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Journal

Social Psychological and Personality Science, 8(1)

ISSN

1948-5506

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Publication Date

2017

DOI

10.1177/1948550616663802

Peer reviewed

Intentional Sin and Accidental Virtue? Cultural Differences in Moral Systems Influence Perceived Intentionality

Social Psychological and
Personality Science
1-9
DOI: 10.1177/1948550616663802

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Abstract

Indians and US Americans view harmful actions as morally wrong, but Indians are more likely than US Americans to perceive helping behaviors as moral imperatives. We utilize this cultural variability in moral belief systems to test whether and how moral considerations influence perceptions of intentionality (as suggested by theories of folk psychology; e.g., Knobe, 2003). Four experiments found that Indians attribute more intentionality than US Americans for helpful but not harmful (Studies 1-4) or neutral side-effects (Studies 2-3). Also, cross-cultural differences in intentionality judgments for positive actions reflect stronger praise motives (Study 3), and stronger devotion to religious beliefs and practices among Hindus (Study 4). These results provide the first direct support for the claim that features of moral belief systems influence folk psychology, and further suggest that the influence is not inherently asymmetrical; motivation to either blame or praise can influence judgments of intentionality.

Keywords

cross-cultural differences, morality, attribution, intentionality

Perceived intentionality is pivotal in understanding others' behavior (Heider, 1958; Malle, 2006). It is a critical consideration for how much blame and punishment people deserve (e.g., Cushman, 2008; Malle, Guglielmo, & Monroe, 2014; Shaver, 1985). For example, many legal systems use intentionality as a criterion for distinguishing between offenses (e.g., murder versus manslaughter; Perkins, 1939). Given that intentionality judgments emerge early in human development (Darley & Zanna, 1982) and represent a fundamental building block of social cognition (Malle, Moses, & Baldwin, 2001), one might expect them to reflect a relatively simple set of evidential rules. However, the psychology of intentionality judgments is surprisingly complex and not thoroughly understood (Malle & Knobe, 1997). Based on known cultural differences in moral belief systems (e.g., Baron & Miller, 2000; Miller & Bersoff, 1992; Shweder, Mahapatra, & Miller, 1987), the current research explores whether intentionality judgments—traditionally conceived of as basic building blocks of social perception—are influenced by the belief systems typically conceived of as higher-order structures. This cross-cultural approach provides novel empirical support for the contention that moral considerations influence aspects of folk psychology (Knobe, 2003, 2006).

Intentionality Judgments

One consideration for determining whether a behavior was performed intentionally is the actor's state of mind, such as his or her desired outcomes and awareness of performing the behavior (Malle & Knobe, 1997; see also Ossorio & Davis,

1968; Shaver, 1985). However, a growing body of evidence suggests that outcomes of actions also influence perceived intentionality. In particular, people tend to ascribe more intentionality to side-effects of actions when they are harmful than when they are helpful, even when they result from identical behaviors (Knobe, 2003, 2006). This asymmetry in intentionality judgments (dubbed the "side-effect effect" or "Knobe effect") is curious because it reveals a wrinkle in the psychology of intentionality judgments; rather than stemming from normatively appropriate criteria for establishing intentionality, intentionality judgments appear to be influenced by the moral status of an action's consequences.

Knobe (2003, 2006) suggested that "moral considerations" are responsible for the asymmetry in intentionality judgments. Extending Knobe's perspective, others have suggested that motives to blame, and not praise, increase ascriptions of intentionality (e.g., Alicke, 2008; Hindriks, Douven & Sigmann, 2014). Alicke (2008) argues that the tendency to perceive collateral harm as intentional is due to the high instrumental value of punishing reckless behavior, whereas the presumed instrumental value of praising collateral benefit is much lower. Consistent with this rationale, people are strongly inclined to punish others (e.g., Fehr & Gächter, 2002; Turillo, Folger, Lavelle, Umphress, & Gee, 2002), even in the case of accidents (Cushman, Dreber, Wang, & Costa, 2009), and this tendency is prevalent across cultures (e.g., Henrich et al., 2005; Henrich et al., 2006). In sum, theorists claim that features of morality and a need to blame and punish others for negative events makes people more inclined to ascribe intentionality to harmful than helpful actions. However, this view is still contested because theorists

have inferred rather than directly examined the role of morality in this asymmetry. For example, some argue that the effect exists because the underlying reasons for an action are less apparent for norm-sustaining than norm-violating behavior (Uttich & Lombrozo, 2010), that it is merely a semantic artifact (Nichols & Ulatowski, 2007), or that it stems from a lack of other options for describing the behavior (Guglielmo & Malle, 2010).

The present research leverages cultural differences in moral belief systems to test Knobe's claim that moral considerations influence folk psychology. Specifically, we examine whether differences between Indians' and Americans' moral outlooks shape perceived intentionality. In so doing, we also evaluate Alicke's (2008) claim that the influence of morality on intentionality judgments is inherently asymmetrical—that is, that the desire to blame, but not to praise, influences perceived intentionality.

Cultural Differences in Moral Belief Systems

Nearly all research on the side-effect effect has been conducted in W.E.I.R.D. cultures (Western, Educated, Industrialized, Rich, and Democratic; Henrich, Heine, & Norenzayan, 2010). Conceptualizing culture as a knowledge structure that guides perception and judgment (e.g., Hong, Morris, Chiu, & Benet-Martínez, 2000; Peng, Ames, & Knowles, 2001), we test whether natural variations in moral systems shape competencies associated with how people perceive and explain others' behavior (Knobe, 2006; Malle & Knobe, 1997). Finding variability in the side-effect effect across cultures would suggest that the asymmetry in intentionality judgments reflects an asymmetry in the perceived moral relevance of harmful and helpful actions. Moreover, it would suggest that basic social perceptions are influenced by the content of people's moral belief systems.

Indian and US cultures differ in the content of their moral belief systems, specifically, in their perceptions of what types of actions are morally compulsory. Both Indians and US Americans view unprovoked harm and miscarriages of justice as moral violations, but Indians are much more likely than US Americans to feel a sense of moral responsibility for interpersonal obligations (e.g., helping others; Baron & Miller, 2000; Miller & Bersoff, 1992; Miller, Bersoff, & Harwood, 1990; Miller & Luthar, 1989; Shweder, Mahapatra, & Miller, 1987). Due to the longstanding and broad influence of Hindu culture, which emphasizes the moral discourses of divinity and community, Indians have greater respect for human interdependence and feel a stronger sense of obligation toward their community and the social order (Shweder et al., 1997). This view of the natural order of the world emphasizes connections between the past, present, and future for both positive as well as negative events (Omprakash, 1989). Therefore, while US Americans and Indians may be equally likely to blame others for harmful actions, Indians may be more likely to praise helpful ones.

If attributions of intentionality vary as a function of the perceived moral imperative for action, praiseworthiness and perceived intentionality for positive actions should be higher among Indians than US Americans. Some preliminary support for this idea can be found in one study conducted with Hindi-speakers in the US; in this sample, attributions of intentionality correlated with attributions of both blame and praise (Knobe & Burra, 2006). This result hints at the possibilities that 1) both blame and praise influence intentionality judgments and 2) that the content of moral belief systems can influence motives to blame and praise, which in turn affect intentionality judgments.

The Present Research

The present research utilizes our knowledge of cultural variation in moral belief systems to test the contention that moral considerations influence perceived intentionality. We also evaluated whether the effects of moral considerations on intentionality judgments are inherently asymmetric in the sense that blame motives, but not praise motives, influence intention attributions, or whether the asymmetry found in intention attributions for helpful and harmful outcomes depends on the moral relevance of such actions. We test this moral relevance hypothesis by examining whether Indians' heightened tendency to praise leads them to attribute more intentionality to helpful actions than US Americans. We expected that Indians and US Americans would ascribe similar intentionality to harmful side-effects, as both cultures view justice violations (e.g., causing harm) as moral wrongs (Miller & Bersoff, 1992). However, we predicted that Indians would attribute more intentionality to helping behaviors than US Americans because Indians perceive helping behaviors as more subject to moral evaluation than US Americans.

In four experiments, we demonstrate that Indians attribute more intention than US Americans for helpful side-effects, but not harmful (Studies 1–4) or neutral (Studies 2 and 3) side-effects. Moreover, we find that these cross-cultural differences in intentionality judgments for morally positive actions reflected higher perceptions that such actions deserve moral praise (Study 3) and are linked to stronger devotion to religious beliefs and practices among Hindus (Study 4). These results support the notion that features of morality do influence folk psychology by demonstrating that cultural beliefs about the sorts of actions for which people ought to be held morally responsible shape perceived intentionality. Also, the results suggest that intentionality judgments are influenced by praise (in addition to blame) motives in certain cultural contexts.

Study 1

Study 1 tested the hypothesis that Indians would attribute greater intention to helpful side-effects than US Americans, but not harmful side-effects.

Method

Participants from the United States ($n=179$; $M_{\text{age}}=30.69$, 39.44% female) and India ($n=230$; $M_{\text{age}}=28.65$, 34.78% female) were recruited using Amazon's Mechanical Turk (MTurk). We were unsure what sample size would be appropriate, so we simply aimed high. Study 1 exactly replicated the methods of Knobe (2003). Participants read a scenario about a chairman making a decision to start a new program that would increase profits, but would also have a side-effect that was either helpful or harmful to the environment. We then asked participants whether the chairman of the board helped/harmed the environment intentionally with response options "no" and "yes." Some Indian participants ($n=43$) completed this study in English. For others ($n=187$), these materials were translated to Hindi.

Results

We conducted a logistic regression including the condition, country, and condition $\times$ country interaction as predictor variables on intention attributions. Participants were less likely to attribute intention to the chairman for the helpful (21.1%) than harmful side-effect (84.7%), $OR=.09$, Wald $\chi^2=55.90$, $p<.001$. Indian participants were more likely to attribute intention (59.2%) than US participants (47.5%), $OR=9.87$, Wald $\chi^2=17.37$, $p<.001$. As hypothesized, there was also a significant condition $\times$ country interaction, $OR=9.71$, Wald $\chi^2=11.58$, $p=.001$.¹ While there was no difference in intention attributions between Indian and US participants in the harmful condition (Indian: 84.7%, US: 84.5%), $\chi^2=.002$, $p=.966$, in the helpful condition, a significantly greater proportion of Indian (33.0%) than US participants (4.8%) said the chairman intended to help the environment, $\chi^2=23.32$, $p<.001$.

Discussion

Study 1 demonstrated that while Indians and US Americans did not differ in perceived intentionality for harmful side-effects, Indians attributed more intentionality to helpful side-effects than US Americans. As helpful actions have greater moral significance to Indians, these results are consistent with our contention that features of moral belief systems influence key components of folk psychology. However, it may be the case that Indians perceive all side-effects as more intended than US Americans, with harmful actions being the exception in which strong blame motives overwhelm this difference. Therefore, in Study 2, we included a neutral side-effect condition.

Study 2

In Study 2, we included a neutral side-effect condition to determine whether Indians attribute more intention than US Americans for praiseworthy actions specifically. We know of no reason why Indians and US Americans should differ in their perceptions of responsibility for neutral actions; thus, we hypothesized that Indians would attribute greater intention than US Americans for helpful actions, but not neutral or harmful actions.

Method

US participants ($n=179$; $M_{\text{age}}=34.86$, $SD=12.48$; 37.4% female) were recruited using MTurk. Indian participants ($n=180$; $M_{\text{age}}=22.31$, $SD=1.25$; 49.4% female) were students at a University in Karnataka, India. Based on the results of Study 1, we sought 60 participants per condition. One US participant failed to complete the study, resulting in our final sample sizes. All participants completed this study in English. Participants in the helpful and harmful conditions read the same scenarios as in Study 1. Participants in the neutral condition read a scenario about a chairman making a decision to start a new program that would increase profits, but would result in a side-effect that would require the company to change their team meetings from Tuesdays to Wednesdays.

We then asked participants whether the chairman of the board helped/harmed the environment or changed the team meetings to Wednesdays intentionally with response options "no" and "yes," and how much the chairman intended to help the environment/harm the environment or change the team meetings to Wednesdays on a 7-point scale from "Not at all" to "Very much."

Results

For the dichotomous intention measure, we conducted a logistic regression including the condition (reference category: neutral condition), country, and condition $\times$ country interaction. Participants were more likely to attribute intention for the harmful (81.6%) than neutral side-effect (47.4%), $OR=4.91$, Wald $\chi^2=28.55$, $p<.001$. Participants were less likely to attribute intention for the helpful (24.6%) than neutral side-effect (47.4%), $OR=.34$, Wald $\chi^2=13.83$, $p<.001$. There was no overall difference in intention attributions between US (49.9%) and Indian participants (50.1%), $OR=1.21$, Wald $\chi^2=.60$, $p=.438$. Once again, there was a significant condition $\times$ country interaction, $OR=2.07$, Wald $\chi^2=6.22$, $p=.013$. Decomposing this interaction, we found that there were no differences in intention attributions between Indian and US participants in the harmful (Indian: 78.3%, US: 84.6%), $\chi^2=.82$, $p=.365$ and neutral conditions (Indian: 43.3%,

¹ Among Indian participants, language in which the survey was completed did not moderate the influence of the condition on intention attributions, $OR=1.41$, Wald $\chi^2=.16$, $p=.693$.

US: 51.8%), $\chi^2=.83$, $p=.362$. However, in the helpful condition, 35.0% of Indian participants said the chairman intended to help the environment, while only 13.8% of US participants said the chairman intended to help the environment, $\chi^2=7.16$, $p=.007$.

For our continuous intention measure, we conducted a 2×3 Analysis of Variance (ANOVA). There was a main effect of condition, $F(2, 353)=74.23$, $p<.001$, $\eta^2=.296$, such that participants attributed more intention for the harmful ($M=5.28$, $SD=1.80$) than neutral ($M=4.02$, $SD=2.04$) and helpful side-effect ($M=2.47$, $SD=1.65$); all conditions significantly differed, $ps<.001$. There was also a main effect for country, $F(1, 353)=5.57$, $p=.019$, $\eta^2=.016$, such that Indians attributed more intention ($M=4.14$, $SD=2.05$) than US Americans ($M=3.75$, $SD=2.27$). As with our dichotomous intention measure, there was a significant condition $\times$ country interaction, $F(2, 353)=5.63$, $p=.004$, $\eta^2=.031$. Simple effects revealed that there were no differences in intention attributions between Indian and US participants in the harmful (Indian: $M=5.15$, $SD=1.99$; US: $M=5.40$, $SD=1.62$), $F(1, 353)=.60$, $p=.439$, or neutral condition (Indian: $M=4.17$, $SD=1.97$; US: $M=3.86$, $SD=2.13$), $F(1, 353)=.85$, $p=.356$. However, in the helpful condition, Indian participants ($M=3.10$, $SD=1.67$) rated helping the environment as more intended than US participants ($M=1.81$, $SD=1.36$), $F(1, 353)=15.07$, $p<.001$.

Discussion

Study 2 demonstrated that Indians attributed greater intentionality than US Americans for helpful actions, but not harmful or neutral actions. That cultural variation in moral belief systems maps onto cultural variation in intentionality judgments suggests that moral considerations influence intentionality judgments. However, in Studies 1 and 2, we did not measure whether Indians' greater tendency to perceive helpful actions as morally relevant accounted for their greater tendency to ascribe intentionality to such actions. Therefore, in Study 3, we tested whether Indians' greater perceptions that helpful actors deserve moral credit accounts for their greater tendency to ascribe intentionality to helpful actors.

Study 3

Study 3 sought to determine whether heightened perceptions that helpful actors deserve moral credit account for Indians' tendency to perceive helpful side-effects as more intended than US Americans. Study 3 also utilized a different side-effect in the neutral condition to further confirm that it is helpful behaviors specifically that elicit heightened attributions of intention.

Method

US participants ($n=198$; $M_{\text{age}}=29.84$, $SD=9.72$; 36.4% female) were recruited using MTurk. Indian participants ($n=197$; $M_{\text{age}}=22.44$, $SD=1.59$; 42.6% female) were students at a University in Karnataka, India. As in Study 2, we sought 60 participants per condition, but in Study 3 we recruited 200 total participants from both the US and India under the expectation that some participants would fail to complete all study measures. Three US participants and two Indian participants failed to complete the study, resulting in our final sample sizes. Some Indian participants ($n=110$) completed this study in English, while others ($n=87$) completed it in Kannada (the predominant language in Karnataka). Participants in the helpful and harmful conditions read the same scenarios as in Studies 1 and 2. Participants in the neutral condition read a scenario about a chairman making a decision to start a new program that would increase profits, but would result in a side-effect that would require the company to change their logo.

We first asked participants whether the chairman of the board helped/harmed the environment intentionally or changed the company logo intentionally with response options "no" and "yes", and how much the chairman intended to help/harm the environment or change the company logo on a 7-point scale from "Not at all" to "Very much." Participants then reported how much blame or credit they felt the chairman of the board deserved on a 7-point scale from "No Blame/Credit" to "Complete Blame/Credit."

Results

Intention. For the dichotomous intention measure, we conducted a logistic regression including condition (reference category: neutral condition), country, and the condition $\times$ country interaction. Participants were more likely to attribute intention for the harmful (84.0%) than neutral side-effect (50.9%), $OR=5.09$, Wald $\chi^2=30.37$, $p<.001$. Participants were less likely to attribute intention for the helpful (19.8%) than neutral side-effect (50.9%), $OR=.20$, Wald $\chi^2=24.10$, $p<.001$. There was no overall difference in intention attributions between US (51.7%) and Indian participants (56.9%), $OR=1.54$, Wald $\chi^2=2.52$, $p=.113$. As hypothesized, there was a significant condition $\times$ country interaction, $OR=.39$, Wald $\chi^2=8.03$, $p=.005$.² While there were no differences in intention attributions between Indian and US participants in the harmful (Indian: 82.7%, US: 85.7%), $\chi^2=.24$, $p=.626$, or neutral conditions (Indian: 47.3%, US: 54.1%), $\chi^2=.54$, $p=.463$, in the helpful condition, 31.1% of Indian participants said the chairman intended to help the environment, while only 6.0% of US participants said the chairman intended to help the environment, $\chi^2=10.94$, $p=.001$.

²Among Indian participants, language in which the survey was completed did not moderate the influence of the condition on intention attributions, $OR=1.13$, Wald $\chi^2=.10$, $p=.756$.

For the continuous intention measure, we conducted a 2×3 ANOVA. Matching the results of the dichotomous intention measure, there was a main effect of condition, $F(2, 389)=104.56$, $p<.001$, $\eta^2=.350$, such that people attributed more intention for the harmful ($M=5.72$, $SD=1.64$) than neutral ($M=4.01$, $SD=2.32$) and helpful side-effect ($M=2.39$, $SD=1.86$); all conditions significantly differed, $ps<.001$. There was no main effect for country, $F(1, 389)=.99$, $p=.322$, $\eta^2=.003$. Replicating our results, we found a significant condition $\times$ country interaction, $F(2, 389)=10.07$, $p<.001$, $\eta^2=.049$.³ Simple effects revealed that there were no significant differences in intention attributions between Indian and US participants in the harmful (Indian: $M=5.52$, $SD=1.74$; US: $M=5.94$, $SD=1.50$), $F(1, 389)=1.87$, $p=.172$, or neutral conditions (Indian: $M=3.76$, $SD=2.27$; US: $M=4.20$, $SD=2.36$), $F(1, 389)=1.64$, $p=.202$. However, in the helpful condition, Indian participants ($M=3.10$, $SD=2.22$) rated helping the environment as more intended than US participants ($M=1.66$, $SD=.98$), $F(1, 389)=17.17$, $p=.001$.

Blame/Credit. For the continuous blame/credit measure, we conducted a 2×3 ANOVA. As expected, there was a main effect of condition, $F(2, 388)=16.29$, $p<.001$, $\eta^2=.325$, such that people felt the chairman deserved the most blame/credit for the harmful ($M=5.88$, $SD=1.57$), followed by neutral ($M=4.24$, $SD=1.81$), followed by helpful side-effect ($M=3.23$, $SD=1.77$); all conditions significantly differed, $ps<.001$. There was no significant main effect for country, $F(1, 388)=1.74$, $p=.188$, $\eta^2=.004$. As with our intention measures, there was a significant condition $\times$ country interaction, $F(2, 388)=16.29$, $p<.001$, $\eta^2=.077$. Simple effects revealed that Indian and US participants did not differ in how much blame/credit the chairman deserved for the neutral side-effect (Indian: $M=4.38$, $SD=1.78$; US: $M=4.13$, $SD=1.81$), $F(1, 388)=.72$, $p=.398$. However, US participants ($M=6.39$, $SD=1.18$) felt the chairman was more deserving of blame for the harmful side-effect than Indian participants (Indian: $M=5.44$, $SD=1.73$), $F(1, 388)=12.34$, $p<.001$, while Indian participants ($M=3.89$, $SD=1.72$) felt the chairman was more deserving of credit for the helpful side-effect than US participants ($M=2.53$, $SD=1.55$), $F(1, 388)=20.12$, $p<.001$.

Mediation. To determine whether differences in perceptions of how much moral credit the helpful actor deserved accounted for differences in perceived intention between Indians and US Americans, we conducted a bootstrap mediation analysis in the help condition (10,000 resamples) using the PROCESS macro (Hayes, 2013). As seen in Figure 1, Indians higher tendency to assign credit for helpful actions partially accounted for their higher tendency to see those actions as intended, 95% CI $[-0.716, -0.055]$.

Figure 1. Influence of country (India: 0, US: 1) on intention attributions mediated by ascriptions of moral credit in Study 3. * $p<.05$. ** $p<.01$. *** $p<.001$.

Discussion

Study 3 replicated the results of Studies 1 and 2, demonstrating once again that Indians attributed greater intentionality to helpful side-effects than US Americans, but further demonstrated that Indians' higher perceptions that the helpful actor deserved moral credit accounted for their higher attributions of intentionality.

Study 4

Study 4 sought to ensure that the results of Studies 1–3 extended to other cases of morally positive side-effects beyond helping the environment. In Study 4, participants rated the same help or harm scenarios used in Studies 1–3, or rated the intentionality of the chairman in new praiseworthy or blameworthy scenarios (hiring or firing 50 people, respectively). As in the case where the chairman's decision helps the environment, we hypothesized that Indians would attribute more intentionality to the chairman for hiring 50 people than US Americans.

Study 4 also sought to further explore which cultural differences underlie this tendency. Though Study 3 demonstrated that Indians' perception that the helpful actor was more deserving of moral credit accounted for this tendency, like intentionality attributions, the desert of praise is a judgment rather than an underlying cultural difference. We originally hypothesized that Indians may be more likely to ascribe intentionality to helpful side-effects due to the broad influence of Hinduism on Indian culture, which emphasizes obligation for helping others. Therefore, in Study 4, we measured religiosity as a potential mediator for Indian (and specifically Hindu) participants' tendency to ascribe greater intentionality to morally positive side-effects. We also measured and controlled for a variety of other factors that might vary by culture.

³Among Indian participants, language in which the survey was completed did not moderate the influence of the condition on intention attributions, $F(1, 191)=1.17$, $p=.312$, $\eta^2=.01$.

Table 1

Total effect model of intention attributions regressed on country (coded India 0, US 1), religiosity, and controls in Study 4.

	<i>F</i>	<i>R</i> ²	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% <i>CI</i>
Intention Attributions (Model)	5.88	.27				<.001	
Country			-.93	.35	-2.63	.009	-1.63, -.23
Praise			.73	.12	6.29	<.001	.50, .95
Vertical Individualism			.01	.11	.13	.896	-.19, .22
Horizontal Individualism			-.13	.12	-1.09	.276	-.36, .10
Vertical Collectivism			-.29	.15	-1.91	.058	-.59, .01
Horizontal Collectivism			.18	.14	1.34	.181	-.09, .45
LTO Tradition			.10	.14	.71	.481	-.18, .38
LTO Planning			.13	.17	.80	.427	-.20, .46
Ideology			-.03	.07	-0.38	.701	-.17, .11
Education			.01	.15	.09	.931	-.29, .32
SES			.15	.15	1.00	.321	-.14, .44
Belief in Karma			.02	.11	.18	.855	-.20, .24
Religiosity (Indirect)			-.38	.18			-.79, -.07

Method

US participants ($n=240$; $M_{\text{age}}=34.21$, $SD=11.03$; 45.8% female; 2 Hindu) and Indian participants ($n=240$; $M_{\text{age}}=33.18$, $SD=9.69$; 25.0% female; 164 Hindu) were recruited using MTurk. We once again aimed for (and successfully acquired) 60 participants per condition. All participants completed this study in English. In a $2 \times 2 \times 2$ design (scenario: environment vs. people; valence: positive vs. negative; country: India vs. US), participants in the positive and negative environment conditions read the same scenarios as in Studies 1–3, while participants in the people conditions read a scenario about a chairman making a decision to start a new program that would increase profits, but would result in a side-effect of either hiring 50 people or firing 50 people from the production department.

We first asked participants whether the chairman of the board helped/harmed the environment or hired/fired 50 people intentionally with response options “no” and “yes,” and how much the chairman intended to help/harm the environment or hire/fire 50 people on a 7-point scale from “Not at all” to “Very much.” Participants then reported how much the chairman should be blamed or praised on a 7-point scale from “Highly blamed” to “Highly praised.”

Participants then completed the Individualism and Collectivism Scale (Triandis & Gelfand, 1998) and a Long Term Orientation measure (LTO; Bearden, Money & Nevins, 2006), and reported a variety of demographic information including political ideology on a 9-point scale from “Extremely Liberal/Left-wing” to “Extremely Conservative/Right-wing,” education level on six levels from “Primary Education/Middle School or less” to “Advanced Degree (e.g., Masters, Doctorate),” and socioeconomic status (SES) by rating their household income (relative to other people in their country) on a 7-point scale from “Lowest lower class/The poorest” to “Highest upper class/The wealthiest.”

Finally, participants reported their religion and completed a four-item religiosity measure (e.g., “My religious faith is extremely important to me”, “I pray daily”) modified from the Santa Clara Strength of Religious Faith Questionnaire (Plante & Boccaccini, 1997) rated on 7-point scales from “Strongly disagree” to “Strongly agree,” $\alpha=.97$. Last, participants reported their belief in Karma on a 6-item measure (e.g., “I believe in Karma”, “I believe what goes around comes around”) adapted from Kopalle, Lehmann and Farley (2010) and Yen (2013) on 7-point scales from “Strongly disagree” to “Strongly agree,” $\alpha=.90$.

Results

Intention. For the dichotomous intention measure, we conducted a logistic regression including scenario, valence, country, and all interactions. There was a main effect for valence such that participants were more likely to attribute intention for negative (79.3%) than positive side-effects (32.6%), $OR=2.11$, Wald $\chi^2=3.96$, $p=.047$. As hypothesized, there was a significant valence $\times$ country interaction, $OR=7.56$, Wald $\chi^2=12.18$, $p<.001$. While marginally more US participants attributed intentionality (83.6%) than Indians (74.8%) in the morally negative conditions, $\chi^2=2.85$, $p=.091$; in the morally positive conditions, more Indian participants (40.5%) said the chairman intended to help the environment or hire 50 people than US participants (24.6%), $\chi^2=6.89$, $p=.009$. No three-way interaction emerged, $OR=.34$, Wald $\chi^2=1.10$, $p=.294$.

For our continuous intention measure, we conducted a $2 \times 2 \times 2$ ANOVA. There was once again a main effect of valence, $F(1, 472)=288.15$, $p<.001$, $\eta^2=.38$, such that people attributed more intention for morally negative ($M=5.66$, $SD=1.62$) than morally positive side-effects ($M=3.10$, $SD=2.13$). Again, as hypothesized, there was a significant valence $\times$ country interaction, $F(1, 472)=7.40$, $p=.007$, $\eta^2=.02$. Simple effects revealed that US ($M=5.58$, $SD=1.69$) and Indian participants

($M=5.73$, $SD=1.56$) did not differ in the negative conditions, $F(1, 476)=.38$, $p=.536$, $\eta^2=.001$; in the positive conditions, Indian participants ($M=3.58$, $SD=2.20$) attributed more intention than US participants ($M=2.61$, $SD=1.96$), $F(1, 476)=16.08$, $p<.001$, $\eta^2=.03$.⁴

Mediation. Because our mediation hypothesis was based on Hinduism specifically, we restricted these analyses to include only Hindu Indians, though the main result with all participants is footnoted. Note that in Study 2 (the only other study in which we collected religious affiliation information), 95.6% of our Indian sample were Hindu, and Study 3 participants were drawn from the same population (University of Karnataka students), and so presumably were also overwhelmingly Hindu. Overall, then, our results thus far with Indian participants reflect the psychology of Hindus.

We sought to determine whether religiosity accounted for Hindus' tendency to ascribe greater intentionality to morally positive side-effects by conducting a bootstrap mediation analysis (10,000 resamples) using PROCESS (Hayes, 2013) within the morally positive conditions. As seen in Figure 2, we found a significant indirect effect of country on intention attributions through religiosity, 95% CI [-1.009, -.044]. As can be seen in Table 1, this indirect effect remained significant after controlling for all other measured variables, 95% CI [-.794, -.071].⁵

Figure 2. Influence of country (India: 0, US: 1) on intention attributions mediated by religiosity in Study 4. + $p<.10$. * $p<.05$. *** $p<.001$.

Discussion

The results of Study 4 demonstrated that Hindus' stronger identification with their religion is one factor that underlies their tendency to ascribe greater intentionality to actions with morally positive side-effects. In contrast to the more secular moral culture in the United States, which emphasizes autonomy and individualism, Hindu culture emphasizes the importance of divinity and community, in which the self is

conceived as an interdependent part of the social order, which obligates helping others (Baron & Miller, 2000; Miller & Bersoff, 1992; Shweder et al., 1997). While these results are consistent with our broad claim that moral belief systems influence folk psychology, it is worth noting that even controlling for religiosity, country remained a marginally significant predictor of intention attributions, suggesting there are likely other factors at play. Of course there are countless differences between these cultures, and complex relationships among those differences, and we do not claim to have fully captured the rich dynamics of these two cultures in one set of studies. Rather, the goal of Study 4 was to determine whether the theoretical rationale for our hypothesis (specifically, that Hindu culture moralizes helping behavior) was indeed one factor underlying differences in intentionality judgments for morally positive side-effects. While the results support this notion, the results also suggest that there may be a variety of complex cultural differences and relationships that underlie this seemingly robust difference in how morally positive actions are viewed. As cross-cultural differences in this research domain have largely been ignored, this may be a fruitful area for future research.

General Discussion

Four studies demonstrated a robust tendency for Indians to attribute greater intention than US Americans for helpful side-effects, but not harmful side-effects (Studies 1–4) or neutral side-effects (Studies 2–3). The results of Study 3 suggest that this tendency reflects stronger perceptions that such actions deserve moral praise. Further, Study 4 suggests that stronger Hindu religiosity, in which helping others is morally compulsory, underlies the tendency to see helpful actions as intended. These results provide direct support for the controversial claim that features of morality influence intention attributions.

The results also demonstrate that morally positive actions (and perceptions that such actions are deserving of moral praise) also influence perceived intentionality, which is counter to theories asserting that intentionality judgments are only sensitive to negative events. For example, Alicke (2008) argued that attributions of intention are influenced by motivation to blame, but not praise, due to the greater instrumental value of punishing accidental harm. Although praise may be perceived as having more instrumental value in more collectivistic cultures, our results indicate that intentionality judgments are not only attuned to blame, but praise as well. Prior failures (e.g. Hendriks et al., 2014; Knobe & Mendlow, 2004) to find a relationship between praise and

⁴ For this intention measure, a significant three-way interaction emerged, $F(1, 472)=11.35$, $p=.001$, $\eta^2=.02$. However, it was the environment harm condition that slightly deviated from the hypothesized pattern: Indians attributed slightly more intention than US Americans in the environment harm condition, which is somewhat inconsistent with the results of Studies 1–3. However, because our primary focus was in the positive condition and we found the hypothesized

pattern using the environment scenario in Studies 1–3 and with the dichotomous intention measure in Study 4, we report analyses collapsed across the scenario condition

⁵ Indirect effect remained significant with all Indian participants, 95% CI [-.703, -.057].

perceived intentionality may simply be due to an overreliance on samples of the United States and other Western cultures.

In summary, we utilized a novel methodology to test the claim that attributions of intentionality are influenced by the moral relevance of actions. Our results provide direct support for the contention that moral considerations influence folk psychology, and extend prior work in two important ways. First, they indicate that intentionality judgments are *not* singularly influenced by blame motives, but rather the perceived moral relevance of actions more generally. Further, they demonstrate that cultural belief systems about the sorts of actions for which people ought to be held morally responsible color how people perceive their social world, underscoring the significance of culture as a structure of knowledge and understanding.

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