Karma and God: Convergent and divergent mental representations of supernatural norm
enforcement

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Abstract

Few studies have directly examined mental representations of supernaturally monitored morality, as they are reflected in world religions as conceptions of karma and God. In seven samples (total N= 3861), we use an open-ended free-list task to investigate participants' mental representations of God and karma, among culturally diverse samples from the USA and India, including Hindu, Buddhist, Christian, and non-religious participants. Key results showed that (1) there is substantial consensus among believers that actions relevant to interpersonal cooperation (e.g., generosity, harm, fairness, and honesty) are highly relevant to both karma and God beliefs; however, (2) God is prototypically represented as a personified, social agent, who believers have a devotional relationship with, whereas karma is more commonly conceived of as a non-agentic causal process, through which moral actions generate commensurate good and bad consequences; (3) God—but not karma—is expected to reward and punish acts of religious devotion, in addition to the harm and fairness norms that characterize interpersonal prosociality; and (4) karma—more than God—is expected to reward generosity and punish greed. These findings show how culturally-constructed religious beliefs shape expectations about the consequences of moral behavior. A greater understanding of the mental representations of karma and God contribute to cultural evolutionary theories of supernatural norm-enforcement and its role in large-scale cooperation.

Keywords: Karma, God, Religion, Morality, Prosociality

Karma and God: Convergent and divergent mental representations of supernatural norm enforcement

The expectation that what goes around comes around—that virtuous people are rewarded for their prosociality and hard work, and bad people are punished for their misdeeds—is a hallmark of norms in interpersonal relationships and, for many people, this reciprocity also characterizes the universe more broadly, through the intervention of supernatural entities. The belief in supernaturally-enforced consequences for norm violations is widespread around the world, but comes in many varieties, including gods, ancestral or nature spirits, witches and sorcerers and demons, non-agentic forces like karma, and an afterlife determined by one's actions on earth (D. Johnson, 2015; Purzycki, 2013; Purzycki et al., 2016; Purzycki & Holland, 2018; Singh, 2020; White & Norenzayan, 2019).

The growing literature regarding how supernatural punishment beliefs shape prosociality has largely focused on understanding beliefs about gods – powerful supernatural agents who monitor and police human moral behavior and who enter into personal relationships with their devotees. But in many religious traditions, especially in non-Western contexts, another source of supernatural punishment is karma—an ostensibly non-agentic causal process through which human actions beget morally-congruent consequences. While preliminary evidence indicates that both karma beliefs and God beliefs encourage prosociality towards anonymous strangers (White, Kelly, et al., 2019), and play a role in increasingly-complex societies (e.g., Watts et al., 2015; Roes & Raymond, 2003), relatively less is known about the mental representations of these different supernatural beliefs and their moral content. The present research investigates whether similarities and differences in beliefs about karma and beliefs about gods manifest in unique patterns of beliefs about supernatural monitoring of interpersonal morality. We address this question in religiously diverse samples from the USA and India.

Similarities in belief in God and karma in relation to interpersonal morality

Belief in a moralizing God and belief in karmic causality are widespread around the world, as central tenets of several world religions (Christianity, Islam, Judaism, Hinduism, and Buddhism) that have billions of adherents, and as beliefs held by spiritual people unaffiliated with any particular religious tradition (White, Norenzayan, et al., 2019). Beliefs about a moralizing God (or gods) and karma are culturally widespread, in part, because they arise from similar intuitive cognitive biases in how people perceive the world (White et al., 2021), and also because of convergent cultural evolutionary pressures that have shaped cooperation among interactants in large groups of anonymous strangers through the threat of supernatural punishments and rewards (McKay & Whitehouse, 2015; Norenzayan et al., 2016)¹.

In recent cross-cultural studies sampling from a significant portion of global variability in religious beliefs and in social complexity, curbing interpersonal transgressions emerged as a central feature to descriptions of moralizing gods' desires (Lang, Purzycki, Apicella, Atkinson, Alexander, et al., 2019; Purzycki et al., 2016, 2012; Purzycki & Holland, 2018); in turn, commitment to these gods was found to be related to greater impartiality towards coreligionist strangers in these samples (Lang et al., 2019; Purzycki et al., 2016). Recent research supports a broad association between supernatural punishment beliefs and prosociality, which is not limited to belief in gods per se. Experimental reminders of religion increase prosocial behavior (Shariff et al., 2016), and this prosocial effect has been found for both reminders of God and reminders of karma (White, Kelly, et al., 2019; Willard et al., 2020). Using a large database of historical

¹ We note that the same cooperative impulse can be harnessed to build social solidarity within the group, as well as, under some conditions, mobilize against perceived outgroups. In fact, empirical evidence and mathematical modelling show that it is especially under conditions of intergroup conflict that intragroup cooperation flourishes (Bowles, 2008; Fletcher & Doebeli, 2009; Henrich, 2020; Henrich et al., 2019). There are currently lively discussions on the role of religion in this evolutionary dynamic (Atran & Ginges, 2012; Norenzayan et al., 2016; Lang et al., 2019; McKay and Whitehouse, 2015).

information about Austronesian societies, Watts et al. (2015) found that social complexity is sustained by belief in a variety of supernatural punishments, not merely belief in morally-concerned high gods. These results support a general association between prosociality and both God and karma beliefs, but do not directly address the moral content of these supernatural beliefs, or whether other differences between god beliefs and karma beliefs are evident in different expectations about how each entity enforces moral norms.

Differences between beliefs about karma and beliefs about God

In this paper, we specifically test whether the different mental representations of God and karma—supernatural norm-enforcement beliefs that share different cultural histories and different patterns of religious devotion (White & Norenzayan, 2019)—result in as-yet-untested divergences between which interpersonal behaviors are monitored by each entity.

Believers typically view God as a social agent (Heiphetz et al., 2016; Shtulman & Lindeman, 2016). God has thoughts and motivations independent of human beings, and people can enter into a devotional relationship with God much as they would with other authorities (Rai & Fiske, 2011) or attachment figures (Davis, Moriarty, & Mauch, 2013; Granqvist, Mikulincer, & Shaver, 2010). By performing appropriate actions, including both prosocial behavior towards other people *and* appropriate deference and devotion to God, believers can have a loving, protective, personal relationship with God (K. A. Johnson et al., 2015; K. A. Johnson, Cohen, et al., 2016). God's role as a creator who has an undiscernible plan for human lives, petitionary prayers, devotional rituals, songs of praise, sacrificial offerings, and anthropomorphic depictions in literature and visual art all reinforce this view. It is because of this agentic representation of God that believers can fruitfully apply their socio-cognitive capacities to think about God (Epley et al., 2009; Grafman et al., 2020; van Elk & Aleman, 2017).

It is less evident that believers think about karma as a social agent. Karma is often depicted as a law-like cause-and-effect principle (i.e., actions lead to morally-congruent outcomes without the mediation of natural or supernatural agents) or according to a resource-like metric (i.e., actions generate merit or demerit that is accumulated, quantified, and exchanged for particular experiences, Bronkhorst, 2011; Daniel, 1983). For example, in one study of Buddhist, Taoist, Christian and non-religious individuals in Singapore, karma was typically described in open-ended responses as the consequences of actions, like the Golden Rule, or, to a lesser extent, as rewards, punishments, and actions – with participants rarely, if ever, mentioning divine intervention, indicating that karma is perceived as distinct from moralizing gods (Willard et al., 2020). Hindus and Buddhists typically express both belief in karma and belief in a variety of gods-like supernatural agents (White, Norenzayan, & Schaller, 2019), but whereas anthropomorphic visual depictions and devotional worship towards gods is common, no analogous depictions or worship is directed to karma, and karma is believed to operate independently of the will of the gods. Additionally, different behavioral scripts are used to ameliorate bad experiences believed to be caused by God and karma, with petitionary prayer and rituals being more effective when dealing with gods, and divination, penitential actions, and rituals for accumulating karmic merit being more effective for improving karmic outcomes (Aktor, 2012; Aulino, 2016; Cadge, 2005; Fuller, 2004; Nuckolls, 1991, 1992; Purzycki & Holland, 2018; Young et al., 2011).

Psychological studies that directly ask participants whether karma has agentic qualities—such as whether karma “can think,” “can see into people’s hearts and know their thoughts and feelings,” and “can communicate with people”—have found that believers are somewhat willing endorse these personified descriptions, but they tend to do so much less strongly and less consistently than they do for God (Exline et al., 2021; White et al., 2021). It therefore remains

an open question how believers prototypically think about karma, and how this compares to how people think about God, which we investigate in the present studies.

Hypothesized divergences between salient norms enforced by karma and by God

To complement this theological and anthropological evidence of divergences between karma and God beliefs, the present studies aim to investigate whether mental representations of karma differ from mental representations of God in some important respects. We test the novel prediction that the different relationships that believers have with particular supernatural entities will manifest in their perceptions of which human actions are subject to supernatural norm-enforcement. While norm-enforcement is not the only domain where beliefs about God and karma may diverge, the question of when (and how) these supernatural entities respond to morally relevant actions addresses key theoretical questions about the role of religions in the cultural evolution of large-scale cooperation (Norenzayan, 2013).

We specifically expect that if mental models of karma rely more on notions of exchange, then human actions reminiscent of giving or taking from others (e.g., sharing, helping, volunteering, and other personally costly prosociality; greed and selfishness) may be especially salient in karmic rewards and punishments. Conversely, due to the personal relationships that believers have with agentic gods, descriptions of God are likely to emphasize acts of religious devotion (e.g., performing appropriate rituals, obeying religious guidelines for behavior, believing in and loving God), which are only minimally relevant when describing karma. Consistent with this prediction, Willard et al. (2020) recently documented in Singapore that Christians (a religious group centered on belief in God) reported that Piety/Impiety was the most salient action that leads to a good or bad afterlife, whereas Buddhists and Taoists (religious groups that endorse karmic causality as the determinant of one's afterlife) reported that charity, kindness, and harm were the most salient actions that determine a good or bad reincarnation.

These patterns are also likely to appear in the appropriate way to escape supernatural punishments meted out by each entity, with prayer being viewed as an effective way to reconcile oneself with God, whereas good deeds being the best way to offset bad deeds policed by karma. Beliefs about karma and God may sometimes provide culturally-convergent solutions to recurrent problems of human social life that undermine large-scale cooperation (Norenzayan et al., 2016; Watts et al., 2015; White, Kelly, et al., 2019), but we hypothesize that these beliefs will also have distinct domains of relevance due to their unique cultural histories and mental representations within particular religious communities.

Overview of studies

In this paper, we document mental representation of karma and God, and the implications for beliefs about supernatural norm enforcement, across seven religiously diverse samples of Americans and Indians. Study 1 explores the general patterns of beliefs, and Study 2 provides a confirmatory preregistered test of focal hypotheses derived from Study 1. These samples test the replicability and generalizability of our key findings across both contexts where karma is long-entrenched in dominant cultural narratives—Indian, Hindu, and Buddhist samples—and contexts where karma is more novel and not a part of one’s religious affiliation—a general sample of Americans (mostly White and from Christian and Non-religious families) who claim to believe in karma (Bronkhorst, 2011; White, Norenzayan, et al., 2019).

To capture mental representations of karma and God, we use an open-ended task in which participants freely listed the features of karma/God. Free list methodologies are widely used in anthropological and cross-cultural psychology studies to assess the salient features of people’s concepts, and have previously been used to examine beliefs about gods (Fincham et al., 2019; Purzycki & Holland, 2018), the afterlife (Willard et al., 2020), and characteristics of a good, moral person (e.g., Buchtel et al., 2015; Purzycki et al., 2018; Vauclair et al., 2014). By

soliciting responses to open-ended questions, rather than using more specific questionnaires, researchers can capture whatever is most salient in participants' mental models without biasing their responses to particular content. To investigate specific differences between mental representations of God and karma, we conducted targeted comparisons of responses consistent with an agentic/devotional representation—hypothesized to characterize God—and responses consistent with a moralized causality representation—hypothesized to characterize karma. We conducted these targeted comparisons across three different types of questions, including (a) free lists of the features of each target, (b) free lists and directed questions about supernatural rewards and punishments, and (c) questions about how to escape from supernatural punishments for misdeeds. In addition to group-level analyses contrasting responses regarding God and karma, additional exploratory analyses were conducted to test whether descriptions of features, rewards and punishments, and escape strategies were correlated at an individual-difference level. Overall, our results provide a comprehensive description of morally-relevant beliefs about karma and God across religiously-diverse American and Indian samples.

STUDY 1

Methods

Participants

Participants were recruited from MTurk and Qualtrics to complete a survey that began with an experimental test of how thinking about karma and God affects prosociality (results reported in White, Kelly, et al., 2019) followed by the focal measures of this manuscript.² We

² Methods were preregistered on the OSF prior to data collection, although the analyses reported here were not preregistered and should be considered exploratory. Following pre-registered criteria, out of the total participants who completed the survey we excluded an additional 4 MTurk and 221 Qualtrics participants failed an attention check question, and 5 Qualtrics participants who took less than 1/3 the median time to finish the survey. MTurk samples: <https://osf.io/trnx7/>, Qualtrics samples: <https://osf.io/2jyde/>, all data and analysis code is available at <https://osf.io/8qkac/>.

recruited three samples of karma believers. The first sample consisted of 341 American participants recruited through Amazon's Mechanical Turk (MTurk), in December 2016, who scored above scale midpoint in agreement with the statement, "Karma is a force that influences the events that happen in my life." These participants were predominantly Christian or non-religious, therefore we also recruited two additional samples—200 American Hindus and 204 American Buddhists through Qualtrics' online panels, in March 2017—to gain participants for whom karma is a central religious doctrine. We also recruited two samples of God believers, including 413 American MTurk participants who agreed with the statement "I believe that God exists," and 203 Americans recruited through Qualtrics who selected "Christian" as their religious affiliation. These sample sizes (> 200) have at least 80% power to detect correlations of .20, between-subjects differences of $d = 0.28$ in a t-test, or an odds ratio > 1.66 or < 0.60 in a logistic regression. Full demographic details are available in Table 1, and they largely echo the demographic patterns of karma belief and god belief reported in previous work (White, Norenzayan, et al., 2019).

Materials and procedure

Each sample completed a larger survey designed to answer several loosely-related questions, which consisted of a brief demographic survey (e.g., age, gender, political orientation, and religious affiliation), followed by a multi-trial dictator game in which participants had the opportunity to share money with a stranger, free list and moral judgment tasks (the focal measures described below), and additional questions about demographics and supernatural beliefs (e.g., belief in karma, belief in the existence of God, religious commitment). Additional analyses utilizing a broader set of available measures are in the Supplementary Materials.

Table 1. Demographic composition of samples.

Recruitment Source	Study 1: Exploratory Sample					Study 2: Confirmatory Sample	
	MTurk		Qualtrics			MTurk	
Sample	Karma Believers	God Believers	Hindus	Buddhists	Christians	USA	India
N	341	413	200	204	203	340	798
Gender %							
Female	69	65	59	66	60	70	32
Male	31	35	41	34	40	30	68
Age <i>M (SD)</i>	36.76 (12.01)	38.05 (12.82)	39.92 (14.07)	48.85 (14.79)	53.12 (12.05)	37.30 (11.99)	32.03 (7.91)
Ethnicity %							
Caucasian	80	78	4	37	85	76	1
Asian	6	6	92	52	4	4	95
Other	14	19	4	11	11	20	4
Religion %							
Christian	54	83	--	--	100	74	11
Non-religious	35	11	--	--	--	10	0.3
Hindu	1	1	100	--	--	1	81
Buddhist	4	1	--	100	--	2	0.3
Other	6	4	--	--	--	13	7
Belief in karma <i>M (SD)</i>	3.39 (0.59)	2.76 (0.81)	3.73 (0.72)	3.63 (0.67)	2.77 (0.71)	3.66 (0.43)	3.86 (0.45)
Belief in God <i>M (SD)</i>	3.61 (1.40)	4.67 (0.48)	4.29 (1.02)	3.18 (1.27)	4.50 (0.97)	4.46 (0.54)	4.32 (0.58)
Religiosity <i>M (SD)</i>	2.49 (1.40)	3.53 (1.26)	3.02 (1.04)	2.53 (1.12)	3.38 (1.10)	3.35 (1.07)	3.82 (0.85)

Note. Confirmatory Sample demographics reflect only participants who scored above scale midpoint in both belief in karma and belief in God. See Supplementary Materials for analyses regarding non-believers in these samples.

Free list descriptions of karma and God

Instructions. Participants provided free list descriptions of karma and God according to three prompts: (a) the features of God/karma, (b) actions that elicit supernatural rewards, and (c) actions that elicit supernatural punishments. MTurk God believers and Christians completed free

list questions about God, and MTurk Karma believers, Hindus, and Buddhists completed free list questions about karma.

Participant were first asked, “We are interested in knowing what you think karma [God] is. Based on your personal beliefs, describe the features or abilities that karma [God] has. Write first those characteristics that are most important to describing karma, or those characteristics that come first to mind when you think about karma. Please list five characteristics of karma.” Participants were then asked, through analogous questions, to describe things that a person could do “that would lead to good consequences because of karma [god]” (*supernatural rewards*) and “that would lead to bad consequences because of karma [god]” (*supernatural punishments*). The limit of 5 responses for each of these lists captures whichever traits were most salient to participants, but provides a conservative underestimate of how many participants think any given trait is descriptive of God or karma.

Coding strategy. Responses were coded into categories of semantically-similar words (e.g., “has mercy,” “forgiving,” and “forgives people” are all categorized into a single “forgiveness” category). Coding schemes were developed by the first author by coding a portion of the data in this study, and then applied to the data (including the entirety of the data in Study 2) by a second, independent research assistant.³ The coding scheme applied in this project is not the only way in which these data could be analyzed (a topic we return to in the discussion), but they provide a first attempt to identify the prevalence of theoretically-interesting categories of responses. Importantly, coders were blind to the sample and cultural background of the

³ Research assistants were undergraduate students attending a Canadian university. Although the coding scheme applied in this study was not verified by any experts in religion, theology, and morality, the research assistants came from the same sorts of cultural backgrounds as the participants in these studies (e.g., being born in India, East Asia, and the United States, as well as Canada). The coding scheme developed on the exploratory data was refined in consultation with these research assistants, and they used their best judgment about how to classify each response.

participants who supplied the responses and whether they were describing God or karma in a given instance. This means that any idiosyncrasies created by the specific coding scheme that was applied might bias the assignment of responses to one category rather than another (e.g., “harm” vs. “greed”), but they would not bias comparisons made *within* a given category regarding descriptions of karma vs. God, or regarding descriptions provided by participants from different samples. It is these within-category variations across targets and samples that we focus on in our analyses below.

Coders agreed on categorization of 55% - 97% of responses into each of the broad categories analyzed below (77% - 82% of the generosity/greed and religious devotion/violation categories that we focus on below). Any discrepancies between coders were resolved through discussion. These categories were grouped into broader categories of conceptual interest for analysis (e.g., categories for “giving to charity and volunteering,” “generosity,” “selflessness,” and “helping others” were grouped into a broad “generosity” category). Responses were re-coded as missing data if coders determined that they obviously did not answer the intended question, such as if instead of describing actions with good consequences, participants reported an obviously bad action (e.g., “murder”), a good consequence rather than the action that leads to those consequences (e.g., “eternal life in heaven”), something that is not a plausible action (e.g., “oceans”), or if they said that they do not know the answer.

Analyses presented below focus on comparing descriptions of God and karma on the following theoretically-relevant dimensions: For features of each entity, we focus on personality traits (e.g., forgiving, fair, kind, or mean); social roles (e.g., savior, teacher, protector, king, judge, helper, healer, father); supernatural powers (e.g., almighty, omniscient, omnipotent, eternal, creator); non-agentic attributes (e.g., balance, causality [without moral connotations], luck, fate; force-like, resources-like, or contagion-like features); and moralized causality (e.g.,

good actions lead to good outcomes, bad leads to bad outcomes, the Golden Rule, morality, or general goodness and badness). For actions eliciting supernatural rewards and punishments, analyses focus on two broad categories of responses: Religious devotion and violations of religious responsibilities (e.g., [lack of] religious behavior, [not] giving to the church/temple, confession, attendance at religious services, evangelizing, prayer, meditation, [lack of] devotion/belief/faith); and generosity (e.g., giving to charity or volunteering, generosity, selflessness, helping others) and greed (e.g., selfishness, greed, attachment to worldly things). Full details of the coding schemes are available in the Supplementary Materials.

Analysis strategy. We first quantified the salience of each action category in the free list. Salience scores for each item were computed for each response using the *AnthroTools* package in R (Purzycki & Jamieson-Lane, 2017), as the inverse order of responses listed divided by the total number of responses listed by each participants (Quinlan, 2005; Smith et al., 1995; Smith & Borgatti, 1997). All participants were asked to list five items (and listed more than 4 items on average, across all samples and question types), but the actual number of items listed differed across participants due to missing data (and nonsensical or inappropriate responses which were recoded as missing data). We computed average salience scores for each category in each group, using the highest salience whenever participants listed multiple items fitting the same category. This provided a score for each response ranging from 0 to 1, with higher numbers associated with greater frequency and an earlier order on the free list.

Escape from supernatural consequences

Participants were asked to “Imagine that you did something bad, and you were worried that you will face negative consequences, because of karma [god]. What could you do to escape these bad consequences?” Participants’ open-ended responses were coded by a research assistant for whether they mentioned (1) doing a good deed to make amends (either directly to

the person harmed, or a non-specific good deed unrelated to the victim) or (2) religious actions, such as praying, asking God for forgiveness, confession, repentance, or engaging in other religious rituals. This question revealed which actions are believed to be effective ways to prevent supernatural punishment.

Results

Analysis strategy

Analyses below, unless otherwise noted, combined God believers and Christians into a single sample that described God, Hindus and Buddhists into a single sample of participants from karmic religious traditions that described karma, and the general sample of American karma believers who described karma (free list results did not meaningfully differ between the Hindu and Buddhist samples, but analyses that for all five separate subsamples are available in the Supplementary Materials). Below, we first describe the overall patterns of the free listed features of karma and God, and the free listed actions punished and rewarded by karma and God, then present targeted comparisons that test whether agentic, devotional beliefs are more common in representations of God and whether moralized causality beliefs are more common in representations of karma.

Overview of Features of God and karma

Figure 1 depicts the salience scores for free list descriptions of karma and God. In descriptions of God, all samples frequently listed personality traits (e.g., being loving and kind) and supernatural powers (e.g., being an almighty, omniscient, creator), with other social roles (e.g., father, teacher) and actions/thoughts also being quite often. Moralized causality, non-agentic traits and non-agentic descriptors were rarely mentioned. In contrast, when describing karma, all samples frequently listed moralized causality (e.g., good actions lead to good consequences) and non-agentic traits (e.g., balance, causality, or force), and rarely mentioned

social roles or supernatural powers. (They also did not mention gods or Buddha when describing karma.) Personality traits and actions/thoughts were listed moderately frequently for karma (especially by Hindus and Buddhists), as well as being present in descriptions of God, indicating that some degree of agentic mental representations are part of karma as well as God.

Figure 1. Group-averaged salience of features attributed to God (blue/circles) and karma (red/squares/triangles). Values range from 0 to 1, with higher scores indicating that the response was listed earlier in the list and by more participants. E = Study 1: Exploratory Sample, C = Study 2: Confirmatory Sample.

Overview of Actions rewarded and punished by God and karma

As displayed in Figure 2, in all samples generosity (e.g., giving to charity, sharing, helping others, and being selfless) and caring for others (e.g., love, kindness, compassion, friendliness, and not causing harm) were highly salient actions resulting in good consequences, and cheating, unkindness, harm, and greed were highly salient actions resulting in bad consequences – that is, most common were prototypical examples of morality previously

documented outside of religious contexts (Purzycki et al., 2018; Schein & Gray, 2015; Vauclair et al., 2014). Honesty, tolerance/intolerance and generally doing good or bad things were also listed quite often. Also showing up occasionally, in all groups, were items referring to hard work and dedication to fulfilling one's responsibilities – traits which are not obviously prosocial/antisocial, but are consistent with the idea that, as part of secular or supernatural justice, hard work will lead to successful achievement of long-term goals (Hafer & Rubel, 2015; Laurin & Kay, 2017).

(Dis)loyalty, (dis)respect for authority, and bodily or sexual (im)purity were mentioned much less often. This is true even though our samples contain American Christians and Hindus – groups who have been found, in past research to personally moralize issues of respect, loyalty, and purity, as much as they moralize harm and fairness concerns (Graham et al., 2013; Graham & Haidt, 2010; Hone et al., 2020; K. A. Johnson, Hook, et al., 2016; McCullough et al., 2012; Shweder et al., 1997; Weeden et al., 2008; Weeden & Kurzban, 2013). All participant groups responded very similarly, despite variability in their religion affiliations, ethnicities, and how they learned about God and karma.⁴ The only category that strikingly deviates from this pattern involves religious devotion and religious violations, which were highly salient when describing God, but uncommon for karma. Additional analyses (available in the Supplementary Materials) confirmed that participants were listing actions that were perceived as morally relevant in general. Participants tended to report that actions with supernatural punishments were morally wrong and somewhat harmful to both the actor and to other people, while actions with supernatural rewards were morally good and somewhat helpful to both the actor and to others.

⁴ Additional analyses, available in the Supplementary Materials, tested whether individual differences in Moral Foundations or political orientation predicted free list responses, and failed to find any consistent relationships between these individual differences and descriptions of karma and God.

Figure 2. Group-averaged salience of actions leading to good consequences (left) and bad consequences (right), because of God (blue circles) and karma (red squares/triangles). Values range from 0 to 1, with higher scores indicating that the response was listed earlier in the list and by more participants. E = Study 1: Exploratory Sample, C = Study 2: Confirmatory Sample.

Agency and religious devotion as characteristic of God vs. karma

To further investigate specific differences between mental representations of God and karma, we used logistic regressions to predict the presence/absence of a given category in the free lists (0 = never mentioned, 1 = mentioned one or more times across any of the five possible responses) from participant group (dummy coded).

Feature free list: Personality traits vs. non-agentic traits

As depicted in Figure 1, Hindus/Buddhists were substantially less likely to describe karma as having personality traits, $OR = 0.09$ [0.06, 0.12], a role, $OR = 0.13$ [0.07, 0.21], or supernatural powers, $OR = 0.06$ [0.04, 0.09], and karma was much higher in non-agentic attributes, $OR = 8.76$ [6.00, 13.09], compared to descriptions of God. Karma believers were also substantially less likely to describe karma as having personality traits, $OR = 0.11$ [0.08, 0.15], a role, $OR = 0.15$ [0.09, 0.25], or supernatural powers, $OR = 0.09$ [0.06, 0.12], and karma was much higher in non-agentic attributes, $OR = 12.00$ [8.16, 18.04], all $ps < .001$. Hindus/Buddhists and karma believers did not significantly differ in ratings of karma's personality traits, roles, or supernatural powers, but Hindus/Buddhists were less likely to ascribe non-agentic qualities to karma than were karma believers, $OR = 0.73$ [0.54, 0.98].

Morality free list: Religious devotion

For all analyses of the reward and punishment free lists, analyses were performed separately for actions with good consequences (reward free list) and actions with bad consequences (punishment free list), because we had no specific hypotheses about valence differences and including valence in the analysis led to convergence problems in several analyses. We also controlled for participants' religiosity (standardized) in these analyses, to ensure that it was not simply group-level differences in religiosity driving these relationships.

More religious participants were more likely to list religious morality in the free list responses, $OR_{reward} = 1.50 [1.29, 1.75]$, $OR_{punishment} = 1.80 [1.50, 2.18]$, $ps < .001$, but substantial differences remained between descriptions of God and karma even after controlling for religiosity. As depicted in Figure 2, free list responses broadly referring to religious devotion (e.g., faith, religiously-prescribed morality, attending religious services and engaging in rituals, prayer, and meditation, evangelizing, and giving money to church) were mentioned substantially less by karma believers, $OR = 0.12 [0.07, 0.18]$, $p < .001$, or Hindus/Buddhists describing karma, $OR = 0.21 [0.14, 0.29]$, $p < .001$, than by participants describing God. Likewise, responses referring to a lack of religious devotion (e.g., sinning, unbelief, lack of devotion, and failure to engage in religious rituals) were also mentioned substantially less by karma believers, $OR = 0.04 [0.02, 0.09]$, $p < .001$, or Hindus/Buddhists describing karma, $OR = 0.08 [0.04, 0.14]$, $p < .001$, than by participants describing God.

How to escape supernatural punishments

As depicted in Figure 3, engaging in a religious action to escape supernatural punishment (such as asking God for forgiveness, prayer, or other rituals) was mentioned generally more by participants who were more religious, $OR = 1.72 [1.56, 1.90]$, $p < .001$, and significantly less by karma believers, $OR = 0.09 [0.07, 0.12]$, or Hindus/Buddhists describing karma, $OR = 0.16 [0.13, 0.20]$, $ps < .001$, than by participants describing God.

Individual-level consistency in descriptions of God

We conducted additional exploratory analyses to test whether, for each sub-sample, free list descriptions of God predicted the presence of religious devotion in the reward/punishment free lists, and whether these feature and reward/punishment free lists predicted the view that prayer is an effective strategy to escape punishment from God. There was no consistent

evidence of individual-level associations between the features freely attributed to God and other aspects of god beliefs. Ascribing personality traits to God, or describing God non-agentically, did not significantly predict the tendency to report that God would reward religious devotion, $OR_{\text{personality}} = 1.19 [0.84, 1.69]$, $OR_{\text{non-agentic}} = 1.09 [0.77, 1.57]$, $ps > .33$, and punish religious violations, $OR_{\text{personality}} = 0.57 [0.27, 1.15]$, $OR_{\text{non-agentic}} = 1.06 [0.52, 2.08]$, $ps > .13$. However, mental representations of God did predict open-ended descriptions of how to escape God's punishments: Participants who described God as possessing personality traits were more likely to report that transgressions can be escaped through prayer (open-ended question), $OR = 1.83 [1.27, 2.63]$, $p < .001$, and describing God as possessing non-agentic traits negatively predicted escape through prayer, $OR = 0.50 [0.25, 0.98]$, $p = .041$. Listing religious devotion in morality free list also positively predicted the perceived efficacy of prayer, $OR = 3.70 [2.51, 5.54]$, $p < .001$.

Figure 3. *Effective strategies to escape supernatural punishments, according to open-ended descriptions in Study 1 (Exploratory Sample; left) and closed-ended responses in Study 2 (Confirmatory Sample; right).*

Moralized causality and generosity as characteristic of karma vs. God

Feature free list: Moralized causality and actions

As depicted in Figure 1, Hindus/Buddhists were substantially more likely to describe karma as moralized causality, $OR = 9.71 [6.98, 13.70]$, or consequences, $OR = 7.22 [4.47, 12.16]$, than were participants describing God. Karma believers were also substantially more likely to describe karma as moralized causality, $OR = 19.91 [14.06, 28.62]$, or consequences, OR

= 10.62 [6.60, 17.88], and less likely to describe karma as action, $OR = 0.48$ [0.36, 0.63], $p < .001$, compared to participants describing God. Compared to karma believers, Hindus/Buddhists were less likely to describe karma as moralized causality, $OR = 0.49$ [0.36, 0.66], $p < .001$, or consequences, $OR = 0.68$ [0.48, 0.95], $p = .026$, and more likely to describe karma as actions, $OR = 2.40$ [1.79, 3.23], $p < .001$.

Morality free list: Generosity and greed

As depicted in Figure 2, free list responses broadly referring to generosity (e.g., sharing, generosity, charitable giving, volunteering, helping others, and engaging in other selfless behavior) were mentioned substantially more by karma believers, $OR = 5.05$ [3.75, 6.87], $p < .001$, or Hindus/Buddhists describing karma, $OR = 3.04$ [2.34, 3.96], $p < .001$, than by participants describing God. Likewise, responses referring to greed (e.g., selfishness, attachment to worldly goods, and refusing to help others) were also mentioned substantially more by karma believers, $OR = 2.52$ [1.87, 3.39], $p < .001$, or Hindus/Buddhists describing karma, $OR = 2.24$ [1.69, 2.98], $p < .001$, than by participants describing God. Other cooperative actions, such as “honesty,” which lack connotations of giving and exchange, did not differ between descriptions of karma and God, in any sample (see Supplementary Materials).

How to escape supernatural punishments

As depicted in Figure 3, open-ended descriptions of how to escape supernatural punishments for misdeeds revealed that doing a good deed was mentioned significantly more by karma believers, $OR = 8.34$ [6.75, 10.34], $p < .001$, and Hindus/Buddhists, $OR = 6.25$ [5.12, 7.64], $p < .001$, describing karma, than by participants describing God.

Individual-level consistency in descriptions of karma

Finally, we investigated consistency in individual differences in mental representation of karma, across the feature free list, reward/punishment free list, and means of effective escape

questions. Exploratory analyses were conducted separately for each sub-sample. The presence of moral causality in the feature free list predicted the presence of generosity as something rewarded by karma, among Hindus/Buddhists, $OR = 1.55 [1.02, 2.37]$, $p = .042$, and was in the same direction but not statistically significant among Karma believers, $OR = 1.55 [0.91, 2.63]$, $p = .10$. Moral causality in karma's features also predicted the presence of greed in the morality free list, among Karma believers, $OR = 1.69 [1.05, 2.76]$, $p = .032$, and Hindus/Buddhists, $OR = 1.77 [1.17, 2.68]$, $p = .007$.

The efficacy of good deeds to escape from karmic consequences was not significantly associated with the presence of moral causality in the feature free list, in any sample except Karma believers, $OR = 1.76 [1.10, 2.17]$, $p = .036$. However, escape through good deeds was predicted by generosity in the free list of karma's rewards, among Karma believers, $OR = 1.83 [1.08, 3.09]$, $p = .024$, and Hindus/Buddhists, $OR = 2.68 [1.75, 4.13]$, $p < .001$. Therefore, there was some consistency in the tendency for individuals who describe karma as moral causality to also list generosity and greed and the free list of karma's rewards/punishments, and to subsequently rate good deeds as efficacious to escape karmic punishments. This shows a consistent pattern in mental representations of karma, which is not clearly evident in mental representations of God.

Discussion

Results from these exploratory samples provided initial evidence that there is substantial overlap between mental representations of God and karma, despite differences in the cultural history of the two constructs. Nevertheless, there was also evidence for distinct mental representations of karma and God. Most people described karma as moralized causality, and ascribe non-agentic features of karma, as well as describing karma as partially about actions and personality traits – consistent with the perspective that human actions initiate the process of

karmic causality. In contrast, moralized causality is rarely mentioned in descriptions of God, which were more centrally about God's personality traits, supernatural powers, and social roles. These differences also showed up as different priorities when describing which human actions elicit supernatural rewards and punishments, with generosity being mentioned more frequently when thinking about karma than God, and religious devotion being highly salient when thinking about God as almost never mentioned for karma. Likewise, good deeds were more often listed as ways to escape karmic punishments, whereas prayer was more frequently listed as a means to escape God's wrath. These results show similarities as well as clear differences in expectations about supernatural norm enforcement depending on whether God or karma is the focal supernatural entity.

STUDY 2

Study 2 provided a preregistered replication of the focal patterns of mental representations of karma and God, reported in Study 1. This confirmatory sample also addresses methodological limitations of the previous study: In Study 1, participants described either karma *or* God, meaning that observed differences might be due to differences between samples (e.g., Christians vs. Hindus) rather than differences between targets (God vs. karma). In Study 2, participants described both karma *and* God, to investigate whether the same individuals hold different mental models of karma and God. We also attempted to replicate patterns in the importance of religious devotion and the efficacy of prayer to escape supernatural punishment (found to be highly salient in open-ended descriptions of God but not karma), using closed-ended questions. This tests whether observed differences between targets resulted only from certain features being especially salient in mental models or whether these differences persist after being brought to mind by direct questions.

Methods

Participants

Participants were recruited from the USA and India through MTurk, and also included participants who do not believe in God or karma, thus allowing us to explore the responses of non-believers. The sampling strategy, exclusion criteria, and measures were preregistered on the OSF prior to data collection,⁵ and prior to data analysis we also preregistered an analysis plan and hypotheses regarding targeted comparisons of interest in the free list data. In August 2017, we aimed to recruit a sample of approximately 1250 participants from each country. The final sample consisted of 1263 American and 1237 Indian participants. All surveys were conducted in English; as a result, Indian participants were likely wealthier and more educated than the general population, but, importantly, participants' religious affiliation matched general demographic trends in these countries, with American participants being primarily Christian or non-religious, and Indian participants being primarily Hindu.

Following preregistered criteria, analyses reported below focus on a subset of participants from this larger sample who (1) claimed to believe in karma and God (i.e., scored above scale midpoint in both belief in karma, according to a questionnaire developed by White, Norenzayan, et al., 2019, or a 3-item measure of belief in the existence of God, adapted from Willard & Norenzayan, 2013); (2) reported that "I believe in karma, and I responded based on my personal beliefs about karma," rather than reporting that they do not believe or were responding based on

⁵ Methods: <https://osf.io/37xd6/>; Analysis plan: <https://osf.io/nhev5/>. Following preregistered criteria, participants were excluded from the final sample if they did not complete all six dictator games ($n = 139$), failed to correctly answer a question testing English speaking ability ($n = 8$), or failed more than one of the other three attention checks placed within the survey ($n = 71$). We had initially required participants to pass all three attention checks, but preliminary analyses showed an extremely high exclusion rate, due to one question that participants were required to leave blank, but were not able to correct after clicking on it. We therefore altered our criteria to only require 2/3 correct attention checks.

other people's beliefs; and (3) provided an appropriate response to the first item listed in the relevant free list (i.e., provided a response that was not coded as nonsense by the independent coders, using the procedure described below; patterns of results did not meaningfully differ when including these participants in the analyses). Participants were excluded on a case-by-case basis, according to whoever provided appropriate responses to the relevant items used in each analysis reported below.

Following these criteria, the focal sample included 338 Americans and 780 Indians who believed in both God and karma; after further excluding nonsensical responses to the free lists, samples sizes ranged from 316 – 528 participants in each of the analyses described below. These samples sizes have at least 80% power to detect correlations of $r = .15$, between-subjects differences of $d = 0.22$ in a t-test, or an odds ratio >1.49 or < 0.67 in a logistic regression.

Materials and procedure

Participants in Study 2 completed the same type of survey as in Study 1, that included a demographic questionnaire, a multi-trial dictator game (results available in the Supplementary Materials, and not directly relevant to the focal results), the free list and moral judgment task, followed by several measures of supernatural beliefs (a full set of materials completed by participants is available in the preregistration documents).

Free list descriptions of karma and God

The free list task was identical to that in Study 1 (and was coded and analyzed using the same method), but in Study 2 all participants answered free list questions about both God⁶ and

⁶ The notion of “God” may differ between (primarily Christian) American and (primarily Hindu) Indian samples, in part, due to Hindu polytheism making the concept of God more ambiguous and resulting in differences depending on which god each participant chose to describe. We chose to merely refer to “God” in both samples due to previous evidence that Hindus understand different gods to be specific manifestations of an over-reaching God concept (Fuller, 2004), which has a prototypically-structured mental representation (Fincham et al., 2019), analogous to that documented in Western

karma (order randomly assigned). To make instructions intelligible to all participants included in this study, believers were instructed to answer these questions “based on your own personal beliefs and experiences” and participants who did not believe in the relevant target were asked to “think about how other people in your culture would answer these questions, if they believed in karma [god] (please describe what other people think about karma [god]).”

Closed-ended questions about supernatural rewards/punishments

In addition to the open-ended questions used in Study 1, we attempted to replicate patterns in the importance of religious devotion using closed-ended questions. After listing and evaluating the free list actions participants reported whether someone who is “not very committed to their religion (e.g., they did not attend many religious services, they did not pray very much, or they did not have faith)” will experience bad consequences caused by God and bad consequences caused by karma (7-point scale, *definitely will not* to *definitely will*).

Escape from supernatural consequences

Means of escape from supernatural consequences were included as part of the evaluations of free list responses. For free listed actions resulting in bad consequences, participants reported whether (1) prayer and (2) good deeds could reduce the likelihood of the bad consequences for this action (1 = *more likely* to 5 = *less likely* to face bad consequences). Participants also reported whether doing good deeds to escape bad consequences makes someone a good person or a bad person. For actions resulting in good consequences, participants reported whether engaging in the free list behavior “could make up for something bad that they did in the past,” (1 = *more likely* to 5 = *less likely* to face bad consequences).

conceptions of a monotheistic god. We also asked Indian participants if they were thinking of any particular god when answering these questions, and free list responses did not meaningfully differ depending on which god they chose to describe (see Supplementary Materials).

Results

Overview of features of God and karma

The salience scores for free list descriptions of karma and God are depicted in Figure 1, and largely replicated the pattern of responses from Study 1. In descriptions of God, all samples frequently listed personality traits, supernatural powers, and social roles, whereas moralized causality, non-agentic traits, and non-agentic descriptors were rarely mentioned. In contrast, when describing karma, both samples frequently listed moralized causality and non-agentic traits, and rarely mentioned social roles or supernatural powers. Personality traits and actions/thoughts were listed moderately frequently for karma (especially by Indians), as well as being present in descriptions of God, indicating that some degree of agentic mental representation was part of karma as well as God.

In this sample we analyzed the overall similarity between descriptions of God and karma using a multi-level logistic regression model predicting the presence/absence of each trait in descriptions of karma from the presence/absence of that trait in descriptions of God (including random intercepts nested within participant, and random intercepts nested within free list category). Americans' descriptions of God were not associated with their descriptions of karma, $OR = 1.06 [0.88, 1.28], p = .53$, but Indians who listed a particular trait when describing God were 2.48 times, 95% CI $[2.20, 2.80]$, more likely to list that trait when describing karma, $p < .001$, indicating an especially large association between descriptions of God and karma among Indians, interaction $OR = 2.33 [1.89, 2.89], p < .001$.

Overview of actions rewarded and punished by God and karma

The free list of actions rewarded and punished also replicated the patterns of findings from Study 1. As displayed in Figure 2, actions pertaining to interpersonal prosocial were highly salient in descriptions of God and descriptions of karma: In all samples generosity and caring for

others were highly salient actions resulting in good consequences, and cheating, unkindness, harm, and greed were highly salient actions resulting in bad consequences. (Dis)loyalty, (dis)respect for authority, and bodily or sexual (im)purity were mentioned much less often. The only category that strikingly deviates from this pattern involves religious devotion and religious violations, which were highly salient when describing God, but uncommon for karma.

We also analyzed the overall similarity between descriptions of God and karma, using a multi-level logistic regression model predicting descriptions of karma from descriptions of God. Americans who listed a particular item when describing God's punishment were 6.35 times, 95% CI [4.30, 9.36], more likely to list items from that same category when describing karma's punishment, and Indians' descriptions of God's punishments were 9.69 times, 95% CI [6.70, 14.01], more likely to appear in descriptions of karma's punishments, $ps < .001$, indicating an especially large association between descriptions of God and karma among Indians, interaction $OR = 1.53$ [1.22, 1.91], $ps < .001$. Similarly, items present when describing God's rewards were 3.87 times [2.64, 5.68] more likely to appear in Americans' descriptions of karma's rewards, and 4.00 times [2.80, 5.72] more likely to appear in Indians' descriptions of karma's reward, $ps < .001$, an association that was similar in both countries, interaction $OR = 1.03$ [0.82, 1.30], $p = .78$. Additional exploratory analyses (reported in the Supplementary Materials) indicated that both believers (i.e., the focal sample) and non-believers exhibited a nearly-identical pattern of free list responses, providing strong evidence of cultural consensus about "God" and "karma" concepts, regardless of whether or not participants believed these entities were real.

Agency and religious devotion as characteristic of God vs. karma

To further investigate specific differences between mental representations of God and karma, we used logistic regressions to predict the presence/absence of a given category in the

free lists (0 = never mentioned, 1 = mentioned one or more times across any of the five possible responses) from participant group (dummy coded).

Feature free list: Personality traits vs. non-agentic traits

Americans were substantially less likely to describe karma as having personality traits, $OR = 0.07$ [0.05, 0.12], a role, $OR = 0.12$ [0.07, 0.21], or supernatural powers, $OR = 0.08$ [0.05, 0.12], and karma was much higher in non-agentic attributes, $OR = 10.44$ [6.43, 16.95] compared to Indians' descriptions of God, $ps < .001$. Likewise, compared to Americans describing God, Indians were substantially less likely to describe karma having personality traits, $OR = 0.17$ [0.12, 0.24], a role, $OR = 0.13$ [0.09, 0.20], supernatural powers, $OR = 0.19$ [0.14, 0.26], and more likely to describe karma as having non-agentic attributes, $OR = 4.09$ [2.95, 5.67], $ps < .001$. The difference between descriptions of God and karma was larger in the USA than India for personality traits, interaction $OR = 2.24$ [1.36, 3.96], $p = .001$, and supernatural powers, interaction $OR = 2.43$ [1.50, 3.96], $p < .001$, and non-agentic traits, interaction $OR = 0.39$ [0.22, 0.69], $p = .001$, but was of a similar size for both countries for roles, interaction $OR = 1.11$ [0.56, 2.20], $p = .77$.

Morality free list: Religious devotion

As preregistered, we predicted the presence of religious devotion from the target, country, participants' level of religiosity (standardized), and all interactions between these variables (similar target differences are found when not including religiosity as a covariate). Results are depicted in Table 2, Models A and B. Free list responses referring to religious devotion and religious violations were mentioned substantially less when describing karma than when describing God, but as hypothesized there was a significant target by country interaction, such that God's and karma's concern for religious actions was more similar among Indians than Americans. Unlike in Study 1, religiosity was only a weak predictor of listing religious actions:

Only American participants describing God were more likely to list religious actions if they were themselves more religious, $OR_{reward} = 1.88 [1.21, 3.06]$, $p = .007$, $OR_{punishment} = 2.77 [1.18, 8.12]$, $p = .036$, while this simple effect was not statistically significant among Indians or among either group describing karma.

In contrast to the large differences in free list frequency, a direct question about likely supernatural consequences revealed that *both* karma and God were believed to punish a lack of religious devotion, especially among participants who themselves were highly religious (see Table 2, Model C). In India, religious immorality was approximately equally likely to be punished by God, $M = 4.18$, $SD = 1.62$, or karma, $M = 4.42$, $SD = 1.59$, whereas in the USA, punishment was slightly more likely to come from God, $M = 3.73$, $SD = 1.44$, than karma, $M = 3.50$, $SD = 1.34$ –a difference that is statistically significant but is substantially smaller than differences observed in free list responses.

How to escape supernatural punishments

As another indicator of whether God and karma are believed to respond to religious actions, participants reported whether prayer could help them to escape the bad supernatural consequences of the free list actions. As preregistered, prayer was viewed as a more effective way to escape bad consequences caused by God than karma, in the USA and in India (see Table 2, Model D, and Figure 3). Participants' religiosity did not predict the perceived efficacy of prayer.

Table 2. Regressions predicting the likelihood of rewards for religious devotion, punishment for religious violations and lack of religious commitment, and escape of punishment through prayer, believers only.

	Model A: Religious devotion in free list		Model B: Religious violations in free list		Model C: Punishment for lack of religious commitment		Model D: Escape through prayer	
	<i>OR</i>	<i>p</i>	<i>OR</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
	[95% CI]		[95% CI]		[95% CI]		[95% CI]	
Target (0 = God, 1 = karma)								
USA	0.07 [0.04, 0.11]	<.001	0.04 [0.01, 0.09]	<.001	-0.23 [-0.36, -0.10]	.001	-0.15 [-0.28, -0.02]	.028
India	0.28 [0.22, 0.37]	<.001	0.34 [0.23, 0.49]	<.001	0.10 [-0.00, 0.21]	.06	-0.14 [-0.25, -0.03]	.014
Country (0 = USA, 1 = India)	0.58 [0.43, 0.77]	<.001	0.71 [0.51, 0.98]	.036	0.20 [-0.01, 0.41]	.056	-0.02 [-0.18, 0.14]	.83
Target*	4.12 [2.34, 7.50]	<.001	8.68 [3.41, 30.13]	<.001	0.33 [0.16, 0.50]	<.001	0.01 [-0.16, 0.19]	.90
Country Relig.	1.17 [0.96, 1.45]	.13	1.14 [0.91, 1.44]	.25	0.22 [0.07, 0.37]	.003	0.08 [-0.03, 0.20]	.15
Target*	1.60 [0.98, 2.71]	.069	2.42 [1.00, 7.26]	.076	0.02 [-0.10, 0.13]	.79	0.00 [-0.12, 0.12]	.99
Country*	0.75 [0.56, 0.99]	.042	1.01 [0.73, 1.40]	.97	0.24 [0.04, 0.45]	.022	-0.05 [-0.21, 0.10]	.50
Relig.	0.85 [0.46, 1.55]	.61	0.48 [0.15, 1.28]	.17	0.08 [-0.09, 0.24]	.34	-0.08 [-0.25, 0.09]	.37

Note. Relig. = Religiosity. Target: 0 = God, 1 = karma. Analyses of direct questions about religious immorality and prayer were conducted as mixed-effects models including random intercepts for each participant, to account for the within-subjects nature of the data. Random intercepts were not included in free list analyses due to model convergence problems, but were included in the other models. Primary analyses provide estimates with the USA as the reference group. To ease comparison across countries, this table also provides the simple effects of target in India.

Individual-level consistency in descriptions of God

We conducted additional exploratory analyses to test whether free listed descriptions of God predicted the presence of religious devotion in the reward/punishment free lists, and whether these feature and reward/punishment free lists predicted the view that prayer is an effective strategy to escape punishment from God. There was no consistent evidence of

individual-level associations between the features freely attributed to God and other aspects of god beliefs. Ascribing personality traits to God, or describing God non-agentically, did not predict the tendency to report that God would reward religious devotion and punish religious violations, *ORs* range from 0.65 to 1.33, $p > .10$. There was also no association between God's personality traits or non-agentic traits and the efficacy of prayer, $bs < .22$, $p > .11$, but there was an association between the presence of religious devotion in the morality free list and the perceived efficacy of prayer, among Americans, $b = 0.24 [0.09, 0.39]$, $p = .001$, and Indians, $b = 0.30 [0.15, 0.46]$, $p < .001$.

Moralized causality and generosity as characteristic of karma vs. God

Feature free list: Moralized causality and actions

Americans were substantially more likely to describe karma as moralized causality, $OR = 20.00 [12.58, 31, 79]$, or consequences, $OR = 5.85 [3.33, 10.26]$, and less likely to describe karma as action, $OR = 0.39 [0.28, 0.55]$, $ps < .001$, than they were to describe God using these traits. Likewise, compared to Indians describing God, Indians were substantially more likely to describe karma as moralized causality, $OR = 5.68 [4.18, 7.70]$, or consequences, $OR = 3.16 [2.14, 4.66]$, $ps < .001$, and equally likely to describe karma as action, $OR = 1.08 [0.84, 1.39]$, $p = .55$. The difference between descriptions of God and karma were larger in the USA than India for moralized causality, interaction $OR = 0.28 [0.17, 0.47]$, $p < .001$, and actions, interaction $OR = 2.73 [1.80, 4.16]$, $p < .001$, and not significantly different for consequences, interaction $OR = 0.54 [0.28, 1.05]$, $p = .068$.

Morality free list: Generosity and greed

Preregistered analyses depicted in Table 3 (and Figure 2) confirmed that free list responses broadly referring to generosity (Model A) were mentioned more often when describing karma than when describing God, by both Americans and Indians. Greed (Model B) was also

mentioned slightly more often when Americans described karma compared to God, although there was no difference in greed between Indians' descriptions of karma and God.

How to escape supernatural punishments

A preregistered test of this hypothesis using closed-ended question did not replicate the pattern found in Study 1. Engaging in good deeds to escape the bad free list action, or engaging in the good free list action to escape past misdeeds, was rated as a highly effective (Figure 3), regardless of whether participants were describing God or karma, in the USA and India. Unlike the large target differences in Study 1's open-ended responses, these direct questions revealed that good deeds were generally perceived as efficacious, with few meaningful target differences (see Table 3, Model C and D).

Table 3. Regressions predicting the likelihood of generosity and greed in free lists, and the effectiveness of good deeds to escape supernatural punishment, believers only.

	Model A: Generosity in free list <i>OR</i> [95% CI] <i>p</i>		Model B: Greed in free list <i>OR</i> [95% CI] <i>p</i>		Model C: Good free list action to escape bad consequences <i>b</i> [95% CI] <i>p</i>		Model D: Good deed to escape from bad free list action <i>b</i> [95% CI] <i>p</i>	
Target (0 = God, 1 = karma)								
USA	5.19 [5.13, 28.87]	<.001	1.51 [1.02, 2.22]	.038	-0.01 [-0.10, 0.09]	.89	0.07 [-0.05, 0.19]	.25
India	1.46 [1.00, 2.13]	.048	1.19 [0.87, 1.64]	.27	0.06 [-0.02, 0.13]	.15	-0.07 [-0.36, 0.03]	.16
Country (0 = USA, 1 = India)	0.34 [0.19, 0.64]	.001	1.03 [0.69, 1.53]	.88	-0.04 [-0.17, 0.09]	.51	0.21 [0.06, 0.36]	.007
Target*	0.28 [0.13, 0.60]	.001	0.79 [0.48, 1.31]	.36	0.06 [-0.06, 0.18]	.31	-0.14 [-0.29, 0.01]	.076
Country								

Note. Analyses were conducted as mixed-effects models including random intercepts for each participant, to account for the within-subjects nature of the data. Primary analyses provide estimates with the USA as the reference group. To ease comparison across countries, this table also provides the simple effects of target in India.

Individual-level consistency in descriptions of karma

Finally, we explored the consistency in individual differences in mental representation of karma, across the feature free list, reward/punishment free list, and means of effective escape questions. The presence of moral causality in the feature free list predicted the presence of generosity as something rewarded by karma, among Indians, $OR = 1.99 [1.53, 2.60]$, $p < .001$, and was in the same direction but not statistically significant among Americans, $OR = 1.67 [0.91, 2.99]$, $p = .086$. The efficacy of good deeds to escape from karmic consequences was not significantly associated with the presence of moral causality in the feature free list. However, escape through good deeds was predicted by generosity in the free list of karma's rewards, among Americans, $b = 0.30 [0.05, 0.55]$, $p = .017$, but not significantly among Indians, $b = 0.10 [-0.06, 0.26]$, $p = .22$. Therefore, replicating the pattern from Study 1, there is some consistency in the tendency for individuals who describe karma as moral causality to also list generosity and greed and the free list of karma's rewards/punishments, and to subsequently rate good deeds as efficacious to escape karmic punishments. This shows a consistent pattern in mental representations of karma, which is not clearly evident in mental representations of God.

Discussion

Study 2 replicated the pattern, documented in Study 1, that karma and God are mentally represented in similar but distinct ways and these representations are associated with differences in which actions are salient elicitors of supernatural rewards and punishment. Importantly, these results were found in a sample of people who believe in the existence of *both* karma and God, and who reported their beliefs about both entities, meaning that the observed differences between karma beliefs and God beliefs are not attributable to different groups of people projecting different moral values onto each entity. Responses rather reflect distinct perceptions of different

supernatural entities, that appear across individual from a variety of cultural and religious backgrounds.

GENERAL DISCUSSION

In several religiously-diverse samples from the United States and India, we have documented both similarities and differences between mental representations of karma and God. Both karma and God involve belief in a supernatural entity who rewards and punishes human moral action. Both entities are believed to be especially likely to enforce norms regarding harm, care, and fairness, which are prototypical elements of interpersonal morality in many cultures. But there are also divergences between mental representations of karma and God, as some behaviors are more relevant to karma, while others are more relevant to God. Together, these results are consistent with the perspective that while karmic and theistic beliefs can sometimes provide alternative ways of motivating similar interpersonal prosociality, they are also part of distinct patterns of devotion and norm adherence that could shape believers' behavior in unique ways.

What are God and karma?

Most participants described God as possessing human-like personality traits, and fulfilling social roles, in addition to possessing super-human powers as an omniscient, almighty creator of the universe. This anthropomorphic view of God facilitates believers' tendency to enter into a personal relationship with God, engage in petitionary prayer and acts of religious devotion (e.g., Davis et al., 2013; Exline et al., 2021; Granqvist et al., 2010; Luhrmann, 2012; Schjoedt et al., 2009).

In contrast, karma was rarely ascribed supernatural powers or social roles, and was much more often described through non-agentic causal processes (e.g., balance, cycles) especially in moral contexts (e.g., do good things and get good outcomes, payback for bad deeds, see Willard

et al., 2020, for a similar description of karma among participants from Singapore). Personality traits, actions, and thoughts were also listed at moderate rates by all groups describing karma, and actions were especially common among Hindus and Buddhists (consistent with a longer cultural history of perceiving karma as part of the general causal structure of the universe, not restricted to *moral* actions per se, Bronkhorst, 2011; Fuller, 2004; Kyabgon, 2015; Obeyesekere, 2002). These descriptions of karma might indicate that believers are, at times, willing to think about karma as a social agent, similar to how god believers describe God. However, this does not mean that participants were simply describing gods when asked to think about karma: This view of karma was prevalent even among participants who do not necessarily believe in God (e.g., Buddhists and non-religious karma believers in Study 1, non-believers in Study 2).

Alternatively, this may be another indicator of the tendency to view human moral action as central to karma, such that humans who express these positive and negative personality traits are part of the operation of karmic processes. This ambiguity in views of karma suggests that it might be an especially promising future avenue for research to experimentally manipulate agentic vs. non-agentic views of supernatural entities and measure the psychological effects. Our findings provide preliminary correlational evidence that belief in a non-agentic entity, like karma, is associated with specific norm enforcement beliefs. Compared to God, karma is especially likely to reward generosity and allow compensation of bad deeds through good deeds, and these patterns were especially strong among participants who viewed moralized causality as central to their definition of karma. These patterns could be experimentally verified in future studies.

Which actions are monitored by karma and God?

Actions pertaining to harm and injustice were highly salient in all samples (consistent with a general moral relevance of harm and injustice, Baumard et al., 2013; Gray & Keeney,

2015; Schein & Gray, 2015; Sousa & Piazza, 2014), but karma and God do not care about all domains of action with equal relevance. When God was the target of judgment, actions relating to religious devotion appeared quite frequently, but when thinking about karma, acts of religious devotion were rarely mentioned. This was true even in Hindu samples, where participants were highly religious and karma is part of their religious belief system. Instead, acts relating to generosity and helping were especially salient when describing karma, compared to descriptions of God. This pattern is consistent with the evidence that believers hold different mental representations of God and karma, which may be analogous to different relationship models. Belief in God may reflect a relationship guided by communal sharing principles (love, devotion, and care for dependents) or authority ranking principles (respect for hierarchy and the commands of authority figures). In contrast, belief in karma may be analogous to relationships guided by principles of equality matching (relying on principle of reciprocity) or market pricing (exchange based on some kind of currency, Fiske, 1992; Rai & Fiske, 2011).

This pattern indicates the limited explanatory power of the hypothesis that supernatural norm enforcement beliefs merely arise from people projecting their own moral values onto supernatural entities (Baumard & Boyer, 2013; Epley et al., 2009). Rather, beliefs about God and karma's moral concerns are specifically tied to a broader network of mental representations of these supernatural entities, which can diverge from interpersonal moral values (see also divergences between God's and humans' attitudes towards prosocial lying, Heiphetz et al., 2018, and valuation of outgroup members, Ginges et al., 2016). Further research, using longitudinal and experimental methods, is required to determine the causal pathways through which secular moral values might shape supernatural beliefs, and vice versa. This future research may also target certain predictors that uniquely shape norm enforcement beliefs separately from mental representations, and may find that karma and god beliefs have divergent effects in other

psychological domains, such as processes of spiritual coping that shape believers' subjective well-being in the face of struggles and misfortunes in life.

Closed-ended versus open-ended methodologies

Our findings highlight the advantages of using open-ended questions to reveal what is most salient in participants' mental representations. This method revealed robust differences between descriptions of karma and God, which persisted across samples with different cultural backgrounds. These differences between karma and God did not show up as consistently in closed-answered questions designed to address the same hypotheses (e.g., whether karma and God punish a lack of religious devotion). This does not mean that one method is inherently better or provides more accurate insight into psychological processes, but they are likely relevant predictors of behavior in different contexts: Open-ended responses, by revealing what is most salient, reveal the concepts that come spontaneously to mind. Closed-ended responses may reflect both these salient beliefs and other concepts that are less salient, but which nonetheless drive behavior when elicited by external forces, such as when making decisions in a particular context that emphasizes certain values, or when people remind others of certain concepts to persuade them to engage in certain behavior.

Our studies also only applied one possible method of quantifying open-ended data: relying on human coders to classify responses into different categories. This method is often used in psychological and anthropological research into mental models of supernatural entities and moral values (e.g., Buchtel et al., 2015; Fincham et al., 2019; Purzycki et al., 2018; Purzycki & Holland, 2018; Vauclair et al., 2014; Willard et al., 2020), and it has the advantage of allowing researchers to focus on classifying responses into categories that are theoretically-meaningful to a particular research question, especially when no pre-defined dictionary is available. However, this method is limited in its ability to quickly analyze large datasets and is potentially biased by

the particular categories that were chosen to be coded in a given study. Future research may therefore also wish to use other methods to address these hypotheses (e.g., counting the frequency of words according to alternative, independently developed dictionaries of concepts; or using machine learning and other natural language processing methods for an entirely data-driven approach), and could also attempt to replicate these patterns of mental representations of karma and God using other corpuses of qualitative data.

Conclusion

Our results document beliefs about God and karma in religiously-diverse samples of Americans and Indians, with implications for psychological surveys about religion, morality, and prosocial behavior. These findings add to the mounting evidence that beliefs about supernatural forces, like God and karma, reflect issues that are central to governing human social life, alongside other elements that are unique to the relationships that believers have with supernatural agents and causal processes that ensure cosmic justice.

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Supplementary Materials for

Karma and God: Convergent and divergent mental representations of supernatural norm enforcement

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Demographics across all samples*Table 4. Demographic composition of whole samples, including believers and non-believers.*

Sample	Study 1: Exploratory					Study 2: Confirmatory	
	MTurk		Qualtrics			MTurk	
	Karma Believers	God Believers	Hindus	Buddhists	Christians	USA	India
N	341	413	200	204	203	1263	1237
Gender %							
Female	69	65	59	66	60	63	29
Male	31	35	41	34	40	37	71
Age <i>M (SD)</i>	36.76 (12.01)	38.05 (12.82)	39.92 (14.07)	48.85 (14.79)	53.12 (12.05)	37.51 (12.86)	31.17 (7.78)
Ethnicity %							
Caucasian	80	78	4	37	85	78	1
Asian	6	6	92	52	4	5	95
Other	14	19	4	11	11	17	4
Religion %							
Christian	54	83	--	--	100	56	17
Non-religious	35	11	--	--	--	34	1
Hindu	1	1	100	--	--	1	72
Buddhist	4	1	--	100	--	2	0
Other	6	4	--	--	--	7	10
Belief in karma <i>M (SD)</i>	3.39 (0.59)	2.76 (0.81)	3.73 (0.72)	3.63 (0.67)	2.77 (0.71)	2.82 (0.87)	3.64 (0.61)
Belief in God <i>M (SD)</i>	3.61 (1.40)	4.67 (0.48)	4.29 (1.02)	3.18 (1.27)	4.50 (0.97)	3.61 (1.36)	4.08 (0.82)
Religiosity <i>M (SD)</i>	2.49 (1.40)	3.53 (1.26)	3.02 (1.04)	2.53 (1.12)	3.38 (1.10)	2.72 (1.41)	3.65 (1.01)

Detailed coding scheme for feature free list responses

Table 5. Categories used to classify free list descriptions of karma's and God's features

Category	Sub-categories used for coding
Personality Traits	Forgiving, kind, fair/just, benevolent, mean, or other personality traits
Roles	Saviour, Teacher, Protector, King, Judge, Helper, Healer, Father, Comforter, Messages, Controller
Supernatural powers	A spiritual being, omnipotent, almighty, omniscient, creator, eternal, ever-present
Religious concepts	A religious concept or belief
Actions/Thoughts	Actions (good and bad), thoughts (good and bad)
Non-agentic descriptions	Balance, causality [non-moral], energy/force, resource-like, contagion-like, luck, fate
Non-agentic traits	Descriptions that apply to forces and physical objects (e.g., distant, mysterious, complex, [in]escapable, beautiful, heavy, wonderful)
Moral Causality	Good actions lead to good outcomes, bad leads to bad outcomes, the Golden Rule, morality, or general goodness and badness
Consequences	Future events, good consequences (blessings, good fortune), bad consequences (suffering, punishment)

Detailed coding scheme for reward/punishment free list responses

Free list responses were classified into one of the following categories (described in *Table 6* and *Table 7*, along with examples of responses from each category) by two independent research assistants, who were blind to the remainder of the data while coding (i.e., whether participants were describing God or Karma). Any responses that fit into more than one category were placed into the most appropriate category, and any that listed more than one item in a single response (e.g., “Being a kind and respectful person”) were coded based on the first item mentioned in the response (i.e., “Kindness”). These more specific categories were then grouped into broader categories of conceptually similar responses (described in *Table 5* and *Table 6*), for analyses reported in the main text.

Table 6. Detailed coding scheme used for free list of actions leading to bad supernatural consequences, with example responses from each category.

Category	Category summary and examples
Unknown	e.g., “I don't know,” “this question makes no sense to me”
Nonsense	Nonsense responses (meaningless responses, or other responses that are not (a) a good action or (b) a good consequence). e.g., "it change my life pretty" or "oceans" or "God doesn't care what day it is"
Bad actions	Anything that is obviously bad, rather than good (e.g., “murder”).
Good consequences	Good consequences for an action, rather than good actions, e.g., "good job", "good finances", "blessings", "eternal life"
Generic morality	Law-abiding/generic morality (non-specific), e.g., "always trying to do what is right", "being moral", "do unto others as you want them to do unto you"; non-specific goodness, e.g., "goodness", "being a good person in general", "Do good deeds", "doing good to others"
Good mental states	Good thoughts or intentions, e.g., "being positive", "hopefulness",
Mindfulness/awareness	Mindfulness, attention, awareness, appreciation, e.g., "being aware of all of your actions"
Conscientiousness	Being careful, being conscientious, e.g., "driving safely", "Self care"
Intelligence	Being intelligent, wise, making good choices, knowledge
Humility	Humility, e.g., "not boasting"

Category	Category summary and examples
Patience	Being patient, calm, peaceful, e.g., "slow to anger"
Confidence	Confidence, bravery, courage
Gratefulness	Being grateful, e.g., "being thankful", "Thanking God"
Other traits	Any other positive personality traits that don't fit another category
Forgiveness	Forgiveness, e.g., "Being forgiving", "Forgiving those who have wronged us", "showing mercy", "asking forgiveness"
Love	Love, e.g., "Be loving and caring to others", "Love one another"
Kindness (trait)	Kindness, e.g., "Be kind to others"
Kind actions	Other kind acts that don't fit into another category, e.g., "taking groceries to an elderly's car", "baking cookies for your next-door neighbor", "Doing a favor", "letting someone go ahead of you in line", "Returning lost items to their owner", "service", "don't gossip"
Caring	Being caring or benevolent, e.g., "take care of someone", "Taking care of the sick", "Supporting others", "Protecting the weak", "Adopt a pet", "raising animals humanely"
Compassion	Being compassionate or empathetic or altruistic, e.g., "compassion", "empathy", "sympathy", "comforting someone who is grieving", "being understanding", "listening to someone"
Being nice	Nice, e.g., "be nice to someone", "being especially nice when someone else is mean or wrong". Also include other positive trait descriptors here, e.g., "being pleasant", "being decent", "smiling", "Treat others how you want to be treated"
Friendliness	Friendliness, e.g., "Going out of your way to be friendly"
Not harming others	Do not cause harm to other people, e.g., "don't hurt others", "don't kill", "not being violent"
Care for the environment	Caring for the environment, e.g., "caring for and loving Mother Nature", "Doing good for the earth", "Picking up litter", "save water"

Category	Category summary and examples
Giving to charity/volunteering	Charity, volunteering, donation, giving or donating money or service, e.g., "giving a homeless person change", "giving money", "donate money", "feeding poor", "give to needy"
Generosity	Generosity and sharing, e.g., "being giving", "being generous"
Selflessness	Selfless or unselfishness, e.g., "be selfless", "put others first", "sacrificing for others"
Helping others	Help others, e.g., "assisting", "being helpful", "Helping someone without expecting anything in return"
Teaching	Teaching/nurturing another person
Honesty	Honesty/integrity, e.g., "always being truthful", "being completely honest with yourself and others", "being genuine", "putting integrity before money", "don't steal"
Fairness	Fairness, e.g., "Being fair", "equality", "Treating everyone as equals"
Justice	Justice, e.g., "Justice", "Judgment", "get even"
Loyalty	Loyalty, e.g., "be faithful/loyal", "being faithful", "commitment"
Relationship Loyalty	Being a good friend/parent/child etc., e.g., "Being a good daughter", "Being a good friend", "Being committed in relationship", "being part of a community", "Looking after our elders"
Obedience to authority	Being obedient or dutiful, e.g., "Obedience", "fulfilling one's obligations", "Honor Your Father and Mother"
Respectfulness	Being respectful, e.g., "respect", "Treating everyone with respect regardless of how they treat you"
Being considerate	Being considerate/thoughtful, e.g., "consideration", "being thoughtful"
Politeness	Polite, e.g., "Be polite when talking to others", "being courteous", "not being rude"
Openness	Openness, tolerance, and acceptance, e.g., "Not being prejudiced", "Not controlling others", "being non-judgmental", "being

Category	Category summary and examples
	openminded", "accept others", "ability to accept people, places & things as they are"
Being responsible	Responsible/Dependable, e.g., "being responsible", "Taking care of responsibilities", "Being reliable"
Hard Work	Being hard-working, e.g., "working hard", "working towards a goal"
Sexual purity	Sexual purity and chastity, e.g., "abstinence before marriage", "modesty", "don't commit adultery"
Bodily purity	Purity and health of body, e.g., "don't do drugs", "eat properly", "exercise"
Religious morality	Follow God's commandments (non-specific), e.g., "following scripture", "keeping the ten commandments", "Obedience to God's law", "Obey God"
Giving to the church/temple	Church donations, e.g., "give to God", "paying tithes"
Confession	Confession/remorse, e.g., "Confess your sins", "Genuinely feeling bad for your mistakes"
Attendance at religious services	Church attendance, e.g., "Church", "Going to church on a regular basis", "taking the sacrament", "puja"
Evangelizing	Evangelizing, e.g., "Being a representative of Christ's love", "leading others to Christ", "Preaching", "Spreading the word"
Prayer	Prayer
Meditation	Meditation or Yoga
Devotion/Belief/Faith	Devotion/dedication to god, e.g., "reading the Bible", "Devoutness", "Praising God", "Having a relationship with god", "Worshipping God", "Accepting Jesus", Faith, e.g., "Having Faith", "Faith in God", "Trust in God", Belief (in God/Jesus), e.g., "Belief in a higher power", "Believe in Jesus", "Believing in him"

Table 7. Detailed coding scheme used for free list of actions leading to good supernatural consequences, with example responses from each category.

Category	Category summary and examples
Unknown/Nonsense	Nonsense responses (meaningless responses, or other responses that are not (a) a bad action or (b) a bad consequence). E.g., "it change my life pretty", "oceans", "God doesn't care what day it is", "I don't know", "This question makes no sense to me"
Bad consequences	Bad consequences for an action, rather than a bad action (e.g., "going to hell")
Generic immorality	Generic Immorality (e.g., "Being immoral", "evilness", "doing bad things", "doing wrong")
Crime	Crimes, e.g., "Being a criminal", "arson", "breaking the law"
Other bad actions	Other bad actions, not covered by another category
Bad mental states	Bad thoughts or intentions; Bad attitude or bad state of mind, e.g., "negative outlook", "being bitter/grumpy", "resentment"
Ignorance	Ignorance or lack of knowledge/wisdom
Being unmindful	Not being mindful, e.g., "being reckless", "careless", or "lacking self control"
Bad driving	Bad driving, e.g., "road rage", "cutting someone off in traffic"
Being selfish	Being selfishness or self-centered, e.g., "selfishness", "only caring about yourself", "put yourself before others"
Arrogance	Being arrogant or proud, boasting or bragging
Being unrepentant	Being unrepentant, not seeking forgiveness
Greed	Greed, avarice, being cheap/stingy, not giving, not donating, not sharing, gluttony
Attachment	Attachment to worldly things
Cheating	Cheating (not cheating on a relationship partner)
Stealing	Stealing/theft

Category	Category summary and examples
Exploitation	Other exploitation of another person, e.g., "using people", "controlling people", "being manipulative", "sabotaging others", "scheming", "taking advantage"
Dishonesty	Being dishonest, deceitful, lying, fraud, hypocrisy
Unfairness	Being unfair
Injustice	Injustice
Being uncompassionate	Not being compassionate, not having empathy or love for others, not caring, unkindness
Unhelpfulness	Not helping others, e.g., "Not coming to aid in a time of need", "ignoring someone who needs you"
Ungratefulness	Being ungrateful
Anger	Anger, arguing, being mad, wrath
Hate	Hate, e.g., "being hateful", "maliciousness", "spiteful"
Cruelty/Unkindness	Being cruel, mean, or nasty, e.g., "Taking pleasure in other's pain", "treating someone badly"; Rudeness / unkindness, e.g., "being rude", "being unkind", "being a jerk", "being impolite/discourteous", "insulting someone"
Being inconsiderate	Inconsiderate, not thinking about others
Cursing	Cursing or swearing
Bullying	Bullying or teasing, e.g., "making fun of someone"
Being unforgiving	Being vengeful or unforgiving, e.g., "retribution", "revenge", "vengefulness"
Harm	Causing harm, e.g., "causing emotional or physical pain or suffering", "abuse", "neglect", "mistreatment of others", "torture", "aggression", "fighting", "violence", "war", "assault", "attacking others", "killing", "murder", "not caring for or abusing animals"
Destruction	Destruction, destroying, or vandalism
Not caring for the environment	Not caring for the environment, e.g., "littering", "Lack of respect for all living things and for the Earth", "wasting resources"

Category	Category summary and examples
Lack of work	Lack of direction/dedication, e.g., "aimlessness", "being lazy", "sloth"
Jealousy	Being jealous or envious
Gossip	Gossiping, slander, e.g., "Speaking ill of others", "starting a rumor"
Intolerance	Bigotry and intolerance, e.g., "Being prejudiced", "narrowmindedness", "racism", "rigidity"
Being judgemental	Being judgemental, contempt, disdain, e.g., "looking down on others"
Relationships disloyalty	Lack of family duty, e.g., "abandoning your family",
Adultery	Adultery, e.g., "being unfaithful", "cheating on a spouse", "infidelity"
Disloyalty	Disloyalty and betrayal
Being disrespectful	Being disrespectful
Disobedience	Disobedience, disobeying
Abortion	Abortion
Sexual immorality	Sexual Immorality, e.g., "sex", "promiscuity", "sex outside of marriage", "pornography", "masturbation", "lust", "homosexuality"
Rape	Rape
Addiction	Addiction, e.g., "alcohol", "drinking", "using drugs"
Food violations	Eating the wrong thing, e.g., "eating pork"
Religious violations	Breaking God's commands, disobeying God, e.g., "Breaking commandments", "Committing sins", "Disobedience or rebellion against God"
Lack of appropriate religious behaviour	Lack of religious activities, e.g., "not attending church", "not giving money to the church", "not praying"

Category	Category summary and examples
Lack of appropriate religious belief	Lack of faith, e.g., “being an atheist”, “denying God”, “doubting God”, “not believing”, “not loving god”, “blasphemy”, “idolatry”, “worshiping other gods”, “using God”, “cursing God”, “saying bad things about god”, "using god to get money", "taking His name in vain"

Table 8. Categories used to classify free list descriptions of actions with supernatural rewards

Category	Sub-categories used for coding
Generosity	Giving to charity/volunteering, generosity, selflessness, helping others
Caring	Good mental states, love, kindness, kind actions, caring, compassion, being nice, friendliness, not harming others, care for the environment, being considerate, politeness
Generic morality	Generic morality
Honesty	Honesty, fairness, justice
Tolerance	Patience, forgiveness, openness
Good Traits	Mindfulness/awareness, conscientiousness, intelligence, humility, confidence, gratefulness, teaching, other traits
Responsible	Being responsible, hard work
Religious devotion	Religious morality, giving to the church/temple, confession, attendance at religious services, evangelizing, prayer, meditation, devotion/belief/faith
Respect	Obedience to authority, being respectful
Loyalty	Loyalty in relationships, other loyalty
Purity	Sexual purity, other forms of bodily purity
Nonsense and missing data	Unknown, nonsense, bad actions, good consequences

Table 9. Categories used to classify free list descriptions of actions with supernatural punishments

Category	Sub-categories used for coding
Cheating/ dishonesty	Cheating, stealing, exploitation, dishonesty, unfairness, injustice
Unkindness	Other bad actions, bad mental states, bad driving, lack of compassion, being unhelpful, anger, hate, cruelty/unkindness, being inconsiderate, cursing, bullying
Harm	Harm, destruction, not caring for the environment
Greed	Selfishness, greed, attachment to worldly things
Intolerance	Unforgiveness, jealousy, gossip, intolerance, being judgemental
Generic immorality	Generic immorality, crime, ignorance, being unmindful
Disloyalty	Relationship disloyalty, adultery, generic disloyalty
Arrogance	Arrogance, being unrepentant, ungratefulness
Irresponsible	Lack of hard work
Purity	Abortion, sexual immorality, rape, addiction, food violations
Disrespect	Being disrespectful, disobedience
Religious violations	Religious violations, lack of religious behaviour, lack of religious belief/faith
Nonsense and missing data	Unknown or nonsense, bad consequences

Detailed results of salience score analyses**Study 1***Table 10. Salience of actions leading to bad consequences across conditions, broad action categories.*

Category	God		Karma		
	God Believers	Christians	Karma Believers	Hindus	Buddhists
Greed	0.100	0.120	0.246	0.194	0.242
Harm	0.235	0.281	0.300	0.304	0.340
Unkindness	0.188	0.243	0.403	0.358	0.451
Generic immorality	0.077	0.095	0.088	0.190	0.150
Cheating/ Dishonesty	0.269	0.390	0.500	0.344	0.438
Intolerance	0.099	0.119	0.156	0.229	0.204
Arrogance	0.040	0.038	0.028	0.033	0.039
Irresponsible	0.020	0.015	0.015	0.020	0.009
Religious Violations	0.270	0.303	0.009	0.022	0.014
Disrespect	0.030	0.049	0.012	0.028	0.030
Disloyalty	0.054	0.066	0.048	0.037	0.044
Impurity	0.059	0.039	0.014	0.014	0.017

Table 11. Salience of actions leading to good consequences across conditions, broad action categories.

Category	God		Karma		
	God Believers	Christians	Karma Believers	Hindus	Buddhists
Generosity	0.251	0.354	0.695	0.560	0.549
Caring	0.424	0.454	0.504	0.498	0.632
Generic Morality	0.101	0.100	0.119	0.217	0.182
Honesty	0.098	0.125	0.114	0.129	0.130
Tolerant	0.124	0.160	0.075	0.122	0.152
Other Traits	0.068	0.071	0.050	0.060	0.119
Responsible	0.034	0.026	0.034	0.060	0.016
Religious devotion	0.275	0.413	0.033	0.070	0.051
Respect	0.037	0.052	0.028	0.042	0.049
Loyalty	0.036	0.048	0.019	0.023	0.030
Purity	0.011	0.013	0.002	0.008	0.014

Study 2

Table 12. Salience of actions leading to bad consequences across conditions, broad action categories.

Category	Non-Believers				Believers			
	God		Karma		God		Karma	
	USA	India	USA	India	USA	India	USA	India
Greed	0.138	0.148	0.220	0.187	0.153	0.181	0.197	0.185
Harm	0.475	0.332	0.471	0.372	0.477	0.387	0.406	0.457
Unkindness	0.200	0.360	0.349	0.441	0.237	0.353	0.417	0.392
Generic immorality	0.082	0.189	0.090	0.240	0.096	0.191	0.098	0.219
Cheating/ Dishonesty	0.523	0.376	0.656	0.346	0.618	0.382	0.670	0.419
Intolerance	0.068	0.100	0.102	0.139	0.061	0.091	0.080	0.074
Arrogance	0.033	0.038	0.017	0.055	0.032	0.095	0.020	0.076
Irresponsible	0.012	0.049	0.019	0.057	0.014	0.016	0.021	0.029
Religious Violations	0.345	0.268	0.013	0.076	0.216	0.175	0.012	0.056
Disrespect	0.028	0.110	0.014	0.067	0.041	0.106	0.040	0.109
Disloyalty	0.121	0.060	0.069	0.083	0.101	0.071	0.052	0.084
Impurity	0.096	0.034	0.046	0.021	0.065	0.035	0.020	0.033

Table 13. Salience of actions leading to bad consequences across conditions, broad action categories. Includes all previously-excluded participants.

Category	Non-Believers				Believers			
	God		Karma		God		Karma	
	USA	India	USA	India	USA	India	USA	India
Greed	0.127	0.092	0.209	0.108	0.149	0.119	0.188	0.119
Harm	0.433	0.207	0.448	0.218	0.454	0.261	0.388	0.298
Unkindness	0.186	0.242	0.333	0.287	0.229	0.258	0.404	0.285
Generic immorality	0.075	0.129	0.087	0.156	0.093	0.136	0.093	0.155
Cheating/ Dishonesty	0.475	0.232	0.619	0.203	0.587	0.249	0.637	0.268
Intolerance	0.063	0.062	0.097	0.080	0.061	0.063	0.076	0.051
Arrogance	0.029	0.027	0.017	0.037	0.031	0.061	0.019	0.051
Irresponsible	0.011	0.032	0.019	0.033	0.013	0.013	0.020	0.021
Religious Violations	0.317	0.173	0.012	0.048	0.205	0.122	0.013	0.039
Disrespect	0.026	0.068	0.013	0.040	0.039	0.070	0.038	0.071
Disloyalty	0.111	0.036	0.064	0.048	0.097	0.048	0.049	0.055
Impurity	0.087	0.021	0.043	0.014	0.061	0.024	0.021	0.023

Table 14. Salience of actions leading to good consequences across conditions, broad action categories.

Category	Non-Believers				Believers			
	God		Karma		God		Karma	
	USA	India	USA	India	USA	India	USA	India
Generosity	0.572	0.528	0.848	0.610	0.639	0.549	0.811	0.629
Caring	0.386	0.488	0.551	0.519	0.448	0.468	0.552	0.447
Generic Morality	0.106	0.186	0.113	0.246	0.156	0.204	0.098	0.273
Honesty	0.101	0.163	0.118	0.174	0.147	0.193	0.163	0.190
Tolerant	0.084	0.073	0.054	0.086	0.083	0.079	0.045	0.065
Other Traits	0.047	0.097	0.052	0.096	0.072	0.124	0.048	0.130
Responsible	0.016	0.053	0.029	0.069	0.024	0.031	0.033	0.060
Religious devotion	0.526	0.333	0.018	0.098	0.386	0.281	0.041	0.084
Respect	0.047	0.086	0.018	0.081	0.052	0.073	0.029	0.096
Loyalty	0.057	0.035	0.045	0.037	0.050	0.040	0.056	0.048
Purity	0.016	0.008	0.006	0.009	0.002	0.007	0.009	0.006

Table 15. Salience of actions leading to good consequences across conditions, broad action categories. Includes all previously-excluded participants.

Category	Non-Believers				Believers			
	God		Karma		God		Karma	
	USA	India	USA	India	USA	India	USA	India
Generosity	0.524	0.347	0.797	0.369	0.606	0.397	0.767	0.434
Caring	0.361	0.348	0.524	0.338	0.427	0.362	0.536	0.350
Generic Morality	0.101	0.136	0.111	0.169	0.148	0.160	0.094	0.200
Honesty	0.093	0.106	0.111	0.109	0.142	0.140	0.153	0.141
Tolerant	0.077	0.051	0.051	0.054	0.082	0.060	0.045	0.047
Other Traits	0.047	0.075	0.049	0.073	0.072	0.099	0.051	0.107
Responsible	0.014	0.034	0.029	0.045	0.023	0.023	0.032	0.043
Religious devotion	0.486	0.231	0.018	0.072	0.365	0.208	0.039	0.065
Respect	0.043	0.058	0.017	0.050	0.048	0.052	0.028	0.067
Loyalty	0.053	0.024	0.042	0.023	0.049	0.029	0.055	0.034
Purity	0.014	0.007	0.006	0.005	0.003	0.005	0.008	0.004

Given the diversity of Gods present in Hinduism (and in India more broadly), we asked Indian participants to indicate which God they had described: 33% reported that they had described a general, non-specific god, 17% Jesus, 11% a variant of Vishnu, 20% a variant of Shiva, 11% another Hindu god, 2% a Hindu goddess, 5% Allah (the Muslim God), and 1% other figures. As displayed in *Figure 4*, the pattern of free list responses was highly similar regardless of which God participants were describing.

Top Chart: Virtues

Virtue	God	Jesus	Vishnu	Shiva	Other Hindu God	Allah
Caring	0.51	0.46	0.49	0.44	0.45	0.44
Generosity	0.50	0.56	0.54	0.58	0.50	0.61
Religious devotion	0.23	0.34	0.32	0.25	0.36	0.41
Generic morality	0.23	0.19	0.23	0.19	0.15	0.18
Honesty	0.22	0.17	0.17	0.14	0.16	0.17
Other Traits	0.14	0.07	0.07	0.16	0.10	0.11
Respect	0.08	0.08	0.04	0.06	0.08	0.13
Tolerance	0.08	0.13	0.05	0.04	0.07	0.15
Loyalty	0.04	0.03	0.02	0.05	0.04	0.01
Responsible	0.03	0.03	0.02	0.02	0.07	0.01
Purity	0.00	0.00	0.00	0.00	0.00	0.01

Bottom Chart: Vices

Vice	God	Jesus	Vishnu	Shiva	Other Hindu God	Allah
Unkindness	0.39	0.32	0.28	0.33	0.30	0.47
Harm	0.38	0.34	0.39	0.36	0.38	0.43
Greed	0.15	0.24	0.18	0.19	0.19	0.11
Religious Violations	0.11	0.33	0.23	0.23	0.24	0.17
Generic immorality	0.18	0.22	0.21	0.20	0.19	0.19
Cheating/Dishonesty	0.38	0.33	0.38	0.38	0.38	0.45
Arrogance	0.16	0.03	0.04	0.06	0.04	0.05
Disrespect	0.14	0.12	0.08	0.08	0.08	0.09
Intolerance	0.10	0.10	0.07	0.07	0.13	0.17
Disloyalty	0.05	0.08	0.09	0.09	0.06	0.06
Irresponsible	0.01	0.01	0.02	0.03	0.04	0.05
Impurity	0.02	0.03	0.03	0.04	0.05	0.07

Similarity in free list responses across groups

Study 1

As another indicator of the degree of similarity between the free lists of each group, we computed correlations between the group-averaged salience scores across all response categories in the coding scheme (i.e., salience scores for each category, rather than scores per participant, provided the level of analysis). As can be seen in Table 13, the results were not always precisely estimated, but they generally support the substantial similarity in the salience of different categories in participants' responses, regardless of the religious background of participants and whether they were describing God or Karma. However, the pattern of salience scores across categories was somewhat stronger for groups describing the same target (i.e., Hindus, Buddhists, and Karma believers describing Karma; Christians and God believers describing God) than for groups describing different targets, even when recruited from the same population (e.g., MTurk). These results provide preliminary evidence of target-specific effects on mental models, which were followed up with focused comparisons of particular response categories of interest.

Table 16. Correlations [95% CI] of salience scores across categories, for of actions resulting in good consequences (below diagonal) and bad consequences (above diagonal)

	Karma Believers	Hindu	Buddhist	God Believers	Christians
Karma Believers		.84 [.70, .95]	.93 [.81, .97]	.73 [.38, .93]	.79 [.35, .96]
Hindu	.84 [.68, .96]		.89 [.80, .96]	.66 [.33, .88]	.70 [.36, .89]
Buddhist	.80 [.66, .91]	.92 [.88, .97]		.67 [.26, .94]	.79 [.37, .96]
God Believers	.43 [.35, .73]	.43 [.26, .82]	.39 [.15, .83]		.88 [.67, .99]
Christians	.50 [.27, .75]	.65 [.47, .85]	.64 [.37, .87]	.63 [.39, .97]	

Note. Correlations were based on the group average salience scores for each specific category in the coding scheme (relationships are even stronger if broad, aggregated categories are used as the unit of analysis). Grey cells indicate samples describing the same target, white cells indicate different targets.

Study 2

The correlations between group averaged salience scores (*Table 174*) did not show meaningful target effects: The association between descriptions of God and karma (within the same country or different countries) was as high as the association between descriptions of the same target in different countries, according to both similar point estimates and overlapping confidence intervals for these correlations. Overall, there was substantial similarity between descriptions of God and Karma, and descriptions of the USA and India. This was true despite cultural differences, religious affiliation differences, and differences between the gods being described by participants.

Table 17. Correlations of salience scores across categories, for of actions resulting in good consequences (below diagonal) and bad consequences (above diagonal), believers only.

		Karma		God	
		USA	India	USA	India
Karma	USA		.77 [.60, .94]	.95 [.69, .98]	.76 [.52, .92]
	India	.85 [.46, .95]		.79 [.46, .93]	.97 [.87, .99]
God	USA	.86 [.45, .96]	.82 [.44, .93]		.83 [.55, .94]
	India	.79 [.31, .92]	.94 [.78, .99]	.88 [.67, .95]	

Does belief matter?

The non-believers recruited in Study 2 also allowed us to test whether believing God or karma is real affected these descriptions supernatural rewards and punishments. Believers, compared to non-believers, have been previously found to report that more actions are morally relevant and to judge moral transgressions more harshly (Atkinson & Bourrat, 2011), and only believers become more generous when thinking about God and karma in behavioral experiments (Shariff et al., 2016; White, Kelly, et al., 2019). These differences in moral judgments may be due to different concepts of supernaturally-relevant morality, which should be evident in different free list responses.

We computed the degree of similarity between the free lists of each group as the correlations between the group-averaged salience scores across all response categories in the coding scheme (i.e., salience scores for each category, rather than scores per participant, provided the level of analysis). The pattern of free list responses provided by non-believers was remarkably consistent with the responses of participants who believe that both God and karma are real: The correlations between group averaged salience scores across free list categories was extremely high for Americans' descriptions of God, $r_{reward} = .95$ [.91, .97], $r_{punishment} = .97$ [.95, .98], Americans' descriptions of karma, $r_{reward} = .99$ [.98, .99], $r_{punishment} = .98$ [.97, .99], Indians' descriptions of God, $r_{reward} = .98$ [.96, .99], $r_{punishment} = .94$ [.90, .97], and Indians' descriptions of karma, $r_{reward} = .98$ [.97, .99], $r_{punishment} = .96$ [.94, .98]. This pattern provides strong evidence that free list responses reflect cultural consensus about the concepts "God" and "karma," independently of personal beliefs about the reality of these entities.

Salience of consequences in free list responses

Participants were asked to describe things that a person could do that would lead to good consequences because of karma or God. For MTurkers, this question only referred to “things that would lead to good consequences.” These instructions seemed to confuse several participants, who listed good/bad experiences and potential consequences of actions (e.g., losing a job, illness, blessings) rather than listing actions that precede these experiences. Interestingly, these consequences were mentioned in descriptions of God significantly more often than in descriptions of karma, $OR_{reward} = 4.18 [3.00, 5.89]$, $OR_{punishment} = 1.65 [1.15, 2.38]$, $p < .001$, suggesting that, in the presence of ambiguous wording, karma is construed in terms of actions preceding consequences more readily than God.

To avoid potential confusion, instructions for the Qualtrics sub-samples in the Exploratory Sample, and the Confirmatory Sample, were elaborated to refer to “things that a person could do that would lead to good consequences.” In the Qualtrics sample, Christians describing God did not list consequences at a higher rate than Hindus describing karma, $OR_{reward} = 1.10 [0.50, 2.43]$, $p = .81$, $OR_{punishment} = 1.84 [0.93, 3.76]$, $p = .083$, or Buddhists describing karma, $OR_{reward} = 0.91 [0.40, 2.06]$, $p = .83$, $OR_{punishment} = 0.70 [0.29, 1.59]$, $p = .40$. Confirmatory Sample results also suggests that comprehension problems led participants to list consequences rather than actions: Consequences were listed significantly more by Indian than American participants, $OR_{reward} = 12.98 [6.70, 25.14]$, $OR_{punishment} = 7.00 [5.14, 9.73]$, $ps < .001$, but listed consequences at similar rates for both God and karma, $OR_{reward} = 1.00 [0.51, 1.94]$, $p = 1.00$, $OR_{punishment} = 0.71 [0.28, 1.83]$, $p = .48$, at rates that did not significantly differ between countries.

Salience of honesty in free list responses

To test the specificity of the salience of generosity/greed in free list responses, we also tested how frequently honesty was mentioned in descriptions of something that god/karma will reward. Honesty is another prosocial action that was frequently listed in the free lists, but it lacks the connotations of giving and exchange that are hypothesized to be central to mental representations of karma. In the Exploratory Sample, honesty was not mentioned significantly more often by Karma believers, $OR = 1.12 [0.79, 1.56]$, $p = .53$, or Hindus/Buddhists, $OR = 1.31 [0.96, 1.80]$, $p = .087$, compared to participants describing God. In the Confirmatory Sample, as hypothesized, the presence of honesty did not significantly differ between descriptions of God and karma, $OR = 1.15 [0.76, 1.74]$, $p = .52$, nor was there any target by country interaction, $OR = 0.86 [0.51, 1.45]$, $p = .58$. nor did the presence of dishonesty/cheating reveal any target difference, $OR = 1.43 [0.90, 2.27]$, $p = .13$, or target by country interaction, $OR = 0.92 [0.52, 1.63]$, $p = .77$.

Salience of mental states in free list responses

Study 1

In addition to ideas about exchange and reciprocity, another common way to describe karma is as something inherent to people's mental states and dispositions: Moral and immoral actions create (or reflect) stable underlying characteristics (dispositions towards virtue and vice) that influence how someone is likely to behave and what they are likely to experience in the future. This conceptualization of karma is prevalent in several schools of Buddhist thought (Allen et al., 2015), and is reminiscent of the well-studied psychological tendency to make dispositional inferences from observing other people's behaviour (Gilbert & Malone, 1995; Goodwin et al., 2014; Krull et al., 1999). God may be aware of people's mental states, but given that God is viewed as acting independently of human minds, mental states may be especially salient when describing karma, rather than God's, moral concerns.

Mental states (Figure 5) were listed at similar rates by God believers (9% for good and 5% for bad mental states) and Karma believers (11% and 8%, respectively), $OR_{good} = 1.27 [0.79, 2.07]$, $p = 0.33$, $OR_{bad} = 1.86 [1.02, 3.43]$, $p = .044$. Christians were also unlikely to list good (5%) and bad (4%) mental states, but mental states were listed substantially more often by Hindus (15% and 14%), $OR_{good} = 3.41 [1.67, 7.52]$, $p = .001$, $OR_{bad} = 3.80 [1.76, 9.17]$, $p = .001$, and Buddhists (19% and 16%), $OR_{good} = 4.42 [2.22, 9.62]$, $p < .001$, $OR_{bad} = 4.70 [2.22, 11.20]$, $p < .001$, while Hindus and Buddhists did not significantly differ from each other, $OR_{good} = 1.30 [0.77, 2.20]$, $p = .33$, $OR_{bad} = 1.24 [0.71, 2.16]$, $p = .45$.

Figure 5. Salience of good and bad mental states.

Study 2

Methods

Moralized thoughts. Participants reported whether it is “bad for someone to think negative thoughts (e.g., wishing someone harm), even if they never act on these thoughts,” and similarly, “good for someone to think positive thoughts (e.g., wishing good outcomes for someone else), even if they never act on these good thoughts,” on a 7-point scale ranging from *extremely bad* to *extremely good*.

Supernatural consequences for thoughts. Participants rated the likelihood that a bad thought (e.g., wishing someone harm), that is never acted on, will result in bad consequences caused by God and result in bad consequences caused by karma, on a 7-point scale ranging from *definitely will not* to *definitely will*. Participants answered analogous questions for good thoughts resulting in good consequences because of God or karma.

Results of targeted comparisons: Mental states, thoughts, and intentional action

We examined three different indicators of supernatural consequences for mental states: whether mental states (not classifiable into other actions categories) were present or absent in the free list, a direct question about whether thoughts will result in supernatural rewards and punishments, and whether intentional behaviour is judged differently than accidental behaviour. These items were largely unrelated to one another (correlations were $< .20$ across all targets and countries). We conducted multiple regressions predicting responses from the target, country, and target by country interaction. As a covariate we also included general moralization of thoughts (i.e., the badness of negative thoughts and the goodness of positive thoughts) and the moralization by target interaction, to explore the contribution of individual differences in non-supernatural moral judgments to supernatural beliefs. For each analysis, estimates of target effects were similar when moralization of thoughts was included or excluded from the model, therefore we present the full model below for simplicity.

Free List. The salience of free list responses classified as good mental states (e.g., “keeping positive,” “hopefulness,” “always thinking good”) and bad mental states (e.g., “negative outlook,” “think ill of others,” “pessimism,” and “wishing ill”) is displayed in Figure 3. Americans listed good and bad mental states more often when describing karma (13% and 9%, for good and bad respectively) than God (5%/5% see *Table 18*). The interaction between target and country revealed that Indians listed mental states at similar rates when describing Karma (17%/18%) and God (17%/16%), $OR_{good} = 0.95$ [0.69, 1.31], $p = .75$, $OR_{bad} = 1.46$ [0.81, 1.59], $p = .46$. Indians also listed mental states more often than Americans. This replicates the group difference between Hindus and God/karma believers in the Exploratory Sample, but also replicates the God/Karma difference among Americans.

In both countries, individual differences in general moralization of thoughts did not predict the salience of mental states in the free list. Additionally, God/karma’s perceived knowledge of thoughts was unassociated with free lists of mental states, and cannot explain the

God/karma difference, because mental states were more salient in free lists of karma, but karma was described as having less access to mental states. Americans strongly agreed that God knows thoughts ($M = 6.04$, $SD = 1.35$, on a 7-point scale), but were more ambivalent about whether Karma knows thoughts ($M = 4.24$, $SD = 2.02$), $d = 0.87$ 95% CI [0.71, 1.03], $p < .001$, and Indians also reported that God knows thoughts ($M = 6.3$, $SD = 1.05$) more than Karma knows thoughts ($M = 5.33$, $SD = 1.72$), $d = 0.56$ [0.46, 0.66], $p < .001$.

Direct questions. Indians were more likely than Americans to report, in a direct question, that supernatural forces will reward good thoughts and punish bad thoughts, but this did not differ between descriptions of God and karma in either country, thus failing to replicate the pattern of free list salience between targets (

Figure 6 and Table 18). Individual differences in the moralization of thoughts predicted the likelihood of supernatural consequences, but this effect did not significantly differ between God and karma.

Intentions make actions better/worse. For free list actions resulting in bad consequences, the majority of participants reported that intentionally engaging in the action was worse than accidentally engaging in it, at similar rates (Table 18) for descriptions of God and karma among Americans (63%/60% for God and karma, respectively) and Indians (54%/53%). Participants were somewhat less likely to report that good actions are better if done intentionally (consistent with other asymmetries in the attribution of intentions to harmful vs. helpful actions, Clark, Bauman, Kamble, & Knowles, 2016; Robbins, Shepard, & Rochat, 2017). Americans judged intentions more relevant to Americans' descriptions of God (29%) than karma (26%), but this small difference was not present among Indians (30% for God, 31% for karma). General moralization of thoughts also predicted a reduced, rather than increased, relevance of intentions to evaluations of actions. Therefore, while intentions were somewhat relevant to moral evaluations of free list actions, there was little evidence of target differences or individual differences in this judgment.

Figure 6. Salience of mental states in free list (left) and the likelihood of supernatural consequences for good and bad thoughts (right).

Table 18. Regressions predicting the likelihood of mental states in free list, supernatural consequences for thoughts (direct question), and whether intentions make actions better or worse, believers only.

	Free list: Good mental states		Free list: Bad mental states		Reward for good thoughts		Punishment for bad thoughts		Intentional good is better		Intentional bad is worse	
	OR [95% CI]	P	OR [95% CI]	P	b [95% CI]	P	b [95% CI]	P	OR [95% CI]	P	OR [95% CI]	P
Intercept	0.05 [0.03, 0.08]	<.001	0.06 [0.03, 0.09]	<.001	0.91 [0.78, 1.04]	<.001	-0.01 [-0.17, 0.15]	.93	0.00 [0.00, 0.00]	<.001	2.07 [1.53, 2.80]	<.001
Target (0 = God, 1 = Karma)	2.83 [1.56, 5.42]	.001	1.81 [0.98, 3.43]	.061	0.02 [-0.09, 0.12]	.77	0.14 [0.00, 0.27]	.046	0.67 [0.29, 1.53]	.34	0.84 [0.58, 1.22]	.37
Country (0 = USA, 1 = India)	4.41 [2.58, 8.06]	<.001	3.41 [2.02, 6.06]	<.001	0.51 [0.35, 0.67]	<.001	0.65 [0.45, 0.86]	<.001	1.15 [0.40, 3.31]	.80	0.61 [0.41, 0.89]	.01
Target* Country	0.33 [0.16, 0.66]	.002	0.63 [0.31, 1.26]	.20	-0.04 [-0.18, 0.09]	.54	-0.05 [-0.22, 0.13]	.61	1.98 [0.70, 5.63]	.20	1.13 [0.70, 1.83]	.61
Moralized thoughts in general	0.87 [0.72, 1.06]	.16	0.83 [0.69, 1.01]	.056	0.50 [0.42, 0.58]	<.001	0.10 [0.00, 0.20]	.044	0.70 [0.43, 1.14]	.15	0.65 [0.53, 0.78]	<.001
Target* moralized thoughts	1.04 [0.80, 1.35]	.77	1.11 [0.85, 1.45]	.45	-0.01 [-0.07, 0.06]	.88	0.05 [-0.04, 0.14]	.29	1.03 [0.65, 1.64]	.89	1.20 [0.94, 1.52]	.15

Note. General moralization of thoughts was coded such that lower numbers indicate more negative evaluations and positive numbers positive evaluations. Random intercepts were not included in free list analyses due to model convergence problems, but were included in the other models. Three-way interactions were non-significant across all models, thus are not presented here.

Evaluations of free list actions

Methods

After providing free list descripts of God and karma, participants made several evaluations of the actions which they had listed.

In the Study 1 (Qualtrics sub-samples only), participants were reminded of the first item that they listed as something rewarded/punished by God/karma, and were asked to evaluate whether the action is “morally wrong,” “deserving of punishment,” “unfair,” “disgusting,” “disloyal,” “disrespectful,” “harmful,” and “uncivilized” (or analogous positively-valenced terms, 7-point scales). These items provided a composite moral evaluation index (α s = .92 – .96 across valences and targets). Next, they provided an open-ended description of who would be helped (by the action with supernatural rewards) or harmed (by the action with supernatural punishments). A research assistant coded whether the action was harmful/helpful to (1) the person engaging in the action or (2) the victim or recipient of the action. These evaluations indicate whether the free listed actions are generally characterized as moral violations or virtuous moral actions, in addition to being something that elicits supernatural punishments/rewards.

In the Study 2, participants were reminded of the first item that they had listed in each free list and evaluated this action on several dimensions. (A) Their overall moral judgments of the free list actions were evaluated through three items: “how good or bad is the action,” whether people will think someone performing this action “is a good person or a bad person,” and whether “someone who engages in this behavior should be rewarded or punished” (α ’s range from .81 to .95 across targets and countries). All ratings were made on 7-point scales, with low scores indicating negative evaluations and high scores indicating positive evaluations. (B) Participants reported whether the action is harmful or helpful (7-point scale, *extremely harmful* to *extremely helpful*), and whether it is specifically harmful/helpful to “the person who performs the action” and “other people” (7-point scale, *strongly disagree* to *strongly agree*). (C) Participants reported whether the action was worse [better] if it is done on purpose: 0 = *this action is equally bad [good] no matter what*, 1 = *this action is worse [better] if it is done intentionally, and less wrong [less good] if it is done accidentally*.

Study 1

To confirm that participants were listing actions that were perceived as morally relevant in general, the Hindu, Buddhist, and Christian samples provided additional evaluations of their first free list response. As depicted in Table 16, actions with supernatural rewards were rated as morally good and very helpful, whereas actions with supernatural punishment were rated as morally bad and very harmful (evaluations did not differ significantly across groups). Additionally, when asked to describe who would be harmed or helped by the actions, many participants reported that the action had a recipient who would be harmed or helped by the action (as is prototypical in moral behavior, Schein & Gray, 2015), in addition to being harmful or helpful to the person performing the action (as would be expected from actions that elicit supernatural rewards and punishments).

Table 19. Moral evaluation of free list responses and the percent of participants who reported help/harm to actors and victims of the actions, Qualtrics sample only.

	Good Actions				Bad Actions		
	Hindus	Buddhists	Christians		Hindus	Buddhists	Christians
Goodness	5.96	5.76	5.75	Badness	5.43	5.34	5.28
<i>M (SD)</i>	(0.94)	(1.08)	(1.16)	<i>M (SD)</i>	(1.36)	(1.44)	(1.58)
Helpfulness	6.06	6.11	5.79	Harmfulness	5.29	5.66	5.36
<i>M (SD)</i>	(1.21)	(1.17)	(1.45)	<i>M (SD)</i>	(1.673)	(1.62)	(1.80)
Help to self	36%	33%	32%	Harm to self	41%	44%	40%
Help to recipient	59%	63%	61%	Harm to victim	48%	57%	53%

Study 2

Additional moral evaluations of the free list items (Table 17) confirmed that actions with supernatural rewards were rated as morally good and actions with supernatural punishments were rated as morally bad. These evaluations were generally harsher among Americans than Indians, but were similar between descriptions of God and karma. Actions with supernatural punishments were rated as somewhat harmful to both the actor and to other people, while actions with supernatural rewards were rated as somewhat helpful to both the actor and to other people.

Table 20. Mean (SD) moral evaluation of free list items, believers only.

	Bad Actions				Good Actions			
	Karma		God		Karma		God	
	USA	India	USA	India	USA	India	USA	India
Evaluation	1.98 (0.92)	2.38 (1.64)	2.00 (1.03)	2.49 (1.67)	6.40 (0.66)	6.22 (0.94)	6.34 (0.72)	6.18 (0.90)
Harmfulness/ Helpfulness	1.90 (1.08)	2.43 (1.79)	1.91 (1.15)	2.61 (1.81)	6.54 (0.72)	6.22 (1.11)	6.36 (0.94)	6.14 (1.09)
Harm/Help to Actor	5.04 (1.67)	5.39 (1.57)	5.07 (1.69)	5.39 (1.54)	5.81 (1.16)	5.09 (1.21)	6.03 (1.08)	5.96 (1.10)
Harm/Help to Victim	6.08 (1.17)	5.59 (1.53)	5.85 (1.54)	5.54 (1.50)	6.51 (0.80)	6.14 (1.02)	6.32 (0.97)	6.07 (1.07)

Note. Moral evaluations and harmfulness/helpfulness ratings were on bipolar scales with low scored indicating more negative evaluations and high scores indicating positive evaluations. Harm/help to the actor and victim were rated on likert scales with higher scores indicating greater agreement.

Predicting reward/punishment of religious devotion from traits of God

Predicting free list religious devotion

Table 21. Predicting the presence of religious devotion in free list of God's rewards/punishments from the presence of personality traits in God's features

	Reward for religious devotion								
	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Intercept	0.63	0.47, 0.85	0.002	1.14	0.84, 1.55	0.395	0.49	0.40, 0.59	<0.001
God's personality traits	1.19	0.84, 1.69	0.335	1.33	0.94, 1.88	0.101	0.89	0.69, 1.16	0.405
	Punishment for religious violations								
	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Intercept	0.54	0.40, 0.73	<0.001	0.67	0.49, 0.91	0.011	0.26	0.21, 0.33	<0.001
God's personality traits	1.09	0.77, 1.57	0.628	0.93	0.65, 1.32	0.671	0.9	0.66, 1.22	0.493

Table 22. Predicting the presence of religious devotion in free list of God's rewards/punishments from the presence of non-agentic traits in God's features

	Reward for religious devotion								
	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Intercept	0.74	0.63, 0.87	<0.001	1.46	1.26, 1.70	<0.001	0.47	0.41, 0.54	<0.001
God's non-agentic traits	0.57	0.27, 1.15	0.131	0.65	0.35, 1.21	0.173	0.78	0.51, 1.18	0.249
	Punishment for religious violations								
	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Intercept	0.57	0.48, 0.68	<0.001	0.64	0.55, 0.74	<0.001	0.26	0.22, 0.30	<0.001
God's non-agentic traits	1.06	0.52, 2.08	0.864	0.75	0.38, 1.42	0.396	0.78	0.46, 1.25	0.314

Predicting closed-ended question about punishment for a lack of religious devotion*Table 23. Predicting God's punishments for a lack of religious devotion from God's features.*

	USA (Confirmatory)			India (Confirmatory)		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
Intercept	-0.32	-0.54, -0.10	0.005	0.19	0.04, 0.33	0.014
God's personality traits	0.19	-0.06, 0.44	0.144	0.07	-0.14, 0.27	0.511
	USA (Confirmatory)			India (Confirmatory)		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
Intercept	-0.16	-0.27, -0.05	0.003	0.24	0.13, 0.34	<0.001
God's non-agentic traits	-0.19	-0.64, 0.26	0.411	-0.12	-0.44, 0.19	0.439

Predicting efficacy of prayer to escape God's punishment*Table 24. Predicting the efficacy of prayer from God's features*

	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>b</i>	<i>95% CI</i>	<i>p</i>	<i>b</i>	<i>95% CI</i>	<i>p</i>
Intercept	1.51	1.13, 2.02	0.006	3.8	3.65, 3.96	<0.001	3.73	3.62, 3.83	<0.001
God's personality traits	1.83	1.27, 2.63	0.001	0.06	-0.11, 0.24	0.494	0.07	-0.07, 0.22	0.321
	USA (Exploratory)			USA (Confirmatory)			India (Confirmatory)		
	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
Intercept	2.37	1.98, 2.83	<0.001	3.86	3.79, 3.94	<0.001	3.78	3.70, 3.86	<0.001
God's non-agentic traits	0.5	0.25, 0.98	0.041	-0.21	-0.53, 0.10	0.188	-0.11	-0.33, 0.12	0.349

Individual differences in moral concerns

To investigate whether individual differences in moral concerns predicted free list responses, we examined whether the relevance to morality of each domain in the Moral Foundations Questionnaire (Graham et al., 2011) predicted, in a logistic regression, whether participants' free list contained an analogous action category. Given the unique pattern of salience for religious morality in the free list, the single item referring to "Whether or not someone acted in a way that God would approve of" was analyzed separately, in addition to the composite purity score that also included this item.

Across most comparisons in all three samples (Table 22), there was very little association between relevance to morality and the likelihood of including a category in the free list. For several categories of action, there was a small positive association with moral relevance in the Christian sample, but there was overall only weak evidence that individual differences in moral concerns (as indexed by the MFQ) predicted free list responses.

Table 25. Odds [95% CI] of listing a given free list category, predicted from the moral relevance of analogous MFQ domains, Study 1.

MFQ domain	Free List	Hindu		Buddhist		Christian	
		Bad	Good	Bad	Good	Bad	Good
Harm	Harm/Help	1.15 [0.77, 1.72]	1.44 [0.94, 2.20]	2.07*** [1.40, 3.16]	1.93** [1.23, 3.10]	2.07*** [1.38, 3.24]	1.60* [1.12, 2.33]
	Unkindness/Kindness	1.27 [0.86, 1.90]	--	0.96 [0.65, 1.40]	--	1.26 [0.89, 1.84]	--
Fairness	Greed/Generosity	1.60* [1.04, 2.52]	1.28 [0.85, 1.94]	1.20 [0.85, 1.71]	1.46* [1.02, 2.11]	0.98 [0.66, 1.50]	1.64** [1.15, 2.38]
	Cheating/Honesty	1.21 [0.82, 1.81]	1.09 [0.69, 1.75]	1.41* [1.01, 2.01]	0.82 [0.55, 1.23]	1.77** [1.24, 2.60]	1.41 [0.91, 2.24]
Loyalty	Loyalty/Disloyalty	1.56 [0.68, 3.81]	1.66 [0.69, 4.31]	1.03 [0.59, 1.81]	1.62 [0.81, 3.42]	2.88*** [1.67, 5.25]	1.51 [0.84, 2.86]
Authority	Respect/Disrespect	1.09 [0.53, 2.29]	1.39 [0.77, 2.57]	1.89 [0.92, 4.17]	1.53 [0.82, 2.96]	0.92 [0.52, 1.70]	1.04 [0.56, 2.02]
Purity	Purity/Impurity	5.76 [1.17, 65.10]	1.17 [0.28, 5.84]	1.08 [0.42, 3.02]	1.56 [0.53, 5.14]	1.79 [0.89, 4.08]	0.91 [0.34, 3.38]
	Religious morality/immorality	0.67 [0.28, 1.62]	1.69 [0.96, 3.14]	1.69 [0.62, 5.06]	0.64 [0.37, 1.09]	1.20 [0.85, 1.70]	1.08 [0.78, 1.50]
What god would approve of	Purity/Impurity	5.85 [1.36, 99.99]	1.50 [0.54, 5.99]	0.63 [0.30, 1.20]	1.07 [0.54, 2.20]	1.06 [0.66, 1.86]	0.67 [0.32, 1.66]
	Religious morality/immorality	0.74 [0.41, 1.35]	1.31 [0.88, 2.01]	0.97 [0.51, 1.84]	0.95 [0.67, 1.35]	1.57** [1.17, 2.18]	1.45** [1.10, 1.93]

Predicting free list responses from political orientation

Past research has found a reliable association between individual differences in political orientation and endorsement of particular moral foundations, indexed by the Moral Foundations Questionnaire. Both in North America and around the world (Graham et al., 2009; Klein et al., 2018), political liberals are more likely to view issues regard harm and fairness as relevant to morality, while political conservatives are more likely to view issues regarding respect for authority, ingroup loyalty, and purity as relevant to morality.

In Study 1, logistic regressions predicting the presence of action categories from political orientation (Table 26) failed to find any consistent association between political orientation and free list responses. Study 2 also failed to find any consistent relationships between political orientation and frequency of free list items. Although, across all analyses, a few relationships reached conventional levels of statistical significance, we caution against meaningful interpretations of these relationships due to the large number of tests performed increasing the risk of Type I errors. For instance, although political orientation predicted the likelihood of listing religious actions as something rewarded by God in the Exploratory Sample, the Confirmatory Sample did not replicate this association in the USA, $OR_{Reward} = 1.15$ [0.93, 1.44], $p = .20$, $OR_{Punishment} = 1.03$ [0.81, 1.30], $p = .83$, or in India, $OR_{Reward} = 0.86$ [0.72, 1.02], $p = .09$, $OR_{Punishment} = 0.95$ [0.77, 1.17], $p = .63$, suggesting a lack of robustness in this effect.

Table 26. Odds [95% CI] of listing a given free list category, predicted from political orientation (standardized).

Free List	God believers		Karma Believers		Hindu		Buddhist		Christian	
	Bad	Good	Bad	Good	Bad	Good	Bad	Good	Bad	Good
Harm/ Help	0.77* [0.62, 0.94]	0.86 [0.70, 1.05]	0.92 [0.74, 1.14]	0.81 [0.63, 1.02]	0.85 [0.64, 1.13]	0.92 [0.68, 1.24]	0.92 [0.69, 1.21]	0.86 [0.61, 1.23]	0.94 [0.71, 1.24]	0.66** [0.48, 0.89]
Unkindness /Kindness	0.91 [0.74, 1.12]	--	0.90 [0.73, 1.12]	--	1.03 [0.78, 1.36]	--	1.27 [0.95, 1.70]	--	1.04 [0.78, 1.38]	--
Greed/ Generosity	0.85 [0.66, 1.09]	0.88 [0.72, 1.07]	0.79* [0.63, 0.99]	0.86 [0.67, 1.11]	0.77 [0.56, 1.04]	0.80 [0.59, 1.07]	0.89 [0.67, 1.18]	1.03 [0.76, 1.39]	0.83 [0.59, 1.16]	0.77 [0.58, 1.02]
Cheating/ Honesty	0.83 [0.67, 1.01]	0.71* [0.54, 0.92]	1.04 [0.84, 1.31]	1.15 [0.88, 1.50]	0.74* [0.56, 0.99]	0.71 [0.50, 1.00]	1.21 [0.91, 1.60]	0.97 [0.69, 1.36]	1.07 [0.81, 1.42]	1.24 [0.88, 1.78]
Loyalty/ Disloyalty	1.13 [0.83, 1.56]	0.75 [0.51, 1.08]	1.02 [0.70, 1.48]	0.95 [0.58, 1.52]	0.98 [0.52, 1.79]	1.28 [0.68, 2.42]	0.96 [0.57, 1.57]	1.27 [0.69, 2.34]	0.96 [0.65, 1.44]	0.73 [0.44, 1.20]
Respect/ Disrespect	1.08 [0.69, 1.72]	1.08 [0.81, 1.66]	1.44 [0.77, 2.71]	1.14 [0.70, 1.85]	0.56 [0.27, 1.04]	1.06 [0.66, 1.70]	0.53 [0.25, 1.00]	0.97 [0.57, 1.60]	1.19 [0.71, 2.06]	1.64 [0.92, 3.14]
Purity/ Impurity	1.00 [0.72, 1.39]	1.45 [0.71, 3.23]	1.00 [0.48, 2.01]	1.08 [0.23, 4.41]	0.42 [0.09, 1.27]	0.57 [0.12, 1.87]	0.79 [0.32, 1.79]	0.89 [0.33, 2.16]	0.96 [0.57, 1.65]	0.86 [0.31, 2.41]
Religious morality/ immorality	1.38** [1.12, 1.70]	1.39** [1.14, 1.72]	0.80 [0.32, 1.80]	1.42 [0.92, 2.21]	0.92 [0.43, 1.87]	1.01 [0.65, 1.55]	0.70 [0.27, 1.61]	0.76 [0.47, 1.21]	1.78*** [1.31, 2.46]	1.40* [1.06, 1.88]

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Predicting Dictator Game Giving from Free List Responses

As an indicator of whether individual differences in generosity were associated with salience in the free list, we examined whether participants who were themselves more generous in the dictator game were also more likely to list generosity or greed in the free list.

Methods

Before completing the focal measures described in the main text, all participants completed a dictator game, in which they decided how much of an endowment to share with another anonymous participants in the experiment.

Participants in Study 1 completed three neutrally-framed trials, followed by three more trials in which they were instructed to think about karma or God (depending on condition) before making their decisions about dividing the money (full results of this experiment are reported in White, Kelly, et al., 2019).

In Study 2, participants completed three neutrally-framed trials followed by randomly-assigned instructions to describe either (1) a recent good deed, (2) a recent bad deed, or (3) a neutral behavior [what they had for breakfast that morning], then three more dictator game trials.

Results

Study 1

Across all samples and comparisons (Table 27), there was generally no significant association between dictator game giving and free list content, indicating that participants were not simply listing generosity because it was made salient by their own past generous behavior. For both God and karma, generosity and greed were highly salient regardless of whether participants had recently behaved generously.

Table 27. Correlations [95% CI] between the presence of generosity/greed in free list and dictator game giving.

Samples	Greed <i>r</i> [95% CI]	Generosity <i>r</i> [95% CI]
Karma		
Karma Believers	.01 [-.09, .12]	-.01 [-.12, .10]
Hindus	.10 [-.04, .23]	.03 [-.11, .16]
Buddhists	.10 [-.03, .24]	.15* [.02, .28]
God		
God Believers	-.04 [-.14, .06]	.005 [-.10, .10]
Christians	-.004 [-.14, .13]	.005 [-.13, .14]

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Honesty, another potentially-relevant free list category, also did not significantly predict dictator game giving in any participant group, $r_s < .12$, $p > .10$. Honesty was also not mentioned significant more often by Karma believers, $OR = 1.12$ [0.79, 1.56], $p = .53$, or Hindus/Buddhists, $OR = 1.31$ [0.96, 1.80], $p = .087$, compared to participants describing God.

Study 2

Across both samples and all comparisons there was very little association between the frequency of generosity or greed in the free list and dictator game generosity (Table 28). Generosity and greed were highly salient regardless of participants' own past generous/selfish behavior; participants were not simply listing generosity/greed because they were themselves previously generous. Again, the presence of honesty/cheating in the free lists also did not predict dictator game giving, $r_s < .06$, $p_s > .07$.

Table 28. Correlation [95% CI] between the presence of generosity/greed in free list and dictator game giving.

Samples	God		Karma	
	Greed	Generosity	Greed	Generosity
	r [95% CI]	r [95% CI]	r [95% CI]	r [95% CI]
USA	.06 [-.05, .16]	-.02 [-.13, .09]	.03 [-.08, .14]	.04 [-.07, .15]
India	-.003 [-.09, .08]	.05 [-.03, .14]	-.08 [-.17, .003]	.04 [-.05, .12]

Study 2: Moral licencing and moral compensation effects

The confirmatory sample was collected, in part, as an experimental test of moral licensing and moral compensation effects, and how these effects might be moderated by supernatural beliefs. We investigated whether belief in karma moderated two different behaviours that have been found in previous psychological literature: moral compensation and moral licensing. *Moral compensation* refers to increased prosocial behaviour after recall of one's own previous moral failings, while *moral licensing* refers to decreased prosocial behaviour after recall of one's own previous virtue. Past research has found mixed evidence for these effects. While some researchers have documented moral licensing effects, others have found that recall of past good behaviour leads to consistently moral behaviour (Conway & Peetz, 2012; Young et al., 2012). Moderators that might explain why different effects appear in different contexts have also found little consistent support (see Blanken, Ven, & Zeelenberg, 2015, for a recent meta-analysis).

We investigated whether participants explicit beliefs about ethical causality moderate these moral licencing and moral compensation effects. Many people believe that their past behaviour has implications for their future well-being, through mechanisms of secular justice, karmic forces, or the intervention of a morally-concerned god. We expected that, insofar as participants explicitly believe that their moral actions result in morally-congruent consequences, they will be more likely to regulate their own behaviour across events in a way that would be personally advantageous. Participants who believe in ethical causation and recall a past bad behaviour may be inclined to do a good deed, in order to offset the negative implications of their prior misdeed, thus showing moral compensation effects. Additionally, participants who believe in ethical causation may view current opportunities for self-beneficial behaviour (even at the expense of others) as just rewards for their prior good behaviour. Therefore, we hypothesized that participants will be more likely to show moral compensation and moral licensing effects when they explicitly believe in universal forces of ethical causation, such as karma.

Methods

Participants played a 6-trial dictator game. In between trials 3 and 4 of the dictator game, participants were randomly assigned to describe either a past good deed ("something good that you have done recently. For example, try to recall a time when you acted in a way that was helpful or caring"), a past bad deed ("something bad that you have done recently. For example, try to recall a time when you acted in a way that was hurtful or uncaring"), or a neutral experience ("please describe what you had for breakfast this morning"). After completing the dictator game task, participants completed various measures of their religious beliefs, including belief in Karma, belief in God, belief in a Just World, and three items indicating what good deeds can help alleviate karmic punishments for misdeeds ("Could they escape these bad consequences if they do good deeds (e.g., donate money to charity)?", "If someone does a good deed to escape the negative consequences caused by karma, will people think that they are a good person or a bad person?", and whether the action listed as leading to karmic rewards "could this make up for something bad that they did in the past?").

Results

As expected, there was no difference in the average amount of money given before and after writing about what participants had for breakfast, in the USA, $t(500) = -0.06$, $p = .95$, $d = -0.005$, 95% CI [-0.18, 0.17], or India, $t(455) = 0.56$, $p = .57$, $d = 0.05$ [-0.13, 0.24]. There was also no difference in the amount of money given after writing about a previous good deed (

Table 29) or after writing about a previous bad deed (Table 30). Contrary to our hypotheses, we failed to find any evidence of moral licencing (increased selfishness after describing a good deed) or moral compensation (increased giving after describing a bad deed), and these effects were not moderated by participants' level of belief in Karma. Including belief in God and belief in a Just World in the model (Model 2 in Table 30), or participants' belief that good deeds can help them escape the bad consequences of past actions (Model 3), also revealed no significant priming effects or any moderators of the priming effects.

Table 29. Dictator game giving before and after describing a good deed, moderated by indicators of belief in karma.

	Model 1				Model 2			
	USA		India		USA		India	
	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>
Intercept	0.19 [0.17, 0.21]	<.001	0.26 [0.24, 0.28]	<.001	0.19 [0.17, 0.21]	<.001	0.26 [0.24, 0.28]	<.001
Pre- vs. Post-Prime	0.01 [-0.00, 0.02]	.078	0.00 [-0.00, 0.01]	.32	0.01 [-0.00, 0.02]	.061	0.00 [-0.00, 0.01]	.31
Belief in Karma	0.01 [-0.01, 0.03]	.40	-0.00 [-0.02, 0.02]	.88	-0.00 [-0.02, 0.02]	.93	0.01 [-0.02, 0.03]	.65
Karma *Prime	-0.01 [-0.02, 0.00]	.078	0.00 [-0.01, 0.01]	.70	-0.01 [-0.02, 0.00]	.052	0.00 [-0.01, 0.01]	.44
Belief in God					0.03 [0.01, 0.05]	.003	-0.02 [-0.04, 0.01]	.15
Belief in a Just World					-0.00 [-0.02, 0.02]	.89	-0.01 [-0.03, 0.02]	.57
God *Prime					0.00 [-0.00, 0.01]	.34	-0.01 [-0.01, 0.00]	.17
BJW *Prime					0.00 [-0.01, 0.01]	.82	-0.00 [-0.01, 0.01]	.76

Table 30. Dictator game giving before and after describing a bad deed, moderated by indicators of belief in karma.

	Model 1				Model 2				Model 3			
	USA		India		USA		India		USA		India	
	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>	<i>b</i> [95% CI]	<i>p</i>
Intercept	0.22 [0.20, 0.24]	<.001	0.28 [0.26, 0.30]	<.001	0.22 [0.20, 0.24]	<.001	0.28 [0.26, 0.30]	<.001	0.22 [0.20, 0.24]	<.001	0.28 [0.26, 0.30]	<.001
Pre- vs. Post-Prime	0.00 [-0.01, 0.01]	.71	-0.01 [-0.02, 0.01]	.31	0.00 [-0.01, 0.01]	.71	-0.01 [-0.02, 0.01]	.33	0.00 [-0.01, 0.01]	.71	-0.01 [-0.02, 0.01]	.32
Belief in Karma	-0.00 [-0.02, 0.02]	.78	-0.00 [-0.02, 0.02]	.80	-0.01 [-0.03, 0.01]	.43	-0.00 [-0.03, 0.02]	.83				
Karma *Prime	0.01 [-0.00, 0.01]	.27	0.00 [-0.01, 0.01]	.61	0.00 [-0.01, 0.01]	.56	0.00 [-0.01, 0.02]	.45				
Belief in God					0.01 [-0.01, 0.03]	.29	-0.02 [-0.04, 0.00]	.082				
Belief in a Just World					0.01 [-0.01, 0.03]	.19	0.02 [-0.00, 0.04]	.082				
God *Prime					0.01 [-0.00, 0.01]	.26	-0.00 [-0.01, 0.01]	.78				
BJW *Prime					0.00 [-0.01, 0.01]	.60	-0.00 [-0.01, 0.01]	.61				
Escape through good deed									0.00 [-0.02, 0.02]	.81	-0.01 [-0.03, 0.01]	.52
Escape *Prime									0.00 [-0.01, 0.01]	.79	0.00 [-0.01, 0.01]	.78

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