Cognitive pathways to belief in karma and belief in God

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Abstract

Supernatural beliefs are ubiquitous around the world, and mounting evidence indicates that these beliefs partly rely on intuitive, cross-culturally recurrent cognitive processes. Specifically, past research has focused on humans' intuitive tendency to perceive minds as part of the cognitive foundations of belief in a personified God — an agentic, morally concerned supernatural entity. However, much less is known about belief in karma – another culturally widespread but ostensibly non-agentic supernatural entity reflecting ethical causation across reincarnations. In two studies and four high-powered samples, including mostly-Christian Canadians and mostly-Hindu Indians (Study 1, $N = 2006$) and mostly-Christian Americans and Singaporean Buddhists (Study 2, $N = 1752$), we provide the first systematic empirical investigation of the cognitive intuitions underlying various forms of belief in karma. We used path analyses to (1) replicate tests of the previously documented cognitive predictors of belief in God, (2) test whether this same network of variables predicts belief in karma, and (3) examine the relative contributions of cognitive and cultural variables to both sets of beliefs. We found that cognitive tendencies toward intuitive thinking, mentalizing, dualism, and teleological thinking predicted a variety of beliefs about karma—including morally-laden, non-agentic, and agentic conceptualizations—above and beyond the variability explained by cultural learning about karma across cultures. These results provide further evidence for an independent role for both culture and cognition in supporting diverse types of supernatural beliefs in distinct cultural contexts.

Keywords: Karma, God, Mentalizing, Intuitive Thinking

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All around the world people believe in a myriad of gods, spirits, and other supernatural forces that intervene in human affairs, cause misfortune, bring blessings, and maintain justice and order in the universe. One prominent explanation for the cross-cultural and historical ubiquity of these beliefs is that recurrent features of human cognition make these particular forms of supernatural beliefs intuitively compelling (Atran & Norenzayan, 2004; Barrett, 2000, 2010; Bering, 2010; Boyer, 2001; Guthrie, 1993). The tendency to consider unseen mental states as a source of observable behaviour, the expectation that minds are fundamentally different and separate from physical bodies, and the attribution of function to natural phenomena make it easy to accept culturally-transmitted information about unseen, disembodied supernatural agents that intervene in life events and regulate human behavior. Conversely, there is some evidence that individuals who struggle to understand human minds, who do not espouse dualistic and teleological intuitions, or who tend to override their intuitive reactions in favor of more analytical thinking tend to be less committed to a variety of supernatural and religious beliefs (e.g., Gervais et al., 2018; Pennycook, Ross, Koehler, & Fugelsang, 2016; Riekki, Lindeman, & Lipsanen, 2013; Willard, Cingl, & Norenzayan, 2020; Willard & Norenzayan, 2013; but see also Farias et al., 2017; Lindeman, Svedholm-Häkkinen, & Lipsanen, 2015; Maij et al., 2017; Sanchez, Sundermeier, Gray, & Calin-Jageman, 2017).

Past research regarding the cognitive foundations of religious beliefs has largely investigated the predictors of belief in God, especially in historically-Christian cultural contexts (for a recent exception comparing conceptions of Hindu gods and the Islamic God, see Shtulman, Foushee, Barner, Dunham, & Srinivasan, 2019; see also Baimel, 2019). While God beliefs are prevalent and central to many people's lives around the globe, this reflects only a subset of the

world's diversity in religious beliefs (Norenzayan, 2016). In two studies of diverse samples, we investigated the applicability of cognitive theories of supernatural beliefs to the culturally widespread belief in karma and compared these patterns to the cognitive predictors of belief in God.

Central to Hindu and Buddhist traditions with over 1.5 billion contemporary followers (Bronkhorst, 2011; Pew Research Center, 2015), karma is an ostensibly non-theistic belief that moral actions affect the likelihood of future good and bad outcomes, even when the connection between actions and outcomes is causally-opaque or occurs across unobservably-long timescales in the cycle of reincarnation. Beyond Hinduism and Buddhism, karma is also prevalent in Traditional Chinese Religions, Sikhism, Jainism, and many other smaller religious groups. In countries were Buddhism or Hinduism are prevalent, karmic beliefs are also widespread and closely intertwined with moral values in everyday contexts (e.g., interpersonal relationships, business ethics), even among individuals who do not formally identify as Hindu or Buddhist (Berniūnas et al., 2020; Mulla & Krishnan, 2014; Willard, Baimel, et al., 2020). Belief in karma is also common among the rapidly growing Western "spiritual but not religious", even though most of these individuals are not raised in karma-oriented religious traditions (White, Norenzayan, & Schaller, 2019). These considerations make belief in karma an important but under-studied aspect of the world's theodiversity (Norenzayan, 2016; C. White et al., 2016). Despite its prevalence and cultural importance, karma remains remarkably under-researched compared to other areas in the cognitive science of religion. In two studies across four cultural contexts, we provide one of the first systematic empirical investigations of the cognitive predictors of belief in karma, compare these to the predictors of belief in God, and evaluate several theoretical explanations.

1.1 Intuitions supporting belief in God

There is mounting evidence that many supernatural beliefs partly draw on intuitive cognitive processes that are widespread among children and adults from many cultures, and that there are reliable associations between individual differences in these cognitive tendencies and individual differences in supernatural beliefs. Individuals who tend to trust their intuitions express somewhat stronger belief in God, while those more willing to engage in analytic thinking tend to be somewhat more skeptical. While these associations are small in magnitude (with a typical effect size of about r =.18), and there are lively debates about their robustness (e.g., Gervais et al., 2018; Maij et al., 2017; Stagnaro, Ross, Pennycook, & Rand, 2019), they have emerged in high-powered samples, in several cultural contexts, and are robust to demographic controls and various types of measurement (Baimel, White, & Norenzayan, 2019; Gervais et al., 2018; Pennycook et al., 2016; Stagnaro, et al, 2019). Additionally, belief in God is predicted by cognitive tendencies for mentalizing (perceiving and engaging with other *human* minds, Frith & Frith, 2012); mind-body dualism (thinking about minds as separate and independent from physical bodies, Astuti & Harris, 2008; Chudek, McNamara, Birch, Bloom, & Henrich, 2018; Cohen, Burdett, Knight, & Barrett, 2011; Järnefelt, Canfield, & Kelemen, 2015; Slingerland & Chudek, 2011); and teleological thinking (reasoning about the purpose and intentional design of artifacts and biological entities, Banerjee & Bloom, 2014; Heywood & Bering, 2014; Kelemen, 2004; Kelemen & Rosset, 2009; for comprehensive path models of these relationships, see Willard et al., 2020; Willard & Norenzayan, 2013).

A plausible theoretical explanation for why *these particular* cognitive variables predict belief in God is that believers prototypically view God as an intentional agent, and a willingness to engage in mentalizing facilitates commitment to this *particular conceptualization* of God,

while not facilitating commitment to abstract and impersonal conceptualization of God (Baimel, 2019). Many of the same socio-cognitive processes used to understand interpersonal relationships are also used when believers think about God. Believers often mentally represent God as a personified social agent, with many of the same perceptual capabilities, personality traits, and moral values that humans possess (Barrett & Keil, 1996; Epley, Converse, Delbosc, Monteleone, & Cacioppo, 2009; Heiphetz, Lane, Waytz, & Young, 2016; Purzycki, 2013; Shtulman & Lindeman, 2016), and this anthropomorphic view of God coexists and interacts with, and may even interfere with, later-acquired beliefs about God's abstract and superhuman qualities (Barlev et al., 2017, 2018, 2019). Praying to God engages many of the same neural regions employed to think about other people's mental states (Schjoedt et al., 2009; van Elk & Aleman, 2017), and believers enter into personal relationships with God, with expectations and obligations analogous to those found in interpersonal relationships (Granqvist et al., 2010; Rai & Fiske, 2011).

If engaging with the mind of God utilizes the same mentalizing abilities used to engage with human minds, this implies that individuals who struggle to understand human minds will also struggle to believe in a personal God. Consistent with this prediction, self-reported mentalizing tendencies have been found to predict stronger belief, whereas the autistic spectrum predicts less belief in a personal God (Barnes & Gibson, 2013; Gray et al., 2011; Jack et al., 2016; Lindeman et al., 2015; Lindeman & Lipsanen, 2016; Łowicki & Zajenkowski, 2019; Norenzayan et al., 2012; Wlodarski & Pearce, 2016). Mentalizing tendencies have also been found to predict endorsement of mind body dualism and teleological explanations, which in turn predict the belief in disembodied supernatural agents like God, theistic explanations for natural phenomena, and the perception that life events happen for a reason (Banerjee & Bloom, 2014;

Riekki et al., 2013; Willard & Cingl, 2017; Willard & Norenzayan, 2013, 2017). In this paper, we specifically measure the connection between mentalizing and belief by this last indicator, that, in the general neurotypical population, individuals who feel greater willingness and ease in thinking about other people's mental states will hold more dualistic conceptions of the mind-body relationship and be more likely to imbue natural phenomena and life events with intentionality and purpose, and that these tendencies will predict belief in God.

1.2 Do intuitions also predict belief in karma?

The evidence that mentalizing—and related cognitive intuitions such as dualism and teleological thinking—predicts belief in God is theoretically and empirically justified by evidence that God is often perceived as a social agent, thus requiring cognitive abilities for mind perception. However, this perspective makes it unclear what relationship—if any—exists between these same cognitive tendencies and belief in ostensibly non-theistic supernatural forces. Karma therefore provides a theoretically interesting test case for cognitive theories of supernatural belief because, like belief in God, karma is a culturally-widespread belief about a moralizing supernatural force that responds to human actions such that good people experience good outcomes and bad people bad outcomes in life (Bronkhorst, 2011). Both God and karma reflect belief in culturally-transmitted concepts about supernatural entities that justify why people have particular good and bad experiences (Harvey & Callan, 2014; White, Norenzayan, et al., 2019; Young, Morris, Burrus, Krishnan, & Regmi, 2011), and reminders of God and karma both encourage prosocial behaviour in economic games (White, Kelly, Shariff, & Norenzayan, 2019). From a cultural evolutionary theoretical perspective, both belief in theistic and non-theistic forms of supernatural norm-enforcement may have played a role in facilitating increased

social complexity over historical time (Norenzayan et al., 2016; Watts et al., 2015; White & Norenzayan, 2019).

But unlike God, karma is not obviously personified in religious texts or in the thoughts and actions of believers. Instead, karma is often depicted as an impersonal force or if-then law that summarizes the causal connection between actions and experiences (Bronkhorst, 2011; Daniel, 1983; Wadley, 1983). For example, practitioners of Hinduism tend to believe in both gods and karma, but interact with them in radically different ways. Though Hindu beliefs and practices are extremely diverse and difficult to summarize succinctly, visual depictions of gods with human-like bodies are prominent in a majority of Hindu worship. Devotees often have personal relationships with their gods, which they express through emotional attachment, gestures of respect, and sacrificial offerings; no analogous devotional relationship exists towards karma. Similarly, believers will pray to gods and bargain with them to obtain desired outcomes, while the effects of karma are revealed through divination and escaped through penitential actions (Aktor, 2012; Fuller, 2004; Young, Morris, Burrus, Krishnan, & Regmi, 2011).

Buddhism is also diverse, and while many traditions do not require or even encourage belief in gods or other supernatural agents, many individual Buddhists do believe that the world is inhabited by a variety of supernatural agents worthy of respect and devotion, and some ascribe to Buddha many of the omniscient, punitive, moralistic traits that characterize gods (Berniūnas et al., 2020; Purzycki & Holland, 2018; Stanford & Jong, 2019). In contrast, karma is typically characterized as the consequences for one's actions that are unrelated to divine intervention (Bronkhorst, 2011; Gowans, 2014; Willard, Baimel, et al., 2020). Unlike Abrahamic religions, afterlife/reincarnation beliefs in Buddhism become moralized through their association with karma, not the belief in a moralistic God (Obeyesekere, 2002).

Many Hindus and Buddhists clearly interact with gods as personified agents, but it is less clear how they interact with karma and if this engages the same intuitions. What is the relationship then, between intuitive cognitive tendencies, mentalizing, and belief in karma? Below we outline two theoretically possible relationships, and then present two studies testing these predictions alongside a replication of previously reported predictors of belief in God, in samples from Canada, the United States, India, and Singapore, which vary in their cultural exposure to God and karma beliefs.

1.2.1 Karma reflects unique intuitions about immanent justice, unrelated to the mind perception involved in God beliefs

One possibility is that belief in karma is the expression of an intuition that is distinct from the cognitive processes involved in perceiving minds. The central element of karmic belief systems—that life experiences are causally connected to conceptually-similar past actions—might reflect (1) a by-product of expectations about interpersonal fairness and justice (Baumard et al., 2013; Hallsson et al., 2018) applied outside the constraints of interpersonal relationships, and/or (2) an instance of the motivation to maintain belief in a just world (Hafer & Rubel, 2015; Lerner, 1980).

Immanent justice attributions, analogous to karmic causality within one lifetime, have been well-documented among Westerners who are willing to state that salient past misdeeds are the cause of current misfortune (e.g., Callan, Ellard, & Nicol, 2006; Young, Morris, Burrus, Krishnan, & Regmi, 2011) and who are willing to give away money to better their chance of obtaining desired future outcomes (Banerjee & Bloom, 2017; Converse et al., 2012). These responses are intuitive: Eye movements anticipate outcomes that are congruent with past moral actions (Callan et al., 2013), reaction times slow down when participants report that a bad

experience is *not* caused by a proportionate bad deed (Baumard & Chevallier, 2012), and immanent justice attributions are made more frequently when analytical thinking is inhibited by a cognitive load manipulation (Callan et al., 2010). The presence of intuitive karma-like judgments among these North American and European samples—who have little exposure to theological teachings about karmic forces operating across reincarnations and who often explicitly deny karmic causality (White, Norenzayan, et al., 2019)—implies that intuitions about karmic justice may be widespread across human populations and are not solely the product of cultural learning about socially-sanctioned supernatural concepts (see Baumard & Boyer, 2013). Therefore, one plausible hypothesis is that belief in karma will be predicted by intuitive thinking tendencies, regardless of whether or not karma is viewed as a purely non-agentic supernatural force or a personified supernatural agent, and regardless of whether karma is associated with the mentalizing tendencies that predict God beliefs. This claim would also predict that mentalizing tendencies will not predict belief in karma. That is, the underlying cognitive foundations of belief in karma may be fundamentally different from those supporting belief in God.

1.2.2 Mentalizing, dualism, and teleological thinking are implicated in belief in moralized reincarnation and the personification of karma

A second possibility is that mentalizing tendencies, mind-body dualism, and teleological thinking predict belief in karma because karmic causality is more than simply an intuition about immanent justice. Mental representations of karma also often involve beliefs about moralized reincarnation or metaphorical depictions of karma as a social agent, and this additional content of culturally-reinforced explicit belief in karma may recruit mentalizing tendencies.

First, belief in karma is often intertwined with beliefs about reincarnation. In Hindu and Buddhist theology (Bronkhorst, 2011; Obeyesekere, 2002) and in the self-reports of beliefs about

karma (White, Norenzayan, et al., 2019; Willard, Baimel, et al., 2020), karma is typically believed to operate over multiple lifetimes across the cycle of reincarnation, and to operate especially in the case of moral actions. Thinking about moralized reincarnation requires (1) understanding human morality, including the human intentions and mental states that inform the morality of many actions (Gray et al., 2012; Willard, Baimel, et al., 2020; *cf.* McNamara et al., 2019), and (2) believing that human minds can continue to exist after death and persist through reincarnation in new bodies (C. White, 2015, 2017). Karma then provides a teleological structure for reasoning about one's own and others' life experiences. Mentalizing, dualism, and teleological thinking might therefore predict belief in karma-as-moralized-reincarnation regardless of whether karma—the causal mechanism behind this process—is viewed as a personified agent or a non-agentic causal principle.

Second, despite ambiguity in the theological and anthropological record, believers may, at least to some extent, actually conceptualize karma as a supernatural *agent* rather than an abstract force, due to the tendency for people to seek out agentic sources for their suffering (Gray & Wegner, 2010). Mind perception provides an intuitively compelling way to understand the world, especially for ambiguous stimuli and uncertain causal processes (Epley et al., 2007; Kay et al., 2010; Laurin & Kay, 2017; Waytz et al., 2010), and especially when seeking to understand the cause of misfortune: Witnessing suffering often leads to a spontaneous search for social or supernatural agents who are responsible for causing harm (Gray & Wegner, 2010; Schein & Gray, 2018), and belief in supernatural entities' moral concerns and their other mentalistic qualities tend to co-occur (Purzycki et al., 2012; Purzycki, 2013). Therefore, when trying to explain events caused by karma or making predictions about how karma operates, believers may use agentic mental models of karma to understand it. To address this possibility, we asked

participants to report whether karma possesses a variety of agentic characteristics (e.g., whether karma "can think" and personality traits like being "forgiving" and "vengeful") as well as non-agentic characteristics (e.g., whether karma "is impersonal" and "can be gained and lost"). This allowed us to test whether participants who believe in karma actually deny agentic, personified descriptions of karma, and how well the intuitive cognitive tendencies predict different conceptualizations of karma. Specifically, mentalizing and associated cognitive tendencies may be more relevant when predicting agentic mental representations of karma than non-agentic representations.

1.3 Rationale for analyses and overview of studies

In two studies, we investigated how intuitive thinking styles, mentalizing, mind-body dualism, and teleological thinking predict belief in karma and belief in God, and whether these relationships differ depending on if karma or God is viewed as relevant to human morality, agentic and personified, or non-agentic and impersonal. We used path models to test these hypotheses about the cognitive predictors of belief in karma and God. These paths models apply structural equation modeling to map the hypothesized inter-relationships between multiple cognitive variables as predictors of supernatural beliefs, and test whether the hypothesized model is a good fit to the pattern of covariances observed in the data (Kline, 2010). Specifically, in each model, we test how various beliefs about karma or God are indirectly predicted by intuitive thinking and mentalizing tendencies, via individual differences in mind-body dualism, teleological perceptions of life events, and teleological thinking about nature (i.e., individual differences that are intuitively compelling and supported by mentalizing tendencies, but are more directly relevant to God and karma beliefs than one's general intuitive and mentalizing tendencies). See Figure 1 for a diagram of this comprehensive model.

One advantage of this path modelling technique is that it allows us to simultaneously predict multiple outcome variables within a single model. We can therefore compare the cognitive predictors of belief in the existence of karma/god, beliefs about karma/god's agency, and beliefs about karma/god's non-agentic traits, all the while accounting for covariance between beliefs and these various traits. Through this, we can test the hypothesis that cognitive biases are specifically associated with agentic views of God (e.g., belief in a benevolent god, not a distant, impersonal god), and test whether cognitive biases are also especially predictive of agentic views of karma or whether they broadly predict a variety of conceptualization of karma (e.g., as a morally-relevant causal force). Path models also allow for hypothesis tests of *null* relationships between variables, by assessing whether the model fits the data reasonably well when *omitting* direct relationships between certain variables. For example, in Study 2 we omit paths from dualism and teleology in life to non-agentic trait descriptions, to provide a more stringent test of the hypothesis that mentalistic cognitive biases will predict agentic, but not non-agentic views of supernatural entities.

A further advantage of path models is that they can test for indirect, as well as direct, associations between variables, therefore documenting pathways that would be obscured in an ordinary multiple regression. Specifically, we test a previously-demonstrated indirect pathway between mentalizing and belief to see if the small relationship between these variables can be accounted for by their shared relationship with the tendency toward dualistic and teleological thinking (a model shown to predict belief in God and in the paranormal in Willard, Cingl, et al., 2020; Willard & Norenzayan, 2013). We aim to replicate this model when predicting belief in God, and test whether the same model can predict belief in karma. We further expand on this previously-supported model by adding intuitive thinking as an additional indirect predictor of

belief, and showing that these cognitive variables predict the traits ascribed to karma and God above and beyond their influence on belief in general. Finally, we test whether these indirect associations between intuitive thinking and belief, and mentalizing and belief, differs when predicting karma vs. God, and whether the predictors of karma remain when controlling for God beliefs, to demonstrate whether unique intuitions underly belief in karma.

Due to the important hypothesized role of cultural leaning in shaping both belief in God and karma (Gervais, Willard, Norenzayan, & Henrich, 2011; Lanman & Buhrmester, 2016; Maij et al., 2017; White, Norenzayan, et al., 2019), we investigated the predictors of beliefs in samples of participants from India and Singapore (one predominantly Hindu and one predominantly Buddhist country where social exposure to karma is common) and from Canada and the USA (where social exposure to karma is less common). In Study 2, we also collected self-reports of participants' social exposure to God and karma, which allowed us to directly investigate how learning about supernatural entities from family members predicts one's own beliefs. This allows us to test for an independent role of both cultural learning of belief—which would manifest in between-country differences in average karma belief, and within-country correlations between social exposure and belief commitments—and cognitive predictors of belief—which would manifest as additional unique predictors of belief within each country.

2 Study 1

2.1 Methods

These data were part of a larger project examining belief in karma, including the psychometric properties and cultural and demographic correlates of the belief in karma

questionnaire.[1] Participant recruitment plans and materials were preregistered on the Open Science Framework (https://osf.io/tg8ce/), but analyses reported here were not preregistered. We reported how we determined sample sizes, disclose all data exclusions, manipulations, and measures (in the article and in the accompanying preregistrations), and made all data publicly available (https://osf.io/sk6qt/).

2.1.1 Participants

Canadian and Indian participants were recruited to complete an online survey, through Research Now's participant panels.[2] We aimed to recruit a sample of 1000 participants in each country, as this sample size has 90% power to detect relatively small relationships between variables of interest (i.e., $r \geq .10$). Following preregistered criteria, we included loose quotas for age and gender (and region, in Canada), to generate a sample that broadly resembled the larger Canadian/Indian populations, and we excluded and replaced any participants (221 Canadians and 616 Indians) who failed two attention check questions placed within the survey (e.g., "Please select 'Disagree' as your answer") or who failed one attention check question and had a completion time less than half the median completion time of participants who passed both attention checks. The final sample of 1000 Canadian participants and 1006 Indian participants (Table 1) were substantially different in their religious and cultural background: Canadian

[1] Results from this portion of the dataset are available in (White, Norenzayan, et al., 2019). Additional analyses regarding the zero-order association between intuitive thinking tendencies and belief in God and karma are reported in (Baimel, White, & Norenzayan, 2019).

[2] Canadians chose to complete the survey in either English (83%) or French (17%). The French translation was generated by one bilingual research assistant (except for the mentalizing questionnaire, which was taken from the French translation by Gilet, Studer, Mella, Grühn, & Labouvie-Vief, 2013), then checked by a second, independent bilingual research assistant, and minor changes were made to ensure consistency. Indian participants were fluent in English and completed the English questionnaire.

participants were primarily Caucasian and Christian or non-religious, whereas Indian participants were primarily Hindu, and substantially higher in religiosity, belief in God, and belief in karma than were Canadians, although the multi-item belief in karma questionnaire used here had similar psychometric properties in both countries (White, Norenzayan, et al., 2019).

Table 1. Demographic composition of each sample.

	Study 1		**Study 2**	
	Canada	**India**	**USA**	**Singapore**
N	1000	1006	1244	508
Gender				
Female	51 %	51 %	61%	59%
Male	49 %	49 %	39%	41%
Age *M* (*SD*)	46.69 (15.24)	38.62 (13.54)	45.79 (12.94)	37.47 (11.98)
Ethnicity				
Caucasian	82.9%	0.0%	80%	2%
Asian	9.3%	78.2%	6%	97%
Other or not provided	7.8 %	21.8 %	14%	1%
Religion				
Christian	58 %	7%	65%	--
Non-religious	31 %	1 %	24%	--
Hindu	1 %	78 %	1%	--
Buddhist	3%	0.2%	1%	100%
Other	7 %	13.8 %	9%	--
Religiosity *M* (*SD*)	2.44 (1.31)	3.84 (1.09)	2.69 (1.31)	2.75 (0.85)
Spirituality *M* (*SD*)	3.11 (1.29)	3.91 (1.05)	3.14 (1.25)	2.59 (0.93)
Belief in Karma *M* (*SD*)	2.71 (0.62)	3.69 (0.72)	2.87 (0.80)	3.73 (0.95)
Belief in God *M* (*SD*)	4.48 (2.27)	6.10 (1.51)	3.87 (1.17)	3.43 (0.73)

Note. Belief in God was measured on a 7-point scale in Study 1 and a 5-point scale in Study 2. Belief in karma, religiosity, and spirituality were measured on a 5-point scale in all studies.

2.1.2 Materials

Mentalizing. Individual differences in mentalizing—the willingness to think about and engage with other people's mental states—were assessed through including seven items

regarding a willingness to feel empathic concern for others (e.g., "I am often quite touched by things I see happen") and seven items regarding a willingness to take the perspective of others (e.g., "I sometimes try to understand my friends better by imagining how things look from their perspective"), 5-point likert scale (Canada: $\alpha = .80$; India: $\alpha = .65$), drawn from the Interpersonal Reactivity Index (Davis, 1983). This scale was designed as a measure of an individuals' self-reported cognitive and emotional empathic engagement with other people, and provides an index of an individual's tendency to think about the mental states of others. This scale does not measure whether one is actually *accurate* in determining other people's mental states, nor a more basic capacity to attribute any sort of agency or mental qualities to other people; rather, this measure captures variance within a general population in the willingness to consider the minds of others. This scale therefore captures observable variance in mentalizing tendencies in general samples (i.e., where everyone is likely to possess some capacity for general mental state attribution), which would be obscured by merely asking about the presence/absence of mind attribution capabilities.

Intuitive thinking style. A preference for intuitive thinking was assessed through 10 items from the *experiential* scale of the Rational-Experiential Inventory (Pacini & Epstein, 1999), e.g., "I like to rely on my intuitive impressions" (5-point scale ranging from *completely false* to *completely true;* Canada: $\alpha = .87$; India: $\alpha = .69$).

Mind-body dualism. Six items assessing mind-body dualism were taken from Riekki et al. (2013). Participants indicated their agreement with statements that described the mind as different, and separate, from the body, e.g., "Minds are in principle independent of bodies, to which they are only temporarily attached" (5-point likert scale; Canada: $\alpha = .78$, India: $\alpha = .70$). Four additional items regarding monism (the belief that the mind and body are the same thing)

were removed from the analyses due to low reliability in a combined monism/dualism measure in the Indian sample (see Supplementary Materials for further details).

Teleology in nature. Participants reported whether 12 statements, which described a purpose behind the existence of natural phenomena, were literally true, e.g., "The sun makes light so that plants can photosynthesize" and "Earthquakes happen because tectonic plates must realign" (Canada: $\alpha = .86$; India: $\alpha = .81$, taken from Kelemen & Rosset, 2009). Higher scores indicate a willingness to explicitly endorse natural phenomena as existing for a purpose.

Teleology in life events. Three items (adapted from Banerjee & Bloom, 2014) measured participants' perception of purpose in life events: life events "happen for a reason," "are predestined," and include "signs and messages" (5-point likert scale; Canada: $\alpha = .75$; India: $\alpha = .72$).

Features of God and Karma. Participants reported whether several features were characteristic of God and characteristic of karma. Thirteen items described the target's agentic, mental capabilities, including cognitive abilities (e.g., "can think"), perceptual abilities (e.g., "can see"), morally-relevant abilities (e.g., "can tell right from wrong"), and morally-irrelevant abilities (e.g., "knows the volume of the Atlantic Ocean"). The mean score across these thirteen items measured the degree of mind attributed to God and karma. We also assessed whether God and karma were seen to have personalities, including punitive traits ("punishing," "vengeful," "terrifying," "fearsome," "angry," "judging," "controlling") and benevolent traits ("loving," "forgiving," "compassionate," "peaceful," "comforting"). (Composite α's ranged from .86 to .98, across targets and countries.) To assess non-anthropomorphic descriptions of Karma, participants also reported whether God and karma were "impersonal," and whether God and karma "can be gained and lost."

In addition to describing the features of each target, participants reported the perceived relationships between God and karma through two items, including whether God is "responsible for enacting karma" (5-point scale, from *Karma operates independently of God* to *Karma occurs because of God's will*), and whether God can "intervene to over-rule karmic consequences" (5-point scale, from *God never contradicts Karma* to *God often intervenes and over-rules Karma*).

Belief in God. Participants reported their belief in the existence of God through a single item ranging from 1 = *definitely does not exist* to 7 = *definitely does exist*.

Belief in Karma. Participants completed a 16-item measure of belief in karma (White, Norenzayan, et al., 2019), which both refers to karma explicitly, e.g., "Karma is a force that influences the events that happen in my life," and assesses belief in karmic causal processes within one lifetime and across reincarnations, e.g., "If a person does something bad, even if there are no immediate consequences, they will be punished for it in some future time in their life," "After people die, they are reborn in a new body" (Canada: $\alpha = .93$; India: $\alpha = .90$).

Demographics. Participants reported several general demographic variables, including their age, gender, education, income, ethnicity, and political orientation. Participants also reported their religious affiliation, frequency of religious attendance, level of religiosity and spirituality.

2.2 Results

2.2.1 Path model predicting beliefs about karma and God

Replicating previous findings, in both countries belief in God was modestly but positively correlated with intuitive thinking (Canada $r = .07$ 95% CI [.004, .13], India $r = .14$ [.08, .20]) and with mentalizing (Canada $r = .19$ [.12, .24], India $r = .13$ [.07, .19]). Belief in karma was also positively correlated with intuitive thinking, with an even larger effect size

(Canada r = .27 [.21, .33], India r = .27 [.22, .33]), and with mentalizing (Canada r = .08 [.02, .14], India r = .19 [.13, .25]).

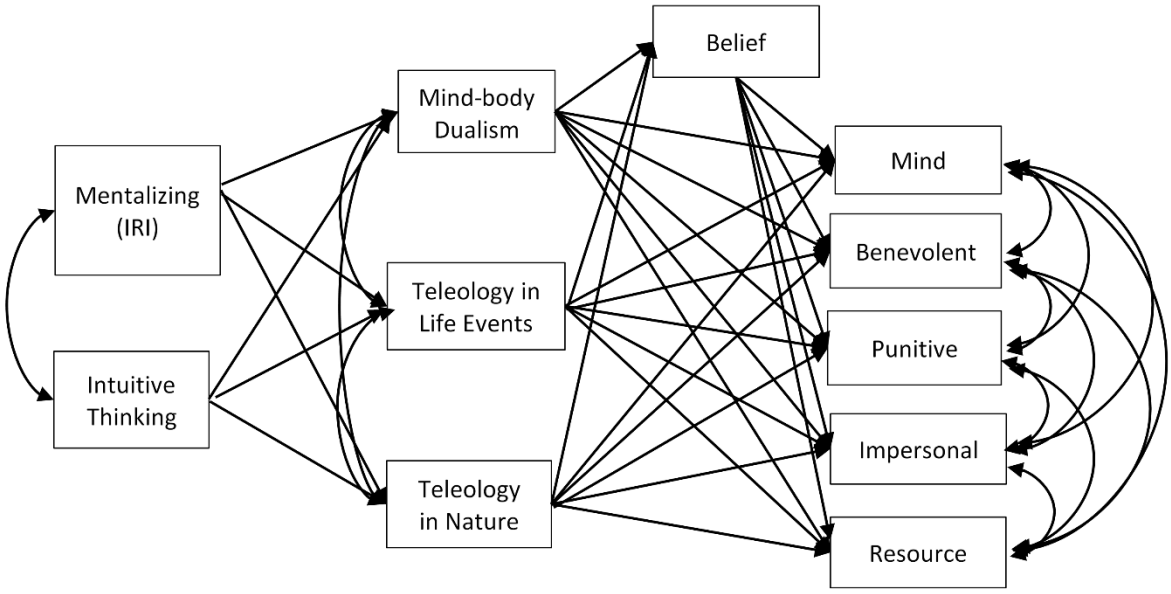
To further investigate how these individual differences predict beliefs about supernatural forces, we created a path model using the lavaan package for structural equation modeling in R (Rosseel, 2012). Small amounts of missing data (0.3%) were accounted for using full information maximum likelihood ('fiml'). This path model allows us to simultaneously test the predictors of multiple dimensions of belief, and test the association between these beliefs, while also testing for hypothesized indirect relationships and hypothesized null relationships by omitting certain paths. Analyses were conducted separately predicting beliefs about karma and beliefs about God, and separately for the Canadian and Indian samples. In this study, the same model (depicted in Figure 1) was applied to each of these four conditions (karma and God, in Canada and India), meaning that model fit statistics presented below indicate whether the same pattern of relationships fit the data well in each of these four models. The relative size of these relationships is indicated by the path coefficient estimates and their confidence intervals, depicted in Table 2. (Bivariate correlations between all variables are available in the Supplementary Materials.)

Drawing on theorizing in the cognitive science of religion, we tested a model (depicted in Figure 1) in which beliefs about karma or God were predicted by individual differences in mind-body dualism, teleological perceptions of life events, and teleological thinking about nature, which were in turn predicted by intuitive thinking and mentalizing tendencies.[3] We omitted

[3] Variables were entered into the path model as composite scores, created by averaging the items in each scale. A similar pattern of path coefficients is found if we instead model these variables as latent variables (from their individual scale items), albeit with somewhat worse fit according to certain indicators (e.g., CFI) due to the increased complexity of the model.

direct paths between mentalizing and belief, to test whether this bivariate relationship was due to mentalizing's relationship with dualism and teleology (consistent with Willard et al., 2020; Willard & Norenzayan, 2013). We likewise omitted direct paths between intuitive thinking and belief. In each model (predicting either karma or God), we simultaneously predicted both belief in karma/God and endorsement of various traits of karma/God, to assess how well these cognitive variables predict different conceptualization of karma/God. Belief in karma/God was added as an additional predictor for each trait to assess if these cognitive biases predict endorsement of traits beyond endorsement of belief. Residual correlations were added between each trait to account for any additional relationship they had with each other not accounted for by the cognitive biases and belief.

Figure 1. Study 1: Path model predicting supernatural beliefs, in Canada and India.



In Canada, this model had a reasonably good fit to the data when predicting beliefs about karma, χ^2 (12) = 33.94, $p < .001$, CFI = .99, RMSEA = .043 [.026, .060], SRMR = .023, and beliefs about God, χ^2 (12) = 58.51, $p < .001$, CFI = .99, RMSEA = .062 [.047, .079], SRMR

= .029. This model was also a reasonably good fit in India, when predicting beliefs about karma, χ^2 (12) = 72.20, p < .001, CFI = .98, RMSEA = .071 [.055, .087], SRMR = .031, and beliefs about God, χ^2 (12) = 78.01, p < .001, CFI = .97, RMSEA = .074 [.059, .090], SRMR = .032. Results of path coefficients for this model are displayed in Table 2.

The overall pattern of path coefficients was largely similar in Canada and India. This was confirmed by additional analyses, which demonstrated that a multigroup path model fit the data reasonably well when path coefficients were constrained to be equal across both countries, karma model: χ^2 (53) = 166.34, p < .001, CFI = .98, RMSEA = .046 [.038, .054], SRMR = .034; God model: χ^2 (53) = 342.66, p < .001, CFI = .95, RMSEA = .074 [.066, .081], SRMR = .064, indicating approximately equivalent associations between variables in both countries. However, these similar paths exist alongside persistent mean differences in beliefs between the two countries (e.g., higher karma belief in India), as is indicated by the poor fit of a multigroup path model in which both the path coefficients and the intercepts were constrained to be equivalent across countries, karma model: χ^2 (64) = 1079.72, p < .001, CFI = .82, RMSEA = .126 [.119, .132], SRMR = .198; God model: χ^2 (12) = 1255.41, p < .001, CFI = .79, RMSEA = .136 [.130, .143], SRMR = .169. In other words, these results indicate that cognitive biases do not override or account for cultural differences in karmic beliefs, but rather we found that the cognitive variables showed similar associations with belief *within* both countries despite between-country differences in mean belief levels.

For the sake of comparison, alternative models that reversed the direction of the association between beliefs and cognitive biases (i.e., mentalizing and intuitive thinking predict beliefs, which predict dualism and teleological thinking) provided a worse fit to the data in every case, karma in Canada: χ^2 (6) = 105.05, p < .001, CFI = .97, RMSEA = .13 [.11, .15], SRMR

= .037, God in Canada: χ^2 (6) = 149.20, p < .001, CFI = .96, RMSEA = .15 [.13, .18], SRMR = .049, karma in India: χ^2 (6) = 103.08, p < .001, CFI = .96, RMSEA = .13 [.11, .15], SRMR = .038, God in India, χ^2 (6) = 115.29, p < .001, CFI = .96, RMSEA = .14 [.11, .16], SRMR = .041.

Table 2. Study 1: Standardized path model estimates predicting beliefs about karma and God.

	Karma				God			
	Canada		India		Canada		India	
	b	*95% CI*	*b*	*95% CI*	*b*	*95% CI*	*b*	*95% CI*
Dualism								
Intuition	0.26***	[0.20, 0.31]	0.14***	[0.08, 0.2]	0.26***	[0.20, 0.31]	0.14***	[0.08, 0.2]
Mentalizing	0.11***	[0.05, 0.17]	0.14***	[0.08, 0.2]	0.11***	[0.05, 0.17]	0.14***	[0.08, 0.2]
Teleology in Life Events								
Intuition	0.24***	[0.18, 0.3]	0.27***	[0.21, 0.33]	0.24***	[0.18, 0.3]	0.27***	[0.21, 0.33]
Mentalizing	0.16***	[0.10, 0.22]	0.17***	[0.11, 0.23]	0.16***	[0.10, 0.22]	0.17***	[0.11, 0.23]
Teleology in Nature								
Intuition	0.11***	[0.05, 0.17]	0.20***	[0.14, 0.26]	0.11***	[0.05, 0.17]	0.20***	[0.14, 0.26]
Mentalizing	0.12***	[0.06, 0.18]	0.14***	[0.08, 0.2]	0.12***	[0.06, 0.18]	0.14***	[0.08, 0.20]
Belief in Karma/God								
Dualism	0.29***	[0.23, 0.34]	0.18***	[0.12, 0.23]	0.04	[-0.02, 0.1]	0.01	[-0.06, 0.07]
Teleology in life	0.45***	[0.40, 0.50]	0.45***	[0.40, 0.5]	0.45***	[0.40, 0.51]	0.41***	[0.36, 0.47]
Teleology in nature	0.01	[-0.04, 0.06]	0.06*	[0.01, 0.12]	0.03	[-0.02, 0.09]	0.04	[-0.02, 0.1]
Mind								
Dualism	0.07*	[0.01, 0.12]	0.16***	[0.10, 0.22]	0.00	[-0.04, 0.04]	0.06*	[0.01, 0.11]
Teleology in life	0.08**	[0.02, 0.14]	0.09**	[0.02, 0.15]	0.12***	[0.08, 0.17]	0.24***	[0.19, 0.29]
Teleology in nature	0.02	[-0.03, 0.07]	0.12***	[0.06, 0.18]	0.00	[-0.04, 0.04]	0.03	[-0.02, 0.08]
Belief	0.53***	[0.48, 0.59]	0.28***	[0.22, 0.35]	0.74***	[0.70, 0.77]	0.50***	[0.45, 0.55]
Benevolence								
Dualism	0.06	[0.00, 0.12]	0.07*	[0.00, 0.13]	0.04	[0.00, 0.09]	0.08**	[0.02, 0.14]
Teleology in life	0.07*	[0.00, 0.14]	0.10**	[0.03, 0.16]	0.11***	[0.06, 0.16]	0.25***	[0.19, 0.3]
Teleology in nature	0.04	[-0.02, 0.09]	0.09**	[0.03, 0.15]	0.02	[-0.02, 0.06]	0.09**	[0.03, 0.14]
Belief	0.38***	[0.31, 0.44]	0.30***	[0.23, 0.36]	0.68***	[0.64, 0.72]	0.34***	[0.29, 0.4]
Punitiveness								
Dualism	-0.05	[-0.11, 0.02]	0.06	[0.00, 0.13]	-0.01	[-0.08, 0.06]	0.06	[-0.01, 0.12]
Teleology in life	0.13***	[0.06, 0.20]	0.06	[-0.01, 0.13]	0.08*	[0.00, 0.15]	0.09**	[0.02, 0.16]
Teleology in nature	-0.01	[-0.07, 0.05]	0.03	[-0.03, 0.09]	0.01	[-0.05, 0.07]	0.08*	[0.01, 0.14]
Belief	0.29***	[0.22, 0.36]	0.21***	[0.14, 0.28]	0.05	[-0.02, 0.12]	0.08*	[0.01, 0.15]

Impersonal								
Dualism	0.02	[-0.05, 0.08]	0.09**	[0.03, 0.16]	0.07*	[0.00, 0.14]	0.11**	[0.04, 0.18]
Teleology in life	0.06	[-0.01, 0.13]	0.02	[-0.05, 0.10]	0.06	[-0.01, 0.13]	0.07	[0.00, 0.14]
Teleology in nature	-0.04	[-0.10, 0.03]	0.03	[-0.03, 0.10]	-0.04	[-0.10, 0.02]	0.08*	[0.01, 0.14]
Belief	0.24***	[0.17, 0.32]	0.16***	[0.09, 0.24]	-0.10**	[-0.17, -0.03]	0.06	[-0.01, 0.13]
Resource								
Dualism	0.05	[-0.01, 0.11]	0.08*	[0.01, 0.14]	0.06	[-0.01, 0.12]	-0.01	[-0.07, 0.06]
Teleology in life	0.09**	[0.02, 0.15]	0.12***	[0.05, 0.19]	0.10**	[0.03, 0.17]	0.07	[0.00, 0.14]
Teleology in nature	0.02	[-0.04, 0.07]	0.09**	[0.02, 0.15]	0.01	[-0.05, 0.06]	0.10**	[0.04, 0.17]
Belief	0.39***	[0.32, 0.46]	0.22***	[0.15, 0.29]	0.32***	[0.26, 0.38]	0.15***	[0.08, 0.22]

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

2.2.2 Do intuitive cognitive tendencies predict belief in God and karma?

In this model, participants' self-reported willingness to engage in mentalizing and intuitive thinking uniquely predicted greater mind-body dualism, teleological thinking about life events, and teleological thinking about nature, which in turn predicted supernatural beliefs. In Canada and India, respectively, this model explained 23% and 18% of the variance in God[4] belief and 38% and 31% of the variance in karma belief. In India, this model predicted 18% of the variance of belief in God and 31% of the variance in belief in karma. Belief in God and karma was strongly predicted by teleological thinking about life events, while teleological thinking about nature was a much weaker predictor, and dualism only predicted belief in karma, not belief in God. This failed to replicate the previously-found association between belief in God and mind-body dualism (which was found using a different measure of dualism, Willard et al., 2020; Willard & Norenzayan, 2013), but it did replicate the finding that intuitive thinking, self-reported mentalizing, and teleological thinking predict belief in God, and also predict belief in karma.

This model also supports an indirect association between self-reported willingness to mentalize and beliefs about supernatural entities (as found by Willard et al., 2020; Willard & Norenzayan, 2013), and also provides the novel finding that the relationship between intuitive thinking tendencies and supernatural beliefs can be partly explained by shared covariance with dualism and teleological thinking, especially in the case of belief in God. Evidence for this

[4] While we did not have any hypotheses about differences in the variance explained in God belief and karma belief, we note that the less variance explained in belief in God, compared to belief in karma, cannot merely be explained by unreliability of the single item used to measure belief in God. In Study 2 we find that a reliable 3-item measure of belief in God has similar levels of variance explained by cognitive variables in the USA (24%) and Singapore (11%).

comes from both the hypothesized model, which fits the data reasonably well while omitting direct paths between intuition/mentalizing and belief (i.e., specifying that there is no direct association between these variables) and from the residual errors, which depict the remaining associations between variables that are not accounted for by the hypothesized model. After accounting for the indirect relationships between intuition and beliefs (depicted in Figure 1), the residual association between intuitive thinking and God belief was essentially absent in India ($r < .001$) and negative in Canada ($r = -.076$), indicating that, outside of the modeled indirect relationships, intuitive thinking was *not* positively associated with God belief, even in the residual errors. In the case of karma, there remained a small positive residual association between intuitive thinking and belief in Canada ($r = .065$) and India ($r = .089$), consistent with the possibility that that belief in karma may reflect aspects of intuitive thinking that are separate from cognitive biases in mentalizing accounted for in the model (see supplemental for additional details of model residuals table).

In addition to the path models that separately investigated predictors of God beliefs and predictors of karma beliefs, we conducted additional multiple regression analyses to investigate possible covariation between belief in God and belief in karma. In Canada, belief in God predicted greater belief in karma, $b = 0.24$, 95% CI [0.19, 0.29], $p < .001$. However, belief in God was no longer a meaningful predictor when controlling for dualism, teleological thinking about nature and life events, intuitive thinking, and mentalizing (see Table 3). Similarly in India, the association between belief in God and karma, $b = 0.30$ [0.26, 0.34], $p < .001$, was cut in half when controlling for these cognitive biases – a remaining positive association that may be due to the shared cultural sources of both beliefs in India, but not in Canada. A second implication of these regression models is that they confirm that the cognitive variables uniquely predict belief in

karma even after controlling for belief in God, which justifies our presentation of separate models predicting karma beliefs and God beliefs. In other words, it is not the case that these cognitive variables solely predict belief in God, and God beliefs predict karma beliefs; rather, these cognitive variables independently predict beliefs about karma (see Supplemental Materials for addition regressions that control for God beliefs when predicting karma's mind, benevolence, punitiveness, and non-agentic qualities).

Table 3. Study 1: Multiple regression predicting belief in karma from belief in God and cognitive variables

	Canada						India					
	β	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*
Intercept	2.71	[2.66, 2.76]	<.001	2.72	[2.68, 2.76]	<.001	3.69	[3.65, 3.73]	<.001	3.69	[3.65, 3.73]	<.001
Belief in God	0.24	[0.19, 0.29]	<.001	0.04	[-0.01, 0.08]	.11	0.30	[0.26, 0.34]	<.001	0.17	[0.13, 0.21]	<.001
Intuition				0.07	[0.03, 0.12]	.001				0.08	[0.04, 0.12]	<.001
Mentalizing				-0.07	[-0.11, -0.02]	.002				0.02	[-0.02, 0.06]	.28
Dualism				0.22	[0.18, 0.27]	<.001				0.13	[0.09, 0.17]	<.001
Teleology in Life				0.35	[0.30, 0.40]	<.001				0.23	[0.19, 0.28]	<.001
Teleology in Nature				0.01	[-0.03, 0.05]	.59				0.02	[-0.02, 0.06]	.29
R^2_{adj}		0.09			0.39			0.17			0.36	

2.2.3 Are cognitive biases especially associated with agentic views of supernatural forces?

In addition to testing the predictors of beliefs in the existence karma and God, we also investigated how the cognitive variables predicted different conceptualizations of karma and God (i.e., whether karma/God has mental states, personality traits, or is impersonal), and how these beliefs were related to each other. This allowed us, first, to test whether karma is conceived of as an impersonal, non-agentic force, unlike the typically-agentic and personified views of God, and second, to test whether self-reported mentalizing tendencies and related cognitive biases are especially relevant to belief in agentic, but not non-agentic supernatural entities. Preliminary evidence in support of these hypotheses comes from believers' differential attribution of traits to karma and God (Figures 2 and 3). Further evidence comes from the pathways between general karma/God belief and trait attribution, included in the path models.

Participants displayed a clear tendency to attribute a mind to God, and to view God as highly benevolent and generally non-punitive, whereas descriptions of God as "impersonal" or as something that can be "gained and lost" showed much less agreement and less consensus (Figure 2). This was especially true of Indian respondents, perhaps due to differences in which particular deity they had in mind when answering these items. Direct paths between belief and trait ratings indicated that participants higher in belief in God were especially likely to ascribe mental capabilities and benevolent traits to God, especially in Canada, whereas punitive, impersonal, or resource-like descriptions were less associated with belief. The path model indicates that individual differences in dualism, teleological thinking, and belief explain substantially more variance in viewing God as a benevolent agent (mind attribution: $R^2_{Canada} = .64$, $R^2_{India} = .44$; benevolence: $R^2_{Canada} = .57$, $R^2_{India} = .31$), compared to the minimal variance explained for punitiveness ($R^2_{Canada} = .012$, $R^2_{India} = .045$), an impersonal God ($R^2_{Canada} = .014$, $R^2_{India} = .046$)

or a resource-like God (R^2_{Canada} = .16, R^2_{India} = .054). It also shows that teleological thinking and dualism predict additional variance in mind and benevolent trait ratings, even after controlling for general belief, consistent with the perspective that these cognitive tendencies specifically predict belief in an agentic God, not just *any* God belief. This pattern is consistent with past research showing that mainstream contemporary believers in North America prototypically view God as a benevolent supernatural agent (e.g., Johnson, Okun, Cohen, Sharp, & Hook, 2018), and extends this findings to an Indian sample.

Figure 2. Distribution of features attributed to God (believers only, n = 526 in Canada and n = 878 in India). Vertical lines indicate the mean level of trait attribution in Canada (solid) and India (dashed).

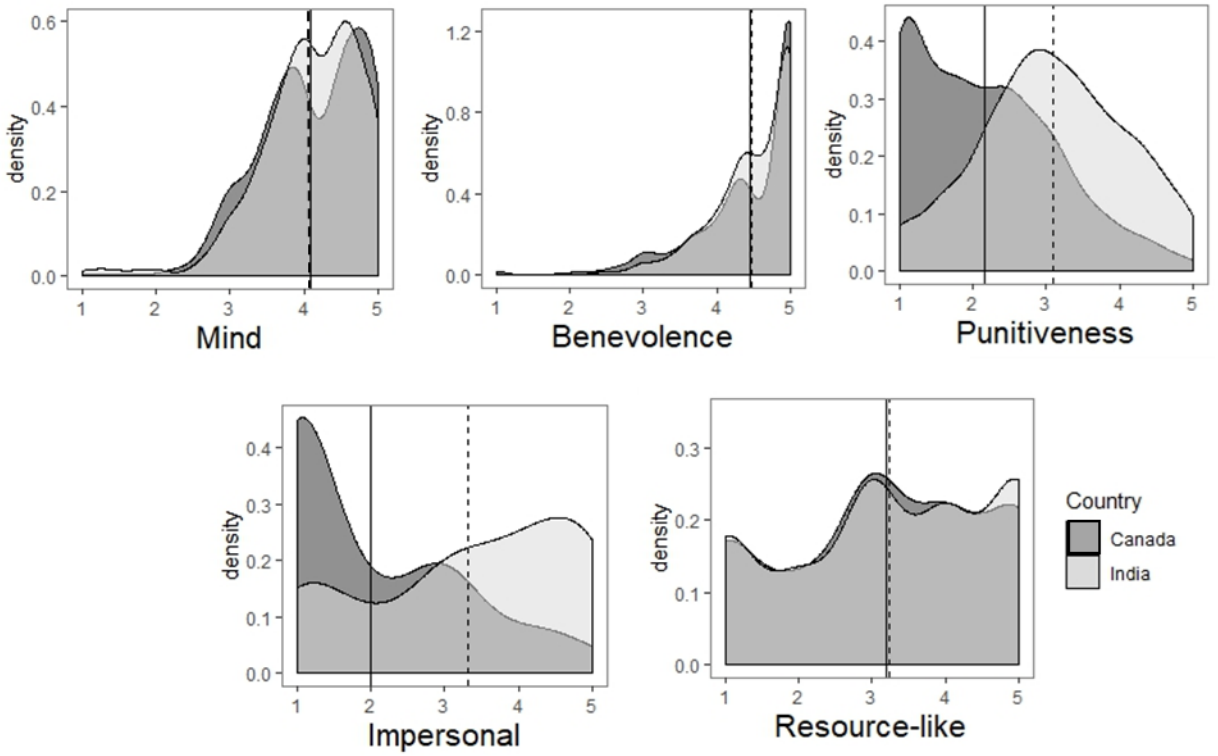
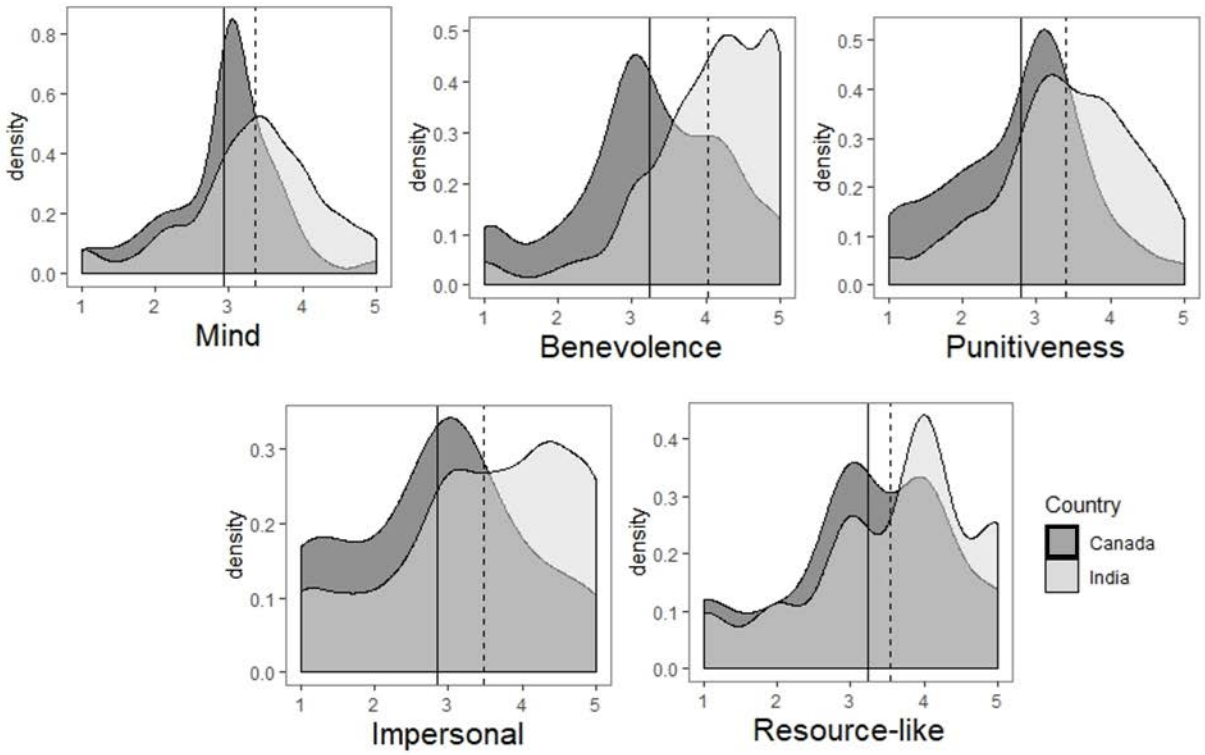


Figure 3. Distribution of features attributed to karma (believers only, n = 384 in Canada and n = 834 in India). Vertical lines indicate the mean level of trait attribution in Canada (solid) and India (dashed).



Does this pattern extend to beliefs about karma? The distributions of trait attributions to karma (by karma believers only, in Figure 3), indicated that descriptions of karma did not display the same benevolent agent prototype found for God: Ratings of karma's mental capabilities and benevolence were much less skewed towards strong agreement, compared to descriptions of God, and punitive traits were attributed to karma more often than God, especially by Canadians. But neither was karma described as clearly non-agentic, there was no strong tendency for believers to disagree that karma has mental states and personality traits, no consensus that karma is impersonal or resource-like, nor any evidence of subsets of believers who accept and who reject karma's agency. Rather, across all measures, responses showed a lack of consensus and tended to fall closer to the scale midpoint, implying less certainty about what karma is or is not

like. Further, belief in karma predicted greater mind attribution to karma, benevolent and punitive trait ascriptions, and descriptions of karma as impersonal and resource-like (traits which were positively intercorrelated with one another, estimates range from $r = 0.04$ to 0.65), indicating no clear dissociation between agentic and non-agentic descriptions of karma (see Supplemental Materials for full details). However, after controlling for belief in karma, teleological thinking and dualism tended to be a stronger predictor of mind attribution and benevolent trait ratings, than punitive, impersonal, or resource-like trait ratings of karma, consistent with the pattern found for beliefs about God. Altogether, this model explained more variance in ratings of karma's mental capabilities ($R^2_{Canada} = .39$, $R^2_{India} = .23$) than ratings that karma is impersonal ($R^2_{Canada} = .083$, $R^2_{India} = .059$) or resource-like ($R^2_{Canada} = .23$, $R^2_{India} = .14$), and more variance in ratings of karma's benevolence ($R^2_{Canada} = .21$, $R^2_{India} = .18$) than punitiveness ($R^2_{Canada} = .12$, $R^2_{India} = .085$).

These results therefore indicate that intuitive thinking, mentalizing, and related cognitive tendencies predict both belief in God and belief in karma, in similar ways, and that part of the reason for this may be that believers are sometimes willing to think about karma as a personified agent, akin to how believers personify God.[5] However, believers were less certain about whether karma was agentic or impersonal, and there was less divergence between different trait attributions and belief in karma, supporting a difference between beliefs about God—a prototypical supernatural agent—and beliefs about karma.

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[5] However, exploratory analyses indicated that the degree of mind attribution to karma did not moderate the association between mentalizing and belief (interaction in Canada: $\beta = 0.03$, $p = .17$, India: $\beta = 0.02$, $p = .30$), providing evidence that the relationship between cognitive variables and belief is not solely driven by people who see karma as an agent. The data are more consistent with the idea that believers were willing to see karma as both agentic and non-agentic, and cognitive variables predicted all of these beliefs about karma in similar ways.

2.3 Discussion

The path models tested in Study 1 replicated prior evidence of associations between intuitive thinking, willingness to engage in mentalizing, and belief in God, and provided novel evidence that (a) the intuitive thinking relationship is indirectly associated with supernatural belief due to other cognitive biases, like teleological thinking, and (b) these associations are unique to belief in a benevolent, agentic god. This pattern supports the theoretical claim that mentalizing tendencies are specifically predictive of belief due to the agentic features of God, such that people's reported ease and willingness in considering other people's mental states predicts their engagement in a personal relationship with an unseen deity using their socio-cognitive reasoning capacities.

These results also provide novel empirical evidence that willingness to mentalize and intuitive thinking independently predict belief in karma, in both Canada and India. Importantly, this highlights how belief in karma cannot be reduced to intuitions about immanent justice that are distinct from the mentalizing capacities that predict belief in God. Rather, karma is a multifaceted concept—that includes aspects of non-agentic causality, moralized reincarnation, and anthropomorphic personality traits—that are similarly predicted by the cognitive variables that predict belief in a prototypically agentic god.

3 Study 2

Study 2 tested the replicability and generalizability of the path model developed in Study 1 in a conceptually-similar model in which mentalizing, intuitive thinking, dualism, and teleological thinking predicted beliefs about God and karma in a general sample of Americans and in a sample of Singaporean Buddhists. The Buddhist sample allows us to test the generalizability of our results to another population where belief in karma is culturally

widespread. Buddhism, like Hindu traditions, has a long history of endorsing karma as part of the structure of the universe (Bronkhorst, 2011), but typically contains beliefs about a variety of supernatural agents (e.g., Bodhisattvas) and ritual practices that differ from both the Hindu sample recruited in Study 1 and Christian-dominated samples from Canada and the USA.

The variables included in this model were modified to include different measures of analytic thinking and self-reported mentalizing tendencies, which match other measures commonly used in past literature (the Cognitive Reflection Task and Empathy Quotient, e.g., used in Gervais et al., 2018; Pennycook, Ross, Koehler, & Fugelsang, 2016; Willard et al., 2020; Willard & Norenzayan, 2013). We also included more diverse measures of God and karma's agentic and non-agentic traits, to provide a more reliable test of how these cognitive tendencies predict specific beliefs about the features of supernatural entities. Finally, in addition to selecting participants from populations that were, a priori, expected to have different cultural exposure to karma, in Study 2 we directly measured participants' self-reported social exposure to beliefs about God and karma. Study 1 found that, although mean levels of karma belief are substantially higher in India than in Canada, cognitive variables predicted within-country variance in karma belief similarly in both contexts. Study 2 therefore allowed us to compare the relative contribution of cultural and cognitive factors to predicting the variability of belief that exists within each country.

3.1 Methods

Participant recruitment plans, all materials, and planned analysis models were preregistered on the OSF prior to data collection (https://osf.io/sk6qt/).

3.1.1 Participants

Participants completed the survey online and in English and were recruited by Qualtrics' participant panels. As in Study 1, we aimed to recruit a total sample of 1000 participants in the USA. We aimed to recruit 500 participants in Singapore who were fluent in English.[6] Karma beliefs are widespread in Singapore, but can be heterogeneous among adherents to different religious denominations (e.g., Christians vs. Taoists vs. Buddhists; Willard, Baimel, et al., 2020). We specifically recruited participants who selected Buddhist as their religious affiliation, to provide a sample where karma belief is both theologically and culturally normative. Buddhists make up approximately 33% of the population of Singapore (Statistics Singapore, 2015), and provide a sample with a long cultural history of karma in religious doctrines, to compare to North American samples where exposure to karmic theology is less culturally common. Following preregistered criteria, we excluded and replaced participants who did not complete the survey (USA: n = 13, Singapore: n = 137), who failed an attention check question (USA: n = 521, Singapore: n = 262), who provided a nonsensical response to an open-ended question (Singapore: n = 30), who speeded through the task (i.e., took less than half the median completion time, Singapore: n = 86), or who (in the Singapore sample) reported religious affiliation other than Buddhist. As preregistered, we also included in our analyses extra participants in our sample (beyond the planned size) who completed the survey prior to data collection being terminated by Qualtrics panel managers. The final sample of 1244 participants in the USA was demographically similar to the Canadian sample from Study 1 (see Table 1),

[6] The Singapore Buddhist sample was the most expensive to recruit, therefore we aimed for a smaller sample size that still retained >80% power to detect relatively small relationships (r = .12) between variables of interest. English is an official language in Singapore and the language most people are educated in.

being predominantly Christian or non-religious and expressing stronger belief in God than belief in karma. The 508 participants in Singapore were primarily-Asian Buddhists, thus providing a sample with a long cultural history of karmic religious beliefs.

3.1.2 Materials

Data was collected as part of a larger survey. This survey began with participants receiving instructions to think about karma or receiving neutral instructions while, in the USA, deciding how much money to share with a stranger in a dictator game, or in Singapore, deciding how much blame and hypothetical help victims of misfortune should receive.[7] Participants then completed the belief in karma questionnaire (USA: $\alpha = .92$, Singapore: $\alpha = .92$, White, Norenzayan, et al., 2019), followed by several measures of individual differences and personal beliefs (presented in a randomized order), and provided demographic information.

Mentalizing. Mentalizing tendencies were measured through a 22 item version of the Empathy Quotient (USA: $\alpha = .88$, Singapore: $\alpha = .87$, Wakabayashi et al., 2006). This scale measures an individual's willingness to engage in mentalizing through the self-perceived ease and accuracy in thinking about other people's mental states, e.g., "I find it easy to put myself in somebody else's shoes," "other people tell me I am good at understanding how they are feeling and what they are thinking." By using this measure, we are able to more closely replicate previously-documented associations between mentalizing and belief, which have used the Empathy Quotient questionnaire (e.g., Maij et al., 2017; Willard, Cingl, et al., 2020; Willard & Norenzayan, 2013).

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[7] Assignment to the karma prime vs. control condition had little association with the variables discussed here (rs < .10), therefore we ignore this variable in the following analyses. Results from the dictator game are available in (White, Kelly, et al., 2019).

Analytic thinking ability. The ability to engage in analytic thinking was measured as the number of correct responses to the three-item Cognitive Reflection Task (CRT), in which the intuitive answer to the problem is incorrect and participants are required to override this intuition in order to come to the correct response (USA: $\alpha = .70$, Singapore: $\alpha = .65$, Frederick, 2005).

Mind-body dualism. Eight items were taken from Riekki et al.'s (2013) mind-body dualism scale (USA: $\alpha = .85$, Singapore: $\alpha = .81$). Two additional reverse-scored items from this scale were also included, but removed from analyses due to low (negative) correlations with remaining scale items ($r < -.20$ after reverse scoring), which compromised scale reliability.

Teleology in life events. Three items, used in Study 1, measured perceptions of purpose in life events (USA: $\alpha = .82$, Singapore: $\alpha = .74$). (Teleological thinking about nature was not collected in this dataset to reduce survey length, and because it was the weakest predictor of beliefs in Study 1.)

Features of God and karma. Participants rated whether three different types of traits are characteristic of God and karma: *Non-moral agency* of God and karma ("is loving," "is forgiving," "can think, "has free will," "makes plans and works towards goals"), *moral knowledge* of God and karma ("rewards people for proper behavior," "punishes people for bad behavior," "can see what people are doing, even if they are far away in a foreign country," "can see into people's hearts and know their thoughts and feelings"), and *non-agentic traits* of God ("abstract," "impersonal," "incomprehensible," "distant," "unknowable," "limitless") and non-agentic traits of karma ("can be gained and lost," "can exist in different amounts," "is created by people's actions," "is balanced," "is cyclical," "is a positive force or energy"). (Composite α's ranged from .71, .92 across targets.) Participants in Singapore were also asked which god they were describing when answering these questions: 25% specified that they were referring to a

Buddha or bodhisattva (primarily Guan Yin, the Goddess of Mercy), 9% referred to the Christian God or Jesus Christ, 2% specified another god unrelated to Buddhism and Christianity, and the remainder (64%) did not specify a particular god. Trait ascription to these different types of gods did not significantly differ, so all responses were analyzed together.

Belief in God. Three items measured belief in God ("I believe in God," "I believe in a divine being who is involved in my life," and "There is no God or higher power in the universe," USA: $\alpha = .84$, Singapore: $\alpha = .69$).

Social exposure to God/karma. Participants completed 4-item measures of social exposure to God and social exposure to karma: "I hear about karma [God] while attending religious services or meeting," "I saw people engage in volunteer or charity work, because of karma [God]," "I saw people avoid harming others, because of karma [God]", and "Most of my family believes in karma [God]" (USA: $\alpha_{Karma} = .82$, $\alpha_{God} = .77$, Singapore: $\alpha_{Karma} = .81$, $\alpha_{God} = .77$).

3.2 Results

3.2.1 Path model predicting beliefs about karma and God

We replicated the positive correlation between mentalizing and belief in God in the USA $r = .17$, 95% CI [.12, .23], $p < .001$, but not in Singapore $r = .04$ [-.04, .13], $p = .33$. We also replicated the same association for karma, USA $r = .25$ [.19, .30], $p < .001$, Singapore $r = .11$ [.02, .19], $p = .015$. The negative association between analytic thinking (CRT performance) and belief in God emerged in the USA $r = -.12$ [-.17, -.06], $p < .001$, but not in Singapore $r = -.07$ [-.16, .02], $p = .14$. Similarly, the negative association between analytic thinking and karma was

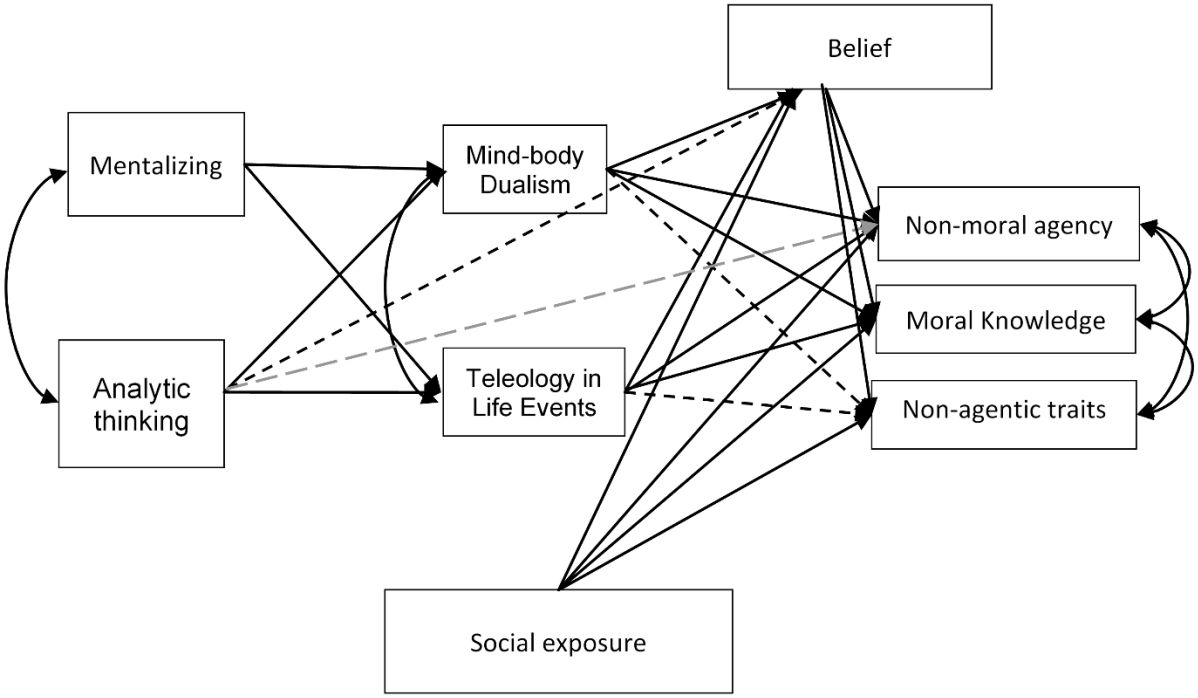
found in the USA r = -.28 [-.33, -.22], p < .001, but not in Singapore r = -.11 [-.20, -.02], p = .16.[8]

We next tested a preregistered path model (depicted in Figure 4) that mirrors the analytic strategy from Study 1, in which beliefs about karma or God were predicted by individual differences in mind-body dualism and teleological perceptions of life events, which were in turn were predicted by analytic thinking ability and mentalizing tendencies (omitting direct paths between mentalizing/analytical thinking and beliefs). To assess how well these cognitive variables predicted different conceptualization of karma/God, we tested a model that simultaneously predicted belief in karma/God and descriptions of karma/God as possessing moral knowledge, non-moral agency, and non-agentic traits (with correlated residuals added between these beliefs). We also omitted paths from dualism and teleology in life to non-agentic trait descriptions, to provide a more stringent test of the hypothesis that mentalistic cognitive biases will predict agentic, but not non-agentic views of supernatural entities. To this preregistered model, we also added an additional direct pathway between beliefs and trait ratings, to explore whether the cognitive variables predict trait ratings above and beyond their relationship with general belief in karma/God. Small amounts of missing data (0.4%) were

[8] This lack of a consistent association in Singapore may be due to the fact the Buddhism does not emphasize belief in a single entity clearly designated as "God", but exploratory analyses that split the sample based on which god they chose to describe did not clearly resolve the issue. The relationship between analytic thinking and belief in God was negative among participants (n = 44) who reported that they were describing the Christian God, r = -.35, but not among participants describing a buddha or bodhisattva (n = 129), r = .04, p = .63, or who did not specify a particular god (n = 326), r = -.05, p = .40. In contrast, mentalizing was not correlated with belief in God among participants describing the Christian God, r = .06, p = .72, or those not describing any particular god, r = -.02, p = .77, but did show a small positive correlation among participants describing a buddha or bodhisattva, r = .19, p = .03. The direct association between mentalizing or intuitive thinking and belief in God therefore appears to be inconsistent in Singapore, and future research with larger sample sizes is required to further probe these relationships.

accounted for using full information maximum likelihood ('fiml'). Further expanding on the model tested in Study 1, social exposure to belief in God/karma was also added as a predictor of all beliefs about God and karma, except for beliefs about karma's non-moral agency, to test whether culturally-shared depictions of karma specifically support moralistic-but-non-agentic views of karma.

Figure 4. Study 2: Path model predicting belief in karma. Also not depicted are included correlated residuals between social exposure to karma and cognitive predictor variables. Dashed arrows indicate paths added to the karma model that were omitted from the model predicting God. The path from analytic thinking to non-moral agency of karma was only included in Singapore.



3.2.1.1 Predicting beliefs about God.

When predicting beliefs about God, the hypothesized model was not a good fit for the data when social exposure was treated as independent from the cognitive predictors (as preregistered), χ^2 (14) = 324.56, $p < .001$, CFI = .93, RMSEA = .13 [.12, .15], SRMR = .11.

After correlated residuals were added between social exposure to God and other predictors of belief, this model provided a good fit to the data in the USA, χ^2 (10) = 79.73, $p < .001$, CFI = .98, RMSEA = .075 [.060, .091], SRMR = .03. This pattern thus suggests that social exposure to God not only predicts belief in specific supernatural entities, but may reflect a social environment that encourages a broad range of intuitions that support supernatural beliefs. This revised model was applied to the Singapore sample, and was also a reasonably good fit for the data, Singapore, χ^2 (10) = 22.30, $p = .001$, CFI = .99, RMSEA = .049 [.021, .077], SRMR = .03.

Multigroup path analyses indicated that the pattern of path coefficients was roughly equivalent across countries, as is indicated by acceptable model fit when the path coefficients are constrained to be equal across countries, χ^2 (37) = 257.31, $p < .001$, CFI = .96, RMSEA = .082 [.073, .092], SRMR = .067, but additional mean differences remained between cultures in endorsement of these beliefs, as indicated by poor model fit when both the path coefficients and the intercepts were constrained to be equivalent across countries, χ^2 (46) = 918.89, $p < .001$, CFI = .84, RMSEA = .147 [.139, .156], SRMR = .112.

Results of this model are displayed in Table 4 (results of an analogous preregistered model that did not include social exposure, and is therefore more comparable to the results of Study 1, are available in the Supplementary Materials). This model, depicted in Figure 4, explained substantial variance in belief in God (R^2_{USA} = .37, $R^2_{Singapore}$ = .20), God's moral knowledge (R^2_{USA} = .36, $R^2_{Singapore}$ = .15), and agentic views of God (R^2_{USA} = .39, $R^2_{Singapore}$ = .15). As in Study 1, dualism was not a meaningful predictor of belief in God, but teleological thinking about life events and social exposure to belief in God were both strong predictors, supporting an indirect association between mentalizing tendencies, intuitive thinking, and beliefs about God, even in a sample, like Singapore, where no direct, bivariate association appears

between mentalizing/intuitive thinking and belief. In addition to these cognitive variables, social exposure to belief in God was a large independent predictor of belief in God, God's moral knowledge, and God's non-moral agency, but was more weakly related to non-agentic views of God.

The omitted paths in this model also support the claim that these cognitive tendencies do not predict non-agentic (e.g., abstract, impersonal) views of God. Participants tended to describe God as high in agency and moral knowledge, and rather low in non-agentic traits, especially in the USA (Figure 5), and direct paths between beliefs and traits indicated that participants high in belief in God were especially likely to describe God as agentic and possessing moral knowledge, whereas belief in God had a smaller association with non-agentic trait ratings in Singapore and a negative association with non-agentic trait ratings in the USA.

Table 4. Study 2: Standardized path model estimates predicting beliefs about karma and God.

	Karma				God			
	USA		Singapore		USA		Singapore	
	b	*95% CI*	*b*	*95% CI*	*b*	*95% CI*	*b*	*95% CI*
Dualism								
Analytic thinking	-0.12***	[-0.17, -0.06]	-0.04	[-0.13, 0.05]	-0.12***	[-0.17, -0.06]	-0.04	[-0.13, 0.05]
Mentalizing	0.18***	[0.12, 0.23]	0.14***	[0.05, 0.22]	0.18***	[0.12, 0.23]	0.14**	[0.05, 0.22]
Teleology in Life Events								
Analytic thinking	-0.15***	[-0.21, -0.1]	-0.04	[-0.12, 0.05]	-0.15***	[-0.21, -0.10]	-0.04	[-0.13, 0.05]
Mentalizing	0.30***	[0.25, 0.35]	0.25***	[0.17, 0.33]	0.30***	[0.25, 0.35]	0.25***	[0.17, 0.33]
Belief								
Dualism	0.17***	[0.13, 0.22]	0.10*	[0.02, 0.18]	-0.02	[-0.07, 0.03]	0.06	[-0.02, 0.14]
Teleology in life	0.29***	[0.24, 0.34]	0.32***	[0.24, 0.39]	0.34***	[0.29, 0.39]	0.27***	[0.19, 0.35]
Social Exposure	0.35***	[0.31, 0.40]	0.24***	[0.16, 0.32]	0.39***	[0.34, 0.43]	0.28***	[0.20, 0.36]
Analytic thinking	-0.13***	[-0.17, -0.09]	-0.11**	[-0.19, -0.04]				
Agency								
Dualism	0.04	[-0.01, 0.09]	0.07	[-0.01, 0.16]	-0.02	[-0.06, 0.02]	0.01	[-0.05, 0.08]
Teleology in life	0.01	[-0.04, 0.07]	0.06	[-0.03, 0.16]	0.10***	[0.06, 0.14]	0.07*	[0.00, 0.13]
Social Exposure	0.28***	[0.22, 0.33]	0.09*	[0.00, 0.18]	0.22***	[0.18, 0.26]	0.19***	[0.11, 0.27]
Belief	0.35***	[0.30, 0.41]	0.19***	[0.10, 0.29]	0.59***	[0.55, 0.63]	0.39***	[0.31, 0.47]
Analytic thinking			-0.16***	[-0.22, -0.1]				
Moral knowledge								
Dualism	0.02	[-0.03, 0.07]	0.05	[-0.03, 0.13]	-0.02	[-0.06, 0.02]	0.06	[0.00, 0.13]
Teleology in life	0.08**	[0.03, 0.13]	0.19***	[0.11, 0.28]	0.16***	[0.11, 0.2]	0.07	[0.00, 0.14]
Social Exposure	0.21***	[0.16, 0.26]	0.13**	[0.05, 0.22]	0.20***	[0.16, 0.25]	0.19***	[0.11, 0.28]
Belief	0.39***	[0.33, 0.45]	0.29***	[0.2, 0.37]	0.50***	[0.46, 0.55]	0.33***	[0.25, 0.41]
Non-agentic traits								
Dualism	0.04	[-0.01, 0.09]	0.05	[-0.02, 0.13]				
Teleology in life	0.08**	[0.03, 0.14]	0.21***	[0.13, 0.29]				
Social Exposure	0.18***	[0.13, 0.24]	0.14****	[0.06, 0.22]	0.11**	[0.04, 0.17]	0.16***	[0.07, 0.25]
Belief	0.41***	[0.35, 0.46]	0.34***	[0.26, 0.42]	-0.08*	[-0.14, -0.01]	0.21***	[0.12, 0.30]

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

Figure 5. Distribution of features attributed to God, among God believers in the USA (light grey, n = 929) and Singapore (dark grey, n = 347). Vertical lines indicate the mean level of trait attribution in the USA (solid) and Singapore (dashed).

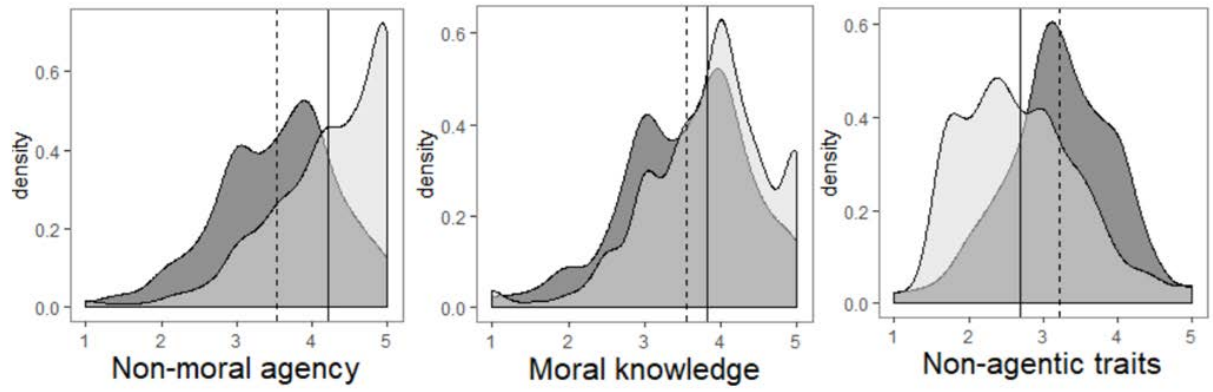
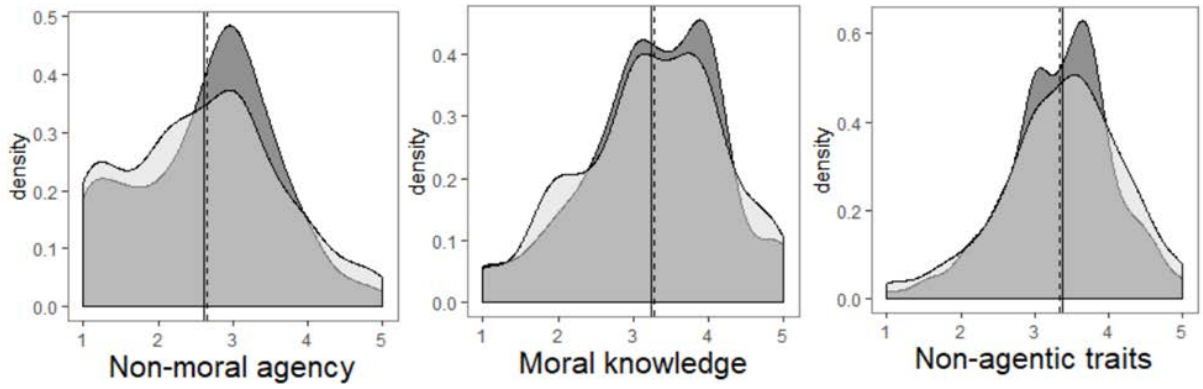


Figure 6. Distribution of features attributed to karma, among karma believers in the USA (light grey, n = 562) and Singapore (dark grey, n = 429). Vertical lines indicate the mean level of trait attribution in the USA (solid) and Singapore (dashed).



3.2.1.2 Predicting beliefs about karma.

When predicting beliefs about karma, the original preregistered model did not provide a good fit to the data in the USA sample, χ^2 (15) = 487.33, $p < .001$, CFI = .90, RMSEA = .16 [.15, .17], SRMR = .13. Further exploratory work was done to investigate the reasons for this misfit, and based on that, adjustments were made to improve model fit (given the exploratory nature of these analyses, these results should be interpreted with caution). Three changes were made to improve model fit, based on an inspection of model residuals in the USA sample. First,

the direct paths between dualism, teleology, and social exposure and beliefs that had previously been omitted were replaced; contrary to hypotheses, dualism and teleological thinking about life events predicted both non-agentic and agentic views of karma in similar ways. Second, as hypothesized model fit was improved by adding a direct path from intuitive thinking to belief in karma, consistent with the hypothesis that that belief in karma may reflect aspects of intuitive thinking that are separate from cognitive biases in mentalizing accounted for in the model. Third, correlated residuals were added between social exposure to karma and the other predictors of belief.

This revised model was a reasonably good fit to the data in the USA, χ^2 (7) = 55.39, p < .001, CFI = .99, RMSEA = .071 [.053, .090], SRMR = .022, and is depicted in Figure 4. This revised model was applied to the Singapore sample, with one additional path—between analytic thinking and non-moral agency of karma—added to bring model fit within an acceptable range: χ^2 (6) = 27.20, p < .001, CFI = .99, RMSEA = .083 [.053, .116], SRMR = .024. These models indicate that, in both samples, endorsement of mind-body dualism, teleological thinking about life events, and social exposure to karma were each unique predictors of beliefs about karma, while mentalizing was indirectly associated with belief via these other cognitive tendencies.

Multigroup path analyses indicated that the pattern of path coefficients was roughly equivalent across countries, as is indicated by acceptable model fit when the path coefficients are constrained to be equal across countries, χ^2 (33) =116.51, p < .001, CFI = .99, RMSEA = .054 [.043, .065], SRMR = .047, but additional mean differences remained between cultures in endorsement of these beliefs, as indicated by poor model fit when both the path coefficients and the intercepts were constrained to be equivalent across countries, χ^2 (42) = 868.02, p < .001, CFI = .86, RMSEA = .150 [.141, .159], SRMR = .170.

Additional multiple regression analyses indicated that these cognitive variables explain a substantial portion of the covariation between belief in God and belief in karma. Belief in God predicted greater belief in karma in the USA, $b = 0.17$ [0.13, 0.21], $p < .001$, and Singapore, $b = 0.16$ [0.11, 0.21], $p < .001$, but when controlling for dualism, teleological thinking about life events, intuitive thinking, and mentalizing, the relationship with belief in God was substantially reduced in Singapore and became *negatively* associated with belief in karma in the USA (Table 5). This indicates that the positive association between belief in God and karma can be explained by shared cognitive intuitions that predict both beliefs. When controlling for this shared covariance, the remaining small negative relationship between God and karma may be due to religious/cultural contexts that encourage belief in God while inhibiting belief in karma, or vice versa (e.g., commitment to mainline Christian denominations vs. being spiritual-but-not-religious, see White, Norenzayan, et al., 2019). These multiple regressions again also confirm that the association between the cognitive variables and belief in karma exists independently of the covariation between these variables and belief in God.

Unlike in Study 1, where the path model explained minimal variance in non-agentic viewed of karma/God (i.e., less than 5% of the variance in impersonal descriptions and less than 14% of the variance resource-like descriptions), this model explained substantial variance in belief in karma ($R^2_{USA} = .45$, $R^2_{Singapore} = .26$), karma's moral knowledge ($R^2_{USA} = .26$, $R^2_{Singapore} = .19$), agentic views of karma ($R^2_{USA} = .27$, $R^2_{Singapore} = .09$), and non-agentic views of karma ($R^2_{USA} = .26$, $R^2_{Singapore} = .23$).

Karma was generally described as less agentic than God, but believers still endorsed agentic descriptions of karma at above floor levels (Figure 6). Agentic descriptions of karma were higher when pertaining to moral knowledge (e.g., "karma rewards people for proper

behavior"), than non-moral features (e.g., "karma has free will"), suggesting that believers are especially willing to think about karma's moral dimension using agentic language. But the positive associations between belief in karma (and social exposure to karma) and all trait ascriptions imply that both agentic and non-agentic views of karma tend to be compatible with belief. Teleological thinking also explained additional variance in ratings of karma's moral knowledge and non-agentic traits (although not non-moral agency), even after controlling for general belief and social exposure to karma, although dualism did not. This pattern of simultaneous, independent predictors indicates that both cognition and culture play a role in encouraging a variety of karma beliefs, even those thought to be theologically-incorrect like viewing karma as a social agent.

Table 5. Study 2: Multiple regression predicting belief in karma from belief in God and cognitive variables.

	USA						**Singapore**					
	β	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*	*β*	*[95% CI]*	*p*
Intercept	2.87	[2.83, 2.92]	<.001	2.87	[2.83, 2.91]	< .001	3.58	[3.53, 3.63]	<.001	3.58	[3.54, 3.63]	<.001
Belief in God	0.17	[0.13, 0.21]	<.001	-0.05	[-0.09, -0.01]	.025	0.16	[0.11, 0.21]	<.001	0.06	[0.01, 0.11]	.020
Analytic thinking				-0.14	[-0.17, -0.10]	<.001				-0.06	[-0.11, -0.01]	.017
Mentalizing				0.05	[0.01, 0.09]	.007				0.00	[-0.05, 0.05]	.97
Dualism				0.21	[0.17, 0.25]	<.001				0.08	[0.03, 0.13]	.001
Teleology in Life				0.31	[0.26, 0.35]	<.001				0.20	[0.15, 0.26]	<.001
R^2_{adj}		0.05			0.35			0.07			0.21	

3.3 Discussion

Study 2 provided a conceptual replication of the path models from Study 1 across two additional cultural contexts, the USA and Singapore. These path models replicated several key findings from Study 1: Reported willingness to engage in mentalizing and intuitive thinking were specifically (indirectly) associated with belief in God as a personalized, morally-concerned agent, and unassociated with belief in god as an abstract, impersonal force. In contrast, mentalizing and intuitive thinking were indirectly associated with a variety of conceptualizations of karma (as agentic, morally-concerned, *and* as a non-agentic causal principle) that were held concurrently by believers. Thus, belief in karma cannot be solely explained as an intuition unrelated to mentalizing, nor is it identical to other supernatural beliefs. These patterns also hold after controlling for self-perceived cultural exposure to karma beliefs and god beliefs. This does not mean that cultural learning is unimportant. Social exposure to karma and God remains strong predictors of belief within each country. Rather, the data show that cognitive variables explain an additional piece of the puzzle when predicting supernatural beliefs.

4 General Discussion

Across two studies including Christian, Hindu, Buddhist, and non-religious participants from Canada, the United States, India, and Singapore, we provide novel evidence that intuitive cognitive tendencies predicted both belief in God—a prototypically agentic and moralizing supernatural agent—and belief in karma—an ambiguously-agentic but also a morally-relevant supernatural entity. The tendency to trust one's intuitions and the self-reported willingness engage with others' mental states predicted endorsement of mind-body dualism and teleological perceptions of life events, which in turn predicted a variety of beliefs about God and karma. Our results also indicate how believers mentally represent the concept of karma, and reveal that belief

in karma possesses a distinct cognitive profile that distinguishes it from both belief in god and intuitive cognitive heuristics related to fairness.

Our findings reveal the limited explanatory power of the hypothesis that belief in karma is a unique cognitive intuition that is unrelated to mentalizing and perceptions of supernatural agency. This is a plausible theoretical prediction based on theologically-correct depictions of karma as an impersonal law of nature. Such a unique karmic intuition (which is perhaps indexed by perceptions of immanent justice that are well-documented around the world, e.g., Baumard & Boyer, 2013; Baumard & Chevallier, 2012; Callan et al., 2010) would also help to explain why karmic beliefs are so prevalent across world cultures. Consistent with this perspective, we have found that karma beliefs are widespread in samples of Hindus and Buddhists, and also (at least at low levels) among Western samples who lack meaningful cultural reinforcement of karmic beliefs. As evidence that these karma beliefs are intuitive, our data reveals that people who tend to trust their intuition or think less reflectively are more likely to believe in karma, across several cultural contexts. In addition, a residual direct association between intuitive thinking tendencies and belief in karma remains after controlling for the other measured cognitive variables, suggesting that intuitions not indexed in the present studies also play a role in karma belief. No such residual association remained between intuitive thinking and belief in God, indicating divergences between predictors of different types of beliefs.

Therefore, the present research indicates that such an intuition—that deserving misfortune translates into actually *causing* that misfortune to occur—may be *part* of the explanation for karma beliefs. However, the present research also documents several dimensions of karma beliefs that cannot be explained by intuitions about immanent justice. Belief in karma cannot be solely explained by intuitions about impersonal causality that are distinct from the

predictors of God belief, given that mentalizing tendencies also predict belief in karma, including predicting the belief that karma possesses agentic traits similar to the traits of God.

Why do mentalizing tendencies predict belief in god and belief in karma? In the case of belief in God, our data supports the argument that because God is typically conceived as a morally concerned social agent, understanding minds is important also for belief in God's mind, thus making belief in a personal God less plausible and compelling to individuals who are less prone to mentalizing. Specifically, we measured mentalizing as the self-reported willingness to engage with other people's mental states (e.g., a perceived ease of social interactions and empathy), which predicted cognitive biases that likewise reflect a willingness to consider mental states and intentions as something distinct from physical bodies (dualism) and as pervasive in life events and natural phenomena (teleologically thinking). This means that our results are limited to variables that assess these cognitive tendencies through self-reported perceptions, not through measures of actual accuracy in reasoning about mental states, nor through the mere presence vs. absence of these capabilities (such measures of actual capabilities provide interesting directions for future research using alternative methods, e.g., recruiting individuals on the autism spectrum). Our results specifically demonstrate that individuals who feel generally willing and able to think about other people's mental states, also hold a dualistic view of the mind as separate and independent of bodies, and imbue life events and natural phenomena with intentionality, and that these self-reported cognitive tendencies predict supernatural beliefs.

Consistent with this view, cognitive tendencies predicted agentic beliefs about God substantially better than non-agentic beliefs about God. These cognitive variables likewise predict agentic beliefs about karma. In addition, mind attribution to karma was positively associated with belief, consistent with the perspective that mind attribution provides an effective

and engaging way to understand unseen supernatural forces. However, this theoretical argument also provides an incomplete explanation for our results, given that, in every sample, willingness to engage in mentalizing also predicted non-agentic beliefs about karma, and both agentic and non-agentic descriptions were associated with belief. In other words, cognitive predictors of belief in karma are neither completely distinct from the predictors of God, nor identical to them.

This more general association between mentalizing and karma belief can be better understood by broadening our theoretical explanation for how mentalizing is recruited for supernatural beliefs, to consider the many dimensions of karma belief that might be understood through mental state reasoning. Belief in karma (as found in world religions and as indexed by the self-report measure used in these studies) (a) entails understanding human moral action and thinking about how moral behavior influences future outcomes, thereby engage mind perception processes that are intimately intertwined with much moral cognition (Gray et al., 2012); (b) involves the expectation of karmic repercussions even after death, and in future reincarnations, which reflects an expectation of mind-body dualism (C. White, 2017); and (c) implies that life events happen for a reason, thus relying on a teleological understanding of causal processes (Banerjee & Bloom, 2014). This belief in karma—as moralized causality across reincarnations—does not require that karma be a supernatural agent, and many believers were willing to ascribe both agentic and non-agentic characteristics to karma, perhaps indicating flexibility in how believers think about (or at least, talk about) what karma is like.

The distributions of participants' responses also suggest uncertainty or a lack of fixed beliefs about karma's attributes: Trait ratings did not show clear ceiling or floor effects, and many participants selected the scale mid-point for each question about karma. This pattern of trait attributions, combined with the positive association between mentalizing and karma belief,

indicate either that believers think of karma as something agentic (like God) or that they are willing to apply mental state reasoning to make sense of karma in the face of uncertainty about what karma is truly like. This is consistent with previous evidence that mental state reasoning allows perceivers to make sense of otherwise ambiguous and unpredictable experiences (Epley et al., 2007; Kay et al., 2010; Laurin & Kay, 2017; Waytz et al., 2010). Neither agentic nor non-agentic views of karma are incompatible with belief, or incompatible with one another.

Future research may reveal unique causes or varied consequences of different mental models of karma that were not detected in our studies. There may be additional individual differences or cultural influences that could explain why some people hold more or less agentic conceptions of karma. Theological teachings about God's abstract, superhuman attributes, learned over the course of development, play some role in adult's conception of God as distinct from human agents (Barlev et al., 2017, 2018, 2019; Richert et al., 2017; Saide & Richert, 2020); theological teachings conveyed through participation in religious communities may similarly play a role in beliefs about karma. Views of karma may also vary across different contexts. For example, the dyadic morality perspective (Gray & Wegner, 2010; Schein & Gray, 2018) might predict that karma would be perceived as especially agentic when karmic punishments/rewards cannot be explained through more mundane causal mechanisms, whereas retribution that follows immoral behavior through the intervention of human punishers or other secular forces might be conceived of as "karmic" in a more abstract way. The lack of a fixed, certain mental representation of karma also lends itself to future experimental work, which can test the causal effect of thinking about a more agentic vs. less agentic supernatural being. For example, the association between mentalizing and belief might be stronger among individuals led to think

about karma as a social agent, and weaker among those primed with karma as an impersonal causal force.

In contrast to the predictors of karma, the cognitive and cultural variables studied here did not predict non-agentic conceptualizations of God. This raises the question of which individual differences or social influences support non-anthropomorphic views of God, especially in populations (e.g., among Muslims) where agentic, personalized views of God are actively discouraged and low levels of God anthropomorphism is observed among adults and children (Richert et al., 2016, 2017). Further research is needed using both more diverse measures of beliefs about God (e.g., Johnson et al., 2018), and sampling from more diverse cultural and religious groups, to broaden our understanding of how cognitive factors predict specific beliefs about supernatural entities and how this might interact with cultural influences.

Our results provide one piece of this puzzle, across four different countries which vary in their religious histories of karma and god beliefs. We find that a similar pattern of cognitive predictors of belief is found among both Canadian and Indian participants (Study 1), despite differences in the cultural-prevalence and religious histories of karma beliefs in these two nations. Cognitive variables also indirectly predicted how much Americans and Singaporeans believed in karma, above and beyond the variability explained by an individual's social exposure to other people's beliefs (Study 2). That is, on average karmic beliefs are more prevalent in certain countries where the concept of karma is normative in cultural and religious discourse, and an individual's level of social exposure predicts their level of karmic beliefs. But cognitive variables predicted additional variation in individuals' beliefs beyond these cultural factors, and the pattern of cognitive predictors was similar across cultural contexts. This pattern supports the role of both cultural learning and cognitive biases in shaping supernatural beliefs.

Our studies partly replicate and extend past research regarding intuitive cognitive tendencies as predictors of supernatural beliefs, alongside robust cultural predictors of belief, but open questions remain about why these relationships exist and to what extent they are robust across different samples of participants and different types of beliefs. We present correlational evidence of the interrelationships between various cognitive tendencies and belief in morally-concerned theistic and non-theistic entities, but future experimental and longitudinal work is required to establish the causal pathways through which cognitive intuitions shape supernatural beliefs. A willingness to engage with human minds does not always, automatically, or inevitably result in the perception of supernatural minds operating in the world, nor are agentic supernatural entities the only unseen causal forces that are intuitively compelling, but these cognitive factors can provide part of the explanation for the ubiquity and the variation in supernatural beliefs around the world.

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Supplementary Materials

Bivariate correlations between variables

Table 1. Bivariate correlations between all variables, Canadian participants, Study 1

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
1. Intuition																
2. Mentalizing	.21															
3. Dualism	.28	.17														
4. Teleology in life	.28	.21	.36													
5. Teleology in nature	.14	.15	.20	.12												
6. Belief in Karma	.27	.08	.45	.55	.12											
7. Mind of Karma	.21	.04	.35	.41	.11	.61										
8. Benevolence of karma	.17	.08	.26	.31	.11	.45	.52									
9. Punitiveness of karma	.08	-.04	.13	.27	.03	.34	.46	.43								
10. Impersonal karma	.07	-.01	.14	.20	.01	.28	.35	.34	.58							
11. Resource-like karma	.20	.02	.26	.33	.09	.46	.74	.46	.32	.25						
12. Belief in God	.07	.19	.22	.47	.10	.30	.26	.22	.17	.12	.17					
13. Mind of God	.08	.14	.20	.47	.08	.29	.35	.24	.25	.14	.26	.80				
14. Benevolence of God	.07	.21	.23	.45	.10	.30	.30	.33	.24	.15	.23	.75	.75			
15. Punitiveness of God	-.03	-.11	.03	.10	.02	.15	.25	.23	.37	.26	.12	.09	.20	.15		
16. Impersonal God	-.01	-.09	.06	.03	-.03	.13	.21	.23	.23	.28	.15	-.06	.01	.03	.54	
17. Resource-like God	.07	.07	.16	.27	.06	.27	.32	.24	.22	.16	.28	.38	.52	.38	.19	.16

Note. Any correlations > .06 are statistically significant at $p < .05$.

Table 2: Bivariate correlations between all variables, Indian participants, Study 1

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
1. Intuition																
2. Mentalizing	.22															
3. Dualism	.18	.18														
4. Teleology in life	.31	.23	.33													
5. Teleology in nature	.23	.18	.33	.27												
6. Belief in Karma	.27	.19	.35	.53	.24											
7. Mind of Karma	.18	-.02	.33	.32	.27	.41										
8. Benevolence of karma	.16	.05	.23	.30	.21	.39	.42									
9. Punitiveness of karma	.05	-.08	.17	.20	.12	.27	.33	.39								
10. Impersonal karma	.02	-.02	.17	.15	.11	.22	.30	.36	.52							
11. Resource-like karma	.16	-.01	.22	.28	.20	.33	.61	.32	.25	.19						
12. Belief in God	.14	.13	.16	.43	.15	.42	.22	.24	.09	.07	.16					
13. Mind of God	.19	.15	.23	.48	.19	.43	.37	.26	.18	.13	.26	.62				
14. Benevolence of God	.24	.20	.24	.44	.23	.34	.17	.38	.18	.15	.13	.47	.49			
15. Punitiveness of God	.03	-.13	.13	.17	.13	.18	.30	.28	.52	.30	.17	.14	.21	.19		
16. Impersonal God	.01	-.08	.17	.15	.14	.16	.21	.23	.26	.40	.11	.12	.14	.17	.45	
17. Resource-like God	.11	-.01	.07	.16	.14	.12	.32	.17	.14	.11	.26	.19	.40	.13	.22	.11

Note. Any correlations > .06 are statistically significant at $p < .05$.

Table 3: Bivariate correlations between all variables, American participants, Study 2

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Analytic thinking													
2. Mentalizing	-.12												
3. Dualism	-.14	.19											
4. Teleology in life	-.19	.32	.38										
5. Belief in karma	-.28	.25	.43	.51									
6. Agency of karma	-.22	.20	.30	.31	.53								
7. Moral knowledge of karma	-.13	.24	.29	.36	.55	.70							
8. Non-agentic karma	-.15	.28	.31	.37	.57	.69	.83						
9. Belief in God	-.12	.17	.19	.49	.21	.11	.12	.12					
10. Agency of God	-.14	.21	.21	.48	.22	.22	.24	.22	.75				
11. Moral knowledge of God	-.14	.19	.21	.49	.29	.26	.33	.28	.68	.87			
12. Non-agentic God	.01	-.05	.20	.05	.18	.22	.25	.28	-.02	.17	.20		
13. Karma Social Exposure	-.19	.23	.36	.36	.54	.49	.46	.45	.15	.19	.23	.17	
14. God Social Exposure	-.08	.22	.20	.41	.16	.15	.17	.16	.52	.56	.52	.07	.31

Note. Any correlations > .06 are statistically significant at $p < .05$.

Table 4: Bivariate correlations between all variables, Singapore participants, Study 2

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Analytic thinking													
2. Mentalizing	.10												
3. Dualism	-.03	.13											
4. Teleology in life	-.02	.25	.27										
5. Belief in karma	-.11	.11	.26	.42									
6. Agency of karma	-.15	.06	.17	.20	.29								
7. Moral knowledge of karma	-.03	.23	.21	.37	.43	.67							
8. Non-agentic karma	.04	.22	.24	.41	.50	.64	.79						
9. Belief in God	-.07	.04	.19	.37	.27	.23	.29	.26					
10. Agency of God	0	.10	.21	.32	.33	.44	.49	.52	.48				
11. Moral knowledge of God	.02	.14	.24	.31	.31	.39	.52	.49	.44	.82			
12. Non-agentic God	.01	.09	.20	.22	.15	.37	.40	.41	.27	.67	.62		
13. Karma Social Exposure	.05	.14	.29	.31	.37	.20	.31	.35	.25	.25	.27	.15	
14. God Social Exposure	-.02	.15	.20	.28	.18	.17	.24	.24	.37	.35	.34	.24	.62

Note. Any correlations > .10 are statistically significant at $p < .05$.

Study 1: Dualism vs. Monism Measures

As a measure of individual differences in mind-body dualism, this survey included 10 items (draw from Riekki, Lindeman, & Lipsanen, 2013) that assessed two separate possibilities for the mind-body relationship: *dualism*, the belief that the mind is independent and fundamentally different from the body, and *monism*, the belief that the mind and body/brain are the same and fundamentally united. We had initially intended to combine these two into a single measure of mind-body dualism (after reverse-scoring the monism dimension), but, contrary to expectations, dualism and monism subscales were actually positively correlated with one another, and therefore could not be meaningfully combined into a single measure of dualism. Therefore, in all analyses reported in the main text we only used the six dualism items, because (1) these questions most directly address whether participants believe minds to be separate from bodies and (2) the dualism subscale is typically more strongly correlated with the modeled variables (see Table 5).

Table 5. Bivariate correlations between mind-body dualism and mind-body monism and other variables, Study 1.

	Canada		India	
	Dualism	*Monism*	*Dualism*	*Monism*
Monism	.15	--	.45	--
Intuition	.28	.12	.18	.21
Mentalizing	.17	.05	.18	.15
Teleology in life	.36	.02	.33	.24
Teleology in nature	.20	.20	.33	.36
Belief in Karma	.45	.10	.35	.22
Mind of Karma	.35	.15	.33	.30
Benevolence of karma	.26	.13	.23	.22
Punitiveness of karma	.13	.07	.17	.18
Impersonal karma	.14	.03	.17	.14
Resource-like karma	.26	.16	.22	.20
Belief in God	.22	-.05	.16	.05
Mind of God	.20	.03	.23	.18
Benevolence of God	.23	.01	.24	.18
Punitiveness of God	.03	.06	.13	.14
Impersonal God	.06	.10	.17	.09
Resource-like God	.16	.10	.07	.16

Note. Any correlations > .06 are statistically significant at $p < .05$.

Study 1: Model separately predicting different karma beliefs and God beliefs

Before creating the models described in the main text, we first analyzed the data through path models that separately predicted belief and each of the trait ascriptions from the cognitive variables. These models, depicted in Figure 1, included correlated residuals between various belief and trait ratings, which give a sense of the associations between various karma/God beliefs. Results are displayed in Tables 6 and 7. The models presented in the main text further modify these models to add a direct path between belief in karma/God and traits ascribed to karma/God, to more explicitly test whether (a) belief (in general) is associated with particular representations of karma/God, and (b) whether cognitive variables predict endorsement of these representations above and beyond their relationship with belief.

Figure 7. Study 1: Path model predicting supernatural beliefs, in Canada and India.

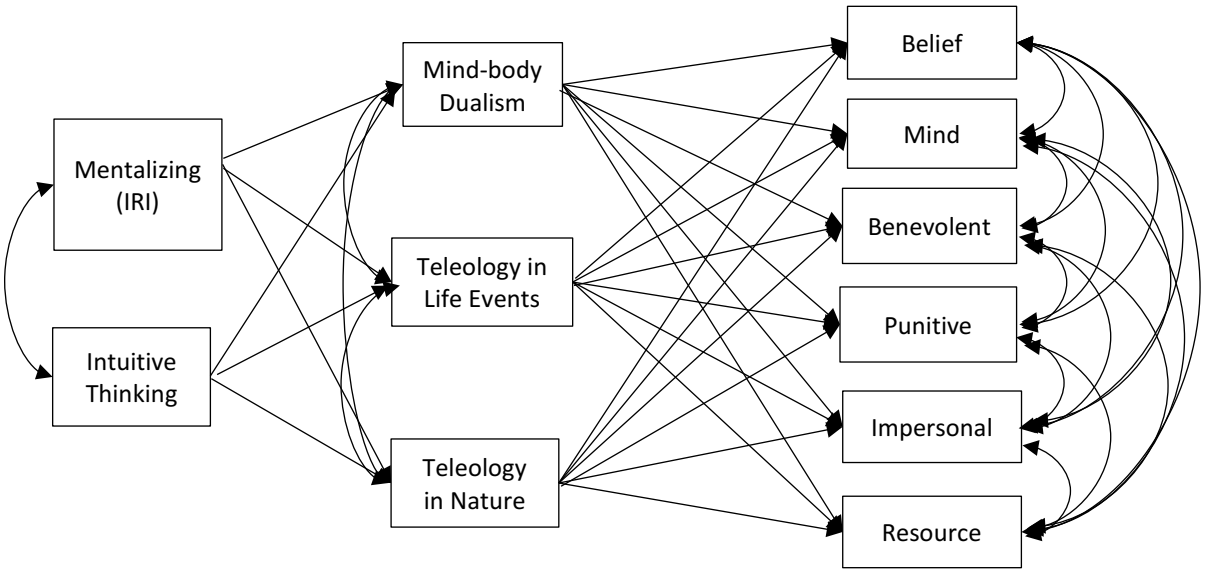

Table 6. Study 1: Standardized path model estimates predicting beliefs about karma and God.

	Karma				God			
	Canada		India		Canada		India	
	b	*95% CI*	*b*	*95% CI*	*b*	*95% CI*	*b*	*95% CI*
Dualism								
Intuition	0.26***	[0.20, 0.32]	0.14***	[0.08, 0.21]	0.26***	[0.20, 0.32]	0.14***	[0.08, 0.21]
Mentalizing	0.11***	[0.05, 0.17]	0.14***	[0.08, 0.21]	0.11***	[0.05, 0.17]	0.14***	[0.08, 0.21]
Teleology in Life Events								
Intuition	0.24***	[0.19, 0.30]	0.27***	[0.21, 0.33]	0.24***	[0.19, 0.30]	0.27***	[0.21, 0.33]
Mentalizing	0.16***	[0.10, 0.22]	0.17***	[0.11, 0.23]	0.16***	[0.10, 0.22]	0.17***	[0.11, 0.23]
Teleology in Nature								
Intuition	0.11***	[0.05, 0.17]	0.20***	[0.14, 0.26]	0.11***	[0.05, 0.17]	0.20***	[0.14, 0.26]
Mentalizing	0.12***	[0.06, 0.18]	0.14***	[0.08, 0.20]	0.12***	[0.06, 0.18]	0.14***	[0.08, 0.20]
Belief in Karma/God								
Dualism	0.29***	[0.24, 0.34]	0.18***	[0.12, 0.23]	0.04	[-0.02, 0.10]	0.007	[-0.06, 0.07]
Teleology in life	0.45***	[0.40, 0.50]	0.45***	[0.40, 0.50]	0.45***	[0.40, 0.51]	0.42***	[0.36, 0.47]
Teleology in nature	0.01	[-0.04, 0.06]	0.06*	[0.007, 0.12]	0.03	[-0.02, 0.09]	0.04	[-0.02, 0.10]
Mind								
Dualism	0.22***	[0.16, 0.28]	0.21***	[0.15, 0.27]	0.03	[-0.03, 0.09]	0.07*	[0.005, 0.12]
Teleology in life	0.32***	[0.27, 0.38]	0.22***	[0.16, 0.27]	0.46***	[0.41, 0.51]	0.45***	[0.39, 0.50]
Teleology in nature	0.03	[-0.03, 0.08]	0.14***	[0.08, 0.20]	0.02	[-0.03, 0.08]	0.05	[-0.01, 0.11]
Benevolence								
Dualism	0.17***	[0.11, 0.23]	0.12***	[0.06, 0.18]	0.07*	[0.008, 0.13]	0.08**	[0.02, 0.14]
Teleology in life	0.24***	[0.18, 0.30]	0.23***	[0.17, 0.29]	0.42***	[0.37, 0.48]	0.39***	[0.33, 0.44]
Teleology in nature	0.04	[-0.02, 0.10]	0.11***	[0.04, 0.17]	0.04	[-0.01, 0.10]	0.10***	[0.04, 0.16]
Punitiveness								
Dualism	0.04	[-0.03, 0.10]	0.10**	[0.04, 0.17]	-0.006	[-0.07, 0.06]	0.06	[-0.008, 0.13]
Teleology in life	0.26***	[0.19, 0.32]	0.16***	[0.09, 0.22]	0.10**	[0.03, 0.17]	0.13***	[0.06, 0.19]
Teleology in nature	-0.008	[-0.07, 0.05]	0.04	[-0.02, 0.11]	0.01	[-0.05, 0.07]	0.08*	[0.01, 0.14]
Impersonal								
Dualism	0.09*	[0.02, 0.15]	0.12***	[0.06, 0.19]	0.07	[0.00, 0.14]	0.11***	[0.04, 0.17]
Teleology in life	0.17***	[0.11, 0.24]	0.10**	[0.03, 0.16]	0.01	[-0.05, 0.08]	0.09**	[0.03, 0.16]

Teleology in nature	-0.03	[-0.10, 0.03]	0.04	[-0.02, 0.11]	-0.05	[-0.11, 0.02]	0.08*	[0.01, 0.14]
Resource								
Dualism	0.16***	[0.10, 0.23]	0.11***	[0.05, 0.18]	0.07*	[0.004, 0.13]	-0.007	[-0.07, 0.06]
Teleology in life	0.26**	[0.20, 0.32]	0.22***	[0.15, 0.28]	0.24***	[0.18, 0.31]	0.13***	[0.07, 0.20]
Teleology in nature	0.02	[-0.04, 0.08]	0.10**	[0.04, 0.16]	0.02	[-0.05, 0.08]	0.11***	[0.04, 0.17]

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

Table 7. Study 1: Correlated residuals from path model (presented in main text) predicting beliefs about karma and God. All estimates > 0.06 are statistically significant at p < .05.

		Karma				**God**			
		Canada		**India**		**Canada**		**India**	
		estimate	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*
Intuition	Mentalizing	0.21	[0.15, 0.27]	0.22	[0.16, 0.28]	0.21	[0.15, 0.27]	0.22	[0.16, 0.28]
Dualism	Teleo. in life	0.30	[0.24, 0.35]	0.28	[0.22, 0.33]	0.30	[0.24, 0.35]	0.28	[0.22, 0.33]
Dualism	Teleo. in nature	0.16	[0.10, 0.22]	0.29	[0.24, 0.35]	0.16	[0.10, 0.22]	0.29	[0.24, 0.35]
Teleo. in life	Teleo. in nature	0.07	[0.007, 0.13]	0.20	[0.14, 0.26]	0.07	[0.007, 0.13]	0.20	[0.14, 0.26]
Belief	Mind	0.47	[0.43, 0.52]	0.26	[0.20, 0.32]	0.74	[0.71, 0.77]	0.52	[0.47, 0.56]
Belief	Benevolence	0.32	[0.26, 0.37]	0.26	[0.21, 0.32]	0.68	[0.64, 0.71]	0.35	[0.29, 0.40]
Belief	Punitiveness	0.24	[0.18, 0.29]	0.18	[0.12, 0.24]	0.05	[-0.02, 0.11]	0.08	[0.01, 0.14]
Belief	Impersonal	0.20	[0.14, 0.26]	0.14	[0.08, 0.20]	-0.09	[-0.15, -0.03]	0.06	[-0.008, 0.12]
Belief	Resource	0.33	[0.28, 0.39]	0.19	[0.13, 0.25]	0.29	[0.24, 0.35]	0.14	[0.08, 0.20]
Mind	Benevolence	0.44	[0.39, 0.49]	0.32	[0.27, 0.38]	0.68	[0.65, 0.71]	0.35	[0.29, 0.40]
Mind	Punitiveness	0.40	[0.35, 0.45]	0.26	[0.20, 0.32]	0.17	[0.11, 0.23]	0.14	[0.08, 0.20]
Mind	Impersonal	0.29	[0.24, 0.35]	0.24	[0.18, 0.30]	-0.01	[-0.07, 0.05]	0.07	[0.004, 0.13]
Mind	Resource	0.69	[0.66, 0.73]	0.55	[0.51, 0.60]	0.46	[0.41, 0.51]	0.37	[0.31, 0.42]
Benevolence	Punitiveness	0.38	[0.33, 0.43]	0.34	[0.29, 0.40]	0.12	[0.06, 0.18]	0.11	[0.05, 0.18]
Benevolence	Impersonal	0.29	[0.23, 0.35]	0.32	[0.27, 0.38]	0.02	[-0.05, 0.08]	0.09	[0.03, 0.15]
Benevolence	Resource	0.38	[0.33, 0.44]	0.23	[0.17, 0.29]	0.29	[0.23, 0.35]	0.05	[-0.008, 0.12]
Punitiveness	Impersonal	0.56	[0.52, 0.61]	0.49	[0.45, 0.54]	0.54	[0.50, 0.59]	0.43	[0.38, 0.48]
Punitiveness	Resource	0.26	[0.20, 0.32]	0.19	[0.13, 0.25]	0.17	[0.11, 0.23]	0.19	[0.13, 0.25]
Impersonal	Resource	0.20	[0.14, 0.26]	0.13	[0.07, 0.20]	0.15	[0.09, 0.21]	0.08	[0.02, 0.14]

Study 1: Correlated residuals from main models

Table 8. Study 1: Correlated residuals from path model (presented in main text) predicting beliefs about karma and God. All estimates > 0.06 are statistically significant at p < .05.

		Karma				God			
		Canada		India		Canada		India	
		estimate	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*
Intuition	Mentalizing	0.21	[0.15, 0.27]	0.22	[0.16, 0.28]	0.21	[0.15, 0.27]	0.22	[0.16, 0.28]
Dualism	Teleo. in life	0.30	[0.24, 0.35]	0.28	[0.22, 0.33]	0.30	[0.24, 0.35]	0.28	[0.22, 0.33]
Dualism	Teleo. in nature	0.16	[0.10, 0.22]	0.29	[0.24, 0.35]	0.16	[0.10, 0.22]	0.29	[0.24, 0.35]
Teleo. in life	Teleo. in nature	0.07	[0.01, 0.13]	0.2	[0.14, 0.26]	0.07	[0.01, 0.13]	0.20	[0.14, 0.26]
Mind	Benevolence	0.35	[0.29, 0.40]	0.2	[0.15, 0.26]	0.36	[0.31, 0.42]	0.27	[0.21, 0.33]
Mind	Punitiveness	0.34	[0.28, 0.39]	0.12	[0.06, 0.18]	0.20	[0.14, 0.26]	0.23	[0.17, 0.29]
Mind	Impersonal	0.23	[0.17, 0.29]	0.04	[-0.02, 0.11]	0.08	[0.02, 0.14]	0.21	[0.15, 0.27]
Mind	Resource	0.65	[0.61, 0.68]	0.35	[0.29, 0.40]	0.37	[0.32, 0.42]	0.53	[0.49, 0.57]
Benevolence	Punitiveness	0.33	[0.28, 0.39]	0.09	[0.03, 0.16]	0.12	[0.06, 0.18]	0.31	[0.25, 0.36]
Benevolence	Impersonal	0.25	[0.19, 0.30]	0.08	[0.02, 0.14]	0.10	[0.04, 0.17]	0.30	[0.24, 0.36]
Benevolence	Resource	0.31	[0.26, 0.37]	0.01	[-0.06, 0.07]	0.13	[0.07, 0.19]	0.19	[0.13, 0.25]
Punitiveness	Impersonal	0.54	[0.50, 0.59]	0.43	[0.38, 0.48]	0.55	[0.51, 0.59]	0.48	[0.44, 0.53]
Punitiveness	Resource	0.20	[0.14, 0.26]	0.18	[0.12, 0.24]	0.16	[0.10, 0.23]	0.16	[0.10, 0.22]
Impersonal	Resource	0.14	[0.08, 0.20]	0.07	[0.01, 0.13]	0.18	[0.12, 0.24]	0.11	[0.05, 0.17]

Study 2: Alternative models

Predicting beliefs about God

We tested additional models that were identical to those reported in text but excluded the social exposure variable, thus being comparable to the models tested in Study 1. When predicting beliefs about God, this model was also a good fit for the data in the USA: χ^2 (10) = 83.14, p < .001, CFI = .98, RMSEA = .077 [.062, .092], SRMR = .04, and explained 24% of the variance in belief in God, 23% of the variance in God's moral knowledge, and 22% of the variance in agentic views. This model was also a good fit predicting belief in God in Singapore: χ^2 (10) = 44.21, p < .001, CFI = .97, RMSEA = .082 [.058, .11], SRMR = .07, and explained 11% of the variance in belief in God, 4% of the variance in God's moral knowledge, and 4% of the variance in agentic views.

For the sake of comparison, alternative models that reversed the direction of the association between beliefs and cognitive biases provided a worse fit to the data when predicting belief in God in the USA: χ2 (8) = 172.45, p < .001, CFI = .96, RMSEA = .13 [.11, .15], SRMR = .052, and a similar (but no better) fit in Singapore: χ2 (8) = 47.32, p < .001, CFI = .98, RMSEA = .085 [.059, .11], SRMR = .04.

Predicting beliefs about karma

When predicting belief in karma, the model omitting social exposure was also a good fit to the data in the USA: χ^2 (7) = 76.32, p < .001, CFI = .98, RMSEA = .09 [.072, .11], SRMR = .04, and explained 34% of the variance in belief in karma, 13% of the variance in karma's moral knowledge, 16% of the variance in agentic views, and 17% of the variance in non-agentic views of karma. This model was also a good fit predicting belief in karma in Singapore: χ^2 (6) = 25.63, p < .001, CFI = .98, RMSEA = .080 [.050, .11], SRMR = .03, and explained 21% of the variance in belief in karma, 15% of the variance in karma's moral knowledge, 8% of the variance in agentic views, and 19% of the variance in non-agentic views of karma.

For the sake of comparison, alternative models that reversed the direction of the association between beliefs and cognitive biases provided a fit that was similar or worse (depending on which fit statistic is considered) when predicting belief in karma in the USA: χ2 (4) = 64.71, p < .001, CFI = .98, RMSEA = .11 [.09, .14], SRMR = .03, and a similar fit in Singapore: χ2 (4) = 16.62, p = .002, CFI = .99, RMSEA = .08 [.04, .12], SRMR = .02.

Study 2: Model separately predicting different karma beliefs and God beliefs

Figure 2. Study 2: Path model predicting belief in karma. Also not depicted are included correlated residuals between social exposure to karma and cognitive predictor variables. Dashed arrows indicate paths added to the karma model that were omitted from the model predicting God. The path from analytic thinking to non-moral agency of karma was only included in Singapore.

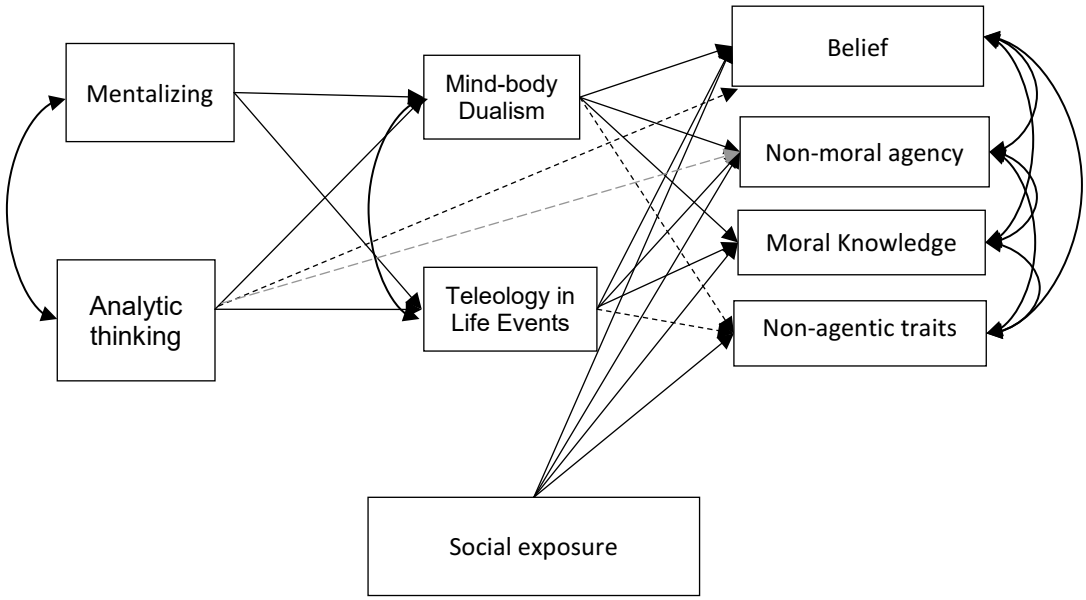

Table 9. Study 2: Standardized path model estimates predicting beliefs about karma and God.

	Karma				God			
	USA		Singapore		USA		Singapore	
	b	*95% CI*	*b*	*95% CI*	*b*	*95% CI*	*b*	*95% CI*
Dualism								
Analytic thinking	-0.12***	[-0.17, -0.06]	-0.04	[-0.13, 0.05]	-0.12***	[-0.17, -0.06]	-0.04	[-0.13, 0.05]
Mentalizing	0.18***	[0.12, 0.23]	0.14**	[0.05, 0.22]	0.18***	[0.12, 0.23]	0.14**	[0.05, 0.22]
Teleology in Life Events								
Analytic thinking	-0.15***	[-0.21, -0.10]	-0.04	[-0.13, 0.05]	-0.15***	[-0.21, -0.10]	-0.04	[-0.13, 0.05]
Mentalizing	0.30***	[0.25, 0.35]	0.25***	[0.17, 0.33]	0.30***	[0.25, 0.35]	0.25***	[0.17, 0.33]
Belief								
Dualism	0.18***	[0.13, 0.22]	0.20*	[0.02, 0.18]	-0.004	[-0.05, 0.05]	0.04	[-0.04, 0.12]
Teleology in life	0.29***	[0.25, 0.34]	0.32***	[0.24, 0.39]	0.34***	[0.29, 0.39]	0.25***	[0.17, 0.33]
Social Exposure	0.36***	[0.31, 0.40]	0.24***	[0.16, 0.32]	0.38***	[0.34, 0.43]	0.29***	[0.22, 0.37]
Analytic thinking	-0.11***	[-0.15, -0.07]	-0.12**	[-0.20, -0.05]				
Agency								
Dualism	0.11***	[0.05, 0.16]	0.10*	[0.01, 0.18]	-0.02	[-0.07, 0.02]	0.03	[-0.04, 0.09]
Teleology in life	0.12***	[0.07, 0.18]	0.13*	[0.04, 0.21]	0.30***	[0.25, 0.35]	0.14***	[0.07, 0.20]
Social Exposure	0.41***	[0.36, 0.46]	0.14**	[0.05, 0.23]	0.45***	[0.40, 0.49]	0.31***	[0.24, 0.39]
Analytic thinking			-0.16***	[-0.22, -0.09]				
Moral knowledge								
Dualism	0.09***	[0.04, 0.14]	0.08	[-0.004, 0.16]	-0.022	[-0.07, 0.03]	0.07*	[0.003, 0.14]
Teleology in life	0.20***	[0.15, 0.25]	0.28***	[0.20, 0.37]	0.33***	[0.28, 0.38]	0.13***	[0.06, 0.20]
Social Exposure	0.36***	[0.31, 0.41]	0.20***	[0.12, 0.29]	0.39***	[0.35, 0.44]	0.30***	[0.22, 0.38]
Non-agentic traits								
Dualism	0.11***	[0.06, 0.17]	0.09*	[0.01, 0.17]				
Teleology in life	0.21***	[0.16, 0.26]	0.32***	[0.25, 0.40]				
Social Exposure	0.33***	[0.28, 0.38]	0.22***	[0.14, 0.30]	0.07*	[0.01, 0.12]	0.24***	[0.16, 0.32]

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

Table 10. Study 2: Correlated residuals from path model predicting beliefs about karma and God. All estimates > 0.10 are statistically significant at $p < .05$.

		Karma				God			
		USA		Singapore		USA		Singapore	
		estimate	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*
Analytic thinking	Mentalizing	-0.12	[-0.17, -0.06]	0.09	[0.01, 0.18]	-0.12	[-0.17, -0.06]	0.10	[0.01, 0.18]
Dualism	Teleology in life	0.33	[0.28, 0.38]	0.24	[0.16, 0.33]	0.33	[0.28, 0.38]	0.24	[0.16, 0.34]
Belief	Agency	0.30	[0.25, 0.35]	0.18	[0.10, 0.26]	0.60	[0.56, 0.63]	0.36	[0.28, 0.44]
Belief	Moral knowledge	0.34	[0.30, 0.39]	0.28	[0.19, 0.36]	0.50	[0.45, 0.54]	0.30	[0.22, 0.38]
Belief	Non-agentic	0.36	[0.31, 0.40]	0.35	[0.27, 0.42]	-0.08	[-0.14, -0.02]	0.16	[0.07, 0.25]
Agency	Moral knowledge	0.60	[0.56, 0.63]	0.65	[0.60, 0.70]	0.79	[0.77, 0.81]	0.78	[0.75, 0.82]
Agency	Non-agentic	0.58	[0.55, 0.62]	0.63	[0.58, 0.68]	0.17	[0.12, 0.23]	0.64	[0.58, 0.69]
Moral knowledge	Non-agentic	0.77	[0.75, 0.80]	0.74	[0.70, 0.78]	0.20	[0.14, 0.25]	0.58	[0.52, 0.64]
Dualism	Social Exposure	0.31	[0.26, 0.35]	0.28	[0.20, 0.36]	0.16	[0.11, 0.21]	0.18	[0.20, 0.26]
Teleology in life	Social Exposure	0.28	[0.23, 0.32]	0.29	[0.21, 0.36]	0.35	[0.31, 0.40]	0.25	[0.17, 0.33]
Mentalizing	Social Exposure	0.23	[0.17, 0.28]	0.14	[0.06, 0.23]	0.22	[0.17, 0.27]	0.15	[0.06, 0.23]
Analytic thinking	Social Exposure	-0.19	[-0.25, -0.14]	0.05	[-0.04, 0.14]	-0.08	[-0.14, -0.03]	-0.02	[-0.11, 0.06]

Study 2: Correlated residuals from main models

Table 11. Study 2: Correlated residuals from path model predicting beliefs about karma and God. All estimates > 0.10 are statistically significant at p < .05.

		Karma				God			
		USA		Singapore		USA		Singapore	
		estimate	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*	*estimate*	*95% CI*
Analytic thinking	Mentalizing	-0.12	[-0.17, -0.06]	0.09	[0.01, 0.18]	-0.12	[-0.17, -0.06]	0.09	[0.01, 0.18]
Dualism	Teleology in life	0.33	[0.28, 0.38]	0.24	[0.16, 0.33]	0.33	[0.28, 0.38]	0.24	[0.16, 0.33]
Agency	Moral knowledge	0.55	[0.51, 0.59]	0.63	[0.58, 0.69]	0.70	[0.68, 0.73]	0.75	[0.72, 0.79]
Agency	Non-agentic	0.53	[0.49, 0.57]	0.62	[0.56, 0.67]	0.27	[0.22, 0.33]	0.63	[0.57, 0.68]
Moral knowledge	Non-agentic	0.74	[0.72, 0.77]	0.71	[0.67, 0.76]	0.27	[0.22, 0.33]	0.56	[0.50, 0.62]
Dualism	Social Exposure	0.31	[0.26, 0.35]	0.28	[0.20, 0.36]	0.16	[0.11, 0.21]	0.18	[0.10, 0.26]
Teleology in life	Social Exposure	0.27	[0.23, 0.32]	0.29	[0.21, 0.36]	0.35	[0.31, 0.40]	0.25	[0.17, 0.33]
Mentalizing	Social Exposure	0.23	[0.17, 0.28]	0.14	[0.06, 0.23]	0.22	[0.17, 0.27]	0.15	[0.06, 0.23]
Analytic thinking	Social Exposure	-0.19	[-0.24, -0.14]	0.05	[-0.04, 0.14]	-0.08	[-0.14, -0.03]	-0.02	[-0.11, 0.06]

Studies 1 and 2: Controlling for god variables when predicting karma

In addition to the path models that separately investigated predictors of God beliefs and predictors of karma beliefs, we conducted additional multiple regression analyses to investigate covariation between beliefs about God and beliefs in karma. Specifically, we conducted multiple regression models that predicted each of the beliefs about karma from the cognitive variables (included in the path models in the main text) and the beliefs about god that were analogous to the karma questions. These models, depicted in Table 8 and 9, show that beliefs about god predict analogous beliefs about karma (e.g., the degree of mind attributed to God predicts the degree of mind attributed to karma), indicating consistency in how individuals view different supernatural entities. However, this covariation between beliefs about God and karma cannot account for the similarities between the cognitive predictors of karma and God. The cognitive variables independently predict belief in karma even after controlling for belief in God, thereby confirming an independent association with belief in karma that cannot be accounted for by beliefs about God.

Table 12. Study 1: Predicting beliefs about karma from cognitive tendencies and beliefs about God.

	Canada						India					
	b	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*
Belief in karma												
Intuition	0.09	0.03, 0.14	.001	0.09	0.04, 0.14	.001	0.10	0.04, 0.15	.001	0.11	0.05, 0.16	<.001
Mentalizing	-0.08	-0.13, -0.03	.003	-0.08	-0.13, -0.03	.002	0.04	-0.02, 0.09	.17	0.03	-0.02, 0.08	.28
Dualism	0.28	0.22, 0.33	<.001	0.27	0.22, 0.32	<.001	0.17	0.11, 0.23	<.001	0.17	0.12, 0.23	<.001
Teleology in life	0.44	0.39, 0.50	<.001	0.42	0.37, 0.48	<.001	0.42	0.36, 0.48	<.001	0.32	0.26, 0.38	<.001
Teleology in nature	0.01	-0.04, 0.06	.58	0.01	-0.04, 0.06	.59	0.04	-0.01, 0.10	.13	0.03	-0.02, 0.08	.29
Belief in God				0.05	-0.01, 0.10	.11				0.23	0.17, 0.29	<.001
Mind												
Intuition	0.07	0.01, 0.13	.016	0.09	0.03, 0.15	.003	0.07	0.01, 0.13	.015	0.07	0.01, 0.12	.025
Mentalizing	-0.08	-0.14, -0.02	.007	-0.09	-0.14, -0.03	.002	-0.15	-0.21, -0.09	<.001	-0.16	-0.21, -0.10	<.001
Dualism	0.21	0.15, 0.28	<.001	0.21	0.15, 0.27	<.001	0.22	0.16, 0.28	<.001	0.2	0.14, 0.26	<.001
Teleology in life	0.32	0.26, 0.38	<.001	0.23	0.16, 0.29	<.001	0.22	0.16, 0.28	<.001	0.11	0.04, 0.18	.001
Teleology in nature	0.03	-0.03, 0.09	.29	0.03	-0.03, 0.08	.35	0.14	0.08, 0.20	<.001	0.13	0.07, 0.19	<.001
Mind of God				0.20	0.14, 0.26	<.001				0.26	0.19, 0.32	<.001
Benevolence												
Intuition	0.06	0.00, 0.13	.049	0.09	0.02, 0.15	.007	0.06	-0.00, 0.12	.06	0.04	-0.02, 0.10	.25
Mentalizing	-0.02	-0.08, 0.04	.54	-0.05	-0.11, 0.01	.11	-0.06	-0.12, 0.00	.06	-0.08	-0.14, -0.02	.011
Dualism	0.16	0.09, 0.22	<.001	0.14	0.07, 0.20	<.001	0.12	0.06, 0.19	<.001	0.10	0.04, 0.17	.001
Teleology in life	0.23	0.16, 0.29	<.001	0.13	0.06, 0.20	<.001	0.23	0.16, 0.29	<.001	0.12	0.06, 0.19	<.001
Teleology in nature	0.04	-0.02, 0.10	.18	0.04	-0.02, 0.09	.23	0.10	0.04, 0.17	.001	0.08	0.02, 0.14	.012
Benevolence of God				0.24	0.18, 0.31	<.001				0.29	0.22, 0.35	<.001

	Canada						India					
	b	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*
Punitiveness												
Intuition	0.02	-0.05, 0.08	.57	0.03	-0.03, 0.09	.27	0.00	-0.07, 0.06	.98	0.01	-0.05, 0.06	.81
Mentalizing	-0.11	-0.17, -0.04	.001	-0.06	-0.12, 0.00	.053	-0.15	-0.22, -0.09	<.001	-0.05	-0.11, 0.00	.057
Dualism	0.04	-0.03, 0.11	.23	0.03	-0.03, 0.10	.28	0.11	0.05, 0.18	.001	0.08	0.02, 0.14	.008
Teleology in life	0.27	0.20, 0.34	<.001	0.23	0.17, 0.29	<.001	0.18	0.12, 0.25	<.001	0.10	0.04, 0.16	.001
Teleology in nature	0.00	-0.06, 0.07	.90	-0.01	-0.06, 0.05	.83	0.06	-0.01, 0.12	.075	0.01	-0.05, 0.07	.79
Punitiveness of God				0.34	0.28, 0.39	<.001				0.49	0.43, 0.54	<.001
Impersonal												
Intuition	0.01	-0.06, 0.07	.84	0.01	-0.05, 0.07	.74	-0.04	-0.10, 0.03	.28	-0.02	-0.08, 0.04	.51
Mentalizing	-0.06	-0.12, 0.00	.063	-0.03	-0.09, 0.03	.28	-0.07	-0.13, -0.01	.029	-0.02	-0.08, 0.04	.56
Dualism	0.09	0.02, 0.16	.009	0.08	0.01, 0.14	.02	0.13	0.06, 0.20	<.001	0.09	0.03, 0.15	.005
Teleology in life	0.18	0.11, 0.25	<.001	0.17	0.11, 0.23	<.001	0.12	0.05, 0.19	.001	0.07	0.01, 0.14	.023
Teleology in nature	-0.03	-0.09, 0.04	.42	-0.02	-0.08, 0.04	.54	0.05	-0.01, 0.12	.121	0.01	-0.05, 0.08	.65
Impersonal God				0.27	0.21, 0.33	<.001				0.37	0.31, 0.43	<.001
Resource-like												
Intuition	0.10	0.03, 0.16	.002	0.10	0.04, 0.16	.001	0.07	0.01, 0.14	.021	0.06	-0.00, 0.12	.054
Mentalizing	-0.08	-0.14, -0.02	.007	-0.09	-0.14, -0.03	.005	-0.12	-0.18, -0.06	<.001	-0.10	-0.16, -0.04	.001
Dualism	0.15	0.09, 0.22	<.001	0.14	0.08, 0.20	<.001	0.12	0.05, 0.18	<.001	0.12	0.06, 0.18	<.001
Teleology in life	0.26	0.19, 0.32	<.001	0.20	0.14, 0.27	<.001	0.22	0.15, 0.29	<.001	0.20	0.13, 0.26	<.001
Teleology in nature	0.03	-0.03, 0.08	.41	0.02	-0.04, 0.08	.48	0.10	0.04, 0.16	.002	0.08	0.01, 0.14	.016
Resource-like God				0.20	0.14, 0.26	<.001				0.20	0.14, 0.26	<.001

Table 13. Study 2: Predicting beliefs about karma from cognitive tendencies and beliefs about God.

	USA						Singapore					
	b	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*
Belief in karma												
Analytic thinking	-0.17	-0.21, -0.12	<.001	-0.17	-0.22, -0.12	<.001	-0.1	-0.18, -0.02	.012	-0.10	-0.18, -0.02	.017
Mentalizing	0.07	0.02, 0.11	.008	0.07	0.02, 0.11	.007	0.00	-0.09, 0.08	.92	0.00	-0.08, 0.08	.97
Dualism	0.26	0.21, 0.31	<.001	0.26	0.21, 0.31	<.001	0.15	0.06, 0.23	.001	0.14	0.05, 0.22	.001
Teleology in life	0.36	0.30, 0.41	<.001	0.38	0.33, 0.44	<.001	0.38	0.29, 0.46	<.001	0.34	0.25, 0.43	<.001
Belief in God				-0.06	-0.11, -0.01	.025				0.10	0.02, 0.19	.02
Non-moral agency												
Intuition	-0.16	-0.21, -0.10	<.001	-0.15	-0.20, -0.10	<.001	-0.14	-0.23, -0.06	.001	-0.15	-0.23, -0.07	<.001
Mentalizing	0.09	0.04, 0.15	.001	0.09	0.03, 0.14	.002	0.01	-0.07, 0.10	.74	0.01	-0.08, 0.09	.90
Dualism	0.19	0.13, 0.25	<.001	0.19	0.13, 0.24	<.001	0.13	0.04, 0.22	.003	0.08	-0.00, 0.16	.06
Teleology in life	0.17	0.12, 0.23	<.001	0.14	0.08, 0.21	<.001	0.17	0.08, 0.26	<.001	0.05	-0.04, 0.14	.26
God's non-moral agency				0.07	0.01, 0.13	.018				0.41	0.33, 0.49	<.001
Moral knowledge												
Intuition	-0.04	-0.10, 0.01	.10	-0.04	-0.09, 0.02	.19	-0.04	-0.12, 0.05	.39	-0.04	-0.12, 0.03	.23
Mentalizing	0.13	0.07, 0.18	<.001	0.12	0.06, 0.17	<.001	0.15	0.06, 0.23	.001	0.13	0.05, 0.20	.001
Dualism	0.17	0.11, 0.23	<.001	0.16	0.11, 0.22	<.001	0.12	0.03, 0.20	.007	0.04	-0.03, 0.12	.26
Teleology in life	0.24	0.18, 0.30	<.001	0.16	0.10, 0.23	<.001	0.31	0.22, 0.40	<.001	0.20	0.11, 0.28	<.001
God's moral knowledge				0.18	0.12, 0.24	<.001				0.44	0.37, 0.52	<.001

	USA						Singapore					
	b	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*	*b*	*CI*	*p*
Non-agentic traits												
Intuition	-0.06	-0.11, -0.01	.025	-0.07	-.12, -.02	.007	0.04	-0.04, 0.12	.36	0.03	-0.04, 0.10	.42
Mentalizing	0.17	0.11, 0.22	<.001	0.19	.14, .24	<.001	0.11	0.03, 0.19	.008	0.10	0.03, 0.18	.009
Dualism	0.19	0.13, 0.24	<.001	0.13	.07, .18	<.001	0.13	0.05, 0.21	.002	0.08	0.01, 0.16	.034
Teleology in life	0.24	0.18, 0.30	<.001	0.24	.18, .29	<.001	0.37	0.28, 0.45	<.001	0.31	0.23, 0.39	<.001
God's non-agentic traits				0.26	.21, .31	<.001				0.33	0.25, 0.41	<.001