

The Religious Roots of Belief in Misinformation: Experimental Evidence from India*

Simon Chauchard[†]
University Carlos III Madrid

Sumitra Badrinathan[‡]
American University

Word Count: 9,893

Abstract

Misinformation has emerged as a key threat worldwide, with scholars frequently highlighting the role of partisan motivated reasoning in this process. Yet the mechanisms enabling the endorsement of misinformation may differ where other identities are salient. This study explores whether religion drives the endorsement of misinformation in India. Using original data, we first show that individuals with high levels of religiosity and religious polarization endorse more misinformation. Next, to understand the causal mechanisms through which religion operates, we field an experiment where corrections rely on religious messaging, and/or manipulate perceptions of religious in-group identity. We find that corrections including religious frames (1) reduce the endorsement of misinformation; (2) are sometimes more effective than standard corrections; and (3) work beyond the specific story corrected. These findings highlight the religious roots of belief formation and provide hope that both traditional belief systems and social identities can be marshaled to counter misinformation.

Keywords: India, Religion, Misinformation, Norms, Experiments

*This study was preregistered with OSF (<https://bit.ly/3GokIC0>) and received IRB approval (exemption) from the University of Pennsylvania (protocol 844245). Funding for this research comes from Leiden University, the Wharton Risk Center's Russell Ackoff Fellowship and the UPenn Center for the Advanced Study of India's Sobti Family Fellowship. For comments and feedback we thank Adam Berinsky, Ashutosh Varshney, Mark Schneider, Jennifer Bussell, Emmerich Davies, Ajay Verghese, Milan Vaishnav, Richard Fletcher, Sacha Altay, Adam Auerbach, Alex Scacco, and Gareth Nellis.

[†]Email: simon.chauchard@uc3m.es

[‡]Email: sumitrab@american.edu

1 Introduction

Canonical works in political science recognize the role of religion as a prominent political force in society (Putnam 2000; Verba, Schlozman, and Brady 1995). Scholars point to religion’s influence on public policy (Grzymała-Busse 2015), public opinion (Pepinsky, Liddle, and Mujani 2018), and social cohesion (Nellis 2023), underscoring its potential to shape beliefs, identity, and behavior. Simultaneously, the last decade has seen a proliferation of scholarly work focusing on understanding why people believe misinformation, and ways to counter it (Wittenberg and Berinsky 2020; Ecker et al. 2022). However, work linking the two strands of research remains largely neglected. To explain the prevalence of misperceptions, misinformation scholars have frequently highlighted the pivotal role of partisan motivated reasoning (Flynn, Nyhan, and Reifler 2017). Yet, in much of the world outside of western democracies, religion and ethnicity significantly shape beliefs and preferences, with religious divisions influencing electoral outcomes, political participation, and other behaviors (Sircar 2022; McClendon and Riedl 2019; Smith 2019). Religion, both independently of partisanship and as a potential driver of it, may therefore also influence belief in misinformation.

How, if at all, does religion shape the endorsement of misinformation? We define religion as (1) adherence to a set of moral principles and (2) membership in a religiously-defined identity category, and argue that religion may be connected to belief in misinformation for at least two key reasons.¹ Adherence to longstanding religious moral principles may influence which beliefs are endorsed, while pressures to conform to religious group identities might drive the acceptance or rejection of misinformation. Building on this definition, we explore both descriptive and causal questions in this study. First, are religious beliefs and identities descriptively associated with the endorsement

¹We recognize the existence of many definitions for this broad concept (Schilbrack 2022) and acknowledge that our definition is concise. However, by capturing both the individual belief and social/community dimensions common to most interpretations of religion, our stylized definition is context-appropriate, allowing us to examine the effects of the religious experience on downstream outcomes.

of misinformation? Given the scarcity of empirical evidence on the intersection of misinformation and religion, particularly outside Western contexts, establishing the existence of such a relationship is crucial. Second, if religion does influence misinformation endorsement, what mechanisms underlie this effect, and can these processes be harnessed to reduce vulnerability to misinformation? We answer these questions in the context of India, a country where religion has long been the basis for political mobilization and the formation of political parties (Chhibber and Verma 2018; Brass 2005). More recently, religious cleavages have resulted in riots as well as vigilante violence in the country, often fueled by misperceptions and rumors (Wilkinson 2006; Banaji et al. 2019; Badrinathan, Chauchard, and Siddiqui 2024).

We rely on a combination of original descriptive data and experimental evidence, focusing on the covid-19 pandemic which saw a proliferation of medical misinformation and conspiracy theories (Motta, Stecula, and Farhart 2020; Brennen et al. 2020), alongside a catastrophic number of deaths in India. To answer our descriptive question, we employ a scale of Hindu religiosity with items measuring religious beliefs, practices, and norms, drawing on work by Verghese (2020). We then show that belief in misinformation in India is strongly correlated with religiosity: those with higher levels of religiosity appear significantly more vulnerable to misinformation. Further, our evidence also suggests that the identity dimension of religion may be related to the endorsement of misinformation: in our sample, respondents who are more vulnerable to misinformation are also more likely to display affective polarization towards the religious outgroup.

Next, to understand the causal relationship between belief in misinformation and religion, we field an experiment. Building on our definition of religion as adherence to a set of principles and membership in an identity category, we explore how messaging emphasizing religious principles and religious ingroup norms affects endorsement of misinformation. We recruit a sample of Indian adults representative of the online population, thereby most often exposed to misinformation in the country (N=1600). Re-

spondents are shown WhatsApp conversations with a misinformation stimulus, and in treatment conditions, a social correction to that misinformation by another user. We manipulate the content of this social correction, and in some treatments, additionally manipulate its source. In all treatment conditions, we test whether framing misinformation as morally problematic from a religious standpoint helps dispel falsehoods. To do so, we use original verses from ancient Hindu religious scriptures to back up corrections – these texts emphasize the importance of morality and truth. In a subset of treatment conditions, we use an additive design to additionally manipulate the religious identity of the group chat to signal a religious ingroup, and test whether religious ingroup disapproval of misinformation further helps reduce its endorsement. We measure the effect of these treatments on the two types of popular falsehoods which circulated in India during and after the pandemic: conspiracy theories and medical misinformation.

Our results show that religiously-framed corrections are successful at shifting misinformed beliefs, in some cases outperforming standard corrections. But we also find that the efficacy of religious frames varies by type of misinformation. With regards to conspiracy theories, all religiously-framed treatments were successful at correcting misinformation, compared to a placebo control condition. Importantly, we show improvements in respondents' ability to detect misinformation beyond the specific misinformation stimulus used in our treatments. Respondents are able to take cues from the treatment and accurately identify additional falsehoods. Next, we compare these treatments to a standard correction, to evaluate whether corrective effects are due to the religious components of the treatment or simply to any corrective information. When compared to a standard social correction, including a religiously-framed moral message increases the effectiveness of corrections. Further, we demonstrate that only religious corrections significantly reduce endorsement of additional falsehoods beyond the corrected story. In contrast, for medical misinformation, a religiously-framed moral message alone fails to reduce endorsement of misinformation. However, combining it with a manipulation of

group identity—and thus perceived group norms—does produce an effect (though this effect does not significantly improve upon a standard correction).

These findings have a number of implications for scholarship and policy. Most importantly, they confirm the argument that religious principles and identities drive the endorsement of misinformation. They also highlight the persistent nature of more deep-rooted misinformed beliefs. Recently viral (and thereby perhaps more salient) misinformation – such as conspiracy theories specifically about the pandemic, in this context – might be easier to correct: we find that more treatments are able to effectively attenuate these beliefs, even beyond a standard correction. However, deep-rooted beliefs which have existed since before covid-19, such as reliance on traditional medicine, might be harder to dislodge, including when corrections invoke religion. Our experiment also builds on previous work on social corrections ([Bode and Vraga 2018](#); [Badrinathan and Chauchard 2023](#)), and suggests that further attention to the role of religion and the mechanisms through which it operates in polarized systems is warranted in the misinformation literature. Our findings provide hope that both traditional belief systems and social identities can be marshaled to reduce vulnerability to misinformation.

2 Theoretical Expectations

Across cultures, religion fosters moral communities, shared values, and social connection. However, scholars of the psychology of religion have long argued that the cohesion and trust within religious communities may come at the cost of rationality ([Haidt 2012](#)). This group embeddedness can amplify the endorsement of false beliefs and flawed reasoning, suggesting that religiously motivated reasoning may drive misinformation belief, particularly among the highly religious. This study examines this premise in the context of India – a critical case given its population, comprising one in five people globally and nearly half of those in developing countries.

2.1 The Indian Context

Indian politics has long been dominated by a fundamental cleavage between Hindus and Muslims, and the prominence of religion as a social identity has been central. It is the basis of political mobilization, nationalism, and the formation of religiously-motivated political parties (Brass 2005). In 2021 a Pew Research Center survey found that Hindus tend to link their religious identity to national identity: 81% of Hindus said it was important to be Hindu to be truly Indian, while a significantly smaller proportion of respondents from other religious groups felt the same. More generally, religious divides in India have historically determined not only electoral results (Chandra 2007; Sircar 2022) but also patterns of violence and support for violence (Wilkinson 2006; Jha 2013; Badrinathan, Chauchard, and Siddiqui 2024).

Key to understanding the prominence of religion as an identity in modern India is the Bharatiya Janata Party (BJP), that epitomizes the importance of religion, and specifically Hinduism, in popular discourse. The party frequently employs puritanical rhetoric and moral appeals (Jaffrelot 2021), leveraging Hindu symbols and figures for political gains and often relying on misinformation. Since coming to power in 2014, BJP leaders have endorsed pseudoscientific remedies like Homeopathy and Ayurveda, citing their roots in traditional Hindu practices. For instance, in March 2020, a Hindu religious group, with support from a BJP politician, held a 200-person event promoting cow urine as a COVID-19 cure, despite no scientific backing (Siddiqui 2020). Additionally, the BJP's aim of establishing a national identity that marginalizes minorities, particularly Muslims (Jaffrelot 2021), has been linked to conspiratorial misinformation. During the COVID-19 crisis, BJP-aligned sources were reported to have propagated theories accusing minorities of deliberately spreading the virus (Yasir 2020). This misinformation is harmful: belief in miracle cures can lead to ignoring public health measures like social distancing (Bridgman et al. 2020), while scapegoating minorities exacerbates polarization and violence (Banaji et al. 2019). These examples highlight how conspiracy theories and medical

misinformation often invoke religious beliefs and identities, both directly and indirectly.

Because much of this misinformation circulates on encrypted platforms like WhatsApp, where the source of a message cannot be traced, its suppliers and creators often remain unidentified. However, evidence suggests that prominent right-wing political and religious figures in India play a central role in making misinformation more salient (Perrigo 2019; Singh 2019). While the intentions behind spreading such content are hard to determine, landmark studies on rumors in South Asia (Brass 1997; Wilkinson 2006) suggest that anti-minority claims are often disseminated intentionally to either entrench religious divides through threats of violence or deepen Hindu sentiment by framing India—a diverse and constitutionally secular nation—as primarily a Hindu country (Baishya 2022). From citizens’ perspective, further spreading misinformation aligned with the Hindu-nationalist ethos of the ruling BJP or its affiliated religious leaders may also serve to curry favor with the party and its leadership (Worth 2018). Observers note that misinformation spikes around elections (Klepper and Pathi 2024), with “ethnic entrepreneurs” often using religion to spread unverified rumors that fuel violence for electoral gain (Wilkinson 2006; Sircar 2022). BJP leaders have even acknowledged their ability to propagate falsehoods, with then BJP President Amit Shah stating in 2018, “We can keep making messages go viral, whether they are real or fake, sweet or sour.” Social media users who believe or share such stories are likely motivated by alignment with their religious beliefs or perceptions of majority norms (Davies 2020).

In sum, both India’s longstanding religious divides and the ruling party’s religious activism underscore the possibility of a fundamental association between religion and misinformation in India (Mishra 2021). However, empirical scholarship to date has yet to test whether such an association exists.² A well-established finding in the literature on American political behavior is that motivated reasoning affects how individuals

²Our aim is not to argue that religion is more significant than partisanship; indeed, research from India highlights that the two are deeply intertwined. Religion often drives political participation, and political parties are frequently organized along religious lines. We instead leverage the salience of religion as a social identity in India to develop treatments aimed at improving misinformation outcomes.

process information (Flynn, Nyhan, and Reifler 2017). With misinformation in particular, scholars underscore the importance of partisanship as the basis for motivated reasoning: even when misinformation is corrected, we are more likely to believe it if it aligns with our partisan priors. Evidence on the role of partisanship as a pivotal identity in India, however, is mixed. India’s party system is not historically viewed as ideologically structured: parties are not institutionalized (Chhibber, Jensenius, and Suryanarayan 2014), elections are highly volatile (Heath 2005), and the party system itself is not ideological (Chandra 2007; Kitschelt and Wilkinson 2007), at least not in a traditional sense (Chhibber and Verma 2018). The recent nature of the BJP’s appeals combined with the historical importance of religion in India give credence to the idea that it is not only partisanship, but perhaps also religion, that might drive belief in misinformation.

Given this intuition and findings from previous literature about the role of religiosity in promoting belief in non-rational explanations (Haidt 2012), our descriptive hypothesis predicts that individuals who are highly religious are more likely to endorse misinformation (**Hypothesis 1**).

2.2 Mechanisms of Belief in Misinformation

To determine the causal pathways through which religion might impact belief in misinformation, we field an experiment. Since we cannot manipulate religious identity or belief, we manipulate whether messages drawing on explicitly religious principles or originating from religious ingroups affect misinformation endorsement. We do this in the context of a correction experiment by manipulating whether corrections to misinformation draw on religious messages or refer to religious identities. This allows us to test whether different types of religious frames can discourage belief in misinformation and thereby shed light on the religion-misinformation causal link.³

³The religious component in our “religious” treatments is explicitly aimed at encouraging the rejection of misinformation. We chose this approach over a lighter touch message because merely activating religious identity (without a moral message) could have inadvertently increased endorsement of group-

In doing so, we build on a large literature on corrective interventions to combat misinformation.⁴ In Western contexts where misinformation spreads on public social media such as Facebook, solutions include providing fact-checks and labeling misinformation as false (Porter and Wood 2021; Clayton et al. 2019), inoculating users (Hameleers 2020; Roozenbeek and van der Linden 2019), and priming the concept of accuracy (Pennycook and Rand 2019). However in India as in much of the developing world, information is largely spread through encrypted platforms such as WhatsApp (Gil de Zúñiga, Ardèvol-Abreu, and Casero-Ripollés 2019; Valeriani and Vaccari 2018). Consequently, platform-based interventions such as adding a false label are not easily applicable, and solutions to correct misinformation online must necessarily stem from users correcting each other (Vraga, Bode, and Tully 2020; Bode and Vraga 2018; Badrinathan and Chauchard 2023). Accordingly, we focus on social corrections in this study, and build on a small but growing literature highlighting the role of peers correcting each other in online settings where algorithmic or platform-based changes are not feasible (Heiss et al. 2023; Vijaykumar et al. 2022; Kligler-Vilenchik 2022).

Group identities, particularly those based on religion, are strong social cleavages in India, and the online environment of WhatsApp may intensify these divides. Users often join private group chats centered on political, religious, or social causes (Chauchard and Garimella 2022), and such groups are frequently divided along religious lines (Saha et al. 2021). The insular nature of these private chats can increase vulnerability to misinformation (Kalogeropoulos and Rossini 2023): WhatsApp’s intimacy fosters a sense of solidarity, making misinformation more likely to be trusted (Davies 2020). Indeed, research shows that homophily in networks correlates with increased belief in misinformation (Acemoglu, Ozdaglar, and Siderius 2021).

congruent claims.

⁴We also designed a correction experiment for ethical reasons: to avoid further spreading misinformation during a fraught time and reinforcing false beliefs, our default is to pair every misinformation statement with a correction, and use those corrections to manipulate the variations central to our theory. Importantly, our design does not include a condition where misinformation is left uncorrected.

The link between religion and misinformation became clear in interview data from our fieldwork. One respondent explained why she believed a piece of medical misinformation on a WhatsApp group, emphasizing the role of religion in information processing: *"It is the right thing to do. Our Hindu religion teaches us that it is the right thing to do – and this is what it truly means for me to be a part of Hindu history and culture, and to pass it down to my children."* Other respondents highlighted group identity and ingroup norms as drivers of information sharing. One participant noted: *"Sometimes even if I'm not sure if something is true or not, I don't want to be the only person not sharing something on the group. So I find any message I think will be popular, I forward it to the [Hindu religious] group. Then if many people like it, I come to know it is true."*

These examples show that adherence to religious principles can both drive the endorsement of misinformation and justify such beliefs. Additionally, conformity to religious ingroup norms can intensify pressures to share and endorse information. We conclude that challenging the notion that religion requires adhering to a fixed set of beliefs or that being a "good" member of a religious ingroup entails certain ideas could help reduce the endorsement of misinformation.

With this reflection in mind, we design corrections that are meant to appeal to the same psychological traits that make people vulnerable to falsehoods to begin with (Nyhan 2021). While recent evidence suggests that all types of information can persuade and motivated reasoning can often be overcome (Coppock 2023), we argue that value-based and identity-congruent treatments may be particularly effective in our context due to key differences. Much of the prior research on this topic, including Coppock (2023), comes from Western settings, where corrections rarely backfire (Porter and Wood 2019). However, limited evidence from India suggests that intensive treatments may fail to drive meaningful change or could worsen outcomes for individuals with strong social identities (Badrinathan 2021). This suggests that not all types of information may be equally persuasive in our context. Attwell and Freeman (2015) show, for example, that

value-based treatments are more effective in Australia, aligning with other studies that highlight the impact of identity-congruent correction sources (Berinsky 2017). Beyond misinformation, similar effects have been observed in other domains, such as religious appeals to promote conservation efforts in Jordan (Buccione 2023), religious appeals in Indonesia to improve debt repayment (Bursztyn et al. 2019) and even in the US context, where religious appeals increase support for refugees among the most religious (DeMora et al. 2024). These studies highlight the potential power of interventions rooted in morality, shared values and identity.

We first posit that religion may influence the endorsement of falsehoods because such misinformation can align with longstanding religious beliefs or principles, making its endorsement have moral value. In other words, religious individuals might accept misinformation to avoid cognitive dissonance (Taber and Lodge 2006). Building on this idea, all our corrective treatments aim to reduce respondents' dissonance and the perceived moral pressure to embrace misinformation. In addition to morality, we also consider religion as an identity and the role of perceived ingroup preferences. Simply addressing cognitive dissonance may not be sufficient if individuals believe they need not personally accept a claim to stay aligned with their religious principles, but feel compelled to endorse it because others in their ingroup do. Indeed, expressing misinformed beliefs may be driven by perceived group norms: individuals may endorse misinformation because they believe others do, and fear of social alienation can increase pressure to conform (Kahan et al. 2017). WhatsApp group chats, often organized around social and political causes (Davies 2020), can amplify these pressures by fostering unwritten norms that encourage conformity (Chadwick, Vaccari, and Hall 2023; Kalogeropoulos and Rossini 2023). For example, research shows that prejudices and hateful rhetoric are typically constrained by values and norms, but are expressed when the situation allows for justification (Crandall and Eshleman 2003). Thus, altering perceived group norms around a belief may reduce its endorsement. This aligns with recent calls from misinfor-

mation scholars to focus on changing norms as a strategy for building healthier online communities (Blair et al. 2023).⁵

We thus posit that social corrections using religious content to alleviate cognitive dissonance will reduce misinformation endorsement relative to a control condition (**Hypothesis 2a**). As noted above, we hypothesize these effects because our religious treatment not only primes religious membership but also explicitly encourages moral behavior. Additionally, we hypothesize that social corrections combining religious content with manipulations of perceived group norms will be effective in reducing misinformation endorsement compared to a control condition (**Hypothesis 2b**).⁶ We also hypothesize that the effectiveness of religious corrections is a function of the strength of an individual’s religiosity. Specifically, highly religious respondents will be more likely to engage with and be influenced by a religious frame, so we expect the efficacy of corrections to increase with higher religiosity (**Hypothesis 3**). Additionally, we explore one pre-registered research question: to benchmark the effectiveness of religiously-framed corrections, we compare them to a standard social correction without a religious frame (**RQ 1**). This comparison helps us assess the relative efficacy of different correction types, not just in comparison to a control group.⁷

⁵The two mechanisms we highlight through which religion may affect misinformation – conformity to ingroup norms and cognitive dissonance – are not exhaustive. Another important mechanism is the role of networks. Similar to the technology mechanism discussed by Habyarimana et al. (2007), religious individuals may be more embedded in networks where misinformation circulates more readily. This would mean that religious individuals are more likely to be misinformed simply because they have greater access to misinformation. Such a mechanism calls for different interventions than the ones we look at in this study, such as diversifying news sources to reduce misinformation exposure.

⁶We intentionally designed this study to have treatments with additive components. While relieving perceived ingroup norms could be effective on its own, we chose to focus on treatments we predicted would be most effective, rather than splitting our power across additional treatments, as a fully factorial design would require. Consequently we are unable to draw conclusions about the independent effect of changing groups norms in isolation.

⁷In Appendix O we summarize brief deviations from our PAP as well as additional analyses that we listed in the PAP but we not able to include here for space constraints.

3 Method and Design

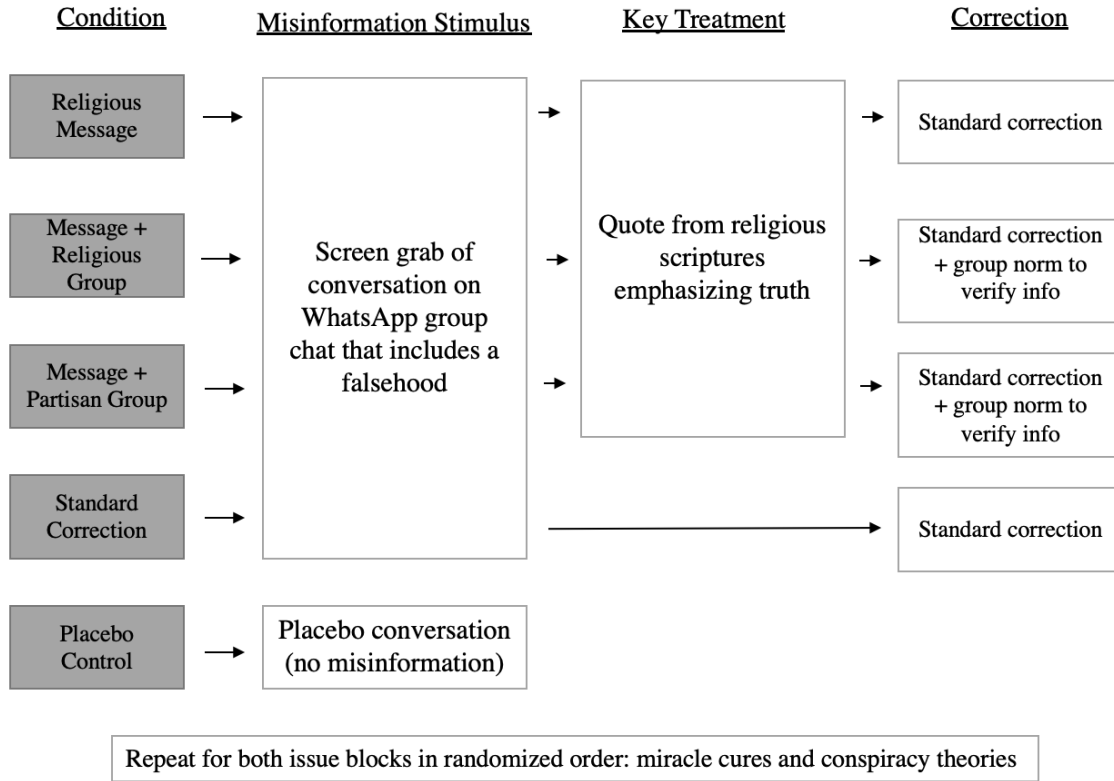
To test these hypotheses, we collected original survey data in India (N=1600) after the second wave of the covid-19 pandemic in 2021. The first goal of our survey was to field an extensive module of attitudes and perceptions to descriptively evaluate the correlation between religious beliefs and misinformation. Key in our descriptive measures is an index of Hindu religiosity. We build on [Verghese \(2020\)](#) in conceptualizing Hinduism as practice-centered, and consequently operationalize religiosity as a function of rites and rituals, including features of everyday life such as attire, food habits and adherence to norms. To measure religiosity, we constructed a scale of eight items with questions that measure the practice of Hindu religion on a quotidian basis, including frequency of prayer, the need to consult an astrologist before fixing a wedding date, frequency of religious fasting, and others.⁸ Next, our survey included a pre-registered experiment. In our experiment, respondents were randomly assigned to one of five conditions in a between-subjects design (see Figure 1), of which four were treatment conditions and the fifth was a placebo control condition.

3.1 Treatment Conditions

In all conditions respondents read fictional but realistic screenshots of conversations on WhatsApp. The screenshots displayed a conversation between two users in a private WhatsApp chat group. In all treatment conditions (the first four conditions in Figure 1), the first user posts a piece of misinformation. In response, the second user uses a variety of correction strategies corresponding to our different treatment groups. In the *Religious Message* treatment, the social correction of the second user relies on a religious frame. To craft this message, we found real quotes from ancient Hindu religious scriptures that discuss either the truth as an important virtue or the imperative not to slander. The

⁸Appendix K describes all the items included in the scale.

Figure 1: Experimental Flow



user in the conversation who corrects misinformation posts a verse from these Hindu religious scriptures (the Bhagavad Gita and the Mahabharata) alongside Hindu religious iconography, that together exhort people to consider the truth.⁹

This technique builds on prior work on the importance of issue framing, shown to be successful in using religious frames to shape responses to climate change and other polarizing issues (Goldberg et al. 2019). It also builds on work emphasizing that unlikely sources are more effective, as when Democrats contradict Democrats or when Republicans endorse vaccines (Larsen et al. 2023; Porter and Wood 2019). False messages about miracle cures in India often exhort readers to believe in homespun remedies since they uphold sacred truths from religious scriptures (Sachdev 2017). In our treatment, we leverage this frequent recourse to religion by demonstrating that religious sources themselves may emphasize restraint from slander and value the truth.

⁹All treatment stimuli are available in Online Appendix B.

Next, our *Message + Religious Group* and *Message + Partisan Group* treatments test whether *additionally* relieving perceived pressures to conform to the ingroup can attenuate endorsement of misinformation. To manipulate ingroup membership, these WhatsApp groups signal the purpose and identity of the group: the name of the group chat is revealed so as to prime membership to an explicitly religious (Hindu) group or to a religious-partisan group (the BJP).¹⁰ Concretely, these treatments involve a correction to misinformation, with the correcting user emphasizing the importance of verifying questionable information before posting. Importantly, the corrective treatment is additive: we build on the *Religious Message* by incorporating both the group norm and group name aspects in the treatment. Their aim is to measure whether religious messages alone can correct misinformation or if manipulating ingroup norms is also necessary. These treatments contribute to a growing body of research demonstrating that structured communication networks can significantly promote social learning, reducing partisan biases on contentious political issues (Becker, Brackbill, and Centola 2017; Vraga and Bode 2017). To address potential validity concerns, we recognize that Hindu ingroups in present-day India may often overlap with partisan (BJP) groups, and thus test the treatment with both identity labels.

Thus, all these treatments include a moral message about religion, with some also incorporating cues about group membership. Unlike other identity categories in India, such as ethnicity or caste, religion's distinctiveness may lie in its moral dimension, alongside its shared group membership aspect. Thus, all three of our religious treatments emphasize morality, with some also addressing group membership, reflecting the idea that morality may be a defining feature of religion.

To test our hypotheses, we compare the effect of these treatments to both a standard correction and a placebo control. Our *Standard Correction* treatment provides a social correction without religious content or attempts to shift group norms. In this

¹⁰In all other experimental groups, the group name is blanked out, under the pretense of anonymity.

treatment, the correction is simple and direct: the second user states that the first user’s claim is incorrect. This condition helps isolate whether the observed corrective effects are due to religious messaging or merely exposure to any social correction. We also compare these conditions to a placebo control, where respondents read a WhatsApp conversation on a neutral topic like wildlife or sports, with no misinformation.¹¹

We repeat this experimental flow for two issue blocks, (1) conspiracy theories and (2) medical misinformation. We randomize both the block and statement order within each block. Thus respondents see two successive conversations on WhatsApp, each followed by outcome measures pertaining to one issue. They remain in the same randomized condition throughout the experiment. All treatment stimuli are available in Online Appendix B. We underscore here that our primary objective in this study is not to change misinformed beliefs per se but to influence the expression of those beliefs. Research shows the prevalence of expressive responding in surveys (Bullock et al. 2015; Prior, Sood, and Khanna 2015). Our treatments do not aim to teach citizens how to distinguish true from false; instead, they aim to shift thinking and norms around belief expression, thereby reducing misinformation endorsement.

3.2 Outcomes

We measure the effect of these treatments on the perceived accuracy of two sets of headlines: conspiracy theories and medical misinformation. Importantly, the headlines in our outcome measure include the specific piece of misinformation corrected in the treatment, as well as 3 additional misinformation headlines, along with true headlines. Thus we are able to measure whether the treatment reduced belief in false headlines beyond the specific story corrected.¹²

¹¹We deliberately excluded a condition with misinformation but no correction to avoid the adverse effects of not immediately correcting misinformation during a sensitive time. Therefore, in every condition with a misinformation stimulus, respondents simultaneously receive a correction.

¹²Our headlines were selected from a list of several stories that we pretested. Of these stories, we selected six headlines for each issue on the basis of pretest data on how widely they were believed. Since

Relying on these data, our main outcome of interest, in line with our PAP as well as previous research in this context (Badrinathan 2021; Badrinathan and Chauchard 2023), is a count of respondents' ability to correctly identify true and false stories.¹³ Importantly, because we measure respondents' endorsement of the claim that was discussed in the treatment, as well as their endorsement of other claims, we are additionally able to evaluate whether each correction's effect extends beyond the specific story corrected in the treatment. The list of headlines that comprise this measure as well as the rationale for their selection is available in Appendix C and as part of Figure 2 below.

3.3 Sample Characteristics

We recruited 1600 adult respondents in India through an online panel maintained by one of India's leading online polling firms, Internet Research Bureau (IRB). Respondents were selected to be as representative as possible of the Indian adult population by age, gender and region. As with most online panels in India, while our sample is not representative of the entire Indian population, it is representative of the subset that has Internet access, which is skewed towards educated, wealthy, pro-BJP and upper-caste male respondents. These online respondents are also most likely to be victims of political or other disinformation campaigns spread on the internet, as they are the population often recruited into WhatsApp groups (Chauchard and Garimella 2022). Thus, the online Indian population is an ideal target to test our hypotheses. Finally, because of medical concerns during the pandemic, we determined that the safest way to run such a study would be with an online panel and a firm that had an existing database of users, so as to not put any potential survey enumerators in harm's way. Key demographics

Indian respondents report high levels of trust in search engines such as Google and Yahoo (Aneez et al. 2019), we present each story in the form of an actual headline mimicking the style of stories on Google News, with a headline, subheadline, source, and image. But simultaneously, we block out the source so as to mimic the context of WhatsApp messaging where users receive forwarded text messages without a source, brand, or a URL, with the text of the news/information copied in the body of the WhatsApp message.

¹³As a robustness test we also re-analyze our data with a discernment measure (Table 2).

of the sample are in Appendix D. Note that we deliberately limit our sample to Hindu respondents, to match the “Hindu” nature of our corrections. While parallel conditions adapted to other religions are possible, we focus here on the majority group in India to maximize the availability of a large sample. Balance tests (Appendix D.5) confirm that our respondents have similar observable characteristics across experimental groups.

4 Results

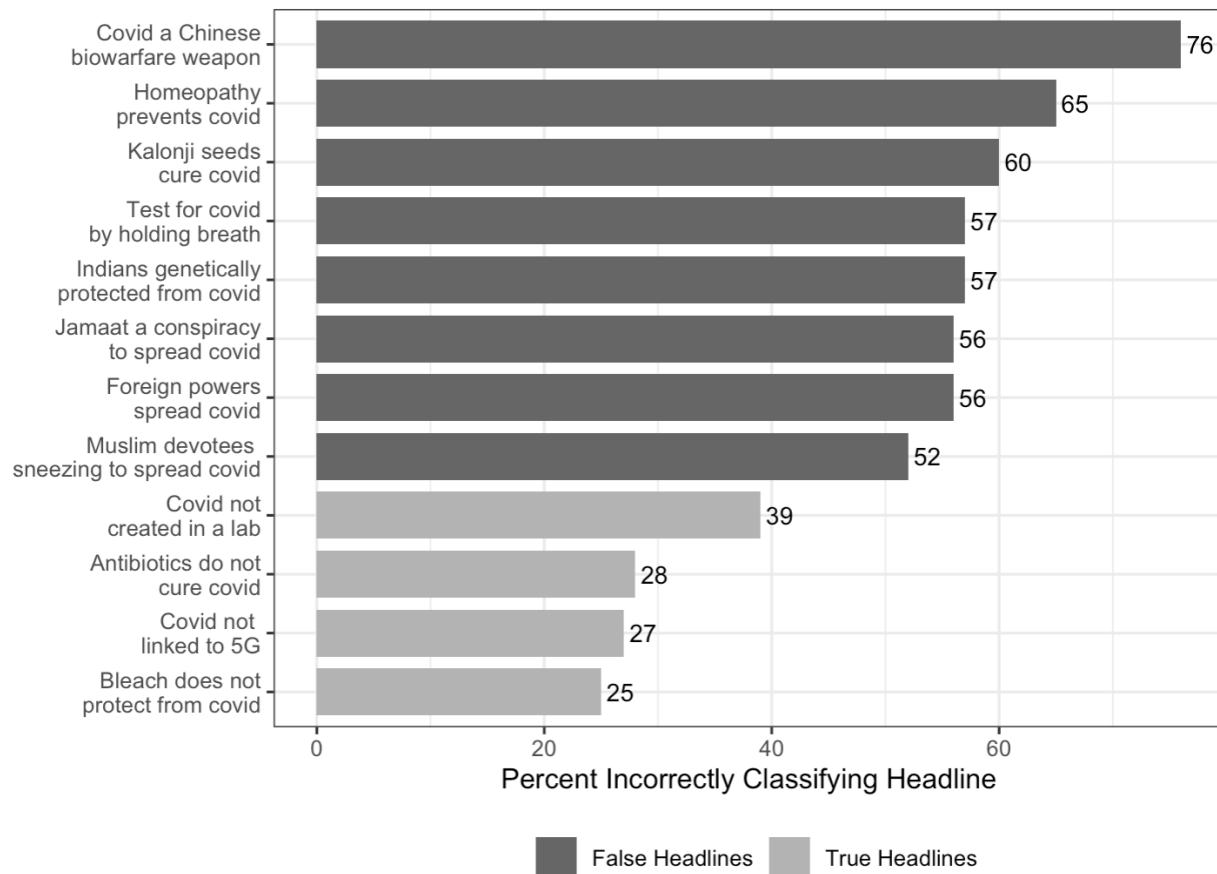
We first discuss descriptive findings on the prevalence of misinformation in our sample, and crucially, whether religiosity correlates with belief in misinformation. Next, we present the main effect of our experimental treatments on vulnerability to misinformation. Finally, additional tests compare the relative effectiveness of different treatment conditions, including robustness checks.

4.1 Descriptive Findings

Figure 2 shows the 12 stories that comprise our misinformation outcome measure, plotting the percent of respondents who incorrectly assessed each headline which indicates their vulnerability to misinformation. For false stories, this represents the percent of respondents who believed the headline was true; for true stories, it shows the percent who thought the headline was false. Two key observations stand out. First, respondents endorse misinformation at high rates, with over 50% of respondents supporting each false headline, and some stories seeing even higher endorsement rates. For instance, more than three-quarters of the sample believed the claim that Covid is a Chinese biowarfare weapon, and about 65% agreed that homeopathy – an alternative medicine system with roots in traditional Hindu culture – can cure Covid. These high levels of endorsement align with previous research on misinformation in India ([Guess et al. 2020](#)). Second, respondents were more likely to misclassify false stories than true ones, with fewer

wrongly identifying true headlines as false. On average, respondents correctly classified 6.02 out of 12 stories, highlighting the widespread presence of misinformation.

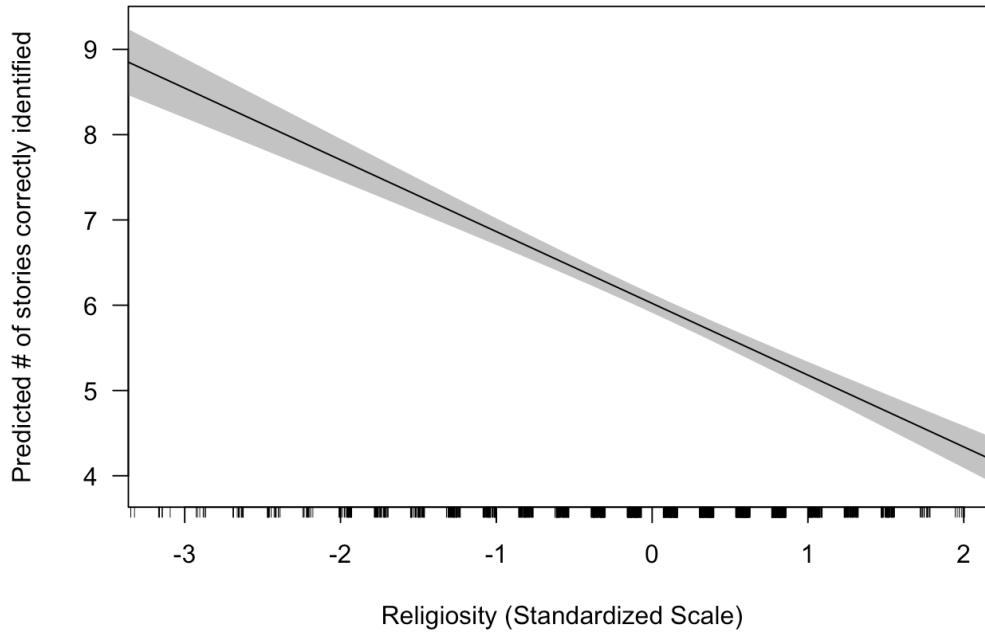
Figure 2: Belief in Misinformation in our Sample



Next, we sought to determine to what extent vulnerability to misinformation is correlated with respondents' religiosity. To measure vulnerability to misinformation, we count the number of headlines that respondents correctly classified as true or false. To measure religiosity, we create a continuous scale using the battery of eight items described in Appendix K. We score each of the items such that higher values indicate that someone is more religious; we then add the eight scores and standardize the measure such that we have a scale of religiosity with mean 0 and standard deviation 1.

In Figure 3 we graph the predicted number of stories accurately classified as a function of religiosity and demonstrate that those who score low on the religiosity scale

Figure 3: Belief in Misinformation By Religiosity



are significantly better at discerning true from false information relative to those who score high on the religiosity scale. In fact, respondents with the lowest levels of religiosity are able to correctly classify almost double the number of headlines (about 9 headlines) relative to respondents with the highest levels of religiosity (about 4.5 headlines). Further, religiosity is positively correlated with accurate identification of true stories, but negatively correlated with accurate identification of false stories (see Appendix H). In line with [Haidt \(2012\)](#)'s argument, this finding highlights that religious respondents tend to be more gullible of information in general, and falsehoods in particular.¹⁴

We thus find strong support for our hypothesis (H1) that religiosity is descriptively associated to endorsement of misinformation. The most religious subset of our sample appears to be almost 200% worse off in terms of vulnerability to misinformation. We also find that the relationship between religiosity and belief in misinformation holds controlling for several other covariates, most crucially party identity (see Appendix H), which suggests that religiosity does not merely proxy for support for the ruling reli-

¹⁴As a robustness check, Appendix K.1 we break down the scale into individual headline components.

religious party. Further, since we posit that religion is about social identity as well as about morality or beliefs, we examine whether religious affective polarization is linked to endorsement of misinformation. We measure religious polarization by asking respondents whether they would be upset if a friend married someone who was a Muslim. We find that as respondents get less upset (or are less affectively polarized) on this measure, they are more likely to significantly identify misinformation. That is, those who are less religiously polarized are also less vulnerable to misinformation (see Appendix J for results). These descriptive findings underscore that religious practice is linked with misinformation endorsement, and that antipathy towards religious outgroups is also associated with the endorsement of misinformation.

In sum, these analyses give weight to the argument that vulnerability to misinformation has religious roots. Endorsing misinformation is a function not just of individuals' religious beliefs, but also of their affect towards religious outgroups.

4.2 Experimental Findings

Since religiosity strongly correlates with the endorsement of misinformation, can religious beliefs and identities be leveraged for good? We now move to discussing experimental results. All estimates are based on ordinary least square (OLS) regressions.

To test H2a and H2b, we first evaluate the effect that the different treatments have on respondents' endorsement of misinformation relative to the placebo control.¹⁵ Results are presented in Table 1. Our main outcome of interest is a count of respondents' ability to classify true and false stories in a set of six stories. Per our pre-registration, we estimate the effect of each treatment separately for conspiracy theory misinformation (column 1) and medical misinformation (column 2).¹⁶

¹⁵We present the additional tests needed to evaluate H2b - namely, comparisons between the Religious message + group identity treatments and the standard correction, and with the religious message treatment - in Table 3 and Appendix M.

¹⁶In Appendix L we also present results separating out the stories in the outcome, evaluating the effect of the different treatments on each story.

Results in Table 1 demonstrate that when it comes to conspiracy theories, all of our treatments significantly decrease endorsement of misinformation. In addition, these effects are substantively large, with those in the *Religious Message* treatment group demonstrating about a 16% decrease in vulnerability to misinformation relative to control. Although smaller in magnitude, we also see a significant effect of receiving the *Standard Correction*, demonstrating that even minimal corrections may be able to improve information processing, mirroring existing findings from this context (Badrinathan and Chauchard 2023). These results also show interesting variation based on whether the headline itself is about the Muslim minority (see Appendix N).¹⁷

On the other hand, for medical misinformation, we find that while respondents in the *Message + Religious Group*, and *Message + Partisan Group* treatments are significantly better than placebo group respondents at identifying misinformation, this effect does not obtain for the *Religious Message* treatment. While this treatment produced the largest positive effect for conspiracy theories, its impact appears to remain below significance level in the case of medical misinformation: the average treatment effect is indistinguishable from zero. It is important to note that these are additive treatments, hence the religious and partisan group treatments add an additional layer to the information being presented in the *Religious Message* treatment, by revealing group norms and the group name. Additionally, we note that the standard correction remains insignificant.¹⁸

These findings suggest that the effectiveness of correction strategies depends on the type of misinformation (e.g., conspiracies vs. medical falsehoods). From our findings, it appears that the mechanisms underlying endorsement of conspiracy theories and medical misinformation appear distinct, necessitating tailored approaches for correction. Covid-19 conspiracy theories, such as claims about biowarfare or deliberate

¹⁷Appendix N shows that our three religious treatments do not outperform a minimal standard correction, as indicated by the magnitude and significance of all four coefficients in Table N.1, column (1). However, two of the religious treatments appear effective when the conspiracies do not target Muslims, while the standard correction does not.

¹⁸As we discuss below, this does not, however, imply that Message + Group treatments performed significantly better than the standard correction.

Table 1: Main Effect of Treatments (Count DV)

	<i>Dependent variable: Number of stories correctly identified</i>	
	Conspiracy Misinformation (1)	Medical Misinformation (2)
Religious Message	0.498*** (0.110)	0.189 (0.117)
Message + Religious Group	0.327* (0.110)	0.342* (0.117)
Message + Partisan Group	0.472*** (0.111)	0.332* (0.118)
Standard Correction	0.263* (0.112)	0.203 (0.119)
Constant	2.633*** (0.078)	2.865*** (0.083)
Observations	1,600	1,600
R ²	0.016	0.007
Adjusted R ²	0.014	0.004
Residual Std. Error (df = 1595)	1.405	1.494
F Statistic (df = 4; 1595)	6.592***	2.784*

Note:

*p<0.05; **p<0.001; ***p<0.001

virus spread by minority groups, are novel narratives specific to the pandemic. In contrast, medical misinformation in India often involves miracle cures or home remedies linked to entrenched beliefs in alternative systems like homeopathy or Ayurveda. These longstanding belief systems may make medical misinformation more resistant to change.

Our findings demonstrate that even standard corrections work to reduce the expression of conspiracy theory beliefs in India, though corrections that draw on religious sources are able to achieve effects of greater magnitude. But for misinformation relying on longstanding belief systems, in addition to religious messaging, tapping into group identity appears crucial, reinforcing the idea that information processing can be affected by elites in networks, or when group norms are fostered with a focus on veracity. These findings also confirm our own qualitative evidence that users in homophilic groups

might be pressured into saying they believe certain types of information, whether or not they actually do so. For such deep-rooted misinformation, shifting the norms of information sharing in such contexts appears crucial.

Importantly, we also find that some treatments work beyond the specific story corrected. That is, on receiving a correction for one story, we find a spillover effect that carries forward to other stories. To analyze this, we recalculate our count outcome measure omitting the specific story that was corrected in the treatment (see Appendix I). This analysis demonstrates that for conspiracy theories, every treatment except the standard correction achieves a significant effect. While the standard correction worked on the specific story that was corrected, spillover effects for non-corrected stories are only seen with the religious message treatments. Crucially, these results suggest that the religious treatments have a comparatively stronger effect overall than the standard correction, and that they can have spillover effects on stories that are not directly corrected.

We confirm the robustness of the results in Table 1 by controlling for key demographic and pre-treatment covariates (Appendix E); main results remain unchanged. We also replicate these findings controlling for respondent attention during the survey (Appendix F). Finally, we re-run our analyses with a discernment outcome, which calculates the difference between the average accuracy rating for true and false stories.¹⁹ In Table 2, we find that main results hold: religious treatments improve respondents' ability to distinguish true from false information. However, while the results point in the same direction, significance levels are slightly reduced, rendering some effects from Table 1 insignificant. For example, the *Message + Religious Group* treatment's effect on belief in conspiracies loses significance. Notably, this is also true for estimates related to standard corrections, suggesting that only religiously framed messages consistently influenced belief discernment, highlighting the unique impact of religious frames in this context.

¹⁹To calculate discernment between true and false stories, we compute averages for true stories (on a 4-pt scale where higher = more accurate) and averages for false stories separately. Then we calculate the z-scores for true stories and false stories. Discernment is computed by subtracting z-scores for fake news from z-scores for true news. This measure is the dependent variable in Table 2.

Table 2: Main Effect of Treatments (Discernment DV)

	<i>Dependent variable: Discernment</i>	
	Conspiracy Misinformation (1)	Medical Misinformation (2)
Religious Message	0.330*** (0.086)	0.117 (0.085)
Message + Religious Group	0.136 (0.086)	0.213* (0.086)
Message + Partisan Group	0.302*** (0.086)	0.196* (0.086)
Standard Correction	0.110 (0.087)	0.077 (0.087)
Constant	-0.176** (0.061)	-0.121* (0.060)
Observations	1,598	1,598
R ²	0.013	0.005
Adjusted R ²	0.010	0.003
Residual Std. Error (df = 1593)	1.093	1.090
F Statistic (df = 4; 1593)	5.166***	2.083

Note:

*p<0.05; **p<0.01; ***p<0.001

Next, we test the hypothesis that religious frames are particularly effective for highly religious respondents (H3) by interacting our continuous religiosity measure with a treatment assignment indicator. We find that treatment effects did not vary by religiosity: respondents updated their beliefs regardless of religiosity level (Appendix G). This suggests that the moral weight of religious imperatives resonates broadly with respondents, irrespective of individual religiosity. We also hypothesized that stronger religious or partisan group identities would enhance receptiveness to messaging invoking group norms. However, these effects likewise did not vary with religiosity. These findings imply that the treatments' impact extends across the sample, making them more broadly effective than anticipated and not limited to specific subgroups.²⁰

²⁰While we do not detect heterogeneous effects by religion, religiosity may interact with treatment

Finally, to benchmark main effects, we (1) ascertain whether religious and group identity treatments performed better than the standard correction – RQ1 – and (2) formally test how they compare to each other. This allows us to evaluate whether the corrective effects we observe are due to the religious elements of the treatments, or simply to exposure to any corrective information. Table 3 presents results where we switch the omitted category in the specification to the *Standard Correction* treatment.

Table 3: Main Effects Relative to the Standard Correction

	<i>Dependent variable: Number of stories correctly identified</i>	
	Conspiracy Misinformation	Medical Misinformation
	(1)	(2)
Religious Message	0.235* (0.111)	−0.013 (0.119)
Message + Religious Group	0.064 (0.112)	0.139 (0.119)
Message + Partisan Group	0.209 (0.113)	0.129 (0.120)
Placebo Control	−0.263* (0.112)	−0.203 (0.119)
Constant	2.896*** (0.080)	3.068*** (0.085)
Observations	1,600	1,600
R ²	0.016	0.007
Adjusted R ²	0.014	0.004
Residual Std. Error (df = 1595)	1.405	1.494
F Statistic (df = 4; 1595)	6.592***	2.784*

Note:

*p<0.05; **p<0.001; ***p<0.001

Looking at conspiracy theories (Column 1), we find that the *Religious Message* treatment is the only one able to improve upon the standard correction. This is a crucial finding: while all of our experimental treatments performed better than the placebo within specific caste subgroups, particularly among highly religious upper-caste respondents. However, a triple interaction analysis returns insignificant results, likely due to limited statistical power.

control, when comparing to a standard correction only the *Religious Message* treatment achieves a statistically significant effect. Interestingly, we show that the additive treatments invoking group norms are statistically indistinguishable from the standard correction, even if the *Message + Partisan Group* treatment comes very close to traditional significance levels.²¹ Moreover, as shown in Appendix I, both the *Religious Message* treatment and the *Message + Partisan Group* treatment significantly improve on the standard correction when it comes to spillover effects (endorsement of misinformation other than the claim corrected in the treatment). This finding underscores that religious corrections reduced endorsement of conspiracies at greater rates than standard corrections.

On the other hand, looking at medical misinformation (Column 2), we find that the three treatment groups remain statistically indistinguishable from the standard correction, similar to Table 1. Even though effects remain insignificant, the sign on the two *Message + Group* treatments suggest that the mechanism of shifting group norms may be effective to dispel falsehoods for misinformation that is more salient or has been around in public discourse for a longer period. While our relatively small N may constrain our ability to identify such differences between corrective treatments, these findings suggest that relying on religious frames alone may not strongly improve on standard corrections for this type of deep-rooted and more salient information.

Consequently, we may take these findings to mean that the mechanisms through which religion operates are different depending on the type of misinformation at hand. We posit that beliefs in conspiracy theories can be altered via religious frames which include a moral message. Our *Religious Message* treatment is centered around a message with a moral imperative: believe the truth and do not slander others. This may suggest that simple, moral messaging is most effective at reducing the endorsement of recent and topical misinformation. Similar to research showing that heightening a sense of civic duty (i.e., citizens have an obligation to get the facts right) can reduce partisan motivated

²¹Importantly, we show in Appendix M (Table M.1, column 1) that the three religious treatments are themselves not significantly different from each other.

reasoning (Mullinix 2018), we demonstrate that moral imperatives about other groups in society are effective in combating conspiracy theory misinformation.

Results for medical misinformation suggest a different conclusion, namely, that moral messaging may be insufficient. Miracle cures are tied to social norms in the Indian context: the idea that home remedies and alternative medicinal systems can cure diseases is passed down the generations in Indian society (Malhotra 2023). These ideas are so firmly entrenched that disbelief in them may come with social stigma or fear of alienation. Further, because these are longstanding beliefs not specific to the covid-19 crisis, they may also be generally more salient. For such deep-rooted beliefs, simple moral messaging ("believe only the truth") may be ineffective, as evidenced by the precise null result on that coefficient. As noted above, it is possible that treatments focusing on group norms may perform better, even if the difference between the standard correction and the "group" treatments remain below significance levels in Table 2 and in Appendix I, and may require better powered analyses in the future.

5 Discussion and Conclusion

In this paper, we present new evidence on the religious roots of misinformation as well as ways to mobilize religious identity for social good. We first find a strong connection between religiosity and belief in covid-19 misinformation. Those who score high on the religiosity scale and display religious affective polarization are significantly more likely to endorse misinformation. Second, in the context of an experiment, we show that corrective treatments including religious frames are effective at reducing the endorsement of misinformation, sometimes more effective than standard corrections, and work beyond the specific story corrected. This suggests that religion and endorsement of misinformation are causally related, and more importantly, that religious beliefs and identities may provide a promising basis on which to build more effective corrections.

These findings suggest that many Indians, and Hindus (over 80% of the population), are open to interpreting health crises through a religious lens. The effectiveness of religious messages in framing misinformation as problematic, even among highly religious individuals, is both novel and significant. This highlights the malleability of misinformation susceptibility to religiously framed interventions, diverging from prior research emphasizing the constraints of motivated reasoning (Flynn, Nyhan, and Reifler 2017) while aligning with studies indicating belief updating is unaffected by such biases (Coppock 2023). These findings underscore the broader advantages of issue framing and its potential to shape downstream public opinion (Druckman and Nelson 2003; Jerit 2008). They also highlight the effectiveness of shifting group norms within polarized and homophilic groups, suggesting the potential for such strategies to influence future political behavior (Dinas, Martínez, and Valentim 2023).

That respondents can use cues from the treatment to identify additional falsehoods is significant. While Kahneman and Tversky (1984) argues that individuals readily engage in discriminatory discourse when given the opportunity, our treatments provide a framework that encourages respondents to pause and reflect before expressing beliefs in group settings. We do not equip individuals with tools to enhance scientific aptitude: our treatments do not teach critical thinking skills or techniques to spot misinformation. Rather, we underscore that our treatments likely alter social norms and leverage respondents' moral religious sensibilities. Since our goal is to shift belief expression rather than beliefs themselves, we are less concerned about social desirability bias here. If respondents do indeed adjust their responses to appear more socially desirable, this is still a valuable outcome: shifting what citizens think is acceptable to state publicly in a group setting is consequential, especially in polarized societies.

Despite these positive findings, we consider some limitations of the study and avenues for future research. First, we note that while we focus on religion in this paper, we cannot truly disentangle the causal effects of religious and partisan identity. In the

Indian context, while religion itself has been a long-standing social cleavage, parties tap into religious beliefs in order to further their own causes (Wilkinson 2006). In our data, too, religiosity is correlated with increasing support for the BJP. Thus, our data do not allow us to disentangle the relative influence of religion and partisanship, and we remain agnostic about their relative weight as drivers. While it is theoretically likely that religion drives beliefs in misinformation, we cannot empirically determine with our design whether this relationship is orthogonal to party identity.

Next, we underscore that a core element of our treatment – verses from Hindu religious texts – is necessarily context-specific. However, we believe the premise of our study, the idea that treatments should target mechanisms and identities that drive belief in falsehoods in the first place, is applicable to several other contexts. Other developing countries such as Afghanistan, Madagascar, Mali, Mexico, and Brazil not only share commonalities in the type of misinformation, but also have social media environments that rely heavily on encrypted platforms such as WhatsApp. Further, as Nyhan (2021) notes, such an approach would also do well to reduce the uptake of misinformation in the Western world. Indeed, recent data demonstrate that evangelical Christians in the United States are not only more likely to believe in QAnon narratives, but also in conspiracies about the 2020 election, vaccines, or the moon landing (O'Donnell 2021). Highly religious individuals are also found to perceive more social threat from scientists (Chinn et al. 2023). Across contexts, the least religious appear to be the least credulous. As polarization intensifies around the world, there are lessons to be drawn from these data for developing countries and Western contexts alike.

Additionally, several of our treatments are intentionally bundled. To maximize treatment effectiveness, we combined the group norms treatment with the religious message treatment. As a result, we cannot isolate the independent effect of changing group norms alone. We also cannot isolate the religious and partisan elements of the study: all main treatment (except the standard correction) included a religious message, with one

treatment additionally including a partisan component. Future research should employ fully factorial designs to disentangle the separate effects of norms and messaging, as well as the separate effects of religious versus partisan messaging.

Finally, we acknowledge that our design involved respondents witnessing corrections rather than being directly corrected. The encrypted nature of WhatsApp poses logistical and ethical challenges for conducting studies within actual WhatsApp groups. To maximize external validity, we used treatments simulating a WhatsApp conversation to approximate a group chat environment, rather than presenting corrections in isolation. While this approach cannot fully replicate a WhatsApp group chat, it offers insights more relevant to platforms like WhatsApp, which are more widely used in India than Facebook or Twitter. We encourage future research to enhance the external validity of studying encrypted platforms, a critical need for understanding misinformation in the developing world.

Despite these limitations, we believe our results to have important implications. Of practical and policy importance, these findings suggest that public health campaigns that use social identity-based frames and messaging to counter misinformation or increase the uptake of health measures may be particularly effective because they resonate with existing values that citizens may have. Contentious issues surrounding crises like the covid-19 pandemic such as vaccine uptake and reliance on scientific information require the long-term and large-scale engagement of citizens. Messages designed to resonate with social and religious identities hold promise as a means to build belief in accurate news over misinformation.

From the standpoint of understanding behavior in polarized societies, our results have implications for the formation of and adherence to group norms. We demonstrate that even the most religious respondents are willing to abandon some priors (here, conspiracy theories) when prompted to do so. Such changes do not constitute a fundamental transformation of political or social culture, but they do show that modest interventions,

at least in the short term, can have significant affects in changing the public expression of beliefs. At scale, this may decrease the amount and prevalence of misinformation in an informational ecosystem, thereby providing a greater frequency of trustworthy sources accessible to individuals (Allen et al. 2020). Increasing the quality of one's news diet may then inturn have downstream consequences on attitudes and behaviors.

Ultimately, we hope this work can contribute to scholarship on the malleability of political norms (Paluck and Green 2009; Green et al. 2023) as well as to literature on how trusted elites can shift perceptions of norms, eventually paving the way for behavioral change (Boyer et al. 2022). Norm perception is often shifted by signals from influential community members, especially crucial in our context where WhatsApp groups are curated by local political elites who gain power within communities (Chadwick, Hall, and Vaccari 2023). In polarized societies, this may further shed light on whether the expression of misinformed beliefs is tied to majoritarian religious groups perceiving less fear of sanction from the state, or favoritism from local authorities (Jaffrey 2021). In contexts where the roots of belief formation and expression are tied to religion, these findings provide hope that social identities can be marshalled to improve misinformation as well as other democratic outcomes more broadly.

Funding Declaration: Funding for this research comes from Leiden University, the Wharton Risk Center's Russell Ackoff Fellowship and the UPenn Center for the Advanced Study of India's Sobti Family Fellowship

Competing interests declaration: The authors declare no competing interests.

Pre-registration, data, and ethics: This study was preregistered with OSF and is available anonymized at <https://bit.ly/3GokIC0>. We received IRB approval (exemption) from [redacted], protocol 844245. Replication data and code will be made fully available on publication.

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Online Appendix for
The Religious Roots of Belief in Misinformation

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A Pretest Data

We pretested a selection of 43 stories, 23 false and 20 true, on a sample of 400 Indian adults recruited via Mechanical Turk. These stories were real headlines shared on Indian social media during the early months of the pandemic.

We used Google News to pick the true stories. The false stories were rated false by at least one third-party fact-checking organization such as altnews.in or boomlive.in. For each story we asked respondents to rate its perceived accuracy on a 4-point scale (very accurate, somewhat accurate, not very accurate, not at all accurate). In the graphs below we plot the share of respondents in the pretest sample who said each story was either very accurate or somewhat accurate.

We subsequently used these data to select stories for our main study. Our final selection of stories reflects false stories believed the most and true stories believed the least, so as to maximize the effect of the treatment on headlines where there is a lot of scope to move beliefs towards the truth.

In each case, we roughly classified each story in a given category of claims: claims about medical misinformation and miracle cures ("cure"), claims invoking a conspiracy in the development or the spreading of COVID-19 ("conspiracy"), and claims about transmission modes of the disease ("transmission").

Figure A.1: Belief in False Pretest Stories

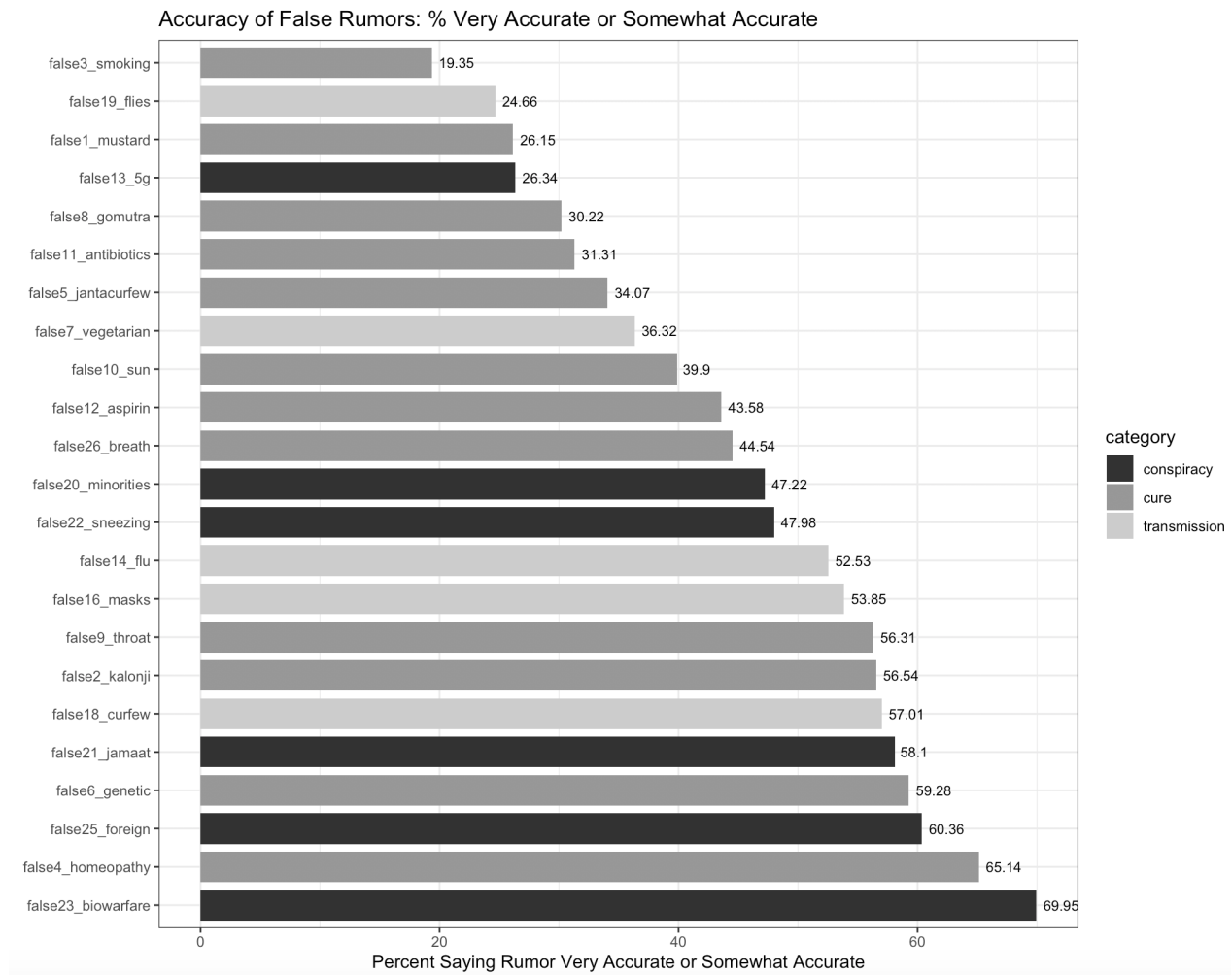


Figure A.2: Belief in True Pretest Stories

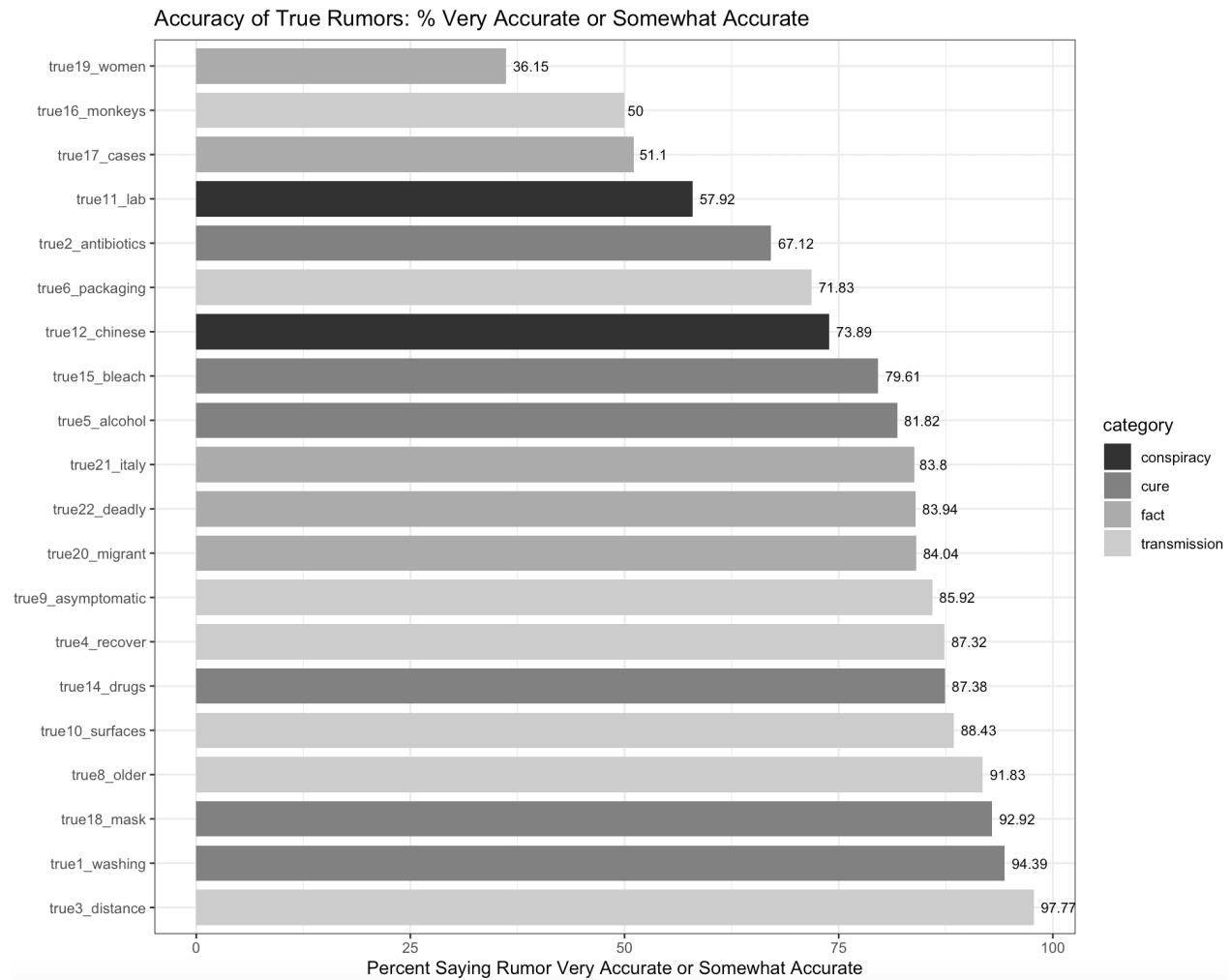


Table A.1: List of False Pretest Stories

Variable Name	Headline
<i>false1_mustard</i>	Applying Mustard Oil To One's Nostrils Eliminates The Coronavirus In A Person's Stomach
<i>false2_kalonji</i>	Kalonji Seeds Contain Hydroxychloroquine, Which Prevents COVID-19
<i>false3_smoking</i>	Smoking Reduces The Risk of COVID-19
<i>false4_homeopathy</i>	Ayurveda, Homeopathic and Unani Medicines Help Prevent Coronavirus
<i>false5_jantacurfew</i>	Vibrations From Group Clapping During Janta Curfew Can Repel Coronavirus
<i>false6_genetic</i>	Research Shows Indians Have Genetic Protection Against Coronavirus
<i>false7_vegetarian</i>	No Vegetarian Affected By Coronavirus
<i>false8_gomutra</i>	Properties in Traditional Remedies Such as Cow Dung and Gomutra May Help Cure COVID-19
<i>false9_throat</i>	Keep Your Throat Moist to Avoid Catching COVID-19
<i>false10_sun</i>	Exposing Yourself to The Sun or to Temperatures Higher Than 25 Degrees Can Prevent The Coronavirus
<i>false11_antibiotics</i>	COVID-19 Can Be Cured With Painkillers And Antibiotics
<i>false12_aspirin</i>	Aspirin Mixed With Lemon Juice And Honey Protects Against Coronavirus
<i>false13_5g</i>	Radiation Emitted From 5G Technology Can Lead To COVID-19, Study Shows
<i>false14_flu</i>	Most People Who Have The Flu Vaccine Test Positive For COVID-19
<i>false16_masks</i>	Face Masks Could Create Problems Like Increasing CO2 Intake, Leading To Brain Damage
<i>false18_curfew</i>	A 14-hour Janta Curfew Could Break The Chain Of Transmission Of COVID-19
<i>false19_flies</i>	Studies Show That House Flies Can Transmit COVID-19
<i>false20_minorities</i>	85% of Muslim Communities Refuse COVID-19 Tests For Religious Reasons
<i>false21_jamaat</i>	Tablighi Jamaat: A Conspiracy To Spread Coronavirus?
<i>false22_sneezing</i>	Video Evidence Shows Muslim Devotees Sneezing Purposefully Together To Spread Coronavirus
<i>false23_biowarfare</i>	Coronavirus Likely A Chinese Bio-Warfare Weapon
<i>false25_foreign</i>	Foreign Powers Are Deliberately Causing The Spread Of Coronavirus
<i>false26_breath</i>	Holding One's Breath For Thirty Seconds Is A Self-diagnosing Test For COVID-19

Table A.2: List of True Pretest Stories

Variable Name	Headline
<i>true1_washing</i>	Thorough Hand Washing With Soap Is The Most Effective Way To Kill The COVID-19 Virus
<i>true2_antibiotics</i>	Antibiotics Do Not Work To Cure COVID-19
<i>true3_distance</i>	Maintaining Physical Distance Reduces Chances Of Catching The Coronavirus From Others
<i>true4_recover</i>	Studies Show That Most People Who Get COVID-19 Recover From It
<i>true5_alcohol</i>	No, Drinking Alcohol Does Not Protect You Against COVID-19: New Research
<i>true6_packaging</i>	Good news for Swiggy, Amazon: No Confirmed Case Of Coronavirus Transmitted Through Food Or Packaging
<i>true8_older</i>	COVID-19 Deaths Disproportionally Concentrated Among Older People
<i>true9_asymptomatic</i>	It Is Possible To Catch COVID-19 From Someone Who Does Not Feel Sick: Study
<i>true10_surfaces</i>	New Research Shows COVID-19 Can Survive On Surfaces
<i>true11_lab</i>	COVID-19 Has A Natural Origin And Was Not Created In A Lab
<i>true12_chinese</i>	Chinese Authorities Have Worked Hard To Combat Coronavirus. Here Are The Measures They Took
<i>true14_drugs</i>	There Are Currently No Drugs Commercially Licensed For The Treatment Or Prevention Of COVID-19
<i>true15_bleach</i>	Spraying And Introducing Bleach, Other Disinfectants Into Your Body Will Not Protect Against COVID-19
<i>true16_monkeys</i>	Monkeys Snatch Blood Samples Of Suspected COVID-19 Patients In India
<i>true17_cases</i>	India Has The Highest Number Of Serious COVID Cases After The United States
<i>true18_mask</i>	Widespread Mask Wearing Could Prevent Covid-19 Second Wave, Study Shows
<i>true19_women</i>	Indian Women With COVID-19 At Higher Risk Of Death Than Men
<i>true20_migrant</i>	India's Lockdown Brought Death And Despair As Migrant Workers Had To Flee Cities
<i>true21_italy</i>	India Overtakes Italy In Coronavirus Cases Amid Easing Of Lockdown
<i>true22_deadly</i>	Scientists Warn COVID-19 More Deadly Than The Common Flu, Swine Flu

B Treatment Stimuli

Respondents in each condition read a single conversation presented as a WhatsApp group chat. The text for each condition as well as an example of the WhatsApp template is shown below.

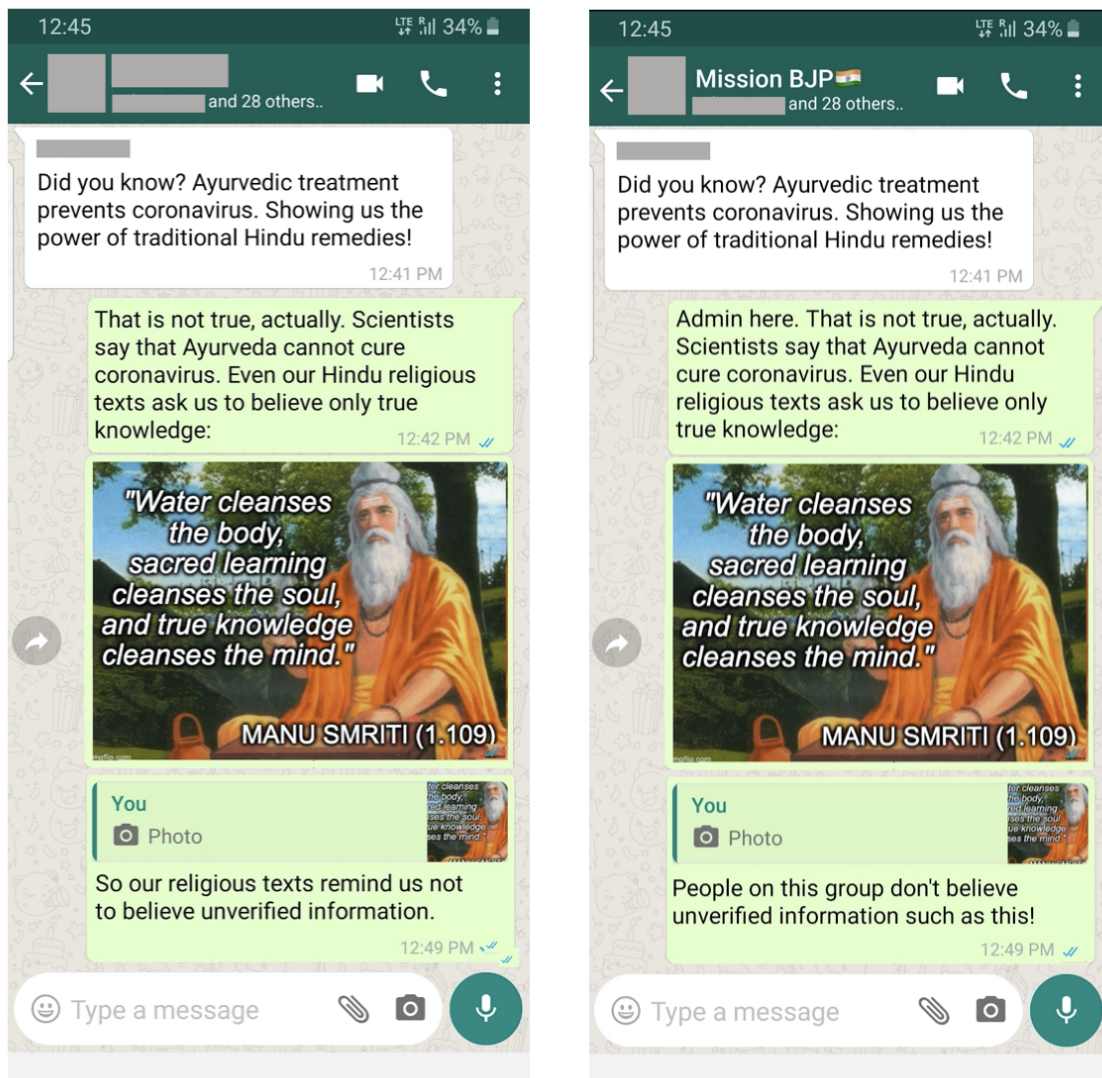
Figure B.1: Text of Treatment Stimuli: Medical Misinformation Issue Block

Condition	Issue	Rumor (User 1)	Correction (User 2)	Visual (User 2)	Message (User 2)
Religious Quote	Medical Misinfo	Did you know? Ayurvedic treatment prevents coronavirus. Showing us the power of traditional Hindu remedies!	That is not true, actually. Scientists say that Ayurveda cannot cure coronavirus. Even our Hindu religious texts ask us to believe only true knowledge.	[paste on photo] Manu Smriti (1.109): Water cleanses the body, sacred learning cleanses the soul, and true knowledge cleanses the mind.	So our religious texts remind us not to believe unverified information.
Quote + Religious Group	Medical Misinfo	Did you know? Ayurvedic treatment prevents coronavirus. Showing us the power of traditional Hindu remedies!	Admin here. That is not true, actually. Scientists say that Ayurveda cannot cure coronavirus. Even our Hindu religious texts ask us to believe only true knowledge.	[paste on photo] Manu Smriti (1.109): Water cleanses the body, sacred learning cleanses the soul, and true knowledge cleanses the mind.	People on this group don't believe unverified information such as this!
Quote + Partisan Group	Medical Misinfo	Did you know? Ayurvedic treatment prevents coronavirus. Showing us the power of traditional Hindu remedies!	Admin here. That is not true, actually. Scientists say that Ayurveda cannot cure coronavirus. Even our Hindu religious texts ask us to believe only true knowledge.	[paste on photo] Manu Smriti (1.109): Water cleanses the body, sacred learning cleanses the soul, and true knowledge cleanses the mind.	People on this group don't believe unverified information such as this!
Standard Correction	Medical Misinfo	Did you know? Ayurvedic treatment prevents coronavirus. Showing us the power of traditional Hindu remedies!	That is not true, actually. Scientists say that Ayurveda cannot cure coronavirus.	[image Happy Birthday]	And a happy birthday to our dear friend XXXXX[name hidden]
Placebo Control	Medical Misinfo	Did you know? the Tiger population in India appears to be increasing again...	Yes! India is now home to 3,000 tigers according to latest tiger census, a third more than it had four years ago!	[image tigers]	This is a major conservation initiative!! we should avoid conflict with humans to keep preserving this great species! [thumbs up]

Figure B.2: Text of Treatment Stimuli: Conspiracy Theory Issue Block

Condition	Issue	Rumor (User 1)	Correction (User 2)	Visual (User 2)	Message (User 2)
Religious Quote	Conspiracy	A breaking news from this week. Muslim groups have been deliberately spreading coronavirus... seems like a way to target the Hindu population	This is not true! We have no proof for this. In fact, spreading information like this can be dangerous for the whole country. The virus does not see religion before striking	Even our Hindu religious texts say not to blame people or spread information that can cause harm	The devotees of God are free from malice, have compassion, absence of the disposition to slander others — The Mahabharata, 14.38, BG 12.13-14:
Quote + Religious Group	Conspiracy	A breaking news from this week. Muslim groups have been deliberately spreading coronavirus... seems like a way to target the Hindu population	This is not true! We have no proof for this. In fact, spreading information like this can be dangerous for the whole country. The virus does not see religion before striking	In this group we do not like to blame people or spread news that can cause harm. Let's keep this group free from false news	The devotees of God are free from malice, have compassion, absence of the disposition to slander others — The Mahabharata, 14.38, BG 12.13-14:
Quote + Partisan Group	Conspiracy	A breaking news from this week. Muslim groups have been deliberately spreading coronavirus... seems like a way to target the Hindu population	This is not true! We have no proof for this. In fact, spreading information like this can be dangerous for the whole country. The virus does not see religion before striking	In this group we do not like to blame people or spread news that can cause harm. Let's keep this group free from false news	The devotees of God are free from malice, have compassion, absence of the disposition to slander others — The Mahabharata, 14.38, BG 12.13-14:
Standard Correction	Conspiracy	A breaking news from this week. Muslim groups have been deliberately spreading coronavirus... seems like a way to target the Hindu population	This is not true! We have no proof for this. In fact, spreading information like this can be dangerous for the whole country. The virus does not see religion before striking	Best wishes!	[good morning visual]
Placebo Control	Conspiracy	Anyone watch the England-West Indies test match yesterday?	Yes! It was great to see West Indies put up a good fight against them. Does anyone know what the schedule for the full series is?	Here it is! Hope England can fight back so we have some entertaining games to watch	[cricket schedule image]

Figure B.3: WhatsApp Group Chat Template. Left Panel: Religious Message Condition. Right Panel: Message + Partisan Group Condition



C Dependent Variables

The main outcome of interest is the perceived accuracy of news headlines. To construct this measure, respondents evaluate the accuracy of a number of headlines on a 4-point scale ranging from very accurate (4) to not at all accurate (1). Within each issue block (conspiracy or medical misinformation), participants rate the accuracy of 6 misinformation claims (some false, some true) on a four-point scale:

To the best of your knowledge, is the above headline accurate? [very accurate, somewhat accurate, not very accurate, not at all accurate]

All of the headlines were published by actual news sources or circulated on Indian social media during the pandemic; the false headlines were rated as false by at least one third-party fact-checking organization.

Our headlines, both true and false, were selected from a list of several stories that we pretested (see Online Appendix Section A). Of these stories, we selected six headlines for each issue on the basis of how widely they were believed and the potential harm they could cause. We present each story in the form of an actual headline mimicking the style of stories on Google News, with a headline, subheadline, source, and image. We block out the source so as mimic WhatsApp conversations where messages are often received without a source. In Figure C.1 we provide examples. The final set of headlines selected for the main experiment is listed in Tables C.1 and C.2.

Figure C.1: Dependent Variable Headline Examples



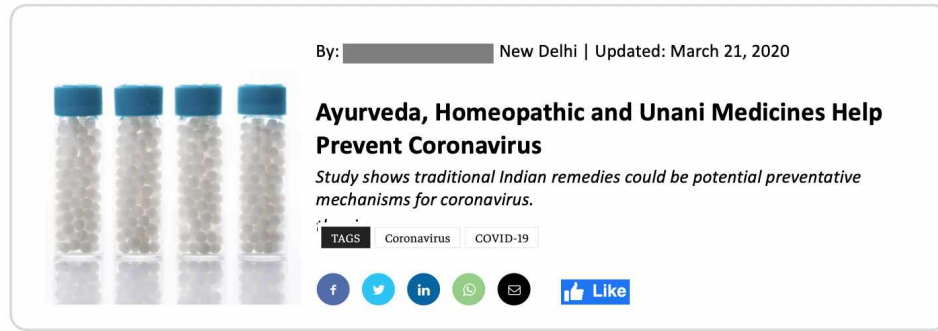


Table C.1: Conspiracy Theory Headlines

Headline	Veracity
Tablighi Jamaat: A Conspiracy To Spread Coronavirus?	False
Coronavirus Likely A Chinese Bio-Warfare Weapon	False
Video Evidence Shows Muslim Devotees Sneezing Purposefully Together To Spread Coronavirus	False
Foreign Powers Are Deliberately Causing The Spread Of Coronavirus	False
COVID-19 Has A Natural Origin And Was Not Created In A Lab	True
5G Radiation and Mobile Signals Cannot Transmit Coronavirus	True

Table C.2: Medical Misinformation Headlines

Headline	Veracity
Ayurveda, Homeopathic and Unani Medicines Help Prevent Coronavirus	False
Research Shows Indians Have Genetic Protection Against Coronavirus	False
Kalonji seeds contain hydroxychloroquine, which prevents COVID-19	False
Holding One's Breath For Thirty Seconds Is A Self-Diagnosing Test For COVID-19	False
Spraying And Introducing Bleach, Other Disinfectants Into Your Body Will Not Protect Against COVID-19	True
Antibiotics Do Not Work To Cure COVID-19	True

D Sampling and Balance

D.1 Recruitment

The experiment was fielded in November 2021. Participants were recruited through the Internet Research Bureau (IRB)’s online sampling panel and were selected using quotas to be approximately representative of the Indian adult population by age, gender and region.

Non-Hindus are less than 20% of the Indian population, and this group is further split into several religions. Even with a very representative sample, we are unlikely to have power to detect respondent religion effects in response to the treatment. Given that our treatment is primarily religious, we expect religion to play a role in how participants respond to the treatment. To avoid imbalance in the sample by religion, we thus limited our sample to Hindu respondents.

D.2 Randomization

We use a randomized block design with two blocks. The two blocks are based on partisan identity where respondents supporting the BJP are one block and respondents opposing the BJP are another block. Within each block, respondents are assigned to one of the five experimental conditions with equal probability using simple randomization. For those not assigned to the placebo control group, the order of issues (medical misinformation and conspiracy theories) is also randomized. For those assigned to placebo control, respondents read WhatsApp conversations on wildlife and sports in random order.

D.3 Power

Our sample size was 1600 respondents. We base our sample size on a power analysis using Alexander Coppock’s power calculator. Our goal was to obtain .95 power to detect a small effect size of .15 at the standard .05 alpha error. Given this calculation and our priors about experimental findings on misinformation and India, we end up with a minimum of 283 respondents per experimental group. Accounting for some attrition, we sampled 1600 respondents overall.

Table D.1: Descriptive Statistics for Sample

Variable	N	Mean	St. Dev.	Min	Median	Max
Religiosity	1,600	0.000	1.000	−3.362	0.118	2.206
BJP Support	1,600	0.756	0.429	0	1	1
Gender	1,600	1.421	0.494	1	1	2
Age Category	1,600	3.627	1.314	2	3	7
Income	1,600	4.016	2.022	1	4	9
Education	1,600	2.261	0.749	1	2	3
Upper Caste	1,600	0.572	0.495	0	1	1
WhatsApp Use Frequency	1,600	1.354	0.735	1	1	6
Concern about covid-19	1,597	9.555	1.987	1	10	11
Science Knowledge	1,600	5.842	1.470	0	6	8

D.4 Descriptive Statistics

In Table D.1 we provide summary statistics for the key variables used in this paper. The variable Religiosity is a continuous scale standardized such that it has mean 0 and standard deviation 1; higher values indicate stronger religiosity. Items included in this scale are detailed in Online Appendix K. BJP Support is a binary variable that takes on the value of 1 if a respondent strongly or somewhat supports the Bharatiya Janata Party (BJP). Gender has two values, 1 if male and 2 if female (while our survey provided options beyond this, every respondent in the sample selected 1 or 2). The variable Age Category ranges from 2 to 7, with 2 referring to those 18 to 24 years old and 7 referring to those 65 and older. Income ranges from 1 to 9 with larger numbers indicating higher annual incomes. Education is recoded to have three categories: 1 if a respondent is grade 12 (high school / junior college) educated or lower; 2 if a respondent has a college degree; 3 if a respondent has a higher education (masters or PhD) degree. Upper Caste is a binary variable that takes on the value of 1 if the respondent identifies as a member of the General / Upper caste category. WhatsApp Use Frequency ranges from 1 (several times a day) to 6 (never). Concern about covid-19 is a numeric variable where higher values indicate greater concern. Science Knowledge is a scale that counts the number of science questions out of 8 that respondents correctly answer.

D.5 Balance Tests

In Table D.2 and Table D.3 below, we present balance tests across experimental categories.

In both tables, the treatment column combines all three religious treatment groups (religious message, message + religious group, message + partisan group) into a single category. The analysis is then split across the two tables. The first compares the pooled religious treatment group to the placebo control, while the second compares it to the standard correction group. To evaluate balance across covariates, we conduct t-tests for differences in means, with p-values reported in the tables.

Religiosity is measured using an eight-item scale, where higher scores indicate greater religiosity. BJP support is a binary variable coded as 1 for individuals who support the BJP. Age is recorded on a scale ranging from 2, representing individuals aged 18 to 24, to 7, representing those aged 65 and older. Income is measured on a scale from 1, indicating a monthly income under 20,000 rupees, to 9, indicating an income over 3,00,000 rupees. Education is treated as a continuous variable on a scale from 1, representing individuals who passed the 10th grade, to 3, representing those with a bachelor's degree or higher. Upper-caste status is captured as a binary variable coded as 1 for individuals identifying as upper caste. Science knowledge is measured on a scale from 0 to 8, with higher scores indicating greater knowledge. WhatsApp use frequency is recorded on a scale from 1, representing individuals who use WhatsApp several times a day, to 6, representing those who never use it. Finally, concern about COVID-19 is measured on a scale from 1, indicating the least concern, to 10, indicating the highest level of concern.

Table D.2: Balance Between Religious Treatments and Placebo

Variable	Mean Treatment	Mean Placebo	p-value
Religiosity	−0.015	0.0412	0.3731
BJP Support	0.757	0.755	0.937
Age	3.624	3.504	0.138
Income	3.959	4.125	0.215
Education	2.253	2.241	0.799
Upper Caste	0.574	0.559	0.649
Science Knowledge	5.859	5.871	0.891
WhatsApp Use Frequency	1.365	1.373	0.872
Concern about covid-19	9.525	9.587	0.615

Table D.3: Balance Between Religious Treatments and Standard Correction

Variable	Mean Treatment	Mean Std. Correc.	p-value
Religiosity	−0.015	0.004	0.760
BJP Support	0.757	0.753	0.879
Age	3.624	3.762	0.113
Income	3.959	4.074	0.376
Education	2.253	2.301	0.315
Upper Caste	0.574	0.581	0.827
Science Knowledge	5.859	5.756	0.291
WhatsApp Use Frequency	1.365	1.295	0.107
Concern about covid-19	9.525	9.615	0.464

E Main Effects With Covariates

Table E.1: Main Effect With Covariates

	<i>Dependent variable: Number of stories correctly identified</i>	
	ConspiracyMisinfo (1)	MedicalMisinfo (2)
Religious Message	0.458*** (0.101)	0.178 (0.110)
Message + Religious Group	0.297* (0.102)	0.320* (0.110)
Message + Partisan Group	0.397*** (0.102)	0.272* (0.111)
Standard Correction	0.229* (0.103)	0.213 (0.112)
Religiosity	-0.431*** (0.034)	-0.313*** (0.037)
BJP Supporter	-0.105 (0.082)	-0.147 (0.089)
Age Category	0.119*** (0.026)	0.030 (0.028)
Male	0.169* (0.070)	0.186* (0.076)
Income	-0.008 (0.017)	-0.032 (0.019)
Education	-0.005 (0.046)	-0.077 (0.050)
Upper Caste	0.126 (0.069)	0.047 (0.074)
Science Knowledge	0.180*** (0.023)	0.247*** (0.025)
WhatsApp Use Frequency	-0.038 (0.047)	0.018 (0.050)
Concern about covid-19	0.002 (0.017)	0.017 (0.019)
Constant	1.171*** (0.276)	1.423*** (0.298)
Observations	1,597	1,597
R ²	0.174	0.137
Adjusted R ²	0.166	0.129
Residual Std. Error (df = 1582)	1.291	1.397
F Statistic (df = 14; 1582)	23.766***	17.887***
<i>Note:</i>		
*p<0.05; **p<0.001; ***p<0.001		

F Attention Checks

We ask two questions in the survey to measure respondent attention. The first asks respondents to select a specific color from a list; the second asks respondents to select a specific news source from a list. 85% of respondents answered the first question correctly and 64% of respondents answered the second question correctly. Overall, 61% of the sample passed both attention checks.

Below we show the main effect of the treatments while controlling for respondent attention. Our variable Attention Checks is a continuous measure ranging from 0 checks passed to 2 checks passed.

Table F.1: Main Effect Controlling for Attention Checks

	<i>Dependent variable: Number of stories correctly identified</i>	
	ConspiracyMisinfo (1)	MedicalMisinfo (2)
Religious Message	0.510*** (0.108)	0.202 (0.115)
Message + Religious Group	0.324* (0.109)	0.339* (0.115)
Message + Partisan Group	0.435*** (0.110)	0.292* (0.116)
Standard Correction	0.242* (0.110)	0.180 (0.117)
Attention Checks (Continuous)	0.339*** (0.049)	0.372*** (0.052)
Constant	2.139*** (0.105)	2.323*** (0.111)
Observations	1,600	1,600
R ²	0.045	0.038
Adjusted R ²	0.042	0.035
Residual Std. Error (df = 1594)	1.385	1.472
F Statistic (df = 5; 1594)	14.922***	12.436***

Note:

*p<0.05; **p<0.001; ***p<0.001

G Heterogeneity Analysis

Table G.1: Religious Message x Religiosity

	<i>Dependent variable: Number of stories correctly identified</i>	
	ConspiracyMisinfo	MedicalMisinfo
	(1)	(2)
Religious Message	0.476*** (0.101)	0.173 (0.112)
Religiosity	-0.400*** (0.073)	-0.306*** (0.081)
Religious Message x Religiosity	-0.079 (0.101)	0.013 (0.112)
Constant	2.650*** (0.071)	2.878*** (0.079)
Observations	655	655
R ²	0.135	0.046
Adjusted R ²	0.131	0.042
Residual Std. Error (df = 651)	1.290	1.434
F Statistic (df = 3; 651)	33.871***	10.472***
<i>Note:</i> *p<0.05; **p<0.001; ***p<0.001		

Table G.2: Message + Religious group x Religiosity

	<i>Dependent variable: Number of stories correctly identified</i>	
	ConspiracyMisinfo	MedicalMisinfo
	(1)	(2)
Message + Religious Group Treatment	0.309* (0.102)	0.328* (0.116)
Religiosity	−0.400*** (0.073)	−0.306*** (0.084)
Message + Religious Group x Religiosity	−0.174 (0.104)	−0.201 (0.118)
Constant	2.650*** (0.072)	2.878*** (0.082)
Observations	650	650
R ²	0.135	0.083
Adjusted R ²	0.131	0.079
Residual Std. Error (df = 646)	1.299	1.482
F Statistic (df = 3; 646)	33.631***	19.515***

Note:

*p<0.05; **p<0.001; ***p<0.001

H Results for H1

We hypothesized that religiosity should be highly correlated with misinformed beliefs, and hence that individuals with these characteristics should be especially likely to believe misinformation. To test these hypotheses, we count the number of headlines that respondents correctly classified as true or false. This constitutes our outcome measure. We regress this outcome on a continuous variable capturing respondent religiosity, where the most religious respondent has a score of 1 and the least religious respondent has a score of 0. We also replicate these results controlling for demographic and pre-treatment covariates.

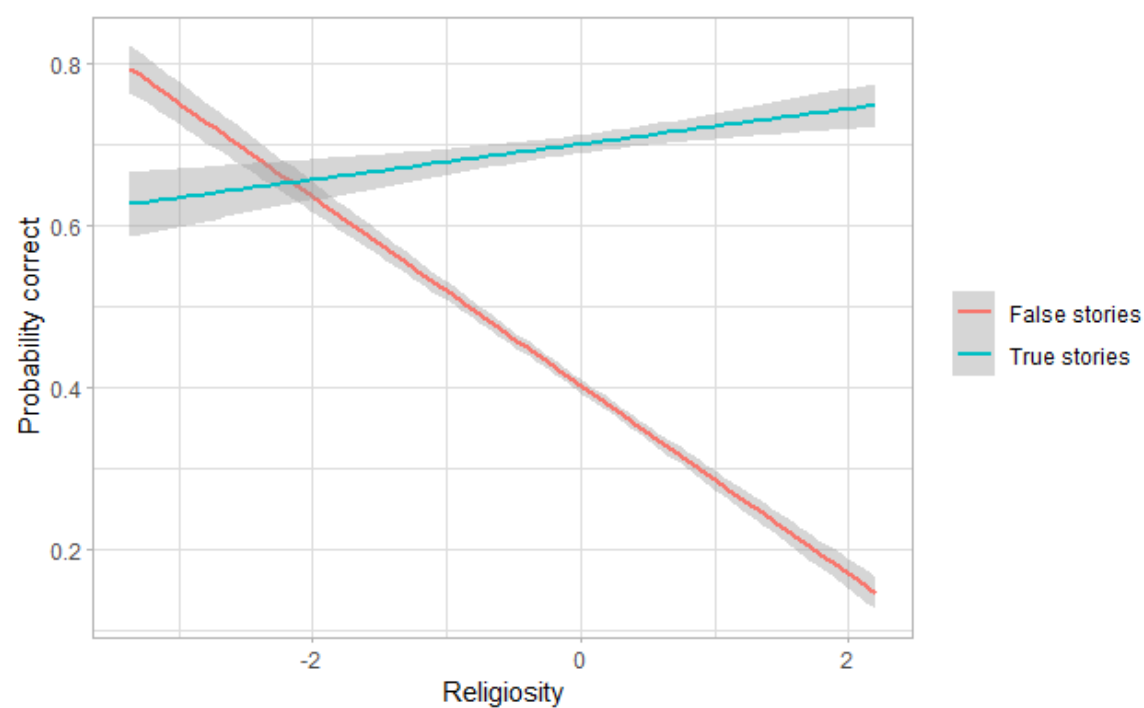
Table H.1: Hypothesis 1

<i>Dependent variable: Number of stories correctly identified</i>	
	AllMisinfo
Religiosity	−0.841*** (0.056)
Constant	6.022*** (0.056)
Observations	1,600
R ²	0.123
Adjusted R ²	0.122
Residual Std. Error	2.250 (df = 1598)
F Statistic	223.555*** (df = 1; 1598)
<i>Note:</i> *p<0.05; **p<0.001; ***p<0.001	

Table H.2: Hypothesis 1 With Covariates

	<i>Dependent variable: Number of stories correctly identified</i>
	AllMisinfo
Religiosity	−0.750*** (0.057)
BJP Support	−0.247 (0.136)
Age Category	0.158*** (0.043)
Male	0.370* (0.116)
Income	−0.044 (0.029)
Education	−0.080 (0.076)
Upper Caste	0.177 (0.114)
Science Knowledge	0.426*** (0.038)
WhatsApp Use Frequency	−0.023 (0.077)
Concern about covid-19	0.018 (0.029)
Constant	3.051*** (0.445)
Observations	1,597
R ²	0.206
Adjusted R ²	0.201
Residual Std. Error	2.145 (df = 1586)
F Statistic	41.081*** (df = 10; 1586)
<i>Note:</i> *p<0.05; **p<0.001; ***p<0.001	

Figure H.1: Belief in True vs. False Stories By Religiosity



I Treatment Spillover

We recalculate our count outcome measure omitting the specific story that was corrected in the treatment. For example, if the treatment corrected the misinformation headline that reliance on homeopathy and ayurveda can cure covid, we now omit this story and calculate a count measure of the remaining 5 miracle cure stories. On doing this, we find that for conspiracy theories, every treatment except the standard correction achieves a significant effect. While the standard correction works on the specific story that was corrected, spillover effects for non-corrected stories are only seen with the religious quote treatments. For medical misinformation, only the religious group treatment has a significant effect. Further, while Table I.1 compares each condition to the control, on comparing them to the standard correction (I.2) we find that for conspiracy theories the Religious Message treatment still does better than the standard correction.

Table I.1: Treatment Works Beyond Specific Story Corrected

	<i>Dependent variable: Number of spillover stories correctly identified</i>	
	ConspiracyMisinfo (1)	MedicalMisinfo (2)
Religious Message	0.402*** (0.088)	0.074 (0.098)
Message + Religious Group	0.229* (0.088)	0.209* (0.098)
Message + Partisan Group	0.351*** (0.089)	0.187 (0.099)
Standard Correction	0.142 (0.089)	0.122 (0.099)
Constant	2.242*** (0.062)	2.606*** (0.069)
Observations	1,600	1,600
R ²	0.017	0.004
Adjusted R ²	0.014	0.001
Residual Std. Error (df = 1595)	1.124	1.251
F Statistic (df = 4; 1595)	6.707***	1.495

Note:

*p<0.05; **p<0.001; ***p<0.001

Table I.2: Treatment Spillover: Comparison to Standard Correction

	<i>Dependent variable: Number of spillover stories correctly identified</i>	
	ConspiracyMisinfo	MedicalMisinfo
	(1)	(2)
Religious Message	0.259* (0.089)	−0.039 (0.099)
Message + Religious Group	0.085 (0.089)	0.092 (0.099)
Message + Partisan Group	0.208* (0.090)	0.074 (0.100)
Placebo Control	−0.142 (0.089)	−0.114 (0.099)
Constant	2.384*** (0.064)	2.719*** (0.071)
Observations	1,603	1,603
R ²	0.017	0.004
Adjusted R ²	0.014	0.001
Residual Std. Error (df = 1598)	1.123	1.252
F Statistic (df = 4; 1598)	6.711***	1.470

Note:

*p<0.05; **p<0.001; ***p<0.001

J Affective Polarization

We measure affective polarization with the question “Suppose a friend of yours was getting married. How would you feel if he or she married a Muslim?”. Responses include 1=very upset, 2=somewhat upset, 3=not very upset, 4=not at all upset. Results show that respondents who are less polarized towards Muslims are also less vulnerable to misinformation.

Table J.1: Religious Affective Polarization

<i>Dependent variable: Number of stories correctly identified</i>	
Marrying a Muslim (higher = more comfortable)	0.729*** (0.048)
Constant	4.046*** (0.142)
Observations	1,601
R ²	0.126
Adjusted R ²	0.125
Residual Std. Error	2.246 (df = 1599)
F Statistic	230.129*** (df = 1; 1599)
Note:	*p<0.05; **p<0.01; ***p<0.001

K Religiosity Index

K.1 Question wording

Now we want to know a little bit about how you practice religion. For each of the statements below, please indicate the extent to which you agree or disagree.

I would marry someone who is not Hindu.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

In times of uncertainty, my religion can help me cope better.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

It is important for me to teach my children about Hinduism.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

Fasting is important to receive God's blessings.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

I believe that God blesses me when I do puja.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree

4. Strongly disagree

I don't need to consult with the astrologer/pandit before fixing a wedding date.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

As a Hindu, I should only eat vegetarian food.

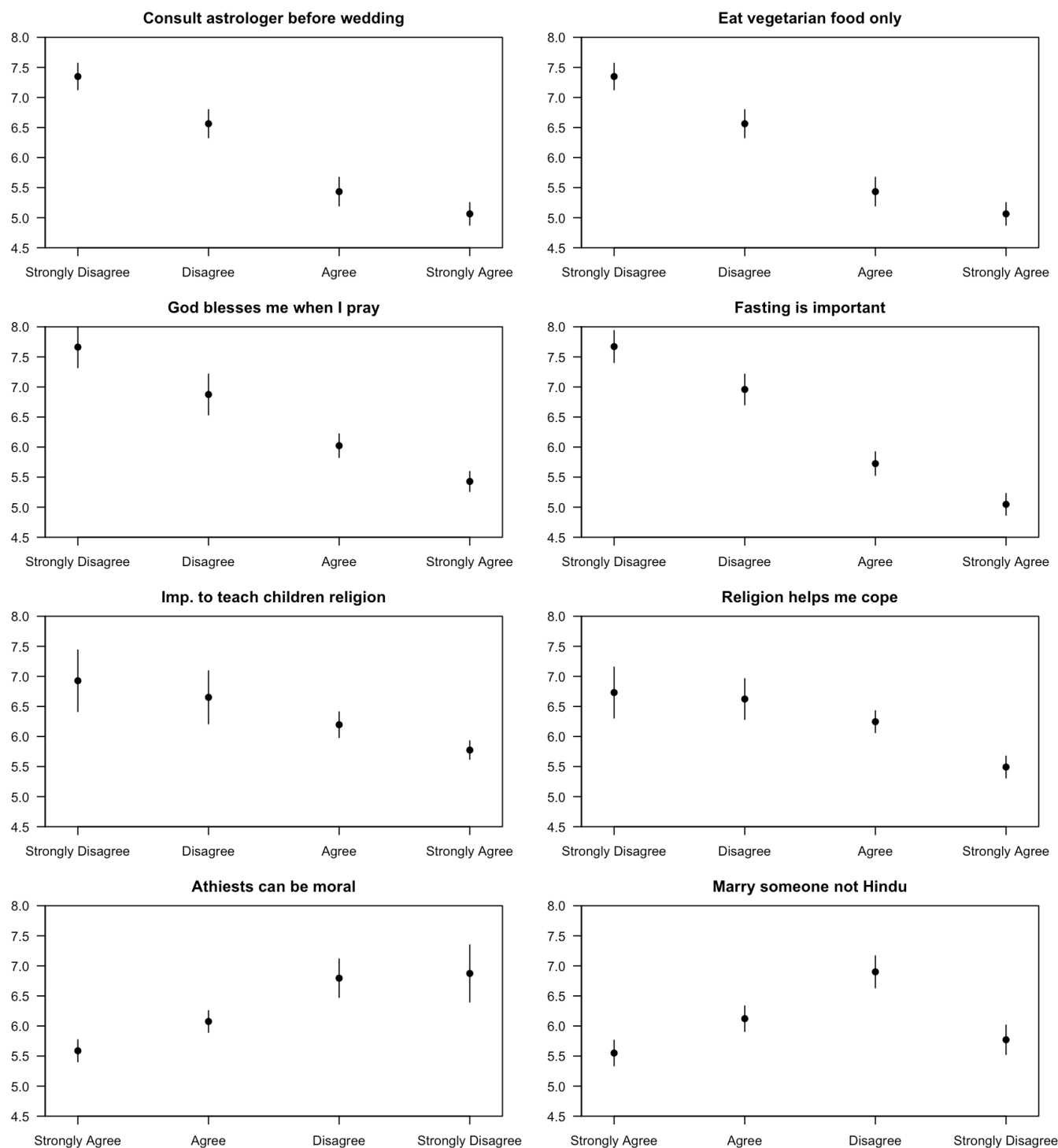
1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

An atheist can be a very moral person.

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

K.2 Item-wise Results

The below graphs present the correlation between components of the religiosity index and misinformation, where the Y axis is the predicted number of stories correctly identified.



L Story by story analysis

In tables below we disaggregate the DV measures into individual stories. In both analyses the omitted category is the placebo control.

Table L.1: Conspiracy Theory Stories

	<i>Dependent variable: Each conspiracy story</i>					
	Jamaat (1)	Sneezing (2)	Bioweapon (3)	Foreign (4)	Lab (5)	5G (6)
Religious Message	0.130*** (0.039)	0.096* (0.039)	0.127*** (0.033)	0.106* (0.039)	0.059 (0.038)	−0.021 (0.035)
Message + Religious Group	0.144*** (0.039)	0.098* (0.039)	0.077* (0.033)	0.119* (0.039)	0.001 (0.038)	−0.111* (0.035)
Message + Partisan Group	0.132*** (0.039)	0.121* (0.039)	0.097* (0.034)	0.132*** (0.039)	0.015 (0.039)	−0.025 (0.035)
Standard Correction	0.109* (0.039)	0.122* (0.040)	−0.002 (0.034)	0.135*** (0.039)	−0.002 (0.039)	−0.098* (0.035)
Constant	0.339*** (0.027)	0.391*** (0.028)	0.183*** (0.024)	0.346*** (0.027)	0.596*** (0.027)	0.777*** (0.025)
Observations	1,600	1,600	1,600	1,600	1,600	1,600
R ²	0.011	0.008	0.015	0.010	0.002	0.010
Adjusted R ²	0.009	0.006	0.012	0.008	−0.0002	0.008
Res Std. Error	0.495	0.498	0.427	0.495	0.488	0.444
F Statistic (df = 4; 1595)	4.611*	3.301*	5.977***	4.170*	0.910	4.071*

Note:

*p<0.05; **p<0.001; ***p<0.001

Table L.2: Medical Misinformation Stories

	<i>Dependent variable: Each medical misinfo. story</i>					
	Homeopathy (1)	Kalonji (2)	Genetic (3)	Breath (4)	Antibiotic (5)	Bleach (6)
Religious Message	0.115* (0.037)	0.057 (0.038)	0.045 (0.039)	0.045 (0.039)	−0.045 (0.035)	−0.027 (0.034)
Message + Religious Group	0.133*** (0.037)	0.060 (0.039)	0.085* (0.039)	0.085* (0.039)	−0.009 (0.035)	−0.012 (0.034)
Message + Partisan Group	0.145*** (0.038)	0.043 (0.039)	0.067 (0.039)	0.067 (0.039)	−0.033 (0.036)	0.044 (0.034)
Standard correction	0.081* (0.038)	0.071 (0.039)	0.065 (0.039)	0.065 (0.039)	−0.042 (0.036)	−0.038 (0.035)
Constant	0.260*** (0.026)	0.358*** (0.027)	0.376*** (0.027)	0.376*** (0.027)	0.743*** (0.025)	0.752*** (0.024)
Observations	1,600	1,600	1,600	1,600	1,600	1,600
R ²	0.012	0.003	0.004	0.004	0.002	0.004
Adjusted R ²	0.010	0.0001	0.001	0.001	−0.001	0.002
Res Std. Error (df = 1595)	0.476	0.491	0.495	0.495	0.451	0.435
F Statistic (df = 4; 1595)	4.835***	1.024	1.409	1.409	0.640	1.664

Note:

*p<0.05; **p<0.001; ***p<0.001

M Religious Message as Omitted Category

The Table below presents analysis of main effects but with the Religious Message treatment as the omitted category. This allows us to evaluate the potential significance of differences in coefficient sizes *between* religious treatments.

Table M.1: Main Effect with "Religious Message" as Omitted Category

	<i>Dependent variable: Number of stories correctly identified</i>	
	Conspiracy Misinfo (1)	Cures Misinfo (2)
Message + Religious Group	−0.171 (0.110)	0.153 (0.117)
Message + Partisan Group	−0.026 (0.111)	0.143 (0.118)
Standard Correction	−0.235* (0.111)	0.013 (0.119)
Placebo Control	−0.498*** (0.110)	−0.189 (0.117)
Constant	3.131*** (0.078)	3.055*** (0.083)
Observations	1,600	1,600
R ²	0.016	0.007
Adjusted R ²	0.014	0.004
Res Std. Error (df = 1595)	1.405	1.494
F Statistic (df = 4; 1595)	6.592***	2.784*

Note:

*p<0.05; **p<0.001; ***p<0.001

N Religiously themed headlines versus others

In this appendix we compare the effect of our treatments on belief in conspiracy stories, breaking down the scale as per the religious nature of the stories. In column (1) we look at the effect of the treatments on overtly religious stories: Jamaat and Sneezing stories. In column (2), we look at their effects on the four remaining stories.

Table N.1: Main Effect by Story Theme

<i>Dependent variable: Conspiracy Misinformation</i>		
	Religious stories	Non-religious stories
	(1)	(2)
Religious Message	0.226* (0.069)	0.272*** (0.073)
Message + Religious Group	0.241*** (0.070)	0.085 (0.073)
Message + Partisan Group	0.253*** (0.070)	0.219* (0.074)
Standard Correction	0.230* (0.071)	0.033 (0.074)
Constant	0.731*** (0.049)	1.902*** (0.052)
Observations	1,600	1,600
R ²	0.012	0.013
Adjusted R ²	0.009	0.010
Res Std. Error (df = 1595)	0.889	0.933
F Statistic (df = 4; 1595)	4.692***	5.181***

Note:

*p<0.05; **p<0.001; ***p<0.001

O Deviations from PAP

We note here minor deviations from the PAP. Our list of stated hypotheses does depart from the list of hypotheses registered in our pre-analysis plan (PAP). We do so for clarity, and we believe that this revision does not fundamentally alter the spirit of the registered hypotheses or call for different tests than those we would have conducted. After pre-registering, we identified two weaknesses in our original list of pre-registered hypotheses, which we chose to address in the manuscript rather than through an amendment to the PAP.

First, we inadvertently omitted hypotheses related to the main effects of our treatments, an obvious oversight. This omission does not require new tests or models, as any experiment is expected to exhibit main effects. Hypotheses 2a and 2b in the manuscript address the main effects of our treatments.

Second, the formulation of Hypothesis 3 in the PAP (which closely aligns with hypothesis 2b in the manuscript) did not adequately clarify that the treatment being tested was additive, which made the hypothesis, in effect, untestable, as pointed out by a reviewer. We have now reworded Hypothesis 2b to clarify the additive nature of the treatment.

We also include below analyses for hypotheses that were previously not discussed - namely hypotheses 1a and 4 in the PaP - because their results were redundant with the results already presented in the piece. In Table [O.1](#) we test the observational correlation between belief in misinformation and support for BJP partisanship (listed in the PAP as Hypothesis 1a). In Table [O.2](#) we test whether the partisan norms treatment (compared to placebo control) is more effective as a function of support for the BJP (listed in the PAP as Hypothesis 4). Similar to what we find in Appendix G for religiosity, the interaction in this table remains insignificant.

Overall, while we acknowledge these minor deviations for the sake of clarity, they do not lead us to cherry-pick results or to run models we would not already run.

Table O.1: Hypothesis 1a

<i>Dependent variable: Number of stories correctly identified</i>	
	All Stories
BJP Partisanship	−0.377*** (0.058)
Constant	7.191*** (0.190)
Observations	1,603
R ²	0.026
Adjusted R ²	0.025
Residual Std. Error	2.371 (df = 1601)
F Statistic	42.359*** (df = 1; 1601)
<i>Note:</i> *p<0.05; **p<0.001; ***p<0.001	

Table O.2: Hypothesis 4: Partisan Norms Treatment x Partisanship

<i>Dependent variable: Number of stories correctly identified</i>		
	Conspiracy Misinformation	Medical Misinformation
	(1)	(2)
Message + Partisan Group Treatment	0.197 (0.222)	0.157 (0.238)
BJP Support	−0.486* (0.178)	−0.476* (0.191)
Message + Partisan Group x BJP Support	0.364 (0.255)	0.233 (0.274)
Constant	3.000*** (0.155)	3.225*** (0.166)
Observations	641	641
R ²	0.040	0.024
Adjusted R ²	0.035	0.019
Residual Std. Error (df = 637)	1.385	1.487
F Statistic (df = 3; 637)	8.827***	5.238*

Note: *p<0.05; **p<0.001; ***p<0.001