about karma, a supernatural force that causes bad consequences for transgressions, influences participants’ willingness to enact costly third-party punishment. To ensure ecological validity and robust experimental methods, we used an explicit religious framing method (Study 1) and a subtler manipulation (Study 2) that invited participants to reflect on their own understanding of karma when deciding whether to enact costly punishment of selfish behaviour. Our findings from Study 1 indicate that across both American and Singaporean participants, thinking about karma reduced punishment behaviour, although there was a greater reduction in punishment among Americans compared to Singaporeans. There was also a three-way interaction when considering the severity of the selfishness. Among Singaporean participants (but not Americans), the effectiveness of karma in reducing punishment diminished as selfishness increased. Study 2 replicated the finding that activating karma-related thoughts reduced punishment of moral transgressors, even when the manipulation was subtle, although this effect was smaller than when using a more explicit manipulation. This suggests that conceptions of karmic justice can influence moral decision-making across cultures.

6.1. Offloading punishment to karma

Our results are consistent with previous findings that reminders of other supernatural punishers can reduce interpersonal punishment. Such perceptions that karma can restore justice without requiring costly human punishment may support the evolution of cooperative social groups by fulfilling several intrapersonal and interpersonal motives. Believing in karmic punishments can allow observers to maintain their view that the world is just, even if justice is not imminently delivered by earthly means. Observers who invoke karmic punishments may also gain reputational benefits by signalling their commitment to moral standards, without suffering the personal costs and social friction that arise from interpersonal punishment. Furthermore, culturally-endorsed reminders of supernatural punishment are effective at deterring selfish behaviour (White, Kelly, Shariff & Norenzayan, 2019b), meaning that supernatural sanctions may be effective tools to ensure cooperative behaviour and deter future transgressions, even in the absence of direct, interpersonal punishment (see Fitouchi & Singh, 2022).

6.2. Karma belief and punishment

Whereas thinking about karma led to less punishments, stronger karma beliefs predicted harsher punishment. This apparent inconsistency suggests the experimental manipulation might have selectively activated a subset of karma beliefs, such as the notion that karma will restore justice, prompting participants to refrain from punitive actions. At the same time, punishment-promoting beliefs, such as the desirability of seeing justice served to sustain prosociality and cooperation may have been overridden. This inconsistency has also been seen in previous studies where reminders of a powerful God decreased punishment (Laurin et al., 2012), whereas belief in a punitive God predicts increased support for state-sponsored punishment (O’Lone & McKay, 2019). This highlights the interplay between momentarily activated and chronic, stable beliefs about supernatural forces and their moral consequences. These results indicate the need for further investigation into how these two dimensions of belief - momentary activation and chronic endorsement - affect behaviour (see Kelly, Kramer, & Shariff, 2024; Pasek et al., 2023; Shariff, Willard, Andersen, & Norenzayan, 2016, for similar

inconsistencies between the effects of experimental framing versus chronic beliefs).

6.3. Cultural variations in the impact of karma on punishment

We found that although thinking about karma reduced punitive behaviours in both American and Singaporean participants, the effect was more pronounced among Americans. Moreover, when assessing the severity of moral transgressions, the influence of selfishness moderated the karma-framing effect for Singaporeans but not Americans. Given its Asian origins, karma may have a more profound and enduring influence in East Asian cultures, permeating religious texts, historical narratives, teachings, and idioms (e.g., “祸福无门，唯人自招 – 左传 襄公二十三年” / “All good and bad fortunes are only brought upon people by themselves.”) Consequently, priming Americans about karma may induce more substantial behavioral changes, aligning with the hypothesis that the doctrine of karma already shapes typical behaviours of Singaporeans.

Another factor influencing the interaction between karma framing and nationality is the broader cultural difference in attitudes towards punishment. Singaporeans punished transgressors more harshly than Americans, consistent with prior studies comparing the endorsement of state-sponsored punishment between East Asian and Western cultures (Feinberg et al., 2018; Mayhew & van Kesteren, 2002). One plausible explanation for this difference is the concept of “cultural tightness,” which reflects the strength of norms and, conversely, tolerance for deviant behaviours within a society (Gelfand et al., 2011). Singaporeans, characterized by tighter norms, may display less tolerance for moral transgressions and perceive punishment as essential for maintaining social order and societal survival. Consequently, Singaporeans may perceive punishment as a more meaningful action, and less susceptible to manipulations aimed at reducing punishment compared to Americans.

6.4. Limitations and future direction

Our experiment revealed that thinking about karma reduces punishment behaviour, but future investigation is necessary to identify the precise mechanism for this effect. Thinking about karma can remind individuals that justice will be administered by a supernatural force, thereby dissuading them from incurring psychological, social, and financial costs associated with personal punishment, and instead, outsourcing the costly punishment to the supernatural agent. Alternatively, reminders of karma may activate concerns about facing karmic consequences for their misbehaviour, and punishment may be perceived as a type of antisocial actions that will garner karmic punishments upon themselves. These processes may also operate in tandem, such that the overall perceived costs and benefits shift believers away from enacting costly punishments themselves.

While our study approached this topic with quantitative methods, future research would greatly benefit from incorporating ethnographic approaches to enrich understanding. For example, focusing on a smaller, more targeted sample—such as Singaporean Buddhists—researchers could conduct structured interviews to explore participants’ reasoning for their decisions. This type of qualitative data, when systematically analyzed, could illuminate the motivations behind the quantitative results and provide deeper insight into how beliefs in karma influence daily reasoning and behaviour. In Study 2, we utilized a similar approach inviting participants to engage in post-game reflections. Consistent with our other findings, participants in the karma-framing condition were more likely to believe that wrongdoers would eventually face consequences.

Future research may also document ways in which cultural differences in specific karmic beliefs shape punishment motives. For example, Goyal and Miller (2023) found that revenge intentions were lower among Indians than Americans, in part due to Indian participants’ beliefs that karmic justice was more inevitable for themselves and that it

could unfold across reincarnations. Such factors may also play a role in motivating third-party punishment decisions. Future research should delve into these alternative motives, shedding light on the factors driving punishment behaviour across diverse cultures. In addition, future work could also test whether the same effects arise when tested using alternative methods, such as measuring punishment behaviour in real-world interactions rather than in an economic game. The present methods nonetheless maintain psychological realism and ecological validity by having participants play for real monetary rewards and by using explicit karmic reminders that are similar to what can be experienced in everyday life. Notably, we further replicated the effect when participants imagined their own conceptualization of karma.

Our studies replicated the karma effect on punishment using both a relatively overt prompt (i.e., instructing participants to “Think about how karma affects your life,” describing what karma is, and telling participants to use the *concept* of karma when making their decisions, Study 1) and simpler instructions (to merely “Think about karma,” Study 2). Prior research has shown that manipulations of supernatural deity framing—whether overt (e.g., “think about what God would want you to do”) or subtle (e.g., “think about God”)—yield similar results (Pasek et al., 2023), supporting the robustness of such approaches. However, the magnitude of the effect was larger using more direct prompts, both in the current studies and in prior research, suggesting there may be an added influence of telling participants directly to apply these concepts to the current economic games. While this overt prompt could produce demand effects, we argue that these concerns cannot account for our findings in entirety. Explicit appeals to supernatural agents or forces are well-documented across cultures and are ecologically valid in everyday contexts and play an important role in motivating cooperation and punishment (Bendixen et al., 2023; Fitouchi & Singh, 2023). Thus, the stronger effects observed with direct prompts are also expected to be driven by the psychological potency of explicit supernatural appeals, rather than by demand characteristics alone.

In Study 2, participants provided open-ended descriptions of karma, which confirm that most participants spontaneously think of karma as a form of cyclical rewards and punishments, similar to the way we described karma in Study 1’s manipulation. Our results were not dependent on activating a view of karma that diverges from what participants would naturally think about.

Additionally, the 3PPG paradigm relies on behavioral measures rather than explicit self-reports, further mitigating demand effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Lastly, participants’ total payout was tied to the number of points they retained, creating a natural incentive to minimize spending on punishment. We would expect participants to be more strongly motivated by their own potential windfall across trials than to align with experimenter expectations. Moreover, punishment decisions in the karma-framing condition were not uniform; participants spent more points to punish in more selfish trials (which were randomly presented to participants), suggesting they were guided by genuine values and beliefs rather than complying with perceived expectations.

Similarly, significant interactions among karma framing, selfishness, and culture emerged, indicating that participants’ responses to the manipulation were influenced by contextual and individual factors. This pattern is more consistent with participants engaging meaningfully with the principles of karma, integrating these into their decision-making in ways that vary based on the context and their background, rather than merely complying with perceived experimenter expectations. These considerations support the validity of explicit karma framing as a reasonable method to test how karma beliefs affect behaviour, although it would of course also be valuable for future studies to use other, less direct manipulations of supernatural beliefs to test the generalizability of supernatural priming effects across different paradigms.

7. Conclusion

Contributing to the literature on the role of supernatural forces in the evolution of human cooperative behaviour, our experiments tested the impact of karma beliefs on punishment in two diverse cultural contexts. This study expands our understanding of the ways that beliefs about karma can deter antisocial behaviour, including by reducing selfishness and discouraging punishment, thereby reducing costs to individuals and encouraging cooperation in social groups. Belief in karma, the idea that one's actions inevitably lead to concordant future outcomes, contributes to cooperation by reducing the societal burden of punishment. Instead of individuals or communities exacting retribution for transgressions, believers in karma entrust the universe to deliver justice. This 'offloading' of punishment to a metaphysical force not only minimizes the costs and risks associated with vigilantism but also fosters a more harmonious social environment where moral behaviour is encouraged through intrinsic rather than extrinsic motivations. Belief in karma, then, can be understood as an adaptive strategy that enhances social cohesion and potentially allows resources that would otherwise be devoted to enforcement and punishment to be redirected towards communal well-being and development, reflecting an evolved societal mechanism for maintaining order and cooperation.

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CRediT authorship contribution statement

Kai Wen Zhou: Writing – review & editing, Writing – original draft, Visualization, Software, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Adam Baimel:** Writing – review & editing, Supervision, Methodology, Investigation, Funding acquisition, Conceptualization. **Cindel J.M. White:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors have declared no conflict of interest.

References

- Adams, G., & Mullen, E. (2012). The social and psychological costs of punishing. *Behavioral and Brain Sciences*, 35(1), 15–16. <https://doi.org/10.1017/S0140525X11001142>
- Atwater, L. E., Waldman, D. A., Carey, J. A., & Cartier, P. (2001). Recipient and observer reactions to discipline: Are managers experiencing wishful thinking? *Journal of Organizational Behavior*, 22(3), 249–270. <https://doi.org/10.1002/job.67>
- Barclay, P. (2006). Reputational benefits for altruistic punishment. *Evolution and Human Behavior*, 27(5), 325–344. <https://doi.org/10.1016/j.evolhumbehav.2006.01.003>
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Baumard, N., & Chevallier, C. (2012). What goes around comes around: The evolutionary roots of the belief in immanent justice. *Journal of Cognition and Culture*, 12(1–2), 67–80. <https://doi.org/10.1163/156853712X633938>
- Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: an interpersonal approach. *Psychological Bulletin*, 115(2), 243–267. <https://doi.org/10.1037/0033-2909.115.2.243>
- Bendixen, T., Apicella, C., Atkinson, Q., Cohen, E., Henrich, J., McNamara, R. A., & Purzycki, B. G. (2023). Appealing to the minds of gods: religious beliefs and appeals correspond to features of local social ecologies. *Religion, Brain & Behavior*, 14(2), 183–205. <https://doi.org/10.1080/2153599X.2023.2178487>
- Billingsley, J., Gomes, C. M., & McCullough, M. E. (2018). Implicit and explicit influences of religious cognition on dictator game transfers. *Royal Society Open Science*, 5(8), Article 170238. <https://doi.org/10.1098/rsos.170238>
- Boyd, R., Gintis, H., Bowles, S., & Richerson, P. J. (2003). The evolution of altruistic punishment. *Proceedings of the National Academy of Sciences*, 100(6), 3531–3535. <https://doi.org/10.1073/pnas.0630443100>
- Burley, M. (2013). Karma and the ethics of reincarnation. *Philosophy East and West*, 63(3), 332–354. <https://doi.org/10.1353/pew.2013.0053>
- Callan, M. J., Sutton, R. M., Harvey, A. J., & Dawtry, R. J. (2014). Immanent justice reasoning: Theory, research, and current directions. In J. M. Olson, & M. P. Zanna (Eds.), *Vol. 49. Advances in experimental social psychology* (pp. 105–161). Elsevier Academic Press.
- Chen, H., Zeng, Z., & Ma, J. (2020). The source of punishment matters: Third-party punishment restraints observers from selfish behaviors better than does second-party punishment by shaping norm perceptions. *PLoS One*, 15(3), Article e0229510. <https://doi.org/10.1371/journal.pone.0229510>
- Clark, C. J., Baumeister, R. F., & Dittio, P. H. (2017). Making punishment palatable: Belief in free will alleviates punitive distress. *Consciousness and Cognition: An International Journal*, 51, 193–211. <https://doi.org/10.1016/j.concog.2017.03.010>
- Converse, B. A., Risen, J. L., & Carter, T. J. (2012). Investing in karma: When wanting promotes helping. *Psychological Science*, 23(8), 923–930. <https://doi.org/10.1177/0956797612437248>
- Daibert, C., Montada, L., & Schmitt, M. (1987). Glaube an eine gerechte welt als Motiv: Validierungskorrelate zweier Skalen (belief in a just world: Validity correlates of two scales). *Psychologische Beiträge*, 29, 596–615.
- Fehr, E., & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, 415(6868), 137–140. <https://doi.org/10.1038/415137a>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fehr, & Fischbacher. (2004). Third party punishment and social norms. *Evolution and Human Behavior*, 25, 61–87.
- Feinberg, M., Fang, R., Liu, S., & Peng, K. (2018). A world of blame to go around: Cross-cultural determinants of responsibility and punishment judgments. *Personality and Social Psychology Bulletin*, 45(4), 634–651. <https://doi.org/10.1177/0146167218794631>
- Fitouchi, L., & Singh, M. (2022). Supernatural punishment beliefs as cognitively compelling tools of social control. *Current Opinion in Psychology*, 44, 252–257. <https://doi.org/10.1016/j.copsyc.2021.09.022>
- Fitouchi, L., & Singh, M. (2023). Punitive justice serves to restore reciprocal cooperation in three small-scale societies. *Evolution and Human Behavior*, 44(5), 502–514.
- Garcia, D. M., Schmitt, M. T., Branscombe, N. R., & Ellemers, N. (2009). Women's reactions to ingroup members who protest discriminatory treatment: The importance of beliefs about inequality and response appropriateness. *European Journal of Social Psychology*, 40(5), 734–755. <https://doi.org/10.1002/ejsp.644>
- Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., ... Yamaguchi, S. (2011). Differences between tight and loose cultures: A 33-nation study. *Science*, 332(6033), 1100–1104. <https://doi.org/10.1126/science.1197754>
- Goyal, N., & Miller, J. G. (2023). Beliefs in inevitable justice curb revenge behaviours: Cultural perspectives on karma. *European Journal of Social Psychology*, 53(4), 732–745. <https://doi.org/10.1002/ejsp.2933>
- Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fmri investigation of emotional engagement in moral judgment. *Science*, 293(5537), 2105–2108. <https://doi.org/10.1126/science.1062872>
- Gürek, O., Irlenbusch, B., & Rockenbach, B. (2006). The competitive advantage of sanctioning institutions. *Science*, 312(5770), 108–111. <https://doi.org/10.1126/science.1123633>
- Hafer, C. L., & Rubel, A. N. (2015). Long-term focus and prosocial-antisocial tendencies interact to predict belief in just world. *Personality and Individual Differences*, 75, 121–124. <https://doi.org/10.1016/j.paid.2014.11.006>
- Herrmann, B., Thöni, C., & Gächter, S. (2008). Antisocial punishment across societies. *Science*, 319(5868), 1362–1367. <https://doi.org/10.1126/science.1153808>
- Ho, M. K., Cushman, F., Littman, M. L., & Austerweil, J. L. (2019). People teach with rewards and punishments as communication, not reinforcements. *Journal of Experimental Psychology: General*, 148(3), 520–549. <https://doi.org/10.1037/xge0000569>
- Kaiser, C. R., Hagiwara, N., Malahy, L. W., & Wilkins, C. L. (2009). Group identification moderates attitudes toward ingroup members who confront discrimination. *Journal of Experimental Social Psychology*, 45(4), 770–777. <https://doi.org/10.1016/j.jesp.2009.04.027>
- Kelly, J. M., Kramer, S. R., & Shariff, A. F. (2024). Religiosity predicts prosociality, especially when measured by self-report: A meta-analysis of almost 60 years of research. *Psychological Bulletin*, 150(3), 284–318. <https://doi.org/10.1037/bul0000413>
- Keyes, C. F., & Daniel, E. V. (1983). *Karma, an anthropological inquiry*. University of California Press.
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). lmerTest package: Tests in linear mixed effects models. *Journal of Statistical Software*, 82(13), 1–26. <https://doi.org/10.18637/jss.v082.i13>
- Laurin, K., & Kay, A. C. (2017). The motivational underpinnings of belief in god. In J. M. Olson (Ed.), *Advances in experimental social psychology* (pp. 201–256). Elsevier Academic Press. <https://doi.org/10.1016/b.sasp.2017.02.004>
- Laurin, K., Shariff, A. F., Henrich, J., & Kay, A. C. (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>
- Leibbrandt, A., & López-Pérez, R. (2012). An exploration of third and second party punishment in ten simple games. *Journal of Economic Behavior & Organization*, 84(3), 753–766. <https://doi.org/10.1016/j.jebo.2012.09.018>

- Lenth, R. V. (2023). Emmeans: Estimated marginal means, aka Least-Square Means. R package version 1.8.9. <https://CRAN.R-project.org/package=emmeans>.
- Liu, H., Wang, X., Sun, X., & Wei, Z. (2021). Group punishment does not always discount: Cultural difference in punishment of individuals and groups. *Asian Journal of Social Psychology*, 25(3), 464–475. <https://doi.org/10.1111/ajsp.12509>
- Liu, J. (2014). *Global Religious Diversity*. Pew Research Center's Religion & Public Life Project. <https://www.pewresearch.org/religion/2014/04/04/global-religious-diversity/>.
- Mayhew, P., & van Kesteren, J. N. (2002). Cross-national attitudes to punishment. In J. V. Roberts, & M. Hough (Eds.), *Changing attitudes to punishment, public opinion, crime and justice* (pp. 63–92). Willan Publishing.
- McKay, R., Efferson, C., Whitehouse, H., & Fehr, E. (2010). Wrath of god: Religious primes and punishment. *Proceedings of the Royal Society B*, 278(1713), 1858–1863. <https://doi.org/10.1098/rspb.2010.2125>
- Minson, J. A., & Monin, B. (2012). Do-gooder derogation: The stigmatization of morality through social comparison. *Social Psychological and Personality Science*, 3(2), 200–207. <https://doi.org/10.1177/1948550611415695>
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: holistic versus analytic cognition. *Psychological Review*, 108(2), 291–310. <https://doi.org/10.1037/0033-295x.108.2.291>
- O'Lone, K. M., & McKay, R. (2019). Divine forgiveness and human support for state-sanctioned punishment. *Journal for the Cognitive Science of Religion*, 4(2), 155–184. <https://doi.org/10.1558/jcsr.34356>
- Pasek, M. H., Kelly, J. M., Shackelford, C., White, C. J. M., Vishkin, A., Smith, J. M., ... Ginges, J. (2023). Thinking about god encourages Prosociality toward religious outgroups: A cross-cultural investigation. *Psychological Science*, 34(6), 657–669. <https://doi.org/10.1177/09567976231158576>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Department of Statistics Singapore. (2021). *Census of Population 2020: Statistical release 1*. In *Demographic characteristics, education, language and religion*. Ministry of Trade and Industry, Republic of Singapore. <https://www.singstat.gov.sg/-/media/files/publications/cop2020/sr1/cop2020sr1.pdf>.
- dos Santos, M., & Wedekind, C. (2015). Reputation based on punishment rather than generosity allows for evolution of cooperation in sizable groups. *Evolution and Human Behavior*, 36(1), 59–64. <https://doi.org/10.1016/j.evolhumbehav.2014.09.001>
- Salvador, C. E., White, C. J. M., & Ai, T. (2025). Who is your biggest critic? Cultural variation in moral judgements of the self and others. *Journal of Cross-Cultural Psychology*, 55(5). <https://journals.sagepub.com/doi/10.1177/00220221241255673>.
- Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2016). Religious priming: A Meta-analysis with a focus on prosociality. *Personality and Social Psychology Review*, 20(1), 27–48.
- Vaccaro, E., & Kawakami, K. (2021). In the office or at the gym: The impact of confronting sexism in specific contexts on support for confrontation and perceptions of others. *Self and Identity*, 20(7), 893–912. <https://doi.org/10.1080/15298868.2020.1832566>
- White, C., Sousa, P., & Prochownik, K. (2016). Explaining the success of karmic religions. *The Behavioral and Brain Sciences*, 39, Article e28. <https://doi.org/10.1017/S0140525X15000588>
- White, C. J. M., Kelly, J. M., Shariff, A. F., & Norenzayan, A. (2019b). Supernatural norm enforcement: Thinking about karma and god reduces selfishness among believers. *Journal of Experimental Social Psychology*, 84, Article 103797. <https://doi.org/10.1016/j.jesp.2019.03.008>
- White, C. J. M., & Norenzayan, A. (2019). Belief in karma: How cultural evolution, cognition, and motivations shape belief in supernatural justice. In J. M. Olson (Ed.), *Vol. 60. Advances in experimental social psychology* (pp. 1–63). Elsevier Academic Press.
- White, C. J. M., & Norenzayan, A. (2022). Karma and god: Convergent and divergent mental representations of supernatural norm enforcement. *Psychology of Religion and Spirituality*, 14(1), 70–85. <https://doi.org/10.1037/rel0000436>
- White, C. J. M., Norenzayan, A., & Schaller, M. (2019a). The content and correlates of belief in karma across cultures. *Personality & Social Psychology Bulletin*, 45(8), 1184–1201. <https://doi.org/10.1177/0146167218808502>
- White, C. J. M., Willard, A. K., Baimel, A., & Norenzayan, A. (2021). Cognitive pathways to belief in karma and belief in god. *Cognitive Science*, 45(1), Article e12935. <https://doi.org/10.1111/cogs.12935>
- Willard, A. K., Baimel, A., Turpin, H., Jong, J., & Whitehouse, H. (2020). Rewarding the good and punishing the bad: The role of karma and afterlife beliefs in shaping moral norms. *Evolution and Human Behavior*, 41(5), 385–396. <https://doi.org/10.1016/j.evolhumbehav.2020.07.001>
- Zhang, Y., & Cui, R. (2025). Cultural conceptualisations of karma in American, Indian, and Hong Kong varieties of English. *Lingua*, 325, Article 104010. <https://doi.org/10.1016/j.lingua.2025.104010>