

**BELIEF IN KARMA: THE CONTENT AND CORRELATES OF SUPERNATURAL  
JUSTICE BELIEFS ACROSS CULTURES**

by

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B.A., The University of Western Ontario, 2015

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2017

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## **Abstract**

Karmic beliefs, centered on the notion of ethical causation within and across lifetimes, appear in religious traditions and spiritual movements around the world, yet they remain an unexplored topic in psychology. I developed and validated a 16-item measure of belief in karma, and used this measure to assess the cultural distribution, cognitive content, and correlates of karmic beliefs among participants from culturally and religiously diverse backgrounds, including Canadian students (Sample 1:  $N = 3193$ , Sample 2:  $N = 3072$ ) and broad national samples of adults from Canada ( $N = 1000$ ) and India ( $N = 1006$ ). Belief in karma showed predictable variation based on participant's cultural (e.g., Indian) and religious (e.g., Hindu and Buddhist) background, but was also surprisingly common among people from cultural groups with no tradition of karmic beliefs (e.g., nonreligious or Christian Canadians). I demonstrate how karmic beliefs are related to, but distinct from, conceptually-similar beliefs, including belief in a just world and belief in a moralizing god. Finally, I provide preliminary evidence of intuitive conceptions of karma, and investigate how karma is related to self-reported prosocial behaviour and moral judgments. Karma is a form of supernatural justice belief, endorsed by many people from diverse cultural and religious backgrounds that lies at the intersection between beliefs about justice and morality, and beliefs about supernatural forces that shape the course of life's events.

## **Lay Summary**

Karmic beliefs, centered on the notion of ethical causation within and across lifetimes, appear in religious traditions and spiritual movements around the world, yet they remain an unexplored topic in psychology. I developed and validated a 16-item measure of belief in karma, and used this measure to assess the cultural distribution, cognitive content, and correlates of karmic beliefs among participants from culturally and religiously diverse backgrounds, including Indian adults and Canadian students and non-student adults. I demonstrate how karmic beliefs are related to conceptually-similar beliefs (including belief in a just world and belief in a moralizing god), I provide preliminary evidence of intuitive conceptions of karma, and I investigate how karma is related to moral judgments. Karma is a supernatural justice belief, endorsed by people from diverse cultural backgrounds, that lies at the intersection between beliefs about morality, and beliefs about supernatural forces that shape the course of life's events.

## **Preface**

This this is the original, unpublished work of the author, Cindel Jennifer Melina White. I was responsible for identifying and designing the research program, in consultation with Ara Norenzayan. I conducted all research, including creating and administering online questionnaires and analyzing the data. I was primarily responsible for writing the manuscript, with manuscript edits contributed by Ara Norenzayan and Mark Schaller. This research was approved by UBC's Behavioural Research Ethics Board (certificate #H15-03085).

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## **Acknowledgements**

I thank my supervisors, Ara Norenzayan and Mark Schaller, who provided intellectual and financial support that allowed me to complete this project. I also thank Adam Baimel, who shared his wisdom and insight throughout this project. While conducting this research, I was also supported by a UBC Faculty of Arts Graduate Award and SSHRC Canada Graduate Scholarship Master's Award.

## **Introduction**

Karmic beliefs are central to major world religions, such as Hinduism, Buddhism, and their offshoots, that together have more than 1.5 billion adherents worldwide (Pew Research Center, 2015). Belief in karma also appears in spiritual and New Age movements that are rapidly growing in the West. Like the moralizing god of Abrahamic faiths, karma is believed to be a supernatural force that keeps track of people's behaviours and metes out appropriate rewards and punishments. Like other immanent justice beliefs, karma involves the sense that, in the long run, people get what they deserve and deserve what they get. According to the law of karma, actions have consequences for future success and misfortune. Unlike other immanent justice beliefs, karma is closely tied to the notion of rebirth or reincarnation; karmic consequences can manifest in one's current life, or in the conditions of future rebirths, including whether a person is reincarnated as high or low in status, rich or poor, healthy or ill, male or female, human or non-human (Bronkhorst, 2011).

Despite the prevalence of supernatural justice beliefs across cultures, research is currently lacking on the psychology of karmic beliefs, reflecting a general lack of psychological research on non-Western populations and non-Western religious traditions (Henrich, Heine, & Norenzayan, 2010; Norenzayan, 2016). The present study provides preliminary evidence about the cultural distribution, cognitive content, and correlates of karmic beliefs, using a scale that I developed to measure individual differences in karmic beliefs. I examined the prevalence and predictors of belief in karma across diverse cultural and religious groups that show meaningful variation in their karmic beliefs: Canadian students from diverse religious backgrounds, and national samples of Canadian adults and Indian adults.

## **Who Believes in Karma?**

Like many supernatural beliefs, belief in karma is likely the result of both cultural learning, and cognitive and motivational influences (Norenzayan et al., 2016). First, belief in karma may result from individuals adopting the beliefs of their cultural communities (Carlisle, 2008; Cohen, 2009; Lanman & Buhrmester, 2016; Saroglou & Cohen, 2011), implying that belief in karma will be higher among individuals from countries (i.e., India) and religious traditions (i.e., Hinduism, Buddhism) that have a long history of endorsing belief in karma.

In addition to cultural context, belief in karma may also be encouraged by cognitive and motivational biases—such as a motive for justice, or a tendency to see a purpose behind life events—that are evident among individuals from diverse religious and cultural backgrounds (Willard & Norenzayan, 2013), implying that karma-like beliefs may be widespread in human populations. Several beliefs reminiscent of karma, such as belief in immanent justice, are common among Western children and adults (Callan, Sutton, Harvey, & Dawtry, 2014). The term ‘karma’ is also used in the West as a common colloquial expression of just desserts for one’s actions. These studies therefore explored the prevalence of belief in karma among people from a variety of cultural backgrounds, including among participants from Canada and India, and among adherents to karmic religions, adherents to Abrahamic faiths, and non-religious individuals. This allowed us to assess the prevalence of karmic beliefs, the role of culture in shaping karmic beliefs, and whether karmic beliefs are predicted by the same psychological factors across cultures.

## **Karma and God**

In contrast to belief in karma, which has received little attention in psychology, belief in god, and in particular the Abrahamic God, has been a growing topic of research. Karma has

many of the same features as moralizing Big Gods that appear in many world religions (Botero et al., 2014; Norenzayan et al., 2016), including interest in human morality and the ability to punish norm-violators. But karma is not a god. In Eastern religious traditions, belief in karma can exist alongside belief in gods, operating independently or in parallel, even shaping the actions of one another (Hieber, 1983). Moreover, it is possible that some individuals who reject the existence of gods may nevertheless believe in karma. Alternatively, god and karma may both be the result of the same underlying human motive for fairness and justice (Baumard & Boyer, 2013), or both arise from the same genetic or cultural evolutionary pressures for supernatural punishment to support human cooperation (Johnson, 2015; Norenzayan et al., 2016). However, it is an open question whether, psychologically, karma and god share similar features, antecedents, and consequences in the minds and behaviour of believers.

To empirically investigate these theoretical possibilities about karma's similarity to god, I examined both the predictors of belief in karma and belief in God, as well as the features that characterize karma and God, including whether people anthropomorphize both karma and God. Many supernatural beliefs involve the attribution of human-like or super-human minds to non-human entities, and therefore require the ability to perceive minds and reason about human mental states (Gervais, 2013; Waytz, Gray, Epley, & Wegner, 2010). For instance, the tendency to perceive minds is an important contributor to belief in god. People mentally represent god as a person-like agent with a mind, in much the same way that they represent other human beings as agents with minds. Individuals may believe that god possesses superhuman omniscience and lacks human-like physiology, but still think of god as possessing many human-like mental states (e.g., knowledge, goals, desires, and intentions) and human-like personality traits (e.g., vengeful and angry, forgiving and loving; Johnson, Okun, & Cohen, 2015; Lane, Wellman, & Evans,

2014; Shtulman & Lindeman, 2016). Also, the same psychological processes that are used to understand other people's minds are also used to think about God's mental states (Epley, Converse, Delbosc, Monteleone, & Cacioppo, 2009; Heiphetz, Lane, Waytz, & Young, 2016; Schjoedt, Stødkilde-Jørgensen, Geertz, & Roepstorff, 2009). As a result, people who are less likely to think about other people's minds are also less likely to believe in personified supernatural agents (Lindeman & Lipsanen, 2016; McCauley, 2011; Norenzayan, Gervais, & Trzesniewski, 2012).

It is currently unknown whether people attribute human-like mental traits to karma, like they do to God. Unlike the gods in many religious traditions, karma is not personified in theological or mythological texts. Karma is not supposed to be a supernatural agent, with intentions and feelings and personality traits; instead, karma is an impersonal cosmic force, a law of the universe that describes the causal connections between events (Bronkhorst, 2011; Daniel, 1983; Wadley, 1983). Rather than engaging social-cognitive processes, thinking about karma may instead engage non-social reasoning processes, such as those for reasoning about mechanistic causality or contagion. Rather than a personified agent, karma may be conceived of as a bank account of merit and demerit that is gained and lost, or as a contaminating influence infecting each individual. The distinction between god and karma is further apparent in how people interact with these supernatural forces: they will interact with god through an interpersonal, devotional relationship, as in prayer; while they use divination, rather than prayer, to learn about karma (Young, Morris, Burrus, Krishnan, & Regmi, 2011).

Yet some individuals may personify karma, despite theological teachings to the contrary. Many people hold theologically incorrect beliefs that are intuitively compelling (Slone, 2004), such as implicitly ascribing human-like limitations to God despite teachings about his

omniscience (Barrett & Keil, 1996; Lane, Wellman, & Evans, 2010; Purzycki et al., 2012). If it is intuitively compelling to think about supernatural forces as personal agents with human-like minds, many individuals may be willing to grant karma anthropomorphic mental states and personality traits, despite the theological incorrectness of such responses. The operation of karma can easily be understood using mental state terms: karma *knows* how people behave, *remembers* people's actions and then *decides* which consequences will follow, *intentionally* causing future events to occur as a reflection of past actions, *kindly* rewarding good behaviour, and *vengefully* punishing bad behaviour. People may not always think of karma as a supernatural agent with a mind and personality. Yet many individuals are likely to sometimes think about karma as an agent, leading them to attribute mental states to karma. I assessed people's willingness to attribute mental states and personality traits to karma and to god, allowing us to evaluate if individuals use a similar cognitive template to think about both god and karma.

### **Karma and Immanent Justice Beliefs**

I also explored the association between an individual's belief in karma—a supernatural source of justice—and their expectation of non-supernatural varieties of justice. The general expectation of justice, even in the absence of human agents who reward and punish, has been studied among Westerners as individual differences in Belief in a Just World (Lerner, 1980; Rubin & Peplau, 1975) and as belief in immanent justice (Callan et al., 2014). Like belief in karma, belief in a just world is an individual's expectation that people generally get what they deserve: success and misfortune occur as a fair consequence for one's actions, with good people experiencing good things, and bad people experiencing bad things. Research has found that Western children and adults, irrespective of religious beliefs, expect that those people who do good things will experience good outcomes (Banerjee & Bloom, 2016; Converse, Risen, &

Carter, 2012), those who do bad things will experience misfortune and harmful accidents (Callan, Ellard, & Nicol, 2006), those who are lucky are more likely to be nice people and those who are unlucky are more likely to be bad people (Hafer & Bègue, 2005; Lerner, 1980; Olson, Dunham, Dweck, Spelke, & Banaji, 2008). Given these similarities, I expect that individuals who believe in karma will also expect to receive rewards and punishments from other people, have a police force and legal system that can deliver justice for the victims of crime, and generally experience fair processes and fair outcomes (Lipkus, Dalbert, & Siegler, 1996; Lucas, Alexander, Firestone, & LeBreton, 2007). However, I also expect that belief in karma will be distinct from previous measures of belief in a just world, given the supernatural dimension of karma that allows it to operate across multiple lifetimes.

### **Karma and Moral Psychology**

I also investigated the content of karmic beliefs by examining the relationship between karma and moral psychology. I assessed whether individuals who believe in karma think that there will be karmic consequences for *all* actions, or if karmic consequences only occur for *morally relevant* actions. I predict that people will only expect karmic consequences for actions that are good or bad, not for morally-neutral actions, across a variety of moral domains, including concerns about harm, fairness, ingroup loyalty, authority, or purity (Graham et al., 2011). If an action is not moral, but is merely the result of morally-neutral social conventions or preferences, then this action should not be relevant to karma. This would parallel findings regarding people's beliefs about god's knowledge, which is more conspicuously relevant to some behaviours than others: despite god's omniscience, people are quicker to respond that God would know about morally relevant behaviour than about morally-irrelevant information (Purzycki et al., 2012). This also leads to the prediction that the types of actions that have karmic



consequences will vary across individuals and cultures, just as social norms and morality vary across individuals and cultures (Haidt, 2013). For example, Bhangaokar and Kapadia (2009) found that in India beliefs about karma were closely intertwined with ideas about *dharma*—karma is relevant to those normative, role-related duties that dictate which actions are right or wrong for each person. Together, this would provide evidence that karma, like god, is especially concerned about moral behaviour, and may play a role in enforcing social norms and group morality.

In addition to assessing the relationship between karma and moral judgement, I also assessed whether belief in karma was associated with individual differences in self-reported moral behaviour, such as a willingness to spend time and money helping others, empathic concern for other's misfortune, and charitable giving. Previous research has found a positive (albeit inconsistent) relationship between several measures of self-reported religiosity, such as affiliation to religious groups or belief in God, and prosocial responses in lab-based economic games and real-world charitable givings (e.g., Everett, Haque, & Rand, 2016; Paciotti et al., 2011; Schnable, 2015, for a review, see Galen, 2012; Preston, Ritter, & Hernandez, 2010). Additionally, a recent meta-analysis found that priming religious concepts increased prosociality among religious believers (Shariff, Willard, Andersen, & Norenzayan, 2016). Specifically, belief in a god who is aware of and who punishes transgressors increases feelings of social surveillance and, subsequently, increases prosocial behaviour (Gervais & Norenzayan, 2012; Norenzayan et al., 2016; Purzycki et al., 2016; Shariff & Norenzayan, 2011). I tested whether karma, like god, is a supernatural force that can encourage self-reported prosociality, among karmic believers from different religious traditions.

## **Overview of Research**

In order to investigate the distribution, predictors, and contents of belief in karma, I distributed an online survey to four large samples who I expected to hold varying levels of belief in karma: two ethnically and religiously diverse samples of Canadian undergraduate students and two national samples of non-student adults, from Canada and India. Due to the lack of previously existing validated measures of karmic beliefs, I first developed and validated a questionnaire to measure belief in karma. I then used this questionnaire to assess the prevalence, content, and correlates of belief in karma.

## **Methods and Results**

I developed and validated a questionnaire to measure belief in karma. I assessed the prevalence of karmic beliefs across cultural and religious groups, including among adherents to karmic religious traditions, Abrahamic religions, and non-religious individuals, in both Canada and India. I demonstrate how belief in karma is associated with beliefs about other supernatural forces, beliefs about other types of justice, moral judgements, and self-reported prosociality. I also provide preliminary evidence regarding the features of karma, including karma's perceived mind, personality, and moral concerns. Due to the lack of previous research about karma, the hypotheses investigated in this study were largely exploratory, although when relevant I grounded investigations in psychological theory and research about belief in supernatural agents, justice, and morality.

### **Methods**

I first conducted a pilot test of the Belief in Karma Questionnaire among a sample of 280 Americans, recruited through Amazon's Mechanical Turk, and I subsequently used this questionnaire to investigate karmic beliefs among large, national samples of Canadian and Indian adults. Prior to analyzing data from the second student sample, and from the Canadian and Indian adult samples, the method of data collection (i.e., recruitment, demographic quotas, and exclusion criteria), materials used (i.e., exact question, rating scales, and procedure), and data analysis plan were registered on the Open Science Framework (OSF).<sup>1</sup> Any modifications to these registered plans are described below, including changes to composite measures with low

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<sup>1</sup> Full details on the preregistration for Student Sample 2, and for Canadian and Indian adult samples, can be found at [https://osf.io/qan8v/?view\\_only=ee09c3acfadf47c58e2a83a1f6fb8045](https://osf.io/qan8v/?view_only=ee09c3acfadf47c58e2a83a1f6fb8045).

reliability, and additional exploratory analyses that were conducted to further investigate the data. Reported below are a sub-set of the total number of pre-registered analyses, which were relevant to assessing the validity of the belief in karma measure and exploring the content of karmic beliefs (other pre-registered analyses are reported elsewhere, as they pertain to a somewhat different research question). I first report the participants and materials included in all samples, then report the results of analyses conducted on all samples where data was available (instead of organizing these results as multiple separate studies).

## **Participants**

### **Canadian Student Sample 1**

Undergraduate students ( $N = 3193$ ) from a large Canadian university completed an online survey in return for partial course credit. This survey was given to students who participated in the Human Subjects Pool of the Psychology Department, during the 2015–2016 academic year. At the beginning of the semester, students were given the option to complete this survey, and the sample size was determined by including all students who completed this questionnaire by the end of the semester. As can be seen in Table 1, students were younger than the general Canadian population, mostly female, identified their cultural background as primarily Asian (39.8% East Asian, 12.0% Southeast Asian, 9.5% South Asian) or European (25.8%), and were predominantly Christian or non-religious. In order to establish test-retest reliability, a sub-set of these students, completed the belief in karma questionnaire at a second time-point, during one of three unrelated studies ( $N = 210$ ,  $M$  age = 19.82,  $SD = 2.57$ ; 72.9 % female; 62.4% Asian, 21.4 % European; 29.1% Christian, 48.7% Non-religious, atheist, or agnostic).

## Canadian Student Sample 2

A second sample of undergraduate students ( $N = 3072$ ) from the same large Canadian university completed an online survey in return for partial course credit during the 2016–2017 academic year. At the beginning of the semester, students were given the option to complete this survey, and the sample size was determined by including any students who completed this questionnaire by the end of the semester and who passed an attention check question embedded within the survey (i.e., “Please select disagree as your response for this item”; 38 participants were excluded based on this criteria).<sup>2</sup> As with the previous student sample, students were younger than the general Canadian population, mostly female, identified their cultural background as primarily Asian (35.9% East Asian, 11.9% Southeast Asian, 10.5% South Asian) or European (26.3%), and were predominantly Christian or non-religious.<sup>3</sup>

## Canadian Adult Sample

Canadian adults were recruited through a market research company,<sup>4</sup> and agreed to complete the online survey in return for small financial rewards. I was interested in recruiting a sample of participants that largely resembled the general Canadian population, therefore I recruited participants based on loose quotas for region, age, and gender (see Appendix B for

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<sup>2</sup> Additional participants, who provided incomplete data, were excluded from analyses where relevant data was missing, but included in other analyses where data was present.

<sup>3</sup> As there is considerable overlap in HSP participants from year-to-year, I used participant’s email addresses to match participants in these two student samples. Using this method, I identified and matched responses from 454 participants (11.6% of participants who provided an email address;  $M$  age = 20.59,  $SD$  = 2.77; 84.0 % female; 52.6% Asian, 30.4 % European; 28.9% Christian, 56.7% Non-religious, atheist, or agnostic). An additional 1165 participants in the first student sample, and 745 participants in the second student sample declined to provide an email address, preventing us from definitively establishing the amount of participant overlap in these two samples. When the same data was available from both student samples (e.g., correlations between belief in karma and demographics), I excluded identified overlapping participants from Student Sample 2, and report their data from Student Sample 1.

<sup>4</sup> Research Now ([www.researchnow.com](http://www.researchnow.com)). Not Amazon’s Mechanical Turk.

details on the representativeness of this sample). Participants who exceeded quota requirements were excluded from participating, and additional participants (221 in Canada) were excluded for failing attention checks placed within the survey (see Appendix B for full details). New participants were recruited to replace anyone who was excluded through these criteria, until the sample reached the desired size of 1000. This sample size was selected as large enough to recruit a sample that was broadly representative of the larger Canadian population, and have sufficient power ( $> .90$ ) to detect relatively small correlations (e.g.,  $r = .15$ ). After these exclusions, the final sample consisted of 1000 Canadian adults. Unlike the Canadian student sample, this adult sample was broadly representative of the Canadian population in terms of age, gender balance, geographic distribution, income, religiosity, and ethnicity (see Table 1 and Appendix B for full details).

### **Indian Adult Sample**

Indian adults were recruited through the same market research company used to recruit Canadians. Participation was limited to adults in India able to access to a computer (to complete the online survey) and able to speak English (the language of the survey), which limits the findings to a sub-set of the general population in India. Within these constraints, I aimed at recruiting a sample of participants that resembled the broader Indian population. Therefore, I recruited participants based on loose quotas for age and gender, and those who exceeded quota requirements were excluded from participating. Additional participants (616 in India) were excluded for failing attention checks placed within the survey (see Appendix B for full details). New participants were recruited to replace anyone who was excluded through these criteria, until the sample reached the desired size of 1000. After these exclusions, the final sample consisted of 1006 Indian adults. This adult sample was somewhat older and more educated than the overall

Indian population, which limits the generalizability of these results to other individuals in India. But importantly, this sample resembled the overall Indian population in religious affiliation (i.e., 78% Hindu), thus providing a meaningful comparison to the Canadian samples, who were primarily Christian or non-religious (see Table 1 and Appendix B for full details).

## **Materials**

### **Belief in Karma Questionnaire**

I developed a 16-item questionnaire to measure of belief in karma in all samples (see Appendix A). In this questionnaire, three items explicitly measure belief in “karma.” Nine items do not mention karma, but measure karmic beliefs as the expectation of morally-congruent consequences for one’s actions (both rewards and punishments, retrospective and prospective). Four items assess belief in reincarnation and rebirth. Of the 16 items, half refer to reincarnation or past/future lives, and half do not mention reincarnation at all. Participants reported their agreement with these statements on 5-point likert scales (*strongly disagree* to *strongly agree*, mid-point = *neither agree nor disagree*).

I conducted a pilot test of this belief in karma questionnaire using a sample of 280 American adults, recruited through Amazon’s Mechanical Turk. Among this sample, the 16-item belief in karma questionnaire was reliable (Cronbach’s  $\alpha = .94$ ), and showed a largely-normal distribution ( $M = 2.76$ ,  $SD = 0.88$ ), without ceiling or floor effects. Therefore, I decided to use this scale, without alteration, in subsequent samples.<sup>5</sup>

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<sup>5</sup> From this sample, I also gathered preliminary evidence that this measure of belief in karma had a significant, positive correlation with belief in god ( $r = .27$ ) and the afterlife ( $r = .43$ ), religiosity ( $r = .12$ ), and spirituality ( $r = .32$ ). Belief in karma was not significantly associated with religious attendance ( $r = -.02$ ), age ( $r = -.01$ ), or gender ( $r = .01$ ). Additionally, I found the belief in karma was associated with a willingness to attribute karma mental capabilities ( $r = .60$ ), benevolent personality traits ( $r = .44$ ), and punitive personality traits ( $r = .32$ ). These findings were replicated and investigated more fully in subsequent samples, and will not be discussed at length here.

Given that the karma questionnaire includes both items about supernatural justice and items about reincarnation, it may be argued that this questionnaire measures two conceptually-distinct beliefs. However, I decided to retain items referring to reincarnation in the karma measure for several reasons, both theoretical and empirical. Theoretically, karma is intimately intertwined with belief about reincarnation in the teachings of many religious traditions (e.g., Hinduism, Buddhism). The cycle of reincarnation is the timescale over which karmic consequences can manifest, and karma is the force that causes reincarnation to happen and specifies the shape of each rebirth. Empirically, items with rebirth and items without rebirth were highly correlated in all samples ( $r_s > .70$ ).<sup>6</sup> These 16 items also showed high internal consistency ( $\alpha_s > .90$ ), and according to a factor analysis, using a Maximum Likelihood method of extraction and Direct Oblimin rotation, all items loaded onto a single factor (see Table 2). It remains possible that in certain contexts, sub-components of this measure may predict specific outcomes, but these results suggest that all items represent a single underlying dimension of belief in karma. Therefore, I used participants' mean score on the entire 16-item questionnaire as a measure of *belief in karma* in subsequent analyses. Table 2 displays the mean level of karmic beliefs in each sample. In all samples, the distribution of karmic belief scores was not dramatically skewed, and had similar standard deviations (ranging from 0.72 in India to 0.82 in Canadian adults).

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<sup>6</sup> Across all four samples, participants endorsed statements explicitly about “karma,” or about justice within one’s life, more than they endorsed questions about rebirth or justice across lives. To examine this difference, I split the karma questionnaire into questions that explicitly mentioned rebirth, and questions that lacked any mention of rebirth. A 2 (Canada vs. India) x 2 (karma with rebirth vs. without rebirth) mixed factorial ANOVA revealed a main effect of both national culture and subscale ( $p$ 's  $< .001$ ), as well as a significant interaction between national culture and subscale,  $F(1, 2004) = 39.01, p < .001$ , partial  $\eta^2 = .02$ . Questions without rebirth were endorsed more than questions including rebirth, although this difference was smaller among Indians than Canadians. Endorsement of rebirth-related karma was relatively low among Canadians, but remained relatively high among Indians.



I also obtained two measures of this questionnaire's test-retest reliability from the student samples. Karmic belief scores at two time points were highly correlated, both among 210 participants from Student Sample 1,  $r = .66$ ,  $p < .001$ , 99% CI [.55, .75], time between responses:  $M = 50$  days ( $SD = 25.58$ ); and among the 454 students who participated in both Sample 1 and Sample 2,  $r = .79$ ,  $p < .001$ , 99% CI [0.74, 0.83], time between responses:  $M = 246$  days ( $SD = 21.51$ ). The amount of time elapsed between the two responses did not moderate this relationship, in either case.

### **Canadian Student Sample 1**

Participants completed the 16-item Belief in Karma Questionnaire, and several other relevant questions, as part of a larger survey. Questions pertinent to analyses reported here include basic demographic information (e.g., age, gender, cultural and religious background), as well as measures of various supernatural and justice beliefs. Three questions assessed the features of karma: "Karma is impersonal," "Karma has a mind," and "Karma can be forgiving." Dalbert et al.'s (1987) 6-item measure of belief in a just world assessed participants' non-karmic justice beliefs ( $\alpha = .74$ ). Participants also reported other religious beliefs, including "I believe that God exists," "God is important in my life," "I am a religious person," and whether they would describe themselves as "Religious," "Spiritual but not religious," or "neither spiritual nor religious." All responses were made on 5-point likert scales ranging from *Strongly Disagree* to *Strongly Agree*.

### **Canadian Student Sample 2**

Participants completed the 16-item Belief in Karma Questionnaire, and several other relevant questions, as part of a larger survey. Three items assessed participants' awareness of how they publicly present themselves ( $\alpha = .84$ ), and three items assessed participants' awareness

of their private, inner feelings ( $\alpha = .65$ ), taken from Govern and Marsch's (2001) Situational Self-Awareness Scale. Self-reported prosocialness (Caprara, Steca, Zelli, & Capanna, 2005) was measured as the mean of 16-items describing the participants willingness to feel concern for other's misfortune and offer time and money to help others, such as "I am available for volunteer activities to help those who are in need" and "I intensely feel what others feel" ( $\alpha = .89$ ).

After accessing the data, I became aware that the same participants had also completed measures of charitable giving. The mean of 5 items ( $\alpha = .97$ ) provided a measure of how much money participants donated in the last month to non-profit organizations with each of the following properties: non-profit organizations that "have impacted me or a loved one," are "well-known," "that are generating the greatest social good," "that I feel can make a difference," and "that I know the person asking for support or running the organization." Participants also reported, if they had \$100, how much would they allocate to non-profit organizations with these same 5 properties ( $\alpha = .69$ ). One item assessed how much money participants donated in the last month, and how much of \$100 they would donate, to non-profit organizations "that fit with my religious beliefs." This allowed us to assess both real and hypothetical charitable givings, to both religious and non-religious organizations, as an additional measure of prosociality.

## **Canadian Adult and Indian Adult Samples**

### **Features of God and Karma**

Participants reported whether karma has various personifying features, including mental capabilities and personality traits, and then reported the features possessed by their god. Thirteen items described mental and physical abilities, including cognitive abilities (e.g., "can remember things"), perceptual abilities (e.g., "can see"), morally-relevant abilities (e.g., "knows how people treat each other"), and morally-irrelevant abilities (e.g., "knows the volume of the

Atlantic Ocean”). Seven items assessed whether the target was characterized by punitive traits (punishing, vengeful, terrifying, fearsome, angry, judging, controlling) and five items assessed benevolent traits (loving, forgiving, compassionate, peaceful, comforting). For both karma and god, composite scores were created for the mean levels of *mental capabilities*, mean level of *punitive traits*, and mean level of *benevolent traits* attributed to karma and to god ( $\alpha$ 's ranging from .86 to .98 depending on target and country). An additional item assessed the belief that karma and god were “impersonal,” and a final item assessed the belief that the target “can be gained and lost.”<sup>7</sup>

### **Belief in a Just World**

Participants reported their belief in general, non-karmic justice, using Lipkus et al.'s (1996) measure of belief in a just world for the self (BJWS), eight statements that assess participants' belief that their own life is fair, e.g., “I feel that I get what I deserve” (Canada:  $\alpha = .87$ ; India:  $\alpha = .89$ ).

### **Procedural Just World Beliefs**

Two items (taken from Lucas et al., 2007) assessed participants' belief that they are subject to fair processes: “Regardless of the outcomes they receive, people are generally subjected to fair procedures” and “I feel that people generally use methods that are fair in their evaluations of others” (Canada:  $\alpha = .77$ ; India:  $\alpha = .73$ ).

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<sup>7</sup> Personality characteristics, and being “impersonal,” were initially rated on 7-point scales, but these were re-scaled to a 5-point scales prior to analyses for the sake of comparison with other measures, which are largely made on 5-point rating scales.

### **Legal Justice**

Three items assessed participants' expectation of justice from secular, legal institutions. However, incorporating all three items into a single score led to low reliability in both countries ( $\alpha$ 's < .60), therefore the reversed-scored item was removed<sup>8</sup> and a composite index of legal justice was created as the mean of the remaining two items: "I have confidence in my local police department" and "The legal system (e.g., courts) is usually successful in getting justice" (Canada:  $\alpha = .70$ ; India:  $\alpha = .80$ ).

### **Interpersonal Punishments and Rewards**

Four items assessed participants' expectation of interpersonal punishments. Participants were asked to "Imagine that someone you knew did something wrong (e.g., harms another person)" and report the likelihood that other people will punish them, e.g., "other people will make sure that they pay" (5-point scale, from *very unlikely* to *very likely*). Four similar questions were asked regarding participants' expectation of interpersonal rewards if "someone you knew did something good (e.g., helps another person)." These measures, of interpersonal rewards and punishments, each included one reverse-scored item, but, as with legal justice, including this question in the overall composite score led to low reliability ( $\alpha$ 's < .66). Therefore, all subsequent analyses were performed on a mean composites of a 3-items interpersonal punishment score (Canada:  $\alpha = .84$ ; India:  $\alpha = .80$ ), and a 3-items interpersonal reward score (Canada:  $\alpha = .86$ ; India:  $\alpha = .83$ ).

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<sup>8</sup> Wherever the scoring procedure was changed, I performed analyses using both the original and revised composite scores. In every case, the results using both measures were similar in direction and magnitude, therefore I only report results from the reliable composite scores.

## **Morality Questionnaires**

Participants completed a modified version of Graham et al.'s (2011) Moral Foundations Questionnaire (MFQ). Due to time constraints, participants only completed the first part of the questionnaire, in which participants read 15 statements and reported the statement's relevance to deciding "whether something is right or wrong" (5-point scale, from *not at all relevant* to *extremely relevant*). These statements assessed five different domains of morality: harm, fairness, ingroup loyalty, authority, and purity. Composite scores were created as the mean of the three items in each domain ( $\alpha$ 's = .58 - .76). Next, participants responded to the same set of statements, but instead of judging their relevance to morality, participants reported the relevance of each statement to deciding "whether an action has karmic consequences" (5-point scale, from *definitely no karmic consequences* to *definitely will have karmic consequences*). Again, mean composite scores were created for karmic consequences in each of the 5 different moral domains ( $\alpha$ 's = .78 - .92).

## **Other Beliefs and Demographics**

Participants reported their belief in the existence of god, the afterlife, free will, whether they believed that god is "responsible for enacting karma" (5-point scale, from *karma operates independently of God* to *karma occurs because of God's will*), and if god can "intervene to over-rule karmic consequences" (5-point scale, from *God never contradicts karma* to *God often intervenes and over-rules karma*). Also recorded were several general demographics, including age, gender, education, income, ethnicity, and political orientation (7-point scale, from *politically liberal* to *politically conservative*). Participants provided information about their religious background, including which religion they adhere to, their frequency of religious attendance, and their level of religiosity and spirituality (5-point scale, *not at all religious/spiritual* to *very*

*religious/spiritual*). I also computed a difference score, of participant's spirituality minus their religiosity, as a measure of whether participants are spiritual-but-not-religious. Participants also reported whether they "feel your life has meaning," and reported their satisfaction with life (mean of two items: "I am satisfied with my life" and "In general, my life is close to my ideal"; Canada:  $\alpha = .85$ ; India:  $\alpha = .74$ ).

### **Different Versions of the Survey**

Canadian adults (non-students) were given the opportunity to complete the survey in either official language, English or French (16.9% of Canadian adults chose to complete the French-language survey). The French-language version of the survey was translated from the English version by one bilingual research assistant, then the accuracy of the French translation was checked by a second, independent bilingual research assistant, and minor changes were made to ensure that the French survey matched the English survey. The only exceptions to this translation procedure was the MFQ questions, where the French translation was taken from previous work (Deak & Saroglou, 2012).

Participants in India saw the same English-language survey given to the adult Canadian sample, with the following modifications to the demographic questions. Questions about participants' state of residence, education level, income, and ethnic group were modified and tailored to Indian participants. Although English is an official language in India and widely spoken, there is variability in English language proficiency. Therefore, two questions were added

about Indian participant's confidence in speaking English (1 = *very unconfident*, 5 = *very confident*), and the participant's first language.<sup>9</sup>

## **Results**

### **Analysis Plan**

The analyses below come from four samples who completed somewhat different surveys. For each section below, I report analyses from all samples where data was available.

To compare national cultures, I focus on the Canadian adult and Indian adult samples (since these samples were recruited using similar methods and they completed identical surveys). Due to the large sample sizes, my interpretation focuses on effect sizes and confidence intervals, rather than null hypothesis significance tests (following recommendations by Cumming, 2014).

To help correct for inflated Type I error rates, I present all correlations with 99% confidence intervals, and only focus on correlations that are statistically significant at the level of  $p < .001$ .

### **Cultural Distribution of Belief in Karma**

I first examined the distribution of belief in karma, including the prevalence of karmic beliefs within cultural sub-groups, and the association between belief and participants' demographics. Figure 1 displays the distribution of belief in karma, among Indian and Canadian adults. Belief in karma was above the scale mid-point among Indians, and slightly below the scale mid-point among Canadians, being overall higher among Indians than Canadians,  $t(2004) = 28.33$ ,  $p < .001$ ,  $d = 1.27$  [1.17, 1.37]. This finding supports the validity of my karma questionnaire: karmic

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<sup>9</sup> In the final sample (N = 1006), only five participants reported that their first language was English, but the majority of individuals reported that they were confident in their ability to speak English (88.5% above scale midpoint, 6.7% at scale midpoint, and only 4.8% below scale midpoint in English confidence). Given the relatively small number of participants who reported being unconfident in their English-speaking ability, these individuals were retained in the analyses reported below.

belief scores were higher in a country with a long history of culturally endorsing belief in karma, while scores were lower in a country with little cultural support for belief in karma. In addition to these mean differences across cultures, it is notable that in both national samples there was variability in karmic beliefs, with some individuals accepting and others rejecting the existence of karma.

The two Canadian student samples offer additional support for the influence of culture on belief in karma. In Canadian Student Sample 1, participants who reported having Asian cultural backgrounds showed greater belief in karma ( $M = 2.88$ ,  $SD = 0.77$ ) than did students from non-Asian cultural backgrounds ( $M = 2.58$ ,  $SD = 0.79$ ),  $t(3114) = 10.64$ ,  $p < .001$ ,  $d = 0.39$  [0.32, 0.46]. Similar results were obtained in Canadian Student Sample 2: participants who reported having Asian cultural backgrounds showed greater belief in karma ( $M = 2.95$ ,  $SD = 0.71$ ) than did students from non-Asian cultural backgrounds ( $M = 2.65$ ,  $SD = 0.71$ ),  $t(2554) = 10.51$ ,  $p < .001$ ,  $d = 0.42$  [0.34, 0.50]. (Prevalence of karmic beliefs across different religious traditions, reported below, also were consistent with cultural influences on belief in karma).

### **Demographic Correlates of Belief in Karma**

As can be seen in Table 3, correlations between karmic beliefs and many demographic variables (age, gender, education, income, and political orientation) tended to be small, and not statistically significant, with the exception of political orientation among Indian adults and Canadian students (Sample 2). However, further investigation indicates that this correlation is due to the positive correlation between political conservatism and justice subscales in these two samples ( $r$ 's ranging from .11 - .21), while the correlation between political orientation and questions that explicitly reference "karma" was essentially zero in these samples ( $r$ 's ranging from -.001 to -.015). Additionally, belief in karma was correlated with life satisfaction and



meaning in life among Indians, but not Canadians. This may suggest that among Indians, but not among Canadians, karma is part of the religious/cultural framework that provides meaning in people's lives (Oishi & Diener, 2014).

### **Religious and Supernatural Correlates of Belief in Karma**

Table 4 shows the correlations between karmic beliefs and participants' religious orientation and supernatural beliefs. In Canadian students and adults, belief in karma was positively correlated with spirituality, religiosity, and with describing oneself as spiritual-but-not-religious. Belief in karma was uncorrelated with religious attendance in the overall Canadian sample, but did have a significant *positive* correlation among Canadian Hindus ( $r = .74, p = .009$ ), and a significant *negative* correlation among Canadian Christians ( $r = -.22, p < .001$ ). Among students, belief in karma was also correlated with participants' assertion that "God is important in my life,"  $r = .18, p < .001, 99\% \text{ CI } [.13, .23]$ . In contrast, among Indians belief in karma was positively correlated with spirituality, religiosity, and religious attendance, but it was uncorrelated with being spiritual but not religious. In both countries, belief in karma had moderate, positive correlations with endorsing other supernatural beliefs, including the existence of god and the afterlife. Karmic beliefs were uncorrelated with belief in free will among Canadians, but positively correlated among Indians. Together, these results suggest that in India, karmic beliefs are clearly a religious concept, while in Canada, karmic beliefs are associated with individuals who are spiritual and hold supernatural beliefs, but who do not necessarily identify themselves as *religious*.

### **Distribution of Belief in Karma Across Religious Groups**

Table 5 displays mean level of belief in karma, as well as the correlation between religiosity and karmic beliefs, within each religious group. Across all three samples, adherents to religious

traditions that endorse karmic beliefs (i.e., Hindu, Buddhist, and Sikh participants) reported greater belief in karma, than did adherents to non-karmic religions or those with no religious affiliation. When split into two groups—adherents to karmic religions, and adherents to non-karmic religions or no religion—adherents to karmic religions scored significantly higher in belief in karma, in all samples (Canadian Student Sample 1:  $d = 0.91$ , 95% CI [0.80, 1.02]; Canadian Student Sample 2:  $d = 0.87$ , 95% CI [0.75, 0.99]; Canadian Adults:  $d = 0.75$ , 95% CI [0.42, 1.08]; Indian Adults:  $d = 0.92$ , 95% CI [0.74, 1.09],  $p$ 's < .001). Notably, adherents to karmic religions tended to score above the scale's mid-point, indicating that they generally believed in karma, while participants from non-karmic religions tended to score at or below the scale's midpoint, indicating that they generally had weak belief in karma. Also notable is that among Canadian Christians (students and adults) the correlation between karmic beliefs and religiosity was *negative*, whereas the correlation between karmic beliefs and religiosity was positive among adherents of karmic religious traditions (and surprisingly, among Jewish student participants). Also, among Christians this negative correlation persisted across all subscales, not only items that explicitly refer to karma or rebirth. These results again support the construct validity of the questionnaire as a measure of karma, a supernatural belief that is more prevalent in specific religious traditions, less so in others, and covaries in meaningful ways according to individual differences in religious affiliation and commitment.

### **Correlation between Belief in Karma and Other Justice Beliefs**

I compared belief in karma, a supernatural source of justice, to several non-supernatural justice beliefs, in the two adult national samples where all these variables were present.

Correlations between these justice beliefs and karma are reported in Table 6. Also reported are the results of an exploratory multiple regression, which predicted belief in karma from these

justice beliefs (belief in a just world, procedural justice, legal justice, interpersonal rewards, and interpersonal punishments), while also controlling for participant's level of religiosity and spirituality. The results indicate the relative contribution of various forms of justice beliefs to belief in karma.

In both Indian and Canadian national samples, belief in karma was positively predicted by belief in a just world, procedural justice, and interpersonal punishments. This is evidence that these measures tap into conceptually overlapping notions of justice. However, these correlations are modest in size, indicating that belief in karma is somewhat distinct from belief in a just world. Among Canadians, belief in karma was also predicted by the expectation of interpersonal rewards. Participants' expectation of legal justice showed a different pattern of results from other measures of justice. Legal justice did not significantly predict karmic beliefs among Indians, and *negatively* predicted karmic beliefs among Canadians, perhaps suggesting a compensatory relationship between karmic justice and secular, legal justice (similar to the compensatory god-government relationship found in Kay, Gaucher, Napier, Callan, & Laurin, 2008). In general, belief in karma—a supernatural source of justice—was associated with belief in more mundane forms of justice, although it is clearly not identical to these other constructs. Canadian students also showed a positive association between belief in karma and belief in a just world, using a different measure of just world beliefs (Dalbert et al., 1987),  $r = .40, p < .001$ , 99% CI [.36, .43].

I also examined whether Canadians and Indians differed in their level of just world belief, just as they differed in their level of karmic beliefs. A 2 (Canada vs. India) x 2 (karma vs. BJW) ANOVA showed main effects of both country,  $F(1, 2004) = 675.57, p < .001$ , partial  $\eta^2 = .25$ , and type of belief,  $F(1, 2004) = 305.91, p < .001$ , partial  $\eta^2 = .13$ , as well as an interaction

between country and belief,  $F(1, 2004) = 216.67, p < .001$ , partial  $\eta^2 = .10$ . BJW was higher than belief in karma in both countries, and Indians were higher in both beliefs, while the difference in endorsement of BJW and karma was smaller among Indians than Canadians.

### **Features of Karma**

Personification of supernatural agents, even when it is “theologically incorrect” to do so, is a key feature of many religious populations (Barrett & Keil, 1996; Gray, Gray, & Wegner, 2007). I therefore assessed whether participants personified karma in the same way that they personified gods, a question that has currently received no attention in psychology. Three scores provided measures of personification: karma’s mental capabilities, benevolent personality traits, and punitive personality traits (measures which had large, positive correlations with one another in both countries,  $r$ ’s = .34 - .53). Two other measures provided non-personified descriptions of karma: karma is “impersonal” and karma can be “gained and lost.” These measures were examined in a sub-set of the total sample, who believed in the existence of both god and karma ( $N = 1458$  Canadian students [Sample 1],  $N = 354$  Canadian adults,  $N = 798$  Indian adults).<sup>10</sup>

### **Personality Traits**

Figure 2 displays participant’s ratings of karma’s and god’s personality traits, by Indian and Canadian adults. These trait ratings were subjected to a 2 (punitive vs. benevolent) x 2 (karma vs. god) x 2 (Canada vs. India) mixed factorial ANOVA. All main effects and

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<sup>10</sup> The following analyses were conducted only on participants who scored above the scale mid-point in belief in karma and belief in god. The remaining participants were excluded from these analyses, because of the ambiguity of responses when they are describing an entity that they say does not exist. It is not clear whether these participants would describe what they think other people believe about karma and god, describe their own concepts of karma and god while admitting that these entities are fictional, or simply deny that karma and god have features, because things which do not exist do not possess any features. Therefore, these participant’s responses were excluded from the following analyses.

interactions were statistically significant. Of interest, in both countries god and karma were described as more benevolent than punitive (main effect:  $F(1, 1149) = 1285.07, p < .001$ , partial  $\eta^2 = .53$ ), a difference that was greater for god than for karma (target by trait interaction:  $F(1, 1149) = 582.88, p < .001$ , partial  $\eta^2 = .34$ ), with the greatest difference being in Canadian's description of god and karma (three-way interaction:  $F(1, 1149) = 73.60, p < .001$ , partial  $\eta^2 = .06$ ). Canadians' descriptions of karma tended to be closer to the scale mid-point, while they described god as highly benevolent and non-punitive. The distribution of Canadians' rating of karma show that the majority of scores clustered at or near the scale's mid-point, indicating the many participants in Canada had no clear opinion about karma's traits. Indians rated both karma and god as relatively benevolent and punitive (with no stark cluster of scores at the scale's mid-point). Canadian students, like Canadian adults, also clustered near the mid-point of the scale in their descriptions of karma as "forgiving,"  $M = 3.14, SD = .84, 95\% \text{ CI for mean } [3.09, 3.19]$ .

### **Mental Capabilities**

All three samples differed in their ratings of karma's mental capabilities. Among Canadian students, karma was rated as more impersonal ( $M = 3.01, 95\% \text{ CI } [2.97, 3.05]$ ) than as having a mind ( $M = 2.79 [2.74, 2.83]$ ),  $t(1461) = 7.30, p < .001, d = 0.27, 95\% \text{ CI } [0.19, 0.34]$ . Non-student adults' attribution of mental capabilities to karma, seen in Figure 3, was examined through a 2 (mind vs. impersonal) x 2 (karma vs. god) x 2 (Canada vs. India) mixed factorial ANOVA. All main effects and interactions were statistically significant, including a three-way interaction between feature, target, and country,  $F(1, 1147) = 42.14, p < .001$ , partial  $\eta^2 = .04$ . Specifically, Canadians described karma as having a mind and being impersonal at approximately equal levels (that is, at the scale mid-point). Indians also described karma as having mental capabilities and being impersonal at similar levels, although ratings of both were

higher among Indians than Canadians. In both countries, unlike karma, god was described as having substantially more mental capabilities than being impersonal.

### **Resource**

I conducted a 2 (karma vs. god) x 2 (Canada vs. India) ANOVA on participant's ratings that the target (God or karma) can be gained and lost (a resource-like descriptor). Main effects of target and country were qualified by a significant target by country interaction,  $F(1, 1144) = 7.04, p = .008, \text{partial } \eta^2 = .01$ . The highest ratings on this item was among Indians describing karma ( $M = 3.55 [3.47, 3.63]$ ), while ratings did not significantly differ between karma in Canada ( $M = 3.25 [3.13, 3.37]$ ) or god in Canada ( $M = 3.21 [3.07, 3.35]$ ) or god in India ( $M = 3.23 [3.14, 3.33]$ ). That is, this description was seen to be most appropriate when Indian's were describing karma, but less appropriate when Indians and Canadians were describing god. This suggests that non-agentic descriptions of karma may exist alongside agentic descriptions of karma, while god is better characterized by agentic, rather than non-agentic, resource-like descriptions.

### **Similarities Between Karma and God**

I further examined whether the features attributed to karma were correlated with the features that participants attributed to God, among the sub-set of participants who believed in the existence of both targets. As can be seen in Table 7, participants' descriptions karma had medium to large correlations with their descriptions of god, suggesting underlying psychological continuities between the two supernatural concepts. Two additional questions explicitly targeted participants' belief about the relationship between karma and god. Indian participants were more likely than Canadians to say that God was responsible for enacting karma ( $M$ 's = 3.73 and 3.01,

for India and Canada, respectively),  $t(1148) = 8.67, p < .001$ , and more likely to say that God can over-rule karma ( $M$ 's = 3.57 and 3.26),  $t(1149) = 3.60, p < .001$ .

I conducted additional exploratory analyses, to see if the similarity between participants' descriptions of karma and God—in terms of mental capabilities, benevolence, and punitiveness—was moderated by their belief that god was responsible for enacting karma. Among Canadians, analyses found non-significant moderation effects for mental capabilities ( $p = .60$ ), benevolence ( $p = .17$ ), and punitiveness ( $p = .67$ ), indicating that Canadians saw similar features in karma and god, regardless of the perceived relationship between god and karma. In contrast, the karma-god relationship did moderate Indian participants' description of karma's mind (interaction  $b = .09, p = .004$ ), and punitiveness (interaction  $b = .06, p = .001$ ), but not karma's benevolence (interaction  $b = .03, p = .35$ ). In both cases, participants who reported that god is responsible for enacting karma saw karma as more similar to god in mental capabilities and punitiveness. However, descriptions of karma and God remained significantly, positively associated even among participants who reported that karma operates independently of god.

### **Karma and Social Surveillance**

I also examined whether karma is similar to god in its ability to activate feelings of social surveillance. Previous research has found that reminders of god increased feelings of public-self awareness, but did not increase private self-awareness, in much the same way that thinking about other people watching increases public self-awareness (Gervais & Norenzayan, 2012). In the second Canadian student sample, belief in karma had a small, positive correlation with both private self-awareness ( $r = .10, p < .001, 99\% \text{ CI } [.05, .14]$ ) and public self-awareness ( $r = .10, p < .001, 99\% \text{ CI } [.06, .15]$ ), making it unclear whether belief in karma increases feelings of social surveillance. However, it remains possible that even without invoking feelings of supernatural

surveillance, thinking about karma may encourage prosocial behaviour by threatening rewards and punishments for people's behaviour, in much the same way that belief in a moralizing god encourages prosociality.

### **Karma and Moral Psychology**

To assess the relationship between karma and morality, I next examined whether participants believed that karma is specifically relevant to (im)moral behaviour, or whether *any* action can have karmic consequences, among the sub-set of participants who believe in karma (i.e., score above the scale mid-point). As can be seen in Table 8, there are medium-to-large positive correlations between participant's belief that an action is relevant to morality, and their belief that this action has karmic consequences. In both countries, these correlations are of similar size across all domains of morality.

When these correlations were computed among all participants, correlations remain similarly high across all moral domains in India, and across Ingroup Loyalty, Authority, and Purity in Canada ( $r$ 's ranging from .37 to .46). Among the full sample, correlations were smaller, albeit still positive, for Harm ( $r = .24$ ) and Fairness ( $r = .21$ ) among Canadians, due to many Canadians reporting that Harm and Fairness are relevant to morality, while not believing in karma. Additionally, the relationship between moral relevance and karmic consequences remained essentially unchanged when political conservatism was included with moral relevance and a predictor of karmic consequences for an action,  $\beta = .24$  and  $.21$ , for Harm and Fairness among Canadians, and otherwise ranging from .37 - .48.<sup>11</sup> These results indicate that people

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<sup>11</sup> Due to the low reliability of the 3-item MFQ composites, I also examined the correlations between morality- and karma-versions of individual items. This revealed medium-to-large, positive correlations between participants' judgements of moral relevance and karmic consequences for actions, paralleling the findings from the composite scores. Among participants who believe in karma, the smallest correlations between moral-relevance and karmic-



expect karma to be relevant to morality. I next examined whether belief in karma is associated with self-reported moral sentiments and prosocial behaviour.

## **Karma and Prosociality**

### **Self-Reported Prosociality**

Among the second Canadian student sample, I examined whether individuals who believe in karma reported being more prosocial. Across the entire sample, there was a small positive correlation between belief in karma and self-reported prosociality (see Table 10). I also examined whether this correlation remained significant within different religious groups. Karma and prosocialness were positively correlated among individuals from karmic religions (i.e., Hindus, Buddhists, Sikhs), non-religious individuals, atheists, and adherents to other miscellaneous religions, but this relationship was non-significant among adherents to Abrahamic religions (i.e., Christians, Muslims, and Jews). This is likely not due to a lack of statistical power, given that Abrahamic religions included the largest group of participants in this analysis. This effect is also notable given that the mean level of prosocialness did not differ across these religious affiliations (as can be seen by the overlapping confidence intervals in Table 9). Additionally, the results also suggest the relationship between karma and prosociality was not driven by participants' level of religiosity or belief in god, given that this effect also appeared among atheists and non-religious participants. Overall, while being affiliated with a religious group did not predict self-reported prosociality, individual differences in belief in karma does predict self-reported prosociality, except among adherents to Abrahamic religions.

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consequences were for the item "Whether or not someone acted unfairly" in Canada ( $r = .19$ ) and the item "Whether or not someone cared for someone weak or vulnerable" in India ( $r = .29$ ). The item with the highest correlation between relevance to morality and relevance to karma was "Whether or not someone acted in a way that God would approve of," in both Canada ( $r = .52$ ) and India ( $r = .45$ ).

## Charitable Giving

I also conducted exploratory analyses on participant's reports of charitable giving (past and hypothetical). These provided an additional measure of prosociality, albeit one that was only weakly (or non-significantly) associated with self-reported prosocialness ( $r_s < .06$ ). Belief in karma was not associated with non-religious charitable donations (past or hypothetical), among the entire sample or among any religious groups. However, belief in karma was associated with past and hypothetical religious donations. This relationship between karmic beliefs and religious charitable donations was positive among adherents to karmic religions, other non-Abrahamic religions, non-religious individuals, and atheists, suggesting that belief in karma can encourage charitable donations for these individuals. In contrast, this relationship was *negative* among adherents to Abrahamic religions. Again, this effect is notable given that mean levels of charitable donations (past or hypothetical, religious or non-religious) do not differ between adherents to karmic religions and adherents to Abrahamic religions (as can be seen by the overlapping CIs).

These results are also consistent with the previous finding that belief in karma was lower among Canadian Christians who were more religious and who attended religious services more frequently. Here, it appears that adherents to Abrahamic religions who give more money to religious charities are also less likely to believe in karma. It therefore appears that, while karmic beliefs do appear among individuals from Abrahamic faiths (i.e., religions that do not typically encourage belief in karma and reincarnation), individuals who are more committed to these non-karmic religions are less likely to believe in karma, compared to less devoted individuals.

Together, these results indicate a small positive association between participants' level of belief in karma and their self-reported prosociality, such as a willingness to spend time and

money helping others, and empathic concern for other's misfortune. However, this association may vary across religious groups, being stronger among adherents to religions that include karmic beliefs and weaker among individuals who are committed to Abrahamic religions.

## **Discussion**

These results, taken together, demonstrate how karma is a type of supernatural justice belief that is widespread among individuals from diverse cultural and religious backgrounds, including among Indian Hindus and non-religious Canadians. As a form of supernatural justice, belief in karma is partly predicted by an individual's spirituality, supernatural beliefs, and religious background, and partly predicted by their moral concerns and expectation of mundane justice. Karmic beliefs vary across religious and cultural groups, following the pattern that I would expect given the role of cultural traditions in shaping religious beliefs, but are unrelated to many demographic variables (e.g., age, income, education). Belief in karma also shows small and inconsistent associations with gender and political orientation, unlike other measures of supernatural belief, such as religiosity or belief in God, which are positively associated with conservatism, lower income levels, and being female (Jost et al., 2014; Norenzayan et al., 2012). In many ways, karma is similar to the moralizing gods studied in previous psychological research: many participants granted karma mental states and personality traits, karma was rated as more relevant to moral than non-moral actions, and karmic beliefs predicted participants' prosocial tendencies. I also provide a questionnaire to measure individual differences in belief in karma, and I demonstrate this measure's reliability and validity.

### **Cultural Variability in Belief in Karma**

Belief in karma scores were higher among participants from India than Canada, Canadian students from Asian than non-Asian cultural backgrounds, and adherents to karmic religions (e.g., Hindu, Buddhist, Sikh, and Jain participants) than adherents to Abrahamic religions or non-religious participants. Also, participants' religiosity and their belief in karma were positively correlated among adherents to karmic religions, but negatively correlated among Canadian

Christians. Canadian Christians who attend more religious services, or who donate more to religious charities, were less likely to believe in karma. This indicates that both the *type* of religion and the *commitment* to religion contributes to an individual's level of belief, encouraging some supernatural beliefs and discouraging others. However, some individuals are unlikely to accept any supernatural beliefs whatsoever. The lowest levels of karmic beliefs in both countries were not among individuals from non-karmic religions (e.g., Christians, Muslims, and Jews), but among atheists. Those individuals who explicitly deny the existence of god are also more likely to deny the existence of other supernatural forces, including karma. In both Indian and Canadian samples, belief in karma was higher among participants who were more spiritual and who hold other supernatural beliefs, such as belief in god and the afterlife.

Despite many similarities between the results in Canada and India, karma seems to have a different relationship to religious beliefs in these two populations, just as I would expect given the religious dimension of karmic beliefs. In Canada, belief in karma was higher among spiritual-but-not-religious individuals, and was generally unassociated with religious attendance. In India, belief in karma was higher among both spiritual *and* religious individuals, and was positively correlated with religious attendance. These results support the conclusion that karma is part of the dominant religious tradition in India (i.e., Hinduism), and as such individuals who are more committed to their religious tradition are more likely hold karmic beliefs. In contrast, karma is not part of the dominant religious traditions in Canada, but appears in sources outside of organized religion that are spread idiosyncratically in the larger Canadian cultural context, such as in new age movements and in other unconventional spiritual teachings. Karma is therefore a supernatural belief that is promoted by certain religious and cultural traditions, yet karmic beliefs

also appear in many individuals across diverse religious and cultural backgrounds, as would be predicted by cognitive and motivational accounts of supernatural belief.

### **Karma, Justice, and Morality**

The religious dimension of karmic beliefs helps to explain how karma is distinct from other types of justice beliefs. Belief in karma was positively correlated with Belief in a Just World (Dalbert et al., 1987; Lipkus et al., 1996), and with an expectation of interpersonal rewards and punishments, further indicating the convergent validity of my measure. However, these correlations are only small to medium in size (see Table 6), indicating that belief in karma is distinct from previous individual difference measures of justice beliefs. Karma is a source of *supernatural* justice, making belief in karma distinct from the general belief that the world is fair and people get what they deserve.

One notable feature of the belief in karma measure is that it assesses an individual's level of belief in karmic causality (good and bad actions lead to good and bad consequences, across lifetimes) without presuming that people must believe that karma has certain characteristics, or limiting the types of actions that have karmic consequences. Instead, in my instrument, karma involves repercussions for whatever actions each person considers "good" and "bad." The results from the modified Moral Foundations Questionnaire (Graham et al., 2011) indicate that the actions with karmic consequences are those that are considered relevant to morality. But which specific actions are relevant to morality varies across individuals and cultures, and the concerns of karma vary likewise. Some actions may be more prototypically relevant to karma among individuals from diverse cultural backgrounds, such as harmful actions that result in bad consequences and helpful actions that result in good consequences. Further research is needed to

assess which actions are expected to have karmic consequences, and in which situations karma is spontaneously invoked as an explanation for events.

These results also provide preliminary evidence that karma may promote greater prosociality in believers, just as moralizing gods can encourage cooperative and prosocial responses in believers (Norenzayan et al., 2016; Purzycki et al., 2016; Watts et al., 2015). Among individuals in both Canada and India, belief in karma was positively correlated with empathic feelings for others' misfortune, a willingness to help others, and self-reported charitable giving to religious causes. However, this relationship did not appear among adherents to Abrahamic religions in Canada, again demonstrating that belief in karma can have different effects among different cultural/religious groups. Religious groups did not differ in average levels of prosociality, suggesting that beliefs or motivations other than karma likely encourage prosociality among religious groups that do not explicitly promote karmic beliefs. Future research is needed to go beyond these self-reports and establish whether belief in karma, or reminders of karma, encourage prosocial behavior (e.g., in economic games), as well as antisocial behavior (e.g., victim blaming).

### **Features of Karma**

Contrary to theological teachings in the karmic religions, karmic believers did not see karma as completely impersonal; instead, their understanding of karma was somewhat similar to their understanding of god, including having a mind to some meaningful extent. This provides new evidence of “theological incorrectness” among believers of many religions (McCauley, 2011; Slone, 2004) As Robert McCauley has put it, “the religions that...people actually practice are not the same as the doctrines they learn” (McCauley, 2012, p. 45). Participants who believed in karma also, to some extent, attributed karma anthropomorphic mental abilities (e.g., can think,

can be happy) and personality traits (e.g., forgiving, vengeful)—a finding that runs contrary to the claim that participants saw karma as a purely mechanistic and impersonal force. In the Canadian samples, many participants seemed to be uncertain about the features of karma, but more certain about the features of God. Their views of karma were correlated with their views of god, suggesting that Canadian participants may have projected from their views of God to karma. In the Indian sample, the features of karma and god were also moderately correlated, despite Indian participants' greater cultural exposure to karmic principles. The features of god and karma were also positively correlated among both those individuals who saw god as responsible for enacting karma, and those who saw karma and god as independent. These results indicate a general lack of certainty and consensus about whether karma has a mind and personality, but suggest that participants may be using a similar cognitive template to understand both supernatural agents, like god, and other non-theistic supernatural forces like karma.

As further evidence that karmic believers anthropomorphize karma, the attribution of a mind to karma was actually *higher* among Indians than among Canadians. Further research is needed to establish if, and when, people think about karma as an anthropomorphized agent, rather than an impersonal force. As the current study asked participants to agree or disagree with statements that I provided, and it would be valuable to assess whether individuals who give open-ended responses also use anthropomorphic language to describe karma.

Future research can also look deeper into other ways that individuals might mentally represent karma, which could coexist with anthropomorphic conceptions. For example, karma may be thought of as a type of resource that can be accumulated, measured, and expended over the course of people's lives. In this case, people may seek to restore a balance of karma by performing good actions to counteract bad actions. Karmic believers may also interpret their own



suffering as a desirable experience, because it is seen as evidence of compensation for prior misdeeds, thus restoring justice. When the karma-resource of their misdeeds has been expended, they will not experience further afflictions. Alternatively, karma might be thought of as a contagion that infects people. Thinking about karma in this way may elicit feelings of disgust and be associated with cleansing behaviours after doing something bad, such as ritual austerities that can help avoid karmic repercussions for one's actions (Tybur, Lieberman, Kurzban, & DeScioli, 2013; Wadley, 1983). If karma operates as a force of contagion, people may also believe that they will be affected by the karma of others, such as family members who do good or bad deeds (Daniel, 1983; Horberg, Oveis, Keltner, & Cohen, 2009). There are many fascinating open questions about the variety of ways that karma is mentally represented in the minds of karmic believers. In this regard, I hope these preliminary findings will encourage new research directions, and the Belief in Karma Questionnaire may be a useful research tool.

### **Limitations**

The present study compared belief in karma in two different countries—Canada and India—that I expected to have different levels of karmic beliefs, given the different religious traditions that predominate in these countries. However, further research is needed to fully describe the relationship between cultural traditions and karmic beliefs, and how individuals in different cultural environments develop a belief in karma. Karmic beliefs appear in many religious traditions, including Sikh, Jain, and Buddhist faiths, that could not be thoroughly investigated in the samples presented here. It is possible that the predictors, content, and consequences of belief in karma may vary among these different religious groups, and future studies could investigate karmic beliefs across a wider range of cultural groups. It would also be valuable to study karmic beliefs among participants from more diverse socio-economic

backgrounds than are present in my samples, such as among poor, low caste Indian participants in addition to the English-speaking, computer-using Indians studied here.

Future research could also more fully explore how individuals come to believe in karma through the course of their life experiences. The cultural and religious variability in belief indicates that individuals learn about karma, in part, from the people around them, such as family, friends, and religious teachers who might ascribe events in their lives to karma. Another interesting question is why individuals believe in karma even when they do not participate in a religious group that endorses and displays commitment to such beliefs. For instance, someone who experiences just rewards and punishments in their interactions with other people, and who sees that people generally get what they deserve, may be more likely to believe in supernatural forces like karma that enforce this justice.

## **Conclusion**

Karma is a source of supernatural justice that is explicitly promoted in certain religious traditions, but also appears in the beliefs of individuals from diverse cultural traditions around the world. Belief in karma shows many of the same characteristics, concerns, and psychological correlates as other supernatural beliefs, such as belief in a god. Yet karma is related to but distinct from belief in a god, or the expectation of interpersonal justice. Karma is a novel topic of study, that will be vital for understanding religious traditions based in karmic principles, and for understanding the variety of ways that individuals think about the supernatural entities that enforce justice and shape the course of life events.

## Tables and Figures

Table 1: Demographic composition of each sample

	<b>American MTurk (Pilot)</b>	<b>Canadian Students (Sample 1)</b>	<b>Canadian Students (Sample 2)</b>	<b>Canadian Adults</b>	<b>Indian Adults</b>
<i>N</i>	280	3193	3072	1000	1006
Gender					
Female	54 %	74 %	74 %	51 %	51 %
Male	46 %	26 %	26 %	49 %	49 %
Age <i>M (SD)</i>	35.77 (12.21)	20.12 (2.91)	20.13 (2.89)	46.69 (15.24)	38.62 (13.54)
Ethnicity					
Caucasian	78.5%	25.8%	26.3%	82.9%	--
Asian	5.0%	61.3%	58.3%	9.3%	74.5%
Other	16.5 %	12.9 %	15.4%	7.8 %	25.5 %
Median Income	--	--	--	\$40 000 – \$60 000	500 000 – 1 000 000 rupees
Education Years	--	--	--	13.68 (6.77)	16.57 (5.01)
% with post- secondary degree	--	--	--	72.7%	96.1%
Religion					
Christian	41.2 %	29.9 %	28.1 %	57.9 %	6.9 %
Non-religious	33.6 %	49.7 %	53.2 %	30.7 %	1.3 %
Hindu	0.4 %	2.2 %	2.3 %	1.1 %	78.0 %
Other	24.8 %	18.2 %	16.4 %	10.3 %	13.8 %

*Table 2: Mean, with 95% CI, and reliability of Belief in Karma Questionnaire, and correlation between items with and without rebirth*

	Canadian Students (Sample 1)	Canadian Students (Sample 2)	Canadian Adults	Indian Adults
Belief in Karma Total	2.77 [2.74, 2.80]	2.82 [2.79, 2.84]	2.71 [2.66, 2.76]	3.69 [3.65, 3.74]
Cronbach's $\alpha$	.92	.93	.93	.90
Karma without rebirth	2.97 [2.94, 3.00]	3.03 [3.00, 3.06]	2.89 [2.84, 2.95]	3.79 [3.75, 3.83]
Karma with rebirth	2.56 [2.53, 2.59]	2.60 [2.57, 2.63]	2.54 [2.48, 2.59]	3.59 [3.54, 3.65]
$r$ [99% CI]	.70 [.67, .72]	.71 [.65, .77]	.76 [.73, .79]	.76 [.72, .79]
Factor analysis				
Eigenvalue	7.00	7.63	7.60	6.40
Variance Explained	43.72%	47.68%	47.47%	40.02%

Table 3: Correlations,<sup>12</sup> with 99% CI, between belief in karma and secular demographic variables

	Canadian Students (Sample 1)	Canadian Students (Sample 2)	Canadian Adults	Indian Adults
Age	-.05 [-.09, .001]	-.04 [-.09, .01]	-.05 [-.13, .03]	-.01 [-.09, .07]
Gender (0 = woman, 1 = man)	-.11 [-.16, -.07]	-.14 [-.19, -.09]	-.07 [-.15, -.01]	-.05 [-.13, .03]
Education (Years)	--	--	-.09 [-.16, .004]	-.007 [-.09, .08]
Income	--	--	-.07 [-.15, .01]	.001 [-.08, .08]
Political Orientation (higher = more conservative)	.04 [-.01, .09]	.09 [.03, .14]	.03 [-.05, .11]	.14 [.06, .22]
Meaning in life	--	--	.07 [-.01, .15]	.32 [.24, .39]
Life Satisfaction	--	--	-.01 [-.09, .07]	.23 [.16, .31]

Note. All correlations  $> .80$  are statistically significant at  $p < .001$ . For Canadian students who participated in both Sample 1 and Sample 2, I include their responses in Sample 1, but exclude them from identical analyses performed on Sample 2.

<sup>12</sup> I had initially intended to use polyserial correlations, rather than Pearson correlations, to measure the relationship between karma and several items. Since registration of that data analysis plan, it has been decided that polyserial correlations are likely overcomplicated and unwanted, therefore Pearson correlations should be used for all measures. Polyserial correlations are intended to be used to calculate the correlation between a continuous variable and hypothetically-continuous variable that is actually measured in a non-continuous scale, e.g., 5 bins indexing income are intended to index the underlying continuous distribution of income, in order to correct for information lost in the form of measurement (Glass & Hopkins, 2008). However, here I report the conventional Pearson correlations for all variables, due to the unusualness of polyserial correlations in the psychological literature, and the similarity between the results obtained by the two methods. The difference between correlations obtained through these two methods was small in both Canada ( $\Delta r < .02$ ) and India ( $\Delta r < .05$ , with the exception of correlation between belief in karma and god, where  $\Delta r = .10$ ).

Table 4: Correlation, with 99% CI, between belief in karma and religious demographics

	Canadian Students (Sample 1)	Canadian Adults	Indian Adults
Religiosity	.15 [.10, .19]	.17 [.09, .25]	.38 [.31, .45]
Spirituality	--	.31 [.23, .38]	.44 [.37, .51]
Spiritual but not religious	.18 [.11, .23]	.16 [.08, .23]	.05 [-.03, .13]
Religious Attendance	--	-.01 [-.09, .07]	.23 [.15, .31]
Belief in:			
God	.24 [.20, .29]	.30 [.22, .37]	.42 [.34, .48]
Afterlife	--	.38 [.31, .45]	.54 [.48, .60]
Free Will	--	-.07 [-.15, .01]	.21 [.13, .29]

*Note.* All correlations  $> .10$  are statistically significant at  $p < .001$ . Among Canadian students, the correlation between belief in karma and spiritual-but-not-religious was calculated with “religious” = 0, and “spiritual but no religious” = 1, excluding any participants who described themselves as “neither spiritual nor religious” (final  $N = 1588$ ).

Table 5: Mean belief in karma, and correlation with religiosity, within each religious group

	Canadian Students (Sample 1)			Canadian Adults			Indian Adults		
	N	<i>M</i> [95% CI]	<i>r</i>	N	<i>M</i> [95% CI]	<i>r</i>	N	<i>M</i> [95% CI]	<i>r</i>
Hindu	63	3.20 [3.03, 3.38]	.40**	11	3.23 [2.70 – 3.76]	--	755	3.79 [3.74, 3.84]	.42***
Buddhist	178	3.56 [3.47, 3.65]	.42***	26	3.28 [3.00 – 3.55]	--	2	--	--
Sikh	123	3.13 [3.01, 3.26]	.40***	1	--	--	38	3.89 [3.68, 4.11]	.22
Christian	866	2.62 [2.57, 2.67]	-.18***	579	2.83 [2.77 – 2.90]	-.08*	67	3.16 [2.98, 3.33]	.26
Muslim	102	2.94 [2.80, 3.08]	.02	7	2.84 [2.46 – 3.21]	--	68	3.34 [3.17, 3.52]	.04
Jewish	39	2.62 [2.34, 2.90]	.58***	11	2.60 [2.11 – 3.09]	--	0	--	--
Agnostic	304	2.64 [2.56, 2.72]	.24***	108	2.39 [2.24 – 2.55]	.32***	3	--	--
None	665	2.80 [2.74, 2.86]	.31***	51	2.75 [2.53 – 2.98]	.15	0	--	--
Atheist	474	2.37 [2.29, 2.44]	.40***	148	2.24 [2.10 – 2.39]	.24**	10	2.15 [1.82, 2.47]	--
Other	86	3.02 [2.89, 3.16]	.38**	58	2.84 [2.62 – 3.05]	.14	25	3.27 [2.94, 3.56]	--

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Means are not reported for any religious groups with  $< 5$  participants, and correlations are not reported for groups with less than 30 participants in the sample. Also excluded were 258 Canadian students and 38 Indian adults who did not report their religious affiliation.

Table 6: Regression predicting belief in karma from other justice beliefs, religiosity, and spirituality

	Canadian Adults			Indian Adults		
	<i>r</i> [99% CI]	$\beta$	<i>p</i>	<i>r</i> [99% CI]	$\beta$	<i>p</i>
Religiosity	.18 [.10, .26]	-.05	.16	.42 [.35, .48]	.14	<.001
Spirituality	.33 [.25, .40]	.31	<.001	.48 [.42, .54]	.27	<.001
Belief in a Just World	.17 [.08, .26]	.10	.006	.38 [.29, .47]	.20	<.001
Procedural Justice	.16 [.07, .25]	.12	.001	.30 [.20, .38]	.12	<.001
Legal Justice	-.04 [-.12, .06]	-.15	<.001	.22 [.14, .31]	-.02	.57
Interpersonal Punishment	.17 [.08, .25]	.10	.001	.22 [.14, .31]	.08	.01
Interpersonal Rewards	.23 [.14, .31]	.13	<.001	.26 [.17, .35]	.03	.29
Model statistics	$R^2 = .17$ , Adjusted $R^2 = .17$ , $F(7, 990) = 29.44$ , $p < .001$			$R^2 = .31$ , Adjusted $R^2 = .31$ , $F(7, 967) = 63.03$ , $p < .001$		

Note. All bivariate correlations were statistically significant at the level of  $p < .001$ , with the exception of the correlation between karma and legal justice in Canada ( $p = .26$ ).



Table 7: Correlations between features of karma and features of god

	Canadian Adults	Indian Adults
Has benevolent traits	.27 [.12, .41]	.36 [.23, .49]
Has punitive traits	.44 [.32, .56]	.55 [.46, .63]
Has mental capabilities	.27 [.11, .41]	.41 [.31, .51]
Is impersonal	.33 [.19, .46]	.35 [.26, .44]
Can be gained and lost	.14 [-.02, .28]	.23 [.12, .33]

Note. All correlations are statistically significant at the level of  $p < .001$ , with the exception of karma-as-resource in Canada ( $p = .010$ ).<sup>13</sup>

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<sup>13</sup> When everyone in the sample is used, correlations are lower, although remain positive and significantly above zero.

*Table 8: Correlations, with 99% CIs, between each moral foundation's relevance to morality and likelihood of karmic consequences, among participants who believe in karma*

	Canadian Adults	Indian Adults
Harm	.39 [.25, .54]	.46 [.37, .55]
Fairness	.39 [.26, .52]	.42 [.31, .51]
Ingroup Loyalty	.47 [.34, .59]	.45 [.35, .53]
Authority	.45 [.33, .58]	.46 [.36, .56]
Purity	.50 [.35, .64]	.48 [.39, .56]

*Note.* All correlations are statistically significant at  $p < .001$ .

*Table 9: Mean, with 95% CI, self-reported prosociality and charitable donations across religious groups*

	N	Prosociality Self-Report	Past Donations	Hypothetical Donations	Past Religious Donations	Hypothetical Religious Donations
Overall	3071	3.70 [3.68, 3.73]	5.69 [4.68, 6.71]	22.13 [21.58, 22.69]	4.31 [3.10, 5.51]	7.31 [6.69, 7.93]
Karmic Religions	352	3.79 [3.73, 3.85]	9.53 [5.88, 13.18]	24.08 [22.10, 26.07]	6.47 [2.66, 10.29]	13.01 [10.65, 15.38]
Abrahamic Religions	927	3.74 [3.70, 3.78]	5.13 [3.51, 6.75]	21.39 [20.35, 22.43]	7.54 [4.47, 10.61]	12.81 [11.46, 14.16]
Non- Religious	912	3.69 [3.66, 3.73]	4.45 [2.65, 6.24]	21.58 [20.75, 22.41]	1.33 [0.10, 2.55]	1.94 [1.33, 2.54]
Atheist	434	3.65 [3.59, 3.71]	2.52 [1.35, 3.70]	22.21 [20.83, 23.59]	0.24 [-0.03, 0.52]	2.13 [1.24, 3.02]
Other	177	3.68 [3.59, 3.78]	14.32 [6.30, 22.34]	22.27 [19.98, 24.56]	8.84 [1.51, 16.17]	6.79 [4.42, 9.15]

*Table 10: Correlations, with 99% CI, between belief in karma and self-reported prosociality, past charitable donations, and hypothetical charitable donations, across religious groups*

	N	Prosociality Self-Report	Past Donations	Hypothetical Donations	Past Religious Donations	Hypothetical Religious Donations
Overall	3071	.13*** [.08, .17]	.09*** [.03, .15]	.09*** [.04, .13]	.01 [-.07, .11]	.09*** [.04, .14]
Karmic Religions	352	.11* [-.02, .25]	.09 [-.04, .23]	.06 [-.04, .23]	.09 [-.04, .23]	.19*** [.07, .32]
Abrahamic Religions	927	.06 [-.02, .15]	-.02 [-.11, .06]	.08* [-.003, .16]	-.16*** [-.24, -.08]	-.11*** [-.19, -.03]
Nonreligious	912	.14*** [.06, .23]	.10** [.02, .19]	.04 [-.04, .13]	.11** [.02, .19]	.13*** [.04, .21]
Atheist	434	.18*** [.06, .30]	.08 [-.04, .20]	.04 [-.08, .16]	.06 [-.06, .18]	.12* [-.01, .24]
Other	177	.20** [.003, .37]	.16* [-.03, .34]	.13 [-.06, .32]	.16* [-.03, .35]	.20** [.004, .37]

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

Figure 1: Distribution of belief in karma, among Indian and Canadian adults

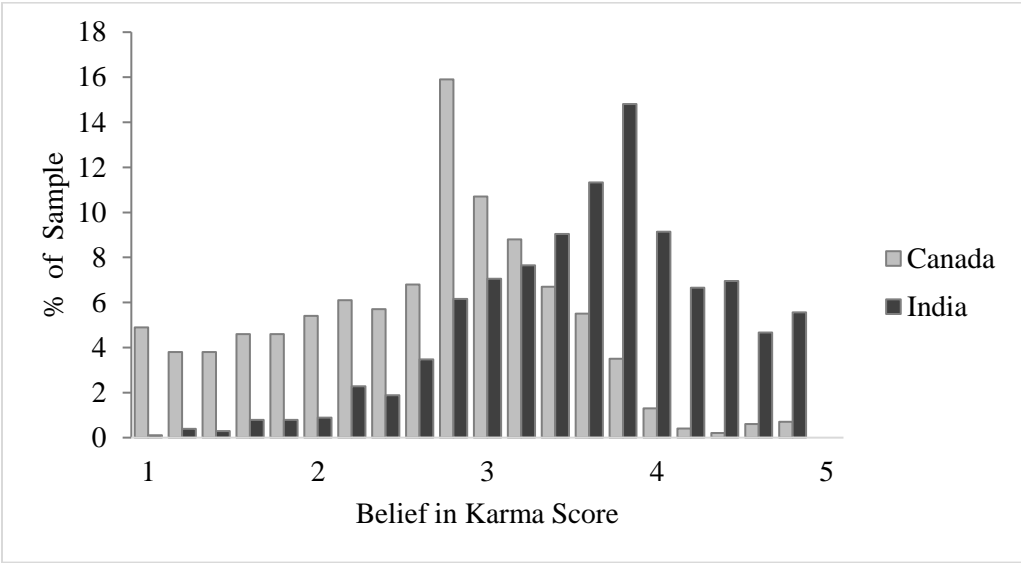


Figure 2: Traits granted to karma and god, by adults (non-students) who believe in both karma and god

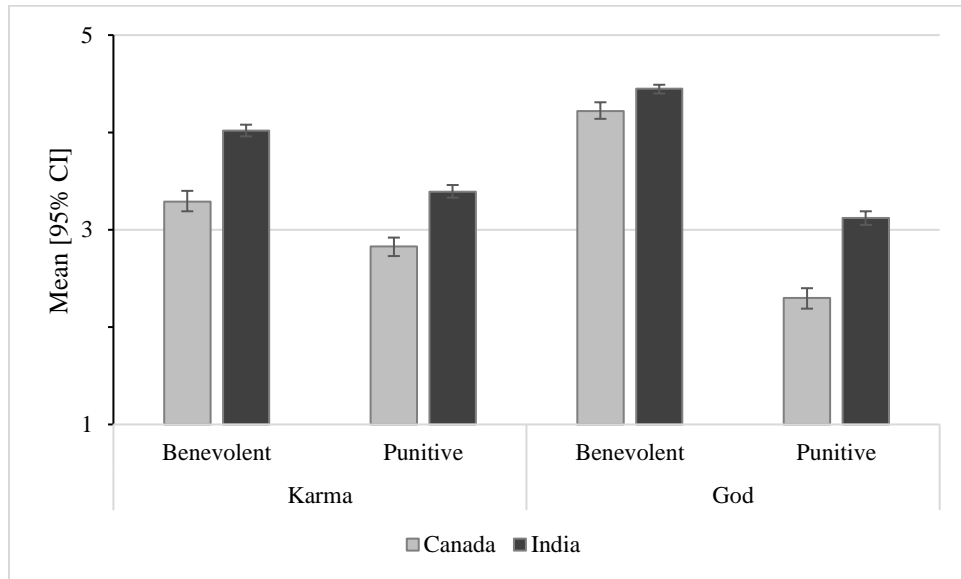
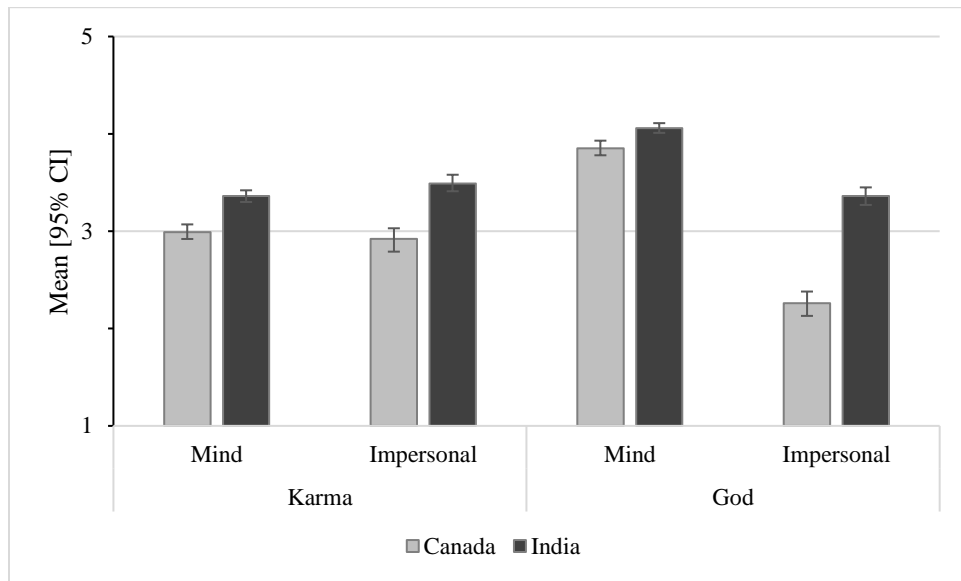


Figure 3: Mind granted to karma and god, by adults (non-students) who believe in both karma and god



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## Appendices

### Appendix A

#### Belief in Karma Questionnaire

The following questions are about your beliefs about various features of the universe and about different explanations for life events. While some people believe in each of the following statements, other people do not believe that these statements are true. Based on your personal beliefs, please rate how much you agree or disagree with each of the following statements.

1. Karma is a force that influences the events that happen in my life
2. Karma is not something real\*
3. Karma is a force that influences the events that happen in other people's lives
4. When people are met with misfortune, they have brought it upon themselves by previous behaviour in their life
5. When people experience good fortune, they have brought it upon themselves by previous behaviour in their life
6. 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
7. When someone does a good deed, even if there are no immediate consequences, they will be rewarded for it in some future time in their life
8. In the long-run, good things happen to good people and bad things happen to bad people
9. When people are met with misfortune, they have brought it upon themselves by behaviour in a past life
10. When people experience good fortune, they have brought it upon themselves by behaviour in a past life
11. If a person does something bad, even if there are no immediate consequences, they will be punished for it in a future life
12. When someone does a good deed, even if there are no immediate consequences, they will be rewarded for it in a future life
13. After people die, they are reborn in a new body
14. There is no such thing as rebirth or reincarnation\*
15. People's moral behaviour during their current life influences their rebirth in a future life
16. The ultimate goal of life is freedom from the cycle of birth and death

*Note.* Items marked with an asterisk are reverse-scored.

## Appendix B

### Details of Sample Representativeness: Canadian Adult Sample

Participants' data was excluded if they failed both attention check questions placed within the survey (e.g., "Please select 'Disagree' as your answer"), or if they failed one attention check question and had a completion time less than half the median completion time of individuals who passed both attention checks (i.e., less than 12 minutes, in the Canadian sample). Based on these exclusion criteria, 221 additional individuals completed the survey, but were excluded from the final sample (93 women, 126 men, 2 did not report gender,  $M$  age = 39.47 years, 57.2% Caucasian, 51.4% Christian). All analyses described below were performed on this excluded sample, as well as the included sample. The pattern of results was similar for both the excluded and included samples, although correlations between variables tended to be higher among the excluded sample. Also, belief in karma scores were somewhat higher among the excluded Canadian sample ( $M = 3.18$ , 95% CI [3.10, 3.26]) than the included Canadian sample. Overall, these exclusions did not substantially change the patterns of results.

The final Canadian adult sample ( $N = 1000$ ) included 509 women, 489 men (2 did not report gender),  $M$  age = 46.69 years ( $SD = 15.24$ ). Compared to country-wide demographics provided by the Canadian government (Statistics Canada, 2009, 2015a, 2015b, 2016a, 2016b), this sample is not significantly different from the general population in gender composition ( $\chi^2(1) = 0.15$ ,  $p = .70$ ), but includes fewer very young ( $< 25$ ) and very old ( $> 74$ ) individuals than the population,  $\chi^2(6) = 114.84$ ,  $p < .001$ . Participants were 42.8% from Ontario, 19.7% from Quebec, 5.3% from Eastern provinces, and 32.2% from Western provinces and territories (indicating more participants from Ontario, and less from Quebec, than in the general Canadian population,  $\chi^2(11) = 37.48$ ,  $p < .001$ ). The median income of participants was between \$40 000

and \$60 000 (slightly higher than the population average). Participants had an average of 13.68 years ( $SD = 6.77$ ) of formal education, with 72.7% having a college or university degree, thus being somewhat more educated than the overall Canadian population,  $\chi^2(4) = 456.81, p < .001$ . Canadian participants were predominantly Christian (57.9%), or non-religious (14.8% Atheist, 10.8% Agnostic, 5.1% no religion), which is less Christian and more non-religious than the general Canadian population,  $\chi^2(9) = 3300.80, p < .001$ . Participants primarily identified their ethnicity as Caucasian (82.9%), with only 9.3% identifying themselves as South Asian or East Asian.

### **Details of Sample Representativeness: Indian Adult Sample**

Participants' data was excluded if they failed both attention check questions, or if they failed one attention check question and had a completion time less than half the median completion time of individuals who passed both attention checks (i.e., less than 13 minutes, in the Indian sample). In India, 616 individuals completed the survey, but were excluded from the final sample based on these exclusion criteria (310 women, 304 men, 2 did not report gender,  $M$  age = 34.61 years, 83% Hindu). As with the Canadian sample, the pattern of results was similar for both the excluded and included samples (although correlations tended to be slightly higher in the excluded sample).

The final sample of Indian participants ( $N = 1006$ ) included 511 women, 493 men (2 did not report gender),  $M$  age = 38.62 ( $SD = 13.54$ ), which, compared to country-wide demographics provided by the Indian government, is not significantly different from the population in gender composition,  $\chi^2(1) = 2.20, p = .14$  (UNSD Demographic Statistics, 2011), but is somewhat older than the general population,  $\chi^2(2) = 10.84, p = .004$  (UNSD Demographic Statistics, 2011). The median income of participants was between 500 000 and 1 000 000 rupees. Participants had an

average of 16.57 years ( $SD = 5.01$ ) of formal education, with 96.1% having a college or university degree of some type, indicating that the sample was substantially more educated than the overall Indian population,  $\chi^2(3) = 11224.90, p < .001$  (Registrar General & Census Commissioner, India, 2005). Indian participants were predominantly Hindu (78.0 %), approximately the same as in the general Indian population,  $\chi^2(1) = 3.61, p = .06$  (UNSD Demographic Statistics, 2001), and largely identified their ethnicity as Indian, Hindu, or Asian (75.5%).