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In Their God We Trust: Religious Cognition Increases Cooperation Across Religious Divides

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Belief in moralizing Gods is widely thought to foster cooperation between coreligionists, but there is disagreement regarding whether this effect is limited to the religious ingroup or if it extends to members of religious outgroups. Here we report the results of a cross-cultural research program that demonstrates that people who think about God (a) are more trusted by both coreligionists and members of other religious groups and (b) typically behave in a more trustworthy manner toward both ingroups and outgroups. We ran three preregistered studies (N = 1,784) with Christians and Muslims in the United States, Jews and Muslims in Israel, and Christians and Hindus in Fiji. Our contexts varied in multiple ways, including the level of intergroup conflict. Using two-player trust games involving real money, we varied whether participants interacted with ingroup or outgroup members and whether reciprocators considered God when deciding how much to return to trustors. We find in each context that making moralizing God beliefs of one player salient enhances both intragroup and intergroup cooperation. Our findings add to a nascent literature documenting the potential for religious cognition to extend moral norms across intergroup divides. We discuss implications for theories of the emergence of moralizing Gods and implications for public debates about religious pluralism in diverse societies.

Keywords: religion, cooperation, intergroup relations

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Most people worldwide are religious (Zuckerman, 2007). Yet, religious identities and beliefs vary widely, making religion a rich source of human diversity. There is considerable debate regarding the effect of religious diversity on intergroup cooperation and conflict. Although there is ample evidence of religiously diverse societies that flourish (e.g., Goitein, 1999; Panizza et al., 2024), many argue belief in God(s) amplifies group-based division (e.g., Armstrong, 2014; Dawkins, 2006). As such, religious diversity is often thought to undermine intergroup cohesion and cooperation. This view is articulated by Huntington, who argues

> Millennia of human history have shown that religion is not a "small difference" but possibly the most profound difference that can exist between people. The frequency, intensity, and violence of fault line wars are greatly enhanced by beliefs in different gods. (1996, p. 254)

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History may offer divergent perspectives, but one way to examine the influence of religion on intergroup cooperation is to study how belief in a moralizing God or Gods influences interreligious interactions. We investigated the effect of beliefs in moralizing Gods on interreligious cooperation, focusing on trust and reciprocity, which are vital for cooperative outcomes (Tropp, 2008). We began by recognizing that even if people believe their God wants them to value the lives of, and be more generous to, outgroup members (Everett et al., 2016; Ginges et al., 2016; Pasek et al., 2020, 2023; Preston & Ritter, 2013; Smith et al., 2022; Stagnaro et al., 2020), this may not translate to increased cooperation if they attribute to the other side religious beliefs that fuel intergroup distrust, or if thinking about God decreases reciprocity in intergroup interactions. Despite the importance of this problem, experimental and behavioral evidence regarding whether religion and belief in moralizing Gods facilitate or obstruct intergroup trust and reciprocity is lacking.

Addressing this gap, we report three preregistered cross-cultural behavioral economics experiments involving two-player intergroup trust (or investment) games (Berg et al., 1995). Experiments were conducted with six ethnoreligious groups, in five languages, and in three contexts that vary in their nature of intergroup relations: The United States, Israel, and Fiji. The study in the United States was conducted online with Christian and Muslim Americans. The study in Israel was also conducted online with religious Jewish Israelis and religious Muslim Palestinian Citizens of Israel. The study in Fiji was conducted in the field with iTaukei Christians and Indo-Fijian Hindus. Studies fulfill calls to study underrepresented groups, including populations in the Global South (Henrich et al., 2010a, 2010b; Rad et al., 2018), and broaden the study of religion beyond Christianity (Anczyk & Grzyma, 2020). At the conception of this research, our team disagreed regarding whether making moralizing God beliefs salient would increase cooperation between members of different religious groups. Below we describe the theoretical rationale for different predictions.

Trust, Reciprocity, and Religious Belief

While humans favor members of their own groups (Balliet et al., 2014; Brewer, 1979, 1999), ingroup favoritism need not imply an inability to cooperate with outgroups (Fu et al., 2012; Halevy et al., 2008). Indeed, human flourishing within groups is somewhat dependent on our ability to cooperate and trade with outgroup members (Glowacki, 2024; Horan et al., 2005). Our species is successful at living in close proximity and trading with members of other religious or ethnic groups without sharing a strong superordinate identity (Goitein, 1999; Pisor & Surbeck, 2019); anthropological and archeological evidence indicates that early human societies may have flourished thanks to long-distance trade networks with members of other groups (Boyd & Richerson, 2022; Brooks et al., 2018; Miller & Wang, 2022). In this article, we ask whether the diversity of beliefs about moralizing Gods—which typically differentiate religious groups—impedes or facilitates cooperation.

Cooperation requires individuals to trust others and for trust to be reciprocated. Trust may be conceptualized as confidence in the goodwill of others (Tropp, 2008) or as "anticipated cooperation" (Burt & Knez, 1996). It involves positive expectations about the motives of others (Deutsch, 1958), including believing another's future actions will be favorable to one's interests (S. L. Robinson, 1996). Reciprocity is a contingent response to trust, even when doing so does not serve one's own interests (Falk & Fischbacher, 2006). Trust and reciprocity serve as social glue, enabling people to exchange ideas, trade, and work collaboratively to achieve shared aims (S. L. Robinson, 1996).

Because cooperation is undermined by defection, a key question is why broad cooperation exists in large societies where strangers frequently interact. Why do strangers trust one another? And why do people engage in trustworthy behavior with strangers? One possibility is that humans developed cultural institutions like religion to promote cooperative norms (Muthukrishna & Henrich, 2019). Moralizing Gods might promote such norms because religious believers may be motivated to abide by what they view as God's moral mandates out of fear of judgment and punishment. They may also trust the moral motives of others who are similarly devoted to an omnipotent, omniscient, and omnipresent deity (Johnson, 2005; Norenzayan, 2013; Norenzayan et al., 2016; Purzycki et al., 2016). From this perspective, moralizing Gods may facilitate cooperation if people share similar group-bound conceptions of that God or Gods (Henrich, 2009; Muthukrishna & Henrich, 2019; Norenzayan et al., 2016). This thinking is influenced by the recognition that humans are parochial (Balliet et al., 2014; Bernhard et al., 2006; Böhm et al., 2020; Kinzler et al., 2007; Romano et al., 2017; Tajfel, 1982) and that parochial altruism may provide a selective advantage (Bowles & Gintis, 2003). By organizing individuals around shared values, beliefs, and rituals (Durkheim, 1995; Ginges et al., 2009; Sosis, 2005), religion is a powerful social identity that gives rise to the "us" versus "them" psychology that fuels parochialism (Ysseldyk et al., 2010). Thus, acts that broadcast religious belief to others (e.g., wearing religious symbols or engaging in religious rituals) signal adherence to religious moral norms and ingroup commitment, enabling coreligionists to trust one another (Sosis & Bressler, 2003).

Several pieces of empirical evidence suggest religious beliefs might primarily promote cooperation within groups, perhaps discouraging intergroup cooperation. For example, belief in moralizing Gods is associated with cooperation among coreligionists (Isler et al., 2021; Lang et al., 2019). Moreover, war and conflict increase religious participation (Henrich et al., 2019) and belief in a punitive God (Caluori et al., 2020), while at the same time promoting tight group norms (Gelfand, 2021) and parochial cooperation (Bauer et al., 2014; Choi & Bowles, 2007).

On the other hand, theorizing linking belief in moralizing Gods primarily to group-bound cooperation has been challenged by recent research suggesting that even though religious group membership can fuel ingroup favoritism (Ginges et al., 2009), religious believers attribute to God a preference for them to extend prosocial moral norms to outgroups. For example, studies using moral dilemmas that force people to weigh the value of ingroup and outgroup lives reveal that Muslim Palestinians, Jewish Israelis, and Christian Fijians believe God wants them to value outgroup lives more than they themselves do (Ginges et al., 2016; Pasek et al., 2020; Smith et al., 2022). Moreover, experiments show that thinking about God promotes intergroup prosociality (Preston & Ritter, 2013). Recent cross-cultural experiments with Christian and Muslim Americans; Christian, Muslim, and Hindu Fijians; Jewish Israelis; and Muslim Palestinians found that prompting participants to think about God increased cross-group donations in a dictator game, even when intergroup conflict is salient (Pasek et al., 2023, 2025).

These findings suggest believers assume God prefers them to apply benevolent norms to members of other religious groups. However, benevolent intentions do not invariably promote intergroup cooperation. Intergroup cooperation also depends on positive beliefs about members of the other groups. Specifically, it requires believing outgroup members to be trustworthy. Here the question is not what people believe God wants them to do, but how they perceive the religious norms of others. As a concrete example, a Christian may believe God wants them to reciprocate trust, but do they believe a Muslim will be more or less trustworthy toward them when thinking about Allah? Two sources of evidence suggest that knowing a member of a different religious group is thinking about their God prior to making reciprocity choices might increase distrust. First, invoking the different religious beliefs of an outgroup member might accentuate intergroup differences, promoting less trust (Balliet et al., 2014). More broadly, people systematically and negatively overestimate intergroup differences, and these misperceptions independently impede intergroup cooperation (e.g., Medin et al., 2007; Moore-Berg et al., 2020; R. J. Robinson & Friedman, 1995; N. Ross et al., 2007; L. Ross & Ward, 1995). Thus, people might underestimate the extent to which members of other religious groups believe that moralizing Gods (as the outgroup conceives of such entities) encourage intergroup cooperation.

The opposite could also be true; people may believe the God of the other promotes intergroup reciprocity and thus trust, at least in certain contexts (e.g., economic trade). That is, making salient that an outgroup member shares belief in a moralizing God might promote trust even though people understand religious group differences in how moralizing God/s are understood or conceptualized.

No empirical work directly addresses our question as to whether belief in a moralizing God (or Gods) promotes trust across group lines, and existing indirect evidence does not offer a clear perspective. One line of cross-cultural work suggests atheists are seen as less moral and trustworthy than theists (Gervais et al., 2011, 2017). This does not depend on the particular religion theists ascribe to: American Christians report greater trust in religious outgroup members who engage in costly religious signaling (Hall et al., 2015). However, this was a self-report study conducted in a low-conflict setting, impeding generalizability. One mechanism that could explain these findings is that people may presume (even outgroup) theists are likely to engage in moral behavior—and thus be more trustworthy—because they are beholden to a higher power with the ability to punish immoral and reward moral behavior. Indeed, among Christians and Hindus in Mauritius, religious markers increase the trust of ingroup members but decrease cross-group investments in trust games (Shaver et al., 2018). Furthermore, Muslims and Hindus in Bangladesh and India show that minority group members exhibit ingroup bias in trust (Gupta et al., 2018). Notably, these studies relied on indicators of religious identity rather than measuring or manipulating religious belief. Thus, decreases in trust may be driven by social identity processes (Tajfel, 1982; Ysseldyk et al., 2010), rather than intergroup perceptions of belief.

Most relevant to the hypothesis, research drawing on the theory of mind to investigate second-order beliefs (i.e., beliefs about what others believe) finds that religious Jewish Israelis and Muslim Palestinians predict ethnoreligious outgroup members will give away more money in intergroup contexts when asked to think about their God (Shackleford et al., 2024). This held among those who did not perceive high levels of religious commonality with outgroups, suggesting people were not merely applying their religious norms to others. Even if people do not explicitly consider their beliefs to be similar, it could be that they attribute their own beliefs to others because of an egocentrism in theory of mind (Epley et al., 2006). An alternative interpretation, which we suspect more likely, is that people believe theism—regardless of the religion—promotes a commitment to moral norms that encourage fairness and reciprocity in interactions between religious groups. Regardless of the mechanism, if these findings translate to predictions about others' reciprocity in studies that measure trust behaviors, it seems likely that people may trust others—even outgroup members—when those others think about God. However, this may only be true among individuals who perceive greater commonality with and/or less threat from religious outgroup members, as the act of religious outgroup members thinking about God might otherwise accentuate perceived intergroup divides.

In addition to asking whether knowing that a religious outgroup member has been asked to think about their God increases trust, we investigated whether thinking about God increases intergroup reciprocity. A critical question is whether the finding that thinking about God increases generosity in dictator games (e.g., Pasek et al., 2023) extends to reciprocity. If reciprocity involves similar moral motives to generosity, thinking about God should increase cross-group reciprocity. Consistent with this, more prosocial (vs. pro-self) individuals engage in more reciprocal behavior (De Cremer & Van Lange, 2001). However, it is not clear whether moral motives in these contexts are the same, and different economic games might be construed as different forms of relationships involving different forms of decision making (Fiske, 1992; Rai & Fiske, 2011). The dictator game involves decisions that might be associated with benevolence ("caring for others"), whereas reciprocators in a trust game may be in market pricing relationships, making strategic choices guided by the logic of proportionality. In such a strategic interaction, choices are influenced by interpretations of others' behavior. People often form inaccurate negative perceptions when attributing motives to behaviors with moral relevance (e.g., Lees & Cikara, 2020; Waytz et al., 2014). and conciliatory offers by other parties to resolve intergroup conflict are often devalued (Maoz et al., 2002; L. Ross & Stillinger, 1991) or rejected because they are perceived as manipulative or paternalistic (Nadler & Halabi, 2006). Thus, while we expected thinking about God to enhance cross-group reciprocity (as it does generosity), asking a reciprocator in a trust game to think about God could increase the salience of the intergroup context, exacerbating the above processes.

Present Research

We investigated whether belief in moralizing Gods promotes or hinders trust and reciprocity across religious or ethnoreligious divides. We conducted two-player trust games in three research sites—the United States, Israel, and Fiji—that vary in their nature of interreligious relations. In each context, we recruited members of the majority religious group (Christians in the United States and Fiji; Jews in Israel) and a relevant minority group (Muslims in the United States and Israel; Hindus in Fiji).

Participants allocated real money between themselves and either ingroup or outgroup members, allowing us to behaviorally capture trust and reciprocity. We extend the literature beyond one-shot games measuring prosociality to study contingent forms of social

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decision making. Precise methods follow later, but the basic structure of these games was as follows. Player A (trustor) was given a monetary stake. They could choose to send money to Player B (reciprocator). Whatever they sent was tripled. Player B could then send money to Player A. We manipulated within subjects whether Player B was asked to think about their God's preferences before making their choice. This allowed us to discern whether (a) knowing that Player B would think about God influenced Player A's trust in Player B and (b) thinking about God actually influenced Player B's reciprocity. We manipulated between subjects whether participants played ethnoreligious ingroup or outgroup member, allowing us to determine whether the effects of Player B being asked to think about God differed for intergroup versus intragroup interactions.

We expected that in intragroup contexts, asking Player B to think about God would increase cooperation among coreligionists. Specifically, we predicted that when Player B was asked to think about God (compared to when they were not asked to think about God): (a) Player A would trust Player B more, and (b) Player B's reciprocity would increase. As we have discussed, existing literature led to divergent expectations about what to expect in intergroup contexts. While we believed increases in trust and reciprocity would extend to intergroup interactions, for reasons described above, we were not confident in these predictions, particularly whether people would trust religious outgroup members more when outgroup members thought about God. We interrogated these questions by comparing the effects of asking Player B to think about God on Player A's trust in Player B and Player B's reciprocity (trustworthiness) in intergroup versus intragroup contexts. As potential boundary conditions, we also tested whether any effects of Player B thinking about God were moderated by perceptions of religious commonality and perceived intergroup threat.

Transparency and Openness

All studies were preregistered (see https://osf.io/bev52). For all studies, we report how we determined our sample size, all data exclusions, all manipulations, and all measures relating to preregistered analyses. We follow Journal Article Reporting Standards (Appelbaum et al., 2018). All data, analytic code, and materials are available on Open Science Framework. Data were analyzed using R Version 4.2.3 (R Core Team, 2023). Plots were created via the ggplot2 package Version 3.4.2 (Wickham, 2016) and the emmeans package Version 1.8.5 (Lenth, 2023). Multilevel models were conducted using lme4 Version 1.1-32 (Bates, Mächler, et al., 2015) and lmerTest Version 3.1-3 (Kuznetsova et al., 2017). Additional packages used in analyses can be found in the analytic code.

Study 1: United States

We first report an experiment with Christians and Muslims in the United States, a religiously diverse and relatively tolerant nation that still experiences tension. We focus on Christian–Muslim relations because Christians represent the majority of Americans, whereas Muslims experience high levels of hostility (Lajevardi & Oskooii, 2024). As in many Western countries, opposition to Muslim immigration is prevalent in the United States, evidenced by policies limiting people from Muslim countries from entering the country (Executive Order Protecting The Nation From Foreign Terrorist Entry Into The United States, 2017). Thus, questions about the influence of religion and religious diversity on intergroup cooperation are relevant.

Method

Participants

Online surveys were conducted with a final sample of 646 Americans who were either Christian (n = 359, 56% male, M_{age} = 61.60, SD_{age} = 12.64) or Muslim (n = 287, 52% male, M_{age} = 40.79, SD_{age} = 14.42). Our Christian sample self-identified as 91% White, 3% Asian, 3% Black, 1% Latino/Hispanic, and 2% multiracial. Our Muslim sample self-identified as 31% Middle Eastern, 29% White, 24% Asian, 7% Black, 1% Latino/Hispanic, <1% American Indian or Alaska Native, <1% "other," and 6% multiracial. We partnered with Dynata, a panel company, to recruit participants, which allowed us to sample Muslims who are underrepresented in most online platforms. Because prior research shows that Dynata samples tend to be less attentive than Prolific (Peer et al., 2022), we preregistered strict exclusion criteria to ensure data quality. Following these criteria, the above-reported sample excludes all respondents who were unable to correctly answer simple comprehension questions about the trust game instructions after being given repeated instructions (n = 487). These participants were routed out before any condition assignment to avoid confounding our condition assignment with exclusions (Montgomery et al., 2018). Also following preregistered exclusion criteria, we excluded one participant too young to have consented and 53 participants who completed the survey in less than half the median completion time of 17 min, which we deemed to be too fast to be reasonable. Our final sample of 646 is slightly larger than our preregistered intention to sample 600 respondents. As described in our preregistration, this sample size was informed based on simulated Monte Carlo power analyses conducted using SIMR (Green & MacLeod, 2016).

Procedure

All studies reported in this article were conducted with Institutional Review Board approval. Participants recruited via Dynata were directed to a Qualtrics survey where consent was obtained. After answering demographic questions, participants were provided written instructions describing the trust game (Berg et al., 1995) protocol in which participants played with real money and received the money that resulted from their joint decisions. After reading the instructions, participants were asked four comprehension questions to ensure they understood the basics of the game. These included the starting allocation given to Player A (5 United States dollars [USD]), a question ensuring that they understood the amount sent from Player A to Player B would be tripled, a question ensuring that they understood that Player A would receive the sum of the amount they kept and the amount sent to them by Player B, and a question ensuring that they understood that the task was real and that they would receive the money they earned as a bonus. Participants who did not answer these questions correctly were informed which questions they got wrong and were given the instructions one more time. They were told that they needed to answer the same questions correctly to participate. Of those who failed the comprehension check at first, 53% passed it on their second chance.

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The trust game consisted of two players: Players A and B. Player A began the game with 5 USD and had to choose how much of this stake to keep or send to Player B. The money Player A sent to Player B was tripled. Player B then had to decide how much money to keep or return to Player A. The Player A role measures how much Player A trusts Player B. The Player B role measures how much Player B reciprocates to Player A.

Each participant took part in four trust games with different partners. Participants first completed two games in the Player B role, then engaged in a distraction task, and then completed two games in the Player A role. Participants were paired with different ingroup (in one condition) or outgroup (in another condition) members for each game, with this condition assignment held constant across rounds. Christians and Muslims were each other's outgroups. All participants were told their interaction partner's religious and national identity and were also told that their interaction partner would be informed of their religious and national identity. For the distractor task, participants were asked to think of up to five new words each using letters from three different provided words.

In the first game, participants in the Player B role were asked how much money they would return to Player A for each possible amount of money Player A could send and Player B could receive. Thus, they indicated five answers, using the "strategy method" (Selten, 1967). We computed a reciprocity score by dividing the amount of money Players B chose to return by the amount at stake for each answer ($3, $6, $9, $12, $15) and then averaged these percentages together to form a single composite reciprocity score. We multiplied this score by 100 such that a score of 0 meant nothing was reciprocated and a score of 100 meant everything was reciprocated. After participants indicated how much they would return, we then asked Players B to predict how much they thought Player A would send to them out of the initial $5. We computed a predicted trust score by dividing predictions by 5 and multiplying this score by 100, such that 0 meant nothing was sent and 100 meant the whole stake was sent.

In the second game, we introduced our first within-subject God manipulation. We told Player B that they were now being paired with a different person (keeping the ethnoreligious group of Player A constant) and asked them to complete the Player B role one more time. This time, however, we asked them to think about God and how God would want them to behave when making their decisions. After Player B indicated their responses, we asked them one more time to predict how much Player A would send to them (this time knowing that Player A would know that they were being asked to think about God when making their decision). Scores were calculated as described above and ranged from 0 to 100. We note that this God manipulation mirrors that used in prior research (Ginges et al., 2016; Pasek et al., 2020, 2023).

After the distraction task, participants participated in the trust game a third time, now in the Player A role. Player A was given 5 USD and asked how much they wanted to keep or send to Player B. We computed a measure of trust by dividing the amount sent by 5 and multiplying this score by 100. Based on the amount Player A sent to Player B, we asked Player A to predict how much Player B would return. We computed a predicted reciprocity score by dividing the predicted reciprocation amount by the amount Player B received.

Player A was then allocated to another partner to play the game a final time. Again, we kept the ethnoreligious group of the other player constant. In this second round, they were told that Player B was asked to think about God, "how they understood God to be," before making their reciprocation choice. We also asked Players A to predict how much Players B would return, knowing that Players B would be asked to think about God. Scores were again calculated as described above.

After completing the trust games, participants responded to survey questions assessing covariates, moderators, and demographics, as well as some exploratory items. Payouts earned in the study were made as bonus payments after study completion. In addition to earnings, participants were compensated via their individual opt-in agreement with Dynata.

Additional Measures

As preregistered, we assessed intergroup threat perceptions and perceived religious commonality as potential moderators (in addition to the participant's religious group membership). We also assessed religiosity and subjective socioeconomic status (SES), age, and gender as covariates.

Intergroup Threat. Threat was assessed with six items inspired by integrated threat theory (Stephan et al., 2016). Two items each measured symbolic (e.g., "Muslim/Christian Americans pose a threat to American culture") and realistic (e.g., "Muslim/Christian Americans pose a threat to the safety of Christian/Muslim Americans") threats with one item each measuring intergroup anxiety ("I worry that Muslim/Christian Americans will treat me badly because I am a Christian/Muslim American") and general threat ("As a Christian/Muslim American, I feel threatened by Muslim/Christian Americans"). Items were rated on a 1 (*not at all true*) to 5 (*very true*) scale and averaged ($\alpha = .95$) to form a single composite. The perceived intergroup threat was quite low and at similar levels for both populations ($M_{\text{Christian}} = 1.74$, $SD_{\text{christian}} = 1.05$; $M_{\text{Muslim}} = 1.75$, $SD_{\text{Muslim}} = 0.93$).

Religious Commonality. Perceived religious commonality was measured with three items assessing the extent to which participants thought their ingroup and outgroup shared a common identity, shared common religious values, and prayed to the same God. Items were rated on a 1 (*not at all true*) to 5 (*very true*) scale and averaged ($\alpha = .86$) to form a composite score. Muslims perceived greater religious commonality than did Christians ($M_{\text{Christian}} = 2.57$, $SD_{\text{christian}} = 1.25$; $M_{\text{Muslim}} = 3.39$, $SD_{\text{Muslim}} = 1.17$).

Subjective SES. Subjective SES was measured with the MacArthur ladder (Adler et al., 2000), which was assessed on a scale from 1 (*much worse off than others in the United States*) to 10 (*much better off than people others in the United States*). Subjective SES was 6.24 for Christians ($SD = 1.60$) and 6.43 for Muslims ($SD = 1.84$).

Religiosity. Religiosity was measured with the IR-5, a five-item version of the Intrinsic Religiosity Scale (Cohen et al., 2017). Items (e.g., "My whole approach to life is based on my religion") were rated on a 1 (*not at all true*) to 5 (*very true*) scale and averaged ($\alpha = .91$) to form a single composite ($M_{\text{Christian}} = 3.36$, $SD_{\text{christian}} = 1.07$; $M_{\text{Muslim}} = 3.67$, $SD_{\text{Muslim}} = 1.00$).

Results

Analytic Plan

As preregistered, in primary analyses we collapsed across religious groups. We conducted separate models for the Player A (trust)

and Player B (reciprocity) roles, as well as for the two dependent variables—the percent of money each player sent the other and the predictions participants made about how their interaction partners would behave in each role. Results were analyzed using multilevel models. In primary models, we regressed each DV on our God manipulation (Level 1: 0 = baseline, 1 = God), intergroup condition (Level 2: −0.5 = outgroup, 0.5 = ingroup), and their interaction, with group membership (Level 2: −0.5 = Muslim, 0.5 = Christian) as a covariate. We followed recommendations from Bates, Kliegl, et al. (2015) to fit the fullest model possible and to simplify the random effect structure when needed. When possible, we fit random intercepts for participants and random slopes for our within-subject God manipulations (leaving out correlations between intercepts and slopes to avoid overspecification). When necessary to avoid overspecification, we fit random-intercept-only models. Results for each dependent variable are displayed in Figure 1.

In separate ancillary models, we tested whether including preregistered Level-2 covariates of age, gender, religiosity, and subjective SES influences results, as well as whether religion, intergroup threat, and perceived religious commonality moderate effects.

We first report models corresponding to the Player A role, which assess the extent to which participants trusted Player B (at baseline) and the extent to which knowing that Player B would think about God influences Player A's trust in Player B. We then report Player A's expectations of Player B's behavior, which offers insights into Player A's motivations to trust Player B. After doing so, we report models corresponding to Player B role, which assess the extent to which participants reciprocate (at baseline) and the extent to which thinking about God influences reciprocation. We then report Player B's predictions about Player A's behavior.

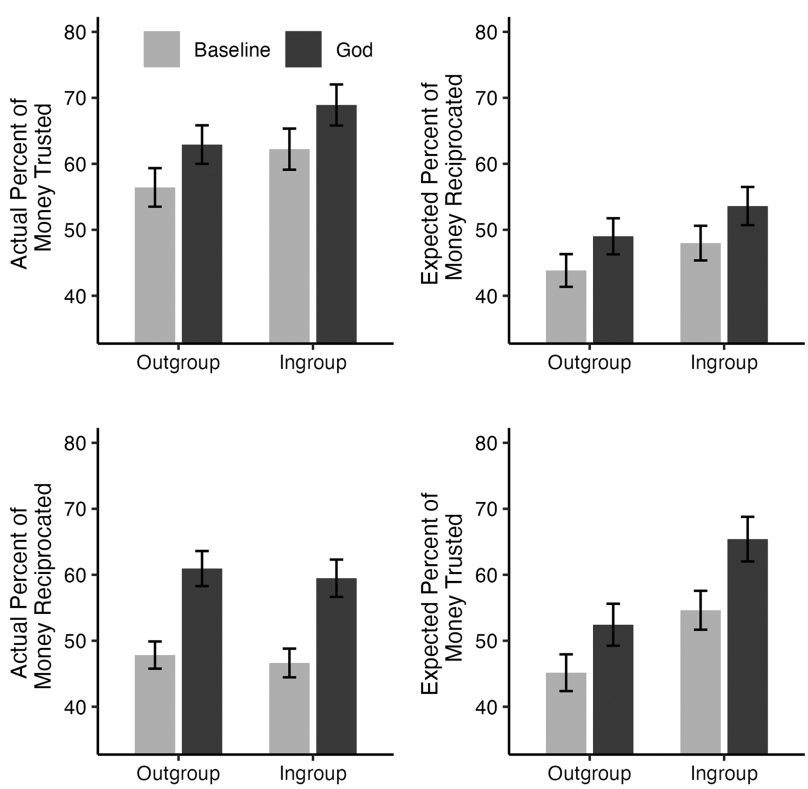
How Much Did Participants Trust Others? And Did They Trust Others More if They Knew They Would Think About God?

We first report on our behavioral measure of trust knowing that Player B had been asked to think about God increased the percentage of money Player A transferred to Player B. Notably, this held regardless of whether Player B was a religious ingroup or outgroup member.

At baseline, participants sent 59.32% of their initial allocation to their interaction partners and were more trusting of ingroup (M = 62.22, SE = 1.59) than outgroup (M = 56.42, SE = 1.49) members, $t(795.03) = 2.67$, $p = .008$, 95% CI [1.55, 10.05]. Knowing that their interaction partner would think about God led participants to send 6.59% more money (as a proportion of the

Figure 1

Results From the United States Showing Estimated Marginal Means and 95% Confidence Intervals for Each Dependent Variable Using the Primary Model, Controlling for Participant's Religious Group



Note. *Y*-axis is truncated to show effects. Error bars = 95% confidence intervals.

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total stakes), $t(633.00) = 8.92$, $p < .001$, 95% CI [5.14, 8.04]. In relative terms, compared to the baseline, this corresponds to an 11.11% increase in trust. This increase was not moderated by the religious identity of the interaction partner, $b = 0.20$, $t(633.00) = 0.14$, $p = .893$, 95% CI [−2.70, 3.10].

Including preregistered covariates in the model did not influence results. Likelihood ratio model comparison tests reveal that adding two- and three-way interactions involving religious groups (comparing effects for Christians and Muslims) did not improve model fit, $\chi^2(3) = 4.30$, $p = .231$. The positive effects of the God manipulation on trust were not moderated by perceived intergroup threat (see Table 1) or perceived religious commonality (see Table 2).

What Expectations Did Participants Have About Other's Reciprocity?

We next report on our cognitive measure of trust. When Player A knew that Player B had been asked to think about God, they predicted that Player B would send them back more money. Again, this was true regardless of whether Player B was a member of the religious ingroup or religious outgroup.

Participants in the Player A role predicted that their interaction partners would reciprocate 46.05% of received money at baseline. Expected reciprocity was higher from ingroup ($M = 48.08$, $SE = 1.34$) than outgroup ($M = 44.02$, $SE = 1.26$) members, $t(616.62) = 2.21$, $p = .027$, 95% CI [0.47, 7.75]. Participants expected that thinking about God would increase their partner's reciprocity by 5.40 points, $t(612.47) = 6.20$, $p < .001$, 95% CI [3.69, 7.10]. In relative terms, this corresponds to an 8.82% increase compared to baseline expectations. Intergroup condition did not moderate the expected effect of thinking about God, $b = 0.44$, $t(612.47) = 0.25$, $p = .802$, 95% CI [−2.97, 3.85].

Including preregistered covariates in the model did not influence results. In our primary model there were no significant differences as a function of religion, and adding two- and three-way interactions with religion did not improve model fit, $\chi^2(3) = 4.56$, $p = .207$. Perceived threat and religious commonality did not moderate the effects of the God manipulation (see Tables 1 and 2).

How Much Did Participants Reciprocate? And Did They Reciprocate More if They Thought About God?

Player B reciprocated more when asked to think about God, regardless of whether they were playing a member of their ingroup or outgroup.

Participants reciprocated 47.23% of the money.[1] Reciprocation was similar for ingroup ($M = 46.63$, $SE = 1.11$) and outgroup ($M = 47.83$, $SE = 1.05$) members, $t(641.04) = -1.20$, $p = .431$, 95% CI [−4.18, 1.78]. Thinking about God increased reciprocity by 12.98% points (in absolute proportion terms), $t(638.30) = 14.36$, $p < .001$, 95% CI [11.21, 14.75]. Relative to the baseline, this corresponds to a 27.48% increase in reciprocity. Increased reciprocity was not dependent on the religious identity of the interaction partner, $b = -0.27$, $t(638.30) = -0.15$, $p = .882$, 95% CI [−3.81, 3.27]. Including preregistered covariates in the model did not influence results. In our primary model, reciprocity did not differ as a function of group, $b = -1.26$, $t(640.52) = -0.86$, $p = .388$, 95% CI [−4.11, 1.60]. Adding two- and three-way interactions involving religious groups did not improve model fit, $\chi^2(3) = 2.00$, $p = .571$. Again, perceived threat and religious commonality did not moderate the effects of the God manipulation (see Tables 1 and 2).

What Expectations Did Participants Have About Other's Trust?

When Player B, participants predicted that Player A would trust them more when Player A knew they were asked to think about God. Consistent with the extended cooperation hypothesis, this held for participants paired with religious ingroup or outgroup partners.

Participants in the Player B role predicted their interaction partners would send 49.89% of their initial allocation at baseline. Player B tended to expect more trust from ingroup ($M = 54.63$, $SE = 1.50$) than outgroup ($M = 45.15$, $SE = 1.42$) members, $t(639.84) = 4.60$, $p < .001$, 95% CI [4.43, 13.50]. Participants expected that their interaction partners would send 9.03% more of the initial allocation to them if their interaction partners knew that they would be asked to think about God, $t(637.56) = 8.66$, $p < .001$, 95% CI [6.98, 11.07]. Relative to baseline expectations, this corresponds to an 18.10% increase. This predicted increase in trust was not significantly moderated by whether participants were paired with ingroup or outgroup members, $b = 3.51$, $t(637.56) = 1.68$, $p = .093$, 95% CI [−0.58, 7.59]. Including preregistered covariates did not affect core results.

Christian participants tended to expect the increase in trust from interaction partners (based on interaction partners knowing participants would think about God) to be larger than did Muslims, $b = 5.37$, $t(635.71) = 2.57$, $p = .010$, 95% CI [1.28, 9.46]. Notably, simple effects tests show that both Christians, $b = 11.42$, $t(634.51) = 8.19$, $p < .001$, 95% CI [8.69, 14.15], and Muslims, $b = 6.05$, $t(636.68) = 3.89$, $p < .001$, 95% CI [3.00, 9.10], expected trust from partners to increase. There was no three-way interaction involving religion, $b = 1.44$, $t(635.71) = 0.35$, $p = .730$, 95% CI [−6.74, 9.62]. Perceived threat moderated effects of the God manipulation in this case, but there were no significant three-way interactions, indicating that people higher in intergroup threat expected lower effects of the God manipulation for both ingroup and outgroup interaction partners (see Table 1). Perceived commonality did not moderate effects (see Table 2).

Discussion

Both intragroup and intergroup cooperation increased when Player B thought about God. Knowing that Player B would think about God increased Player A's cognitive (reciprocity predictions) and behavioral (how much money they sent to Player B) trust. Critically, this happened both when people interacted with coreligionists and religious outgroup members. Increases in trust were warranted; Christians and Muslims reciprocated more—within and across group lines—when they thought about God.

The positive effect of Player B's thinking about God on Player A's cognitive and behavioral trust and positive effects of thinking

[1] Because we were able to fit random slopes and doing so improved model fit, $\chi^2(1) = 54.61$, $p < .001$, we report random slope models here.

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Table 1
Fixed Effects for Threat Moderation in Study 1 (United States)

Parameter	Player A's trust in Player B	Player A's predictions about Player B	Player B's reciprocity to Player A	Player B's predictions about Player A
Intercept	59.27***	49.81***	47.36***	46.06***
God: Baseline (0) versus God (1)	6.51***	8.90***	12.81***	5.19***
Intergroup: Ingroup (0.5) versus outgroup (−0.5)	5.93**	9.64***	−0.80	3.88*
Threat (centered)	0.25	−1.02	0.49	1.04
Religion: Christian (0.5) versus Muslim (−0.5)	3.54	0.95	−1.30	−2.92
God × Intergroup	0.16	3.60	−0.79	0.92
God × Threat	0.37	−2.27*	0.06	−2.52**
Intergroup × Threat	5.96**	6.32**	0.40	5.07**
God × Intergroup × Threat	−0.38	3.70	0.31	0.35

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

about God on Player B's reciprocity were not moderated by threat or religious commonality. This does not mean these variables were unimportant. Participants higher in threat showed more bias in trust, and participants higher in commonality showed less bias in trust. However, neither variable moderated the effects of thinking about God on trust or reciprocity.

One limitation is that it was conducted in a context with relatively positive intergroup relations between groups sharing a superordinate national identity. Perceived threat levels were low, and perceived commonality was quite high.

Study 2: Israel

To probe the effects in a high-tension context, we conducted this study with Jewish Israelis and Muslim Palestinian citizens of Israel. Palestinians who are citizens of Israel have the right to vote in elections and to be elected to the national government, and an Arab party was recently included as part of a governing coalition for the first time (Boxerman, 2021). Yet, this community is subject to widespread discrimination (Adalah, 2017). For example, there has been a recent push to formalize Israel's Jewish character in the Nation State Law, and the perception of a common Israeli identity among Palestinian citizens of Israel seems to be decreasing. In the last relevant survey conducted in 2019, a small minority (15%) refer to themselves as Israeli Arab, and 27% identify as Israeli in any way, whereas more than half self-identify as Palestinian (Smooha, 2020). While often peaceful, relations are violent at times. We conducted this experiment shortly after heightened conflict between Jewish Israelis and Palestinian citizens in Israel during May 2021, which resulted in fatalities and injuries in both communities and included arson attacks against Jewish and Muslim cemeteries (Peleg et al., 2021). Thus, tensions were salient.

Method

Participants

Online surveys were conducted with a final sample of 599 Israeli citizens who were either Jewish (n = 331, 48% male, M_{age} = 29.72, SD_{age} = 14.19) or Muslim Palestinian (n = 268, 27% male, M_{age} = 31.14, SD_{age} = 10.86). As preregistered, to ensure participants were not secular, we only included Jews who identified as religiously observant (49% identified as Dati [Modern-Orthodox] and 51% identified as Ultra-Orthodox) and Muslims who believed in Allah. We recruited participants via https://ipanel.co.il. Following preregistered exclusion criteria, per agreement with https://ipanel.co.il, we only received data from participants who passed comprehension checks following the video instructions. Of those that passed, 67% did on the first try and 33% did on the second attempt. Also, as preregistered, we removed an additional 15 participants for completing the study in less than half the median completion time. These exclusions are not included in the above-reported sample. We preregistered our intent to sample 600 participants split as evenly as possible

Table 2
Fixed Effects for Commonality Moderation in Study 1 (United States)

Parameter	Player A's trust in Player B	Player A's predictions about Player B	Player B's reciprocity to Player A	Player B's predictions about Player A
Intercept	59.11***	49.71***	47.30***	46.02***
God: Baseline (0) versus God (1)	6.55***	8.92***	12.83***	5.22***
Intergroup: Ingroup (0.5) versus outgroup (−0.5)	6.59**	10.10***	−0.43	4.10*
Commonality (centered)	3.07***	2.60**	1.52*	0.22
Religion: Christian (0.5) versus Muslim (−0.5)	5.97**	3.28	−0.17	−2.20
God × Intergroup	0.07	3.38	−0.90	0.85
God × Commonality	−0.68	0.08	−0.58	1.22
Intergroup × Commonality	−3.81*	−2.95	−0.08	−2.52
God × Intergroup × Commonality	1.02	−1.48	0.16	0.26

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

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between the religious groups, recognizing that we might need to oversample Jews. As described in our preregistration, this sample size was informed based on simulated Monte Carlo power analyses conducted using SIMR (Green & MacLeod, 2016).

Procedure

Participants recruited via iPanel.co.il were directed to a Qualtrics survey where consent was obtained. All materials were professionally translated into Hebrew (for Jewish participants) and Arabic (for Muslim participants). Materials were also back-translated and checked to ensure that translations were not only accurate but also that the meaning of questions and manipulations was consistent with our intentions. After answering demographic questions, participants were presented with a custom animation describing the trust game protocol. We commissioned and used a video version of game instructions (available on the Open Science Framework alongside survey materials) given the fact that many participants in Study 1 were excluded for failing to understand written instructions. We followed the same comprehension check process as Study 1, giving participants two chances to watch the video instructions and demonstrate comprehension. The rest of the procedure matched Study 2. We referred to Jewish Israelis as Jewish residents of Israel and to Muslim Israelis as Muslim residents of Israel. In this context, it was clear that we were referring to Jewish Israelis and Muslim Palestinians living in Israel. The initial stake in the trust game was five New Israeli Shekels (equivalent to about 1.50 USD). Participants received earnings as a bonus paid at the end of the study, in addition to direct compensation for participation from https://ipanel.co.il.

Additional Measures

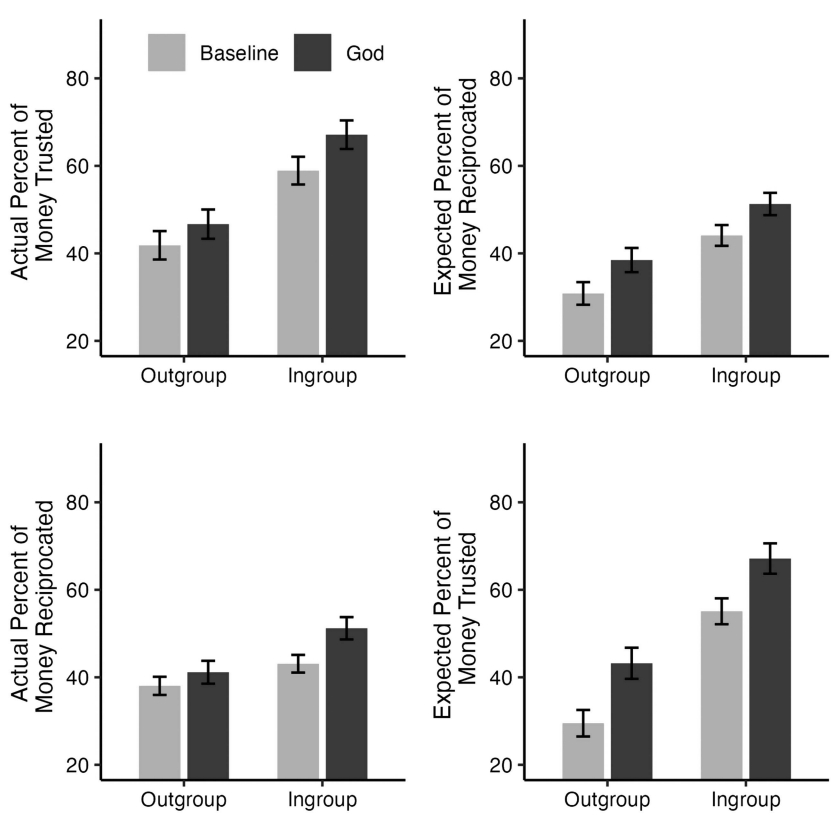
We assessed the same moderators and covariates with the same measures as in Study 2. Beyond basic demographics, these included religiosity ($\alpha = .82$, $M_{\text{Jewish}} = 4.22$, $SE_{\text{Jewish}} = 0.73$, $M_{\text{Muslim}} = 3.85$, $SE_{\text{Muslim}} = 0.80$), subjective SES ($M_{\text{Jewish}} = 6.27$, $SE_{\text{Jewish}} = 1.73$, $M_{\text{Muslim}} = 5.57$, $SE_{\text{Muslim}} = 2.05$), perceived threat ($\alpha = .93$, $M_{\text{Jewish}} = 3.59$, $SE_{\text{Jewish}} = 1.03$, $M_{\text{Muslim}} = 3.02$, $SE_{\text{Muslim}} = 1.14$), and perceived commonality ($\alpha = .82$, $M_{\text{Jewish}} = 2.49$, $SE_{\text{Jewish}} = 0.93$, $M_{\text{Muslim}} = 3.28$, $SE_{\text{Muslim}} = 0.96$).

Results

We followed the same analytic strategy as Study 1 with one change: our contrast code for religious group membership was Muslim = −0.5 and Jewish = 0.5. Results for primary models for each outcome are displayed in Figure 2.

Figure 2

Results From Israel Showing Estimated Marginal Means and 95% Confidence Intervals for Each Dependent Variable Using the Primary Model, Controlling for Participant's Religious Group



Note. *Y*-axis is truncated to show effects. Error bars = 95% confidence intervals.

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How Much Did Participants Trust Others? And Did They Trust Others More if They Knew They Would Think About God?

First, we discuss our behavioral trust measure. When Player A knew that Player B had been asked to think about God, they trusted them more by sending more money to Player B. Importantly, this held for people interacting with members of the ethnoreligious outgroup or ethnoreligious ingroup, although it was stronger in the latter case.

At baseline, participants sent 50.38% of their initial allocation to their interaction partners. Participants were more trusting of ingroup (M = 58.91, SE = 1.61) than outgroup (M = 51.84, SE = 1.66) members, $t(596.49) = 7.41$, $p < .001$, 95% CI [12.55, 21.58]. Knowing that their interaction partner would think about God led participants to send 6.52% more money (as a proportion of the total stakes), $t(595.31) = 7.98$, $p < .001$, 95% CI [4.92, 8.13]. Relative to the baseline, this corresponds to a 12.94% increase in trust. This increase in trust was moderated by the religious identity of the interaction partner, $b = 3.38$, $t(595.32) = 2.07$, $p = .039$, 95% CI [0.17, 6.58], such that increases were greater among coreligionists. However, simple effects tests show that increased trust manifested both when participants were paired with same-religion, $b = 8.23$, $t(595.04) = 7.20$, $p < .001$, 95% CI [5.98, 10.45], and other-religion, $b = 4.84$, $t(595.58) = 4.13$, $p < .001$, 95% CI [2.54, 7.13], partners. Including preregistered covariates in the model did not influence results.

While there was no difference in overall trust as a function of religion, $b = 2.34$, $t(595.89) = 1.02$, $p < .310$, 95% CI [−2.16, 6.83], a significant intergroup Condition × Religion interaction revealed that Jews were more biased in their trust than were Muslims, $b = 15.55$, $t(595.89) = 3.38$, $p < .001$, 95% CI [6.56, 24.55]. However, the ethnoreligious identity of the participant did not moderate the effect of knowing that one's interaction partner would think about God, $b = -1.24$, $t(593.55) = -0.76$, $p = .450$, 95% CI [−4.46, 1.97], nor was there a three-way interaction, $b = 4.68$, $t(593.55) = 1.43$, $p = .155$, 95% CI [−1.75, 11.12].

Neither perceived threat nor commonality moderated the effects of thinking about God, although both were associated with ingroup bias at baseline (see Tables 3 and 4 for full results).

What Expectations Did Participants Have About Other's Reciprocity?

We next discuss our cognitive trust measure. When Player A knew that Player B had been asked to think about God, they predicted that Player B would send them back more money, regardless of whether Player B was an ethnoreligious ingroup or outgroup member.

Participants in the Player A role predicted that their interaction partners would reciprocate 42.30% of received money at baseline. Expected reciprocity was higher from ingroup (M = 55.09, SE = 1.51) than outgroup (M = 29.50, SE = 1.54) members, $t(594.63) = 11.89$, $p < .001$, 95% CI [21.37, 29.80]. Participants expected that thinking about God would increase their partner's reciprocity by 12.88 points, $t(597.00) = 10.63$, $p < .001$, 95% CI [10.50, 15.25]. Relative to baseline expectations, this corresponds to a 30.45% increase. Intergroup condition did not moderate the expected effect of thinking about God, $b = -1.65$, $t(597.00) = -0.68$, $p = .497$, 95% CI [−6.39, 3.10]. Including preregistered covariates in the model did not influence results.

While there were no baseline differences, as a function of religion, in expected reciprocity, $b = -0.51$, $t(595.00) = -0.23$, $p = .815$, 95% CI [−4.73, 3.72], a significant religion x God interaction revealed that Jewish participants expected that thinking about God would lead to greater increases in reciprocity than did Muslim participants, $b = 6.08$, $t(595.00) = 2.51$, $p = .013$, 95% CI [1.33, 10.83]. Religion did not moderate expectations of bias, $b = 5.74$, $t(595.00) = 1.33$, $p = .184$, 95% CI [−2.71, 14.20], nor was there a significant three-way interaction, $b = 2.90$, $t(595.00) = 0.60$, $p = .551$, 95% CI [−6.60, 12.39].

Neither perceived threat nor commonality moderated the effects of thinking about God, although both were associated with ingroup bias at baseline (see Tables 3 and 4).

How Much Did Participants Reciprocate? And Did They Reciprocate More if They Thought About God?

Consistent with Study 1 findings, Muslims in the Player B role reciprocated more when asked to think about God, regardless of whether they were interacting with other Muslims or with Jews. However, this was not true for Jews in the Player B role; they reciprocated more only when paired with other Jews, but not with Muslims.

Participants reciprocated 40.57% of the received money at baseline. Reciprocity was higher toward ingroup ($M = 48.08$, $SE = 1.34$) than outgroup ($M = 44.02$, $SE = 1.26$) members, $t(595.56) = 3.44$, $p < .001$, 95% CI [2.17, 7.93]. Thinking about God increased reciprocity by 5.61 points, $t(597.00) = 6.75$, $p < .001$, 95% CI [3.98, 7.23].

Table 3
Fixed Effects for Threat Moderation in Study 2 (Israel)

Parameter	Player A's trust in Player B	Player A's predictions about Player B	Player B's reciprocity to Player A	Player B's predictions about Player A
Intercept	50.36***	42.40***	40.62***	37.04***
God: Baseline (0) versus God (1)	6.53***	12.80***	5.64***	7.51***
Intergroup: Ingroup (0.5) versus outgroup (−0.5)	16.55***	25.06***	4.84***	13.26***
Threat (centered)	−5.40***	−5.44***	−2.18**	−3.19***
Religion: Jewish (0.5) versus Muslim (−0.5)	4.93*	4.36*	1.02	6.48***
God × Intergroup	3.41*	−1.52	5.02**	−0.64
God × Threat	0.39	1.38	0.19	0.81
Intergroup × Threat	5.67**	10.11***	4.53***	3.69*
God × Intergroup × Threat	0.20	−2.97	1.36	−1.54

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

Table 4
Fixed Effects for Commonality Moderation in Study 2 (Israel)

Parameter	Player A's trust in Player B	Player A's predictions about Player B	Player B's reciprocity to Player A	Player B's predictions about Player A
Intercept	50.15***	42.11***	40.47***	37.12***
God: Baseline (0) versus God (1)	6.52***	12.89***	5.60***	7.41***
Intergroup: Ingroup (0.5) versus outgroup (−0.5)	17.11***	25.65***	5.08***	13.19***
Commonality (centered)	4.09***	3.89***	1.80*	2.53**
Religion: Jewish (0.5) versus Muslim (−0.5)	5.87*	4.59*	1.53	7.02***
God × Intergroup	3.40*	−1.67	5.01**	−0.44
God × Commonality	1.57	−0.99	0.82	−0.26
Intergroup × Commonality	−4.53*	−6.40**	−3.38*	−1.12
God × Intergroup × Commonality	0.76	3.80	−0.12	0.06

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

Relative to the baseline, this corresponds to a 13.82% increase. A significant intergroup Condition × God interaction, $b = 5.00$, $t(597.00) = 3.01$, $p = .003$, 95% CI [1.74, 8.26], revealed that thinking about God increased reciprocity more toward the ingroup, $b = 8.11$, $t(597.00) = 6.99$, $p < .001$, 95% CI [5.83, 10.38], than outgroup, $b = 3.11$, $t(597.00) = 2.61$, $p = .009$, 95% CI [0.78, 5.44]. Including preregistered covariates in the model did not influence results.

A significant three-way interaction involving religion revealed that patterns differed as a function of the participant's group, $b = 9.57$, $t(595.00) = 2.89$, 95% CI [3.08, 16.05]. Among Jews, a significant interaction emerged between thinking about God and intergroup condition, $b = 9.29$, $t(595.00) = 4.49$, $p < .001$, 95% CI [4.95, 13.62]. Simple effects show that thinking about God led Jews to increase reciprocity to the ingroup, $b = 8.76$, $t(595.00) = 5.66$, $p < .001$, 95% CI [5.73, 11.78], but not outgroup, $b = -0.53$, $t(595.00) = -0.34$, $p = .738$, 95% CI [−3.64, 2.58]. Among Muslims, there was no thinking about God × Intergroup Condition interaction, $b = -0.28$, $t(595.00) = -0.11$, $p = .910$, 95% CI [−5.10, 4.54]. Across intergroup conditions, thinking about God increased Muslim's reciprocity, $b = 7.44$, $t(595.00) = 6.04$, $p < .001$, 95% CI [5.03, 9.85] (see Figure 3).

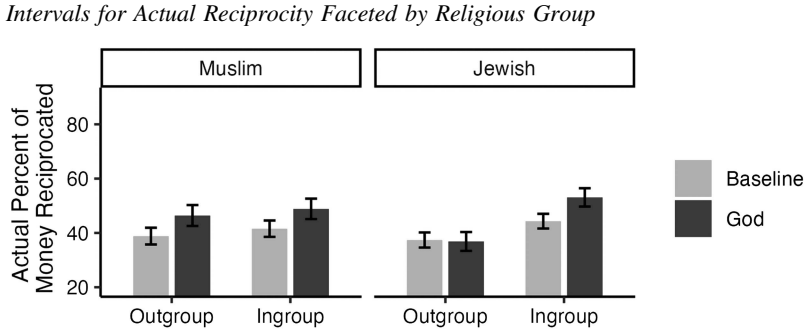
Neither perceived threat nor commonality moderated the effects of thinking about God, although both were associated with ingroup bias at baseline (see Tables 3 and 4).

What Expectations Did Participants Have About Other's Trust?

When in the Player B role, both Jewish and Muslim participants predicted that Player A would send them more money when Player A knew that they would be asked to think about God when deciding how much money to return. Notably, this was true regardless of whether participants were predicting the behavior of ingroup or outgroup members.

Participants in the Player B role predicted that their interaction partners would send 37.30% of their initial allocation at baseline. Participants tended to expect more trust from ingroup ($M = 43.82$, $SE = 1.20$) than outgroup ($M = 30.78$, $SE = 1.31$) members, $t(549.22) = 7.33$, $p < .001$, 95% CI [9.55, 16.51]. Participants expected that their interaction partners would send 7.40% more of the initial allocation to them if their interaction partners knew that they would be asked to think about God, $t(538.52) = 8.95$, $p < .001$, 95% CI [5.78, 9.02]. Relative to baseline expectations, this corresponds to a 19.84% increase. This predicted increase in trust was not significantly moderated by whether participants were paired with ingroup or outgroup members, $b = -0.42$, $t(538.52) = -0.26$, $p = .800$, 95% CI [−3.67, 2.82]. Including preregistered covariates did not affect results. Although Jewish participants expected their interaction partners to send them more money than did Muslim participants, $b = 5.21$, $t(555.70) = 3.18$, $p = .002$, 95% CI [2.00, 8.42], adding two- and three-way

Figure 3
Results From Israel Showing Estimated Marginal Means and 95% Confidence Intervals for Actual Reciprocity Faceted by Religious Group



Note. *Y*-axis is truncated to show effects. Error bars = 95% confidence intervals.

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interactions involving religion did not improve model fit, $\chi^2(3) = 0.93$, $p = .818$.

Neither perceived threat nor commonality moderated the effects of thinking about God, although both were associated with ingroup bias at baseline (see Tables 3 and 4).

Discussion

Even in a high-conflict setting, results generally mirrored Study 1. When Players B thought about God in interactions among coreligionists, they reciprocated more. Players A also trusted Players B more when the latter was asked to think about God. We found similar effects in intergroup interactions. Muslim and Jewish Players A trusted outgroup Players B more when that person was asked to think about God. Although not by as much in intragroup interactions, trust still increased significantly.

We found mixed evidence regarding reciprocity. Muslim, but not Jewish, Players B reciprocated more to outgroup members. Critically, thinking about God did not lead Jews to exploit the increased trust displayed by Muslims. Thus, thinking about God did not harm cross-group reciprocity. As with Study 1, although threat and commonality predicted (expected) bias, the lack of three-way interactions suggests that these constructs do not serve as boundary conditions.

Studies 1 and 2 investigated cooperation between individuals from Abrahamic religions. In Study 3, we investigated the effects of belief in moralizing Gods on cooperative outcomes when players represented not themselves, but their religious communities. We also broadened our work to study the effects of thinking about God among Hindus.

Study 3: Fiji

We conducted a field study in Fiji with Christian iTaukei (Indigenous Fijians who make up about two thirds of the population) and Hindu Indo-Fijians (who comprise about one third of the population). These groups cohabitate in a small diverse island nation, making intergroup cooperation essential. Despite cooperative day-to-day relations, Fiji has a turbulent history of interreligious conflict, witnessing four sometimes violent military coups in the past four decades, fought along ethnoreligious lines (see Lal, 2021; Ramesh, 2008; Voigt-Graf, 2008). Much of Fiji's contemporary intergroup tension can be traced to British colonial rule, which pits iTaukei interest in defending what they see as Indigenous rights (e.g., land ownership) against Indo-Fijians, whose interest in equality is seen as a perpetuation of colonial harm by iTaukei (Kurer, 2001; Narayan, 2008). In addition to leveraging this context to study the influence of religion on intergroup cooperation, conducting research in Fiji also fulfills calls to conduct psychological research better representing the global population, especially the Global South.

Method

Participants

Interviews were conducted with 539 Fijians who were either Indigenous Christian iTaukei ($n = 328$, 48% male, $M_{age} = 40.80$, $SD_{age} = 14.88$) or Hindu Indo-Fijian ($n = 211$, 33% male, $M_{age} = 47.53$, $SD_{age} = 14.88$). Following exclusion criteria detailed in our preregistration, the above-reported sample excludes all surveys that were completed by one Hindu interviewer who conducted all surveys in an unreasonably fast time, raising questions about data integrity ($n = 69$), and an additional 63 responses collected by other interviewers that were also unreasonably fast (<15 min). As described in our preregistration, this sample size was informed based on simulated Monte Carlo power analyses conducted using SIMR (Green & MacLeod, 2016).

Procedure

Prior to conducting interviews, focus groups were conducted with research assistants (RAs) to ensure measures and methods were appropriately adapted to the local cultural and social context. Five RAs from each ethnoreligious group participated in focus groups, translated and back-translated materials, completed interview training, and administered house-to-house interviews with participants.

We note that for Hindu participants, to refer to God, we used the term Bhagavan, which most approximates the monotheistic God of Abrahamic religions, rather than personal Gods (such as Shiva). This choice was informed by focus groups as well as prior research (Pasek et al., 2020, 2023).

Interviews were conducted in Bau (a national dialect of Fijian) for Christians and Hindustani (a Fijian dialect of Hindi) for Hindus. RAs recorded participants' answers on mobile tablets using Qualtrics Offline. All interviews were conducted in the Nadroga-Navosa region of Fiji, with permission from local stakeholders, including the Ministry of iTaukei Affairs, the Ministry of Education, Heritage, and Arts, the Nadroga-Navosa Provincial Council, and local village leaders, when appropriate. Participants were given 2.50 Fijian dollars (FJD, equivalent to about 1.25 USD) for their time in addition to any stakes earned in the trust game.

We conducted trust games in which participants played on behalf of, and had the potential to earn real money for, their religious congregation. At the start of interviews, participants answered a brief set of questions about their religious identification and beliefs. Christian participants indicated their church. For Hindus, we first asked whether participants attended a prayer group (Mandali), and if they did, they played on behalf of this group. If they did not, we asked them to identify the temple they attended. Contact information was collected for prayer groups at the end of the study to ensure payments were made. We had participants play on behalf of their congregation for two reasons. First, we reasoned that doing so would make group interests as opposed to personal interests more salient. Second, because tracing participants to make payouts in the field was not feasible (as many Fijians do not have stable postal addresses or reliable phone service), doing so ensured that we could have participants complete real trust games with no deception. Interviewers carefully explained the rules of the trust game to participants and confirmed understanding before commencing. Our trust game procedure was identical to Studies 1 and 2 with two exceptions. First, because this study was conducted in person on mobile tablets, our interviewers handed the tablet to participants so that they could indicate their answers to monetary tasks in private. Second, instead of distracting participants with the word task in between rounds of the trust game, we administered our demographic questionnaire in between the Player B and A roles. The stakes

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allotted to Player A to begin the game were 5 FJD. Additional survey questions followed the trust game. Payouts were calculated at the conclusion of the study. Money was distributed to participants' religious communities as promised.

Additional Measures

We preregistered two potential moderators (intergroup threat and commonality) and five measured covariates in addition (age, gender, religiosity, subjective SES, congregational fusion). Our measure of intergroup commonality had poor psychometric properties ($\alpha = .33$) and, as such, we do not report results using this measure as planned.

Intergroup Threat. We assessed threat with four measuring realistic threat (e.g., "Hindu Indo-Fijians/Christian iTaukei have too much power in the Fijian government") and three items measuring symbolic threat (e.g., "Hindu Indo-Fijians/Christian iTaukei influence the Fijian way of life more than they should"). All items were rated on 10-point 1 (*strongly disagree*) to 10 (*strongly agree*) scales. Items formed an adequate scale ($\alpha = .69$) and were averaged to form a single threat composite ($M_{\text{Christian}} = 5.59$, $SD_{\text{christian}} = 1.50$; $M_{\text{Hindu}} = 7.49$, $SD_{\text{Hindu}} = 1.82$).

Religiosity. Religiosity was measured with a single item asking how often participants pray (1 = never or almost never, 2 = about once a year, 3 = several times a year, 4 = about once a month, 5 = about once a week, 6 = about every day, 7 = several times each day). Mean prayer frequency was high ($M_{\text{Christian}} = 6.61$, $SD_{\text{christian}} = 0.91$; $M_{\text{Hindu}} = 5.44$, $SD_{\text{Hindu}} = 0.95$).

Subjective SES. Subjective SES was measured as in Studies 1 and 2 ($M_{\text{Chrisitan}} = 4.53$, $SD_{\text{Christian}} = 1.57$; $M_{\text{Hindu}} = 6.36$, $SD_{\text{Hindu}} = 1.54$).

Congregational Fusion. Participants completed a pictorial measure of identity fusion with the congregation (church, prayer group, or temple) on whose behalf they played. On this measure, one represented complete orthogonality, and five represented complete fusion. Mean fusion was 3.94 for Christians ($SD_{\text{christian}} = 1.23$) and 3.08 for Hindus ($SD_{\text{Hindu}} = 1.18$).

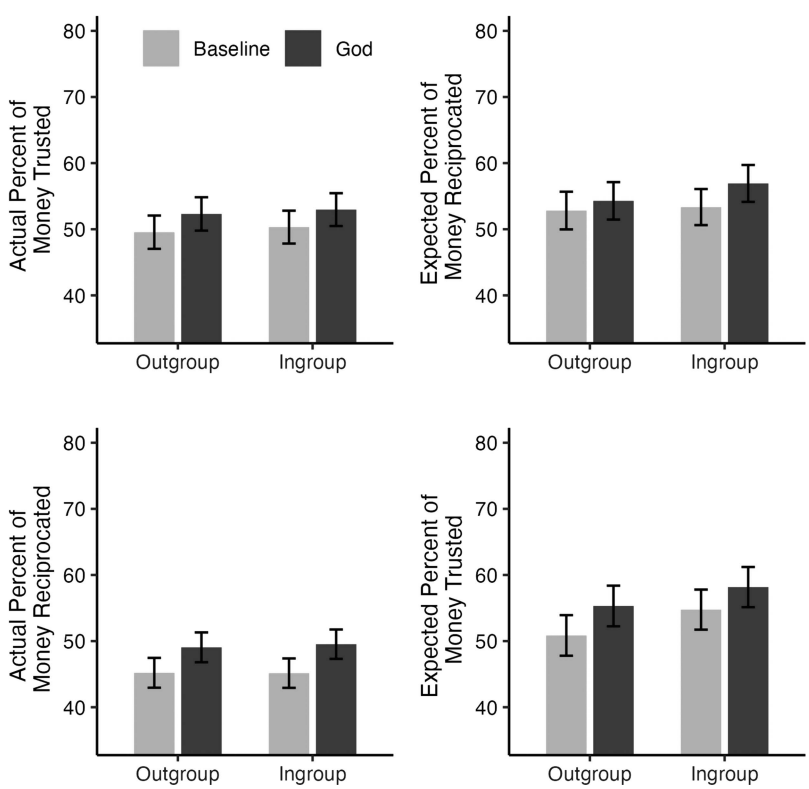
Results

We followed the same analytic strategy as Studies 1 and 2, this time coding religion −0.5 = Hindu and 0.5 = Christian. Results for primary models for each outcome are displayed in Figure 4.

How Much Did Participants Trust Others? And Did They Trust Others More if They Knew They Would Think About God?

In terms of behavioral trust, participants from both communities in the Player A role showed more trust in Player B when Player B was asked to think about God. Consistent with Studies 1 and 2, these

Figure 4
Results From Fiji Showing Estimated Marginal Means and 95% Confidence Intervals for Each Dependent Variable Using the Primary Model, Controlling for Participant's Religious Group



Note. *Y*-axis is truncated to show effects. Error bars = 95% confidence intervals.

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effects were similar for those who were interacting with coreligionists and ethnoreligious outgroup members.

At baseline, participants sent 49.94% of their initial allocation to their interaction partners. Participants were equally trusting of ingroup ($M = 50.32$, $SE = 1.27$) and outgroup ($M = 49.55$, $SE = 1.28$) members, $t(820.09) = 0.43$, $p = .667$, 95% CI [−2.73, 4.26]. Knowing that their interaction partner would think about God led participants to send 2.70% more money (as a proportion of the total stakes), $t(535.30) = 3.19$, $p = .002$, 95% CI [1.04, 4.36]. Relative to the baseline, this corresponds to a 5.41% increase in trust. Critically, this increase was not moderated by the religious identity of the interaction partner, $b = -0.11$, $t(535.30) = -0.07$, $p = .947$, 95% CI [−3.43, 3.21]. Including preregistered covariates in the model did not influence results. In our primary model, we did observe large differences in baseline trust as a function of participants' own religion, with Christians trusting much more than Hindus, $b = 11.58$, $t(535.46) = 7.19$, $p < .001$, 95% CI [8.43, 14.74]. However, adding two- and three-way interactions involving religious groups (comparing effects for Christians and Hindus) did not improve model fit, $\chi^2(3) = 1.06$, $p = .789$. Adding two- and three-way interactions with perceived threat did not improve model fit, $\chi^2(3) = 1.71$, $p = .634$ (see Table 5).

What Expectations Did Participants Have About Other's Reciprocity?

In terms of cognitive trust, participants from both communities in the Player A role predicted that Player B would reciprocate more money when Player B thought about God. Once again, this effect did not differ between participants in the intergroup or intragroup conditions.

Participants in the Player A role predicted that their interaction partners would reciprocate 51.81% of received money at baseline. Expectations about reciprocation did not differ as a function of whether people were paired with ingroup ($M = 52.10$, $SE = 1.36$) or outgroup ($M = 51.51$, $SE = 1.42$) members, $t(496.48) = 0.30$, $p = .766$. Participants expected that thinking about God would lead their interaction partners to reciprocate 2.45% more of the money they receive, $t(492.20) = 2.64$, $p = .009$. In relative terms, this corresponds to a 4.73% increase in expected reciprocity compared to baseline expectations. Intergroup condition did not moderate the extent to which participants expected thinking about God to increase their partner's reciprocity, although increases tended to be larger when participants were paired with ingroup members, $b = 2.30$, $t(492.15) = 1.23$, $p = .219$, 95% CI [−1.36, 5.94]. Including preregistered covariates did not affect core results. In our primary model, we observed large differences in baseline expectations of reciprocity as a function of participants' own religion, with Christians expecting much more reciprocity than Hindus, $b = 12.05$, $t(504.96) = 6.86$, $p < .001$, 95% CI [8.66, 15.50]. Adding two- and three-way interactions between participant religion and other predictors did not improve model fit, $\chi^2(3) = 2.45$, $p = .488$. Adding two- and three-way interactions with perceived threat also did not improve model fit, $\chi^2(3) = 0.84$, $p = .842$ (see Table 5).

How Much Did Participants Reciprocate? And Did They Reciprocate More if They Thought About God?

Participants in the Player B role reciprocated more when thinking about God. This held regardless of whether they were playing a coreligionist or a member of the outgroup.

Participants reciprocated 45.18% of the money at baseline. Reciprocation was similar for ingroup ($M = 45.15$, $SE = 1.13$) and outgroup ($M = 45.21$, $SE = 1.14$) members, $t(535.31) = -0.03$, $p = .974$, 95% CI [−3.16, 3.06]. Thinking about God increased reciprocity by 4.12% points (in absolute proportion terms), $t(536.00) = 6.32$, $p < .001$, 95% CI [2.84, 5.39]. Relative to the baseline, this corresponds to a 9.10% increase in reciprocity. This increase was not dependent on the religious identity of the interaction partner, $b = 0.53$, $t(536.00) = 0.40$, $p = .686$, 95% CI [−2.03, 3.08]. Including preregistered covariates in the model did not influence results. In our primary model, we observed differences in baseline reciprocation as a function of participants' own religion, with Christians reciprocating more than Hindus, $b = 5.62$, $t(535.00) = 3.77$, $p < .001$, 95% CI [2.70, 8.55]. However, adding two- and three-way interactions involving religious groups (comparing effects for Christians and Hindus) did not improve model fit, $\chi^2(3) = 4.86$, $p = .182$. Adding two- and three-way interactions with perceived threat did not improve model fit, $\chi^2(3) = 0.97$, $p = .807$ (see Table 5).

What Expectations Did Participants Have About Other's Trust?

When Player A knew that Player B had been asked to think about God, they predicted that Player B would send them back more

Table 5
Fixed Effects for Threat Moderation in Study 3 (Fiji)

Parameter	Player A's trust in Player B	Player A's predictions about Player B	Player B's reciprocity to Player A	Player B's predictions about Player A
Intercept	50.08***	53.12***	45.08***	52.07***
God: Baseline (0) versus God (1)	2.60**	3.89***	4.14***	2.52**
Intergroup: Ingroup (0.5) versus outgroup (−0.5)	0.92	4.22	−0.14	0.69
Threat (centered)	−0.11	−1.31*	0.68	−1.27*
Religion: Christian (0.5) versus Hindu (−0.5)	11.19***	15.17***	6.65***	9.63***
God × Intergroup	−0.22	−1.24	0.59	2.36
God × Threat	−0.22	0.47	−0.26	0.06
Intergroup × Threat	−0.98	−0.32	−0.44	−0.46
God × Intergroup × Threat	0.95	−0.67	−0.12	−0.47

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

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money. Notably, this was true regardless of whether Player B was a religious ingroup or outgroup member.

Participants in the Player B role predicted that their interaction partners would send 52.81% of their initial allocation at baseline. Participants tended to expect more trust from ingroup (M = 54.76, SE = 1.54) than outgroup (M = 50.85, SE = 1.56) members, although this difference was marginally significant, $t(878.62) = 1.79$, $p = .073$, 95% CI [0.36, 8.17]. Participants expected that their interaction partners would send 3.93% more of the initial allocation to them if their interaction partners knew that they would be asked to think about God, $t(534.37) = 3.48$, $p < .001$, 95% CI [1.72, 6.15]. Relative to baseline expectations, this corresponds to a 7.44% increase. This predicted increase in trust was not moderated by whether participants were paired with ingroup or outgroup members, $b = -1.05$, $t(534.37) = -0.46$, $p = .643$, 95% CI [−5.47, 3.38]. Including preregistered covariates did not affect core results but did reduce the marginal significant effect of intergroup condition to nonsignificance. In our primary model, we observed large differences in baseline expectations of trust as a function of participants' own religion, with Christians expecting much more trust than Hindus, $b = 17.19$, $t(535.76) = 9.00$, $p < .001$, 95% CI [13.45, 20.92]. However, adding two- and three-way interactions between participant religion and other predictors did not improve model fit, $\chi^2(3) = 3.08$, $p = .379$. Adding two- and three-way interactions with perceived threat also did not improve model fit, $\chi^2(3) = 1.37$, $p = .712$ (see Table 5).

Discussion

Consistent with Studies 1 and 2, members of both groups were more trusting of others (regardless ethnoreligious identity) when their interaction partner thought about God. Moreover, when thinking about God, both communities reciprocated more to coreligionists and outgroup members. Increases in behavioral trust and reciprocity mirrored predictions about how thinking about God (or their partner knowing that they would think about God) would affect their interaction. Threat did not moderate effects. Effects held when participants played for their religious group and among members of a non-Abrahamic religion.

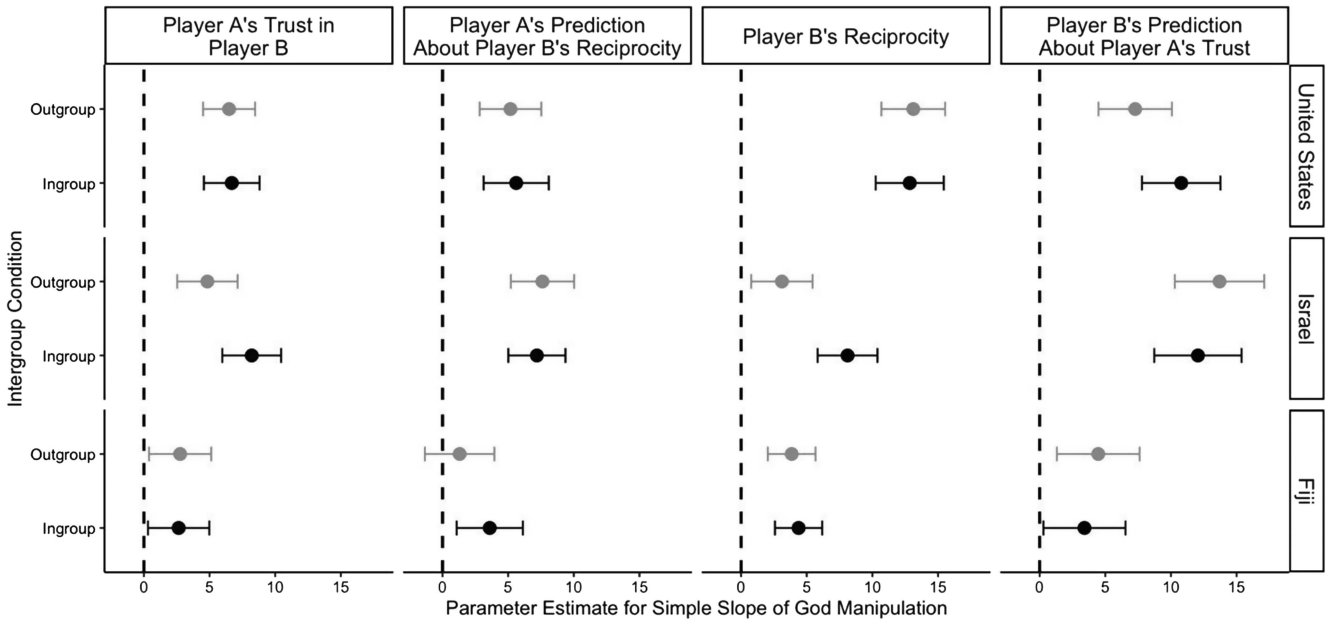
General Discussion

Field and online behavioral trust games conducted with six ethnoreligious populations, including Abrahamic and non-Abrahamic religions, demonstrate that making religious beliefs more salient increases cooperation in interactions between members of different ethnoreligious groups with different religious beliefs.

Across studies and samples, when we increased the salience of Player B's religious beliefs by asking Player B to think about God, Player A trusted Player B more and invested more money into Player B. The combined amount of money earned by Player A and Player B increased by an average of approximately 14% in the United States, 16% in Israel, and 7% in Fiji (relative to baseline). Moreover, in five of six populations, Player B reciprocated more when thinking about God, even though Player A was an outgroup member; thus, increased trust was generally warranted. Although Jewish Israelis did not reciprocate more to Muslim Palestinians when asked to think about God, they did not send back less. To ease the comparison of effects across studies, Figure 5 shows simple slopes (by intergroup condition) of the God manipulation by dependent variable and country.

Figure 5

Simple Slopes and 95% CIs (for Ingroup and Outgroup Conditions) of the Effect of the God Manipulation for Each Dependent Variable, Faceted Down by Country



Note. CIs = confidence intervals.

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We conducted experiments in three sites that vary in the extremity of intergroup conflict and measured individual perceptions of intergroup threat. Higher threat predicted less trust and reciprocity between groups at baseline, suggesting our measure captured relevant threat perceptions in each site. However, the positive effects of thinking about God on intergroup trust and reciprocity were unrelated to perceived intergroup threat, suggesting positive effects of religious belief on interreligious cooperation are orthogonal to broader perceptions of intergroup relations.

Mechanisms, Limitations, External Validity, and Future Directions

Although results cannot directly speak to proximal mechanisms, we theorize that people presume theism (even among religious outgroup members) promotes moral norms that encourage fairness and reciprocity across divides. This is consistent with findings that American Christians distrust atheists more than (even outgroup) religious targets, likely because theists are seen as beholden to a moralizing God (Gervais et al., 2011, 2017). It is also consistent with research documenting how religious costly signals increase intergroup trust (Hall et al., 2015). Because predictions people make about how others' religious beliefs affect intergroup reciprocity are generally accurate, expectations of reciprocity create a self-fulfilling prophecy. A potentially congruent explanation could be that increases in trust and reciprocity are driven by observational effects. That is, thinking about God in the Player B role might increase reciprocity due to the increased salience of being observed by God. And people may trust others who think about God because they think the act of being observed by God will increase others' trustworthiness. Indeed, one reason belief in God is powerful is that God is thought to be able to police human moral behavior.

One alternative is that knowing that Player B thought about God increased the salience of God beliefs for Player A. That is, Player A may have sent more due to moral norms around intergroup generosity reinforced by their beliefs (Pasek et al., 2023). Seen this way, higher transfers to Player B under the God manipulation might be interpreted as a result of increased generosity rather than trust. However, Player A also showed more cognitive trust when Player B was under this condition, predicting Player B would reciprocate more when thinking about God. Thus, we think it parsimonious to describe Player A's behavior as trusting Player B more when Player B's beliefs in God were more salient.

A second alternative explanation for our finding is that our manipulation facilitated the salience of a superordinate "believer" identity and/or prompted overcategorization. We cannot directly test the superordinate identity hypothesis because we measured religious commonality between subjects. However, prior work shows that thinking about God increases generosity to atheists (Pasek et al., 2023) for whom it should decrease a superordinate identity. Further, in the Fiji study reported here, we find that the God manipulation increased trust between Christians and Hindus in Fiji, for whom conceptualizations of God differ substantially. Finally, if the God manipulation increased the salience of a superordinate belief identity, we would have likely found that it also decreased ingroup bias (Gaertner et al., 1993), which was not the case. Regarding overcategorization, it is not clear how this would account for people's tendency to trust others more when others think about God. Future research should consider explicitly manipulating superordinate identities by making theological disagreements salient.

A third explanation is that the salience of God beliefs of members of religious outgroups increased trust not because of beliefs about the positive effects of even outgroup theistic beliefs on cooperation, but because participants were projecting their own beliefs about God's preferences onto those who belong to other religious traditions (Epley et al., 2006). Our design does not allow us to rule out this counter explanation, which we think particularly deserves direct investigation. In our studies, all participants played both roles, and all acted in the Player B role first and then the Player A role second. The main constraint guiding our choice to have participants play both roles was the need to achieve power among hard-to-reach samples. We took into account the possibility that after participants thought about God as Player B, increases in cooperative tendencies might carry over to the Player A role at baseline before the second God manipulation. Relatedly, thinking about God encourages risk taking (White et al., 2024), which could inflate baseline trust. Thus, this design likely resulted in a more conservative estimate of the effect of Player B's thinking about God on Player A's trust. A benefit of our fixed order is that it made it easier for participants, as Player A, to imagine Player B thinking about God. However, this raises the possibility that participants projected their own cognitive processes of thinking about God when Player B was onto others. We tested by correlating the effect of thinking about God on reciprocity with the effect of knowing that others will think about God on trust. These correlations were inconsistent and weak. We also reasoned that the tendency to project one's beliefs onto others should be higher among those perceiving greater religious commonality, yet commonality did not moderate God effects.

Our investigation extends previous work showing that belief in moralizing Gods increases intergroup generosity by demonstrating that it also increases intergroup trust, reciprocity, and cooperation. One open question is whether belief in moralizing Gods can decrease intergroup conflict. Insights on this question may be limited because trust games do not provide affordances for conflict. Other works using experimental designs with affordances for conflict have yielded novel results such as the "nasty neighbor" effect (Romano et al., 2024). Future work using designs with affordances for intergroup conflict as well as cooperation, such as a modified trust game allowing for third-party punishments (Jordan et al., 2016) could more directly investigate the effects of belief in moralizing Gods on intergroup cooperation and conflict. Future work investigating the effects of moralizing God beliefs on intergroup relations could also expand the type of intergroup situations being examined. Here we focused on trust and reciprocity in economic exchanges. While these exchanges may capture marketplace cooperation, they may fail to capture other cooperative dynamics, such as power sharing. Future research should extend findings to contexts where different moral motives are relevant (Rai & Fiske, 2011). This could involve negotiations over sacred values in intergroup conflicts (Ginges et al., 2007).

Conclusion

One paradox of humanity is that while we are prone to devastating violent conflict, we are highly adept intergroup cooperators. Important theories regarding the cultural evolution of moralizing

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God beliefs suggest supernatural beliefs aided groups in outcompeting each other by promoting cooperation primarily within group boundaries (Norenzayan et al., 2016). Results suggest a need to reconceptualize such accounts. Religion is multifaceted, and while aspects of religion, such as collective ritual, may accentuate intergroup biases (Ginges et al., 2009), we find no evidence that belief in moralizing Gods plays such a role. Thus, our findings address concerns that religious diversity is harmful to trust and cooperation, instead suggesting that belief in God may help to facilitate interreligious cooperation. Findings may have practical implications for everyday relations between people who (and groups that) must make decisions about whether to trust those whose religious beliefs differ from their own.

We began by referencing Samuel Huntington, who argued that belief in different Gods, by serving as a major fault line, represents a profound threat to human cooperation. Fear or dislike of religious diversity is not novel (Armstrong, 2014, Cavanaugh, 2009). Sometimes the argument is that religious divisions undermine trust and social cohesion. Sometimes the argument is that particular religious traditions threaten social trust. The present research speaks to both such concerns, showing that rather than amplifying intergroup conflict, belief in God may help promote interreligious cooperation.

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