

A Match Made in Heaven? Do Religious and General Appeals Instill Hope for Reduction of Food Waste

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Abstract

Globally, approximately 30% of food is wasted, leading to severe social, environmental, and financial consequences. Household interventions are crucial, given that most waste occurs at this level. Despite various message trials for waste reduction, the impact of incorporating religious appeals into general messages and their relation to hope remains underexplored due to the complexities of the food waste context. This research fills this void by conducting four experiments to investigate the impact of religious (vs. general) and communal (vs. agentic) appeals on consumers' intention to reduce food waste. Participants were randomly exposed to various appeals to assess how the appeals should be matched to increase intention to reduce food waste. Results show that religious appeals are less effective than general appeals in increasing behavioral intention, and that in order for food waste to be reduced, general appeals should be paired with communal (vs. agentic) appeals. The study also shows that state hope is the underlying mechanism of this effect. This research contributes to the literature on religious appeals, communal (vs. agentic) appeals, and hope theory.

Keywords

food waste, religious appeals, communal and agentic appeals, state hope

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Introduction

Food waste is a significant global problem, with around 1.3 billion tonnes of food being wasted annually, worth an estimated 1 trillion USD (FAO, 2020). This is four times the food needed to feed all undernourished people in the world (Irani et al., 2018). Beyond its ethical and economic implications, food waste drives up to 10% of planet-warming greenhouse gas emissions (WFP, 2024) and is closely linked to major environmental challenges, including climate change, air and water pollution, and land conversion for agriculture (Gao et al., 2024; Shukla et al., 2024). These far-reaching consequences make food waste a critical global concern demanding immediate attention.

While food waste can occur at any stage of the food supply chain (Moraes et al., 2021), a substantial proportion originates at the household level (Fan et al., 2022; Khorakian et al., 2024; Landells et al., 2024), which includes any behaviors related to wasting food during the processes of purchasing, cooking, storing, or discarding leftovers (Block et al., 2016). Alarming, household food waste has been steadily increasing on a global scale (Landells et al., 2024), and it remains a pervasive issue across countries of all income levels. For example, households in high-, upper-middle-, and lower-middle-income countries waste an average of 79, 76, and 91 kg of food per capita annually, respectively (UNEP, 2021). These figures underscore the critical need—and opportunity—to reduce food waste at the household level worldwide (McCarthy & Liu, 2017; Simões et al., 2022). Achieving meaningful reductions in household food waste is

not only essential to meeting the global target of halving food waste by 2030 (Junkrachang et al., 2024) but also offers a wide array of benefits, including easing pressure on global food production systems and delivering economic and environmental gains across the entire food supply chain (Moraes et al., 2021).

Despite its urgency and potential benefits, food waste remains surprisingly underexplored within the marketing literature (Gao et al., 2024; Simões et al., 2022), underscoring the need for further research and investigation to develop effective interventions to reduce it (Jobson et al., 2024; Reynolds et al., 2019). Among the studies conducted, various interventions have been tested, with information-based messages being the most commonly used approach (S. Jiang et al., 2024; Simões et al., 2022). However, there is still a significant gap in understanding, as the actual effectiveness of these messages remains uncertain, and the literature remains unclear about which types of informational messages are most effective in

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producing meaningful and sustained behavioral change regarding food waste (J. Dai & Gong, 2024; S. Jiang et al., 2024). Accordingly, more experimental research is needed to identify creative approaches (Pearson, 2024) and the most effective messaging strategies to reduce food waste (Bretter et al., 2023; J. Dai & Gong, 2024).

This research seeks to address this gap by examining the impact of religious appeals and investigating their potential as a persuasive strategy for reducing food waste. The exploration of religious appeals in the context of food waste is meaningful for several reasons. Firstly, approximately 84% of the global population adheres to a religious faith (Cam et al., 2025), and religion plays a central role in food consumption practices (Arli et al., 2025). Food holds substantial significance in many religions, often viewed as a gift or blessing (Begic, 2024; Schweitzer, 2001), and wasting it is frequently considered morally wrong (Filimonau, Mika, et al., 2022). As such, it has been suggested that religious leaders should play a role in shaping food waste prevention campaigns (Filimonau, Kadum, et al., 2022; Filimonau, Mika, et al., 2022). On the other hand, prior research has argued that the context of food waste introduces specific challenges that could influence the success of the appeals (Khalil et al., 2022). Food waste is a problem that requires actionable strategies (E. E. K. Kim et al., 2019; Lim et al., 2017; Urugo et al., 2024), whereas religious appeals typically emphasize moral, spiritual, or ethical dimensions. Consequently, given the complexity of aligning religious appeals with the practical demands of food waste reduction, such appeals may risk appearing ineffective or disconnected from individuals' immediate concerns—despite their strong moral resonance. This underscores the need to investigate whether incorporating religious appeals into conventional messages—referred to as “general appeals” in this paper—effectively enhances individuals' intentions to reduce food waste.

Secondly, research exploring the impact of religious appeals on food waste is scarce, and among the existing studies, which primarily focus on other contexts, the results are inconsistent. Some studies suggest a positive impact (Agarwala et al., 2021), while others report that such appeals can backfire (Cam et al., 2025; Henley et al., 2009; Minton, 2020; Taylor et al., 2017). A recent meta-analytic investigation, although not specifically focused on food waste, concluded that religious appeals have a weak positive effect on attitudes but do not significantly influence behavioral intentions, suggesting that their effectiveness is highly context-dependent (Cam et al., 2025). This raises an important and unresolved question: can religious appeals be effective in the context of food waste, which is both a practical behavioral issue and one that is deeply tied to religious values? Thirdly, it remains unclear whether constructs that are theoretically linked to religiosity—such as hope and communal motivation—are also activated in response to religious appeals. Prior research has established positive associations between religiosity and hope (Aghababaei et al., 2016; Ai et al., 2007; Chang et al., 2013), as well as religiosity and communal motivation (Bakan, 1966; Gebauer, Wagner, et al., 2013; Saroglou, 2010; Trapnell & Paulhus, 2012). However, the current literature does not address whether these psychological constructs—while associated with personal religiosity—also form a nomological network with religious appeals.

Filling these gaps is crucial, as our understanding of whether religious appeals can effectively reduce food waste remains limited. Furthermore, it is unclear how and under what conditions such appeals generate productive versus counterproductive audience reactions (Cam et al., 2025; Minton, 2020). In addition, the theoretical relationships between religious appeals, communal motivation, and hope have yet to be clearly established within the context of food waste. Building on prior research (Cam et al., 2025; Dotson & Hyatt,

2000; Henley et al., 2009), which highlights the importance of context in the effectiveness of religious appeals, we propose that the unique characteristics of the food waste context play a pivotal role in shaping the impact of such appeals (Khalil et al., 2022). Specifically, we suggest that these contextual factors may influence both the effectiveness of religious appeals in reducing food waste and their interplay with communal (versus agentic) motivations and hope. This study addresses these gaps by examining the role of religious appeals in the food waste context and exploring their potential connections to communal motivations and hope.

This research makes several important contributions to theory, the food waste context, and practical communication strategies. First, it advances the literature on religious appeals by examining their impact on intentions to reduce food waste, addressing a gap in understanding how religious framing operates in this specific domain. Our findings support prior research suggesting that the effectiveness of religious appeals is context-dependent (Cam et al., 2025). Second, this research extends hope theory by demonstrating how appeals grounded in its internal and external dimensions can elicit state hope. In particular, our results highlight that externally focused appeals—those emphasizing community support—are more effective at fostering hope than internally focused ones. Third, our findings contribute to the literature on communal and agentic appeals by showing that communal framing enhances the persuasiveness of general messages. This suggests that general appeals may require a sense of social connectedness or support to be fully effective. Finally, our study contributes to the growing body of work on food waste by identifying message strategies that not only evoke hope but also motivate individuals to adopt more sustainable food behaviors.

Theoretical background

Religious and general appeals

Religions are a pervasive force that significantly shape individuals' lives (Casidy et al., 2021; Waller & Casidy, 2021) and influence a wide range of behaviors, including consumption practices (Hyodo & Bolton, 2021). Prior research suggests that this influence can extend to environmental and food-related behaviors, though findings have been mixed. For example, studies examining the impact of religiosity on food waste reduction have shown both positive (Elhoushy & Jang, 2021; Filimonau, Mika, et al., 2022; Kutlu, 2022; Teng et al., 2023) and negative (Asyari et al., 2024; Elimelech et al., 2024; Filimonau, Kadum, et al., 2022; Khorakian et al., 2024) effects. Despite the inconsistency in findings, it has been suggested that religious interventions and campaigns (Elhoushy & Jang, 2021; Elimelech et al., 2023; Kansal et al., 2022), as well as the involvement of religious leaders (Filimonau, Kadum, et al., 2022; Filimonau, Mika, et al., 2022), could play a valuable role in food waste reduction efforts. Therefore, if religious appeals are to be used in food waste reduction efforts, it is crucial to first determine their relevance and then explore how and under what conditions they can effectively encourage food waste reduction behavior.

Building on these considerations, this research focuses on testing the use of religious appeals in marketing communication—a critical distinction from merely measuring religiosity. Religiosity and religious appeals may produce different effects, as religiosity reflects a stable personal commitment to religious values, while religious appeals are situational and may be perceived as persuasive attempts (Cam et al., 2025). Under different conditions, even religious individuals may resist religious appeals (Esch et al., 2022; Isaac et al., 2021), suggesting that the presence of religiosity does

not guarantee the effectiveness of religious messaging even among religious people. This highlights the importance of examining the effects of religious appeals, particularly in the context of food waste, where empirical research remains scarce.

Research on religious appeals has been conducted in other domains—such as product marketing (Minton, 2020; Sarofim & Cabano, 2018), ethical consumption (Arli et al., 2025), and environmental protection (Arli et al., 2023)—where three key themes have emerged in the literature. First, some studies have found that religious appeals can positively influence behavioral intentions (Agarwala et al., 2021). However, other research indicates that such appeals may provoke resistance or backlash (Cam et al., 2025; Henley et al., 2009; Minton, 2020; Taylor et al., 2017). In addition, most studies have focused on identifying the specific conditions under which religious appeals are effective. For example, Ferle et al. (2022) and Muralidharan and Ferle (2018) found that religious ads are more likely to increase behavioral intention among religious individuals. Similarly, Isaac et al. (2021) showed that religious ads tend to enhance individuals' evaluations of programs or disciplines directly related to religion. However, such appeals can have the opposite effect, negatively impacting the evaluation of programs outside religious contexts, potentially causing reputational harm. In the context of anthropomorphism, Esch et al. (2022) highlighted the importance of political ideology, revealing that religious advertising portraying a brand as a servant is more appealing to conservative, less religious consumers. Finally, in the context of promoting cultured meat, Arli et al. (2025) found that religious appeals led to higher purchase intentions among individuals with high levels of intrinsic religiosity and low levels of quest religiosity. A recent meta-analysis further confirms the complexity of religious appeals: while they may have a small positive effect on attitudes, they do not significantly improve behavioral intentions, and their impact remains highly dependent on context (Cam et al., 2025).

The complexity of the food waste context also adds another layer of challenge when evaluating the effectiveness of religious appeals. According to several academic and institutional sources, addressing food waste effectively requires actionable and measurable solutions (EPA, 2025; J. Kim et al., 2019; Lim et al., 2017; Urugo et al., 2024). In contrast, religious appeals often focus on moral, spiritual, or ethical considerations, which may not directly align with the practical emphasis needed for effective food waste communication. For instance, prior research suggests that religion and science are often perceived as conflicting domains (Isaac et al., 2021; Waller & Casidy, 2021), which could reduce the perceived relevance of religious appeals in contexts that are grounded in quantitative or scientific reasoning. However, it is important to consider that food and waste reduction are also topics deeply embedded in religious teachings (Minton et al., 2019, 2020), which may provide a basis for religious appeals to effectively resonate with audiences in the context of food waste.

In conclusion, the gaps in the religious appeals literature, their context-dependency, and the dual nature of the food waste context highlight the need for further investigation. While religious appeals could resonate with the moral dimensions of food use, the practical, solution-oriented nature of food waste reduction poses a challenge. This study aims to explore whether religious appeals can complement general messages and enhance their effectiveness in addressing food waste. This leads us to the first hypothesis:

H1. Incorporating a religious appeal into a general appeal will positively influence intentions to reduce food waste.

Moderating effect of communal versus agentic appeals

Communal and agentic orientations distinguish between self-focused and other-focused motivations (Abele & Wojciszke, 2007). Communal motivation involves integrating the self into a community to achieve shared goals, while agentic motivation reflects attempts to individuate the self and attain personal goals (Abele & Wojciszke, 2007; Whillans et al., 2017). Generally, communal motivation is evaluated more positively than agentic motivation (Suitner & Maass, 2008) and is considered primary and essential for the survival of both individuals and groups (Abele & Wojciszke, 2007).

We predict that the issue of food waste introduces unique challenges to understanding these dynamics. Food waste is a pressing issue, and consumers may perceive it as best addressed through community-based efforts, which can lead to a greater collective impact (Ivanovic et al., 2025; Schanes & Stagl, 2019). Collective actions foster cooperation and connections among individuals working toward a common goal, often achieving results unattainable through individual efforts (Schmidt et al., 2016). For example, in the food waste context, BinCam (Thieme et al., 2012), food sharing (Morone et al., 2018; Schanes & Stagl, 2019), social recipes (Lim et al., 2017), and food waste sorting (Xu et al., 2016) have been shown to effectively reduce food waste by fostering communal motivations. Additionally, research indicates that personal interactions, which are key to communal motivations, enhance the effectiveness of other food waste solutions, including informational campaigns (Y. Dai et al., 2016). In this regard, J. Kim et al. (2019), in a systematic literature review, demonstrated that personal interaction strategies are among the most effective program techniques for reducing food waste. Therefore, we suggest that communal (vs. agentic) motivations are particularly relevant in this context, as they align with the goal of community survival and collective responsibility. However, the question of how these motivations interact with religious appeals remains unclear.

To the best of our knowledge, the interaction between communal (vs. agentic) appeals and religious appeals has not been explored. While communal (vs. agentic) motivations have been shown to be connected to religious belief (Bakan, 1966; Gebauer, Wagner, et al., 2013), research indicates that communal characteristics chiefly encourage individuals to seek assimilation with the ambient culture rather than to follow a religion in particular—meaning that those people high in communal characteristics are mostly religious in religious cultures, but are barely religious when they are in a non-religious culture (Gebauer, Paulhus, & Neberich, 2013). This implies that communal motivation may not necessarily be intrinsically linked to religious beliefs.

These insights are particularly relevant to understanding how communal (vs. agentic) appeals may interact with religious (vs. general) appeals in the context of food waste, a gap that remains largely unexplored in the current literature. Communal orientations, which prioritize shared goals and collective action (Abele & Wojciszke, 2007), may align with the moral and ethical dimensions of religious appeals, particularly in addressing societal challenges like food waste, as religions frequently encourage individuals to come together for shared practices (Wilkinson, 2008). At the same time, the unique nature of food waste—requiring actionable solutions—creates uncertainty about how audiences will perceive the integration of religious appeals into general messages. While communal values may enhance the impact of religious appeals by highlighting shared responsibilities to reduce food waste, it remains uncertain whether religious appeals might conflict with the practical need for actionable solutions to address food waste. This lack of clarity highlights the need to explore how communal (vs. agentic) appeals moderate

the impact of religious (vs. general) appeals in this context. Based on these considerations, we hypothesize that:

H2. A communal (vs. agentic) appeal will moderate the impact of a religious (vs. general) appeal on intentions to reduce food waste, such that the effect of a religious appeal will be stronger with a communal appeal.

Mediating effect of hope

Positive emotions can expand individuals' cognitive and behavioral flexibility, allowing them to generate a broader range of potential responses and actions (Fredrickson, 1998, 2001). In this context, hope—as a forward-looking emotion (Chadwick, 2015)—may be particularly influential in promoting efforts to reduce food waste. Hope tends to emerge when individuals perceive that achieving significant and meaningful future goals is possible, which in turn inspires motivation and helps identify strategies to reach those goals (Cohen-Chen & Zomeran, 2018). Notably, prior research has identified hope as a factor in reducing food waste (Khalil et al., 2022). According to these authors, hope is impactful because it encourages individuals to believe they can improve difficult situations, even when outcomes are uncertain (Khalil et al., 2022). This makes hope particularly relevant for reducing food waste, a complex issue that poses considerable challenges in both identifying and implementing effective solutions.

In addition to its relevance in the food waste context, hope is also closely associated with religiosity. Measuring religiosity, prior research has revealed that through hope, religiosity can lead to lower distress (Ai et al., 2007), subjective well-being (Aghababaei et al., 2016), life-satisfaction (Ekici & Watson, 2022), and less depressive symptoms (Chang et al., 2013). Hope theory offers further insights into this relationship. According to the theory, hope is a positive motivational state grounded in three interrelated components: goals, pathways, and agency (Snyder, 2002). Goals represent desired outcomes; pathways thinking reflects one's perceived ability to identify routes to those goals; and agency refers to the motivational energy to follow those routes (Snyder et al., 2006; Snyder & Lopez, 2007). Traditionally, hope theory adopts an individualistic lens, with the self as the agent of achieving goals (H. F. Du & King, 2013). However, Bernardo (2010) expanded the model by introducing the concepts of internal and external loci of hope. Internal locus refers to reliance on one's own abilities, while external locus encompasses the perceived support and capabilities of others—including family, community, and spiritual entities such as God (Bernardo, 2010). According to H. F. Du and King (2013), understanding both loci of hope is necessary as it provides a more holistic perspective on the creation of this positive emotion.

This broader perspective is particularly relevant to the present research, as it underscores that individuals may attribute goal attainment—such as reducing food waste—not only to personal effort but also to external sources such as divine intervention or collective support. While prior studies have investigated the effects of internal and external loci of hope (Bernardo & Cunanan, 2023; Bernardo & Estrellado, 2014; H. Du et al., 2015; H. F. Du & King, 2013), the application of these concepts in persuasive message design remains largely unexplored. Within this framework, religious appeals and communal (vs. agentic) appeals can be conceptualized as message strategies aligned with the external (i.e., religious appeals and communal motivation) and internal (i.e., agentic motivation) dimensions of hope. This research contributes to the literature by not only

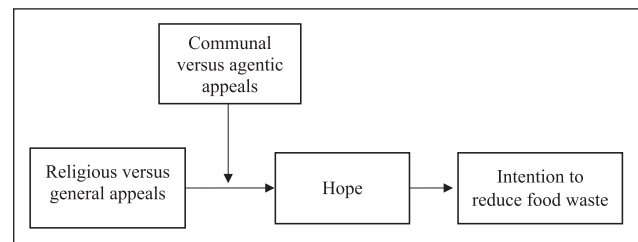


Figure 1. Conceptual model.

designing messages grounded in these dimensions but also directly comparing the effectiveness of internal versus external loci of hope in eliciting state hope. In doing so, it addresses a critical gap by examining how the intersection of religious appeals, hope, and communal (vs. agentic) appeals influences responses in the context of food waste reduction.

Regarding the relation between religious appeals and hope, as previously noted, research in this area is limited; however, a few existing studies provide valuable insights. For example, Zehra and Minton (2020) found that only Muslim cues, mediated by affect, influenced business evaluations. However, affect and hope differ, so this may not clarify the link between religious appeals and hope. Further, Sarofim and Cabano (2018) demonstrated that religious appeals, mediated by hope and perceived ad credibility, influenced willingness to try a product, but in an advertising context where hope is typically tied to achieving personal goals through product use (MacInnis & De Mello, 2005; Poels & Dewitte, 2008). Therefore, the effectiveness of religious (vs. general) appeals in eliciting hope in contexts like food waste remains unclear. This gap is crucial, as it is uncertain whether such appeals are more effective in generating hope for food waste solutions, which involve moral, motivational, and practical dimensions.

Regarding the impact of communal and agentic motivation on hope, the link between these motivations and hope is underexplored. In a study conducted within the context of organizational behavior, Chernyak-Hai et al. (2024) applied hope theory and found that perceived organizational support, which can be likened to communal motivation as it involves receiving assistance from one's community, positively influenced the pathway and agency aspects of hope. While not directly related to our research, this study demonstrates that communal motivation can be linked to hope. Further, prior research has shown that communal motivation is associated with positive valence (Suitner & Maass, 2008), and since hope is also considered a socially-oriented construct (E. E. K. Kim et al., 2012), it can be suggested that communal appeals may elicit hope in contexts that emphasize collective action and societal betterment, such as reducing food waste. While religious appeals emphasize moral and ethical values, their ability to elicit state hope in this context remains uncertain and may depend on how they align with communal or agentic motivations. We propose that religious appeals paired with communal motivations may effectively generate hope, but they may also face limitations if perceived as misaligned with the practical dimensions of food waste reduction. This leads us to hypothesize the following (Figure 1):

H3. Hope will mediate the interaction between a religious (vs. a general) appeal and a communal (vs. an agentic) appeal on intention to reduce food waste, such that hope will be stronger for a religious and a communal appeal.

Study 1

Study 1 tested H1. In this study, we tested the effect of a religious (vs. a general) appeal on behavioral intention to reduce food waste. Consistent with Hypothesis 1, we expect that a religious (vs. a general) appeal will lead to higher levels of intention to reduce food waste.

Prior research has identified that attitude toward the environment (Thomas & Sharp, 2013) may influence pro-environmental behaviors. Therefore, we measured this variable to rule out its effect as an alternative explanation for our prediction. We also measured religious affiliation (Hopkins et al., 2014) to control for its effect on the relation between a religious vs. a general appeal and the dependent variable.

Considerations in data source selection

There are various data sources, with the most used being crowdsourcing platforms, professional (or managed) panels, and in-person methods. Crowdsourcing platforms, such as Amazon Mechanical Turk (MTurk) and Prolific, are minimally controlled sources of data collection (Arndt et al., 2022). MTurk offers rapid, cost-effective access to a large participant pool and supports various research designs (Aguinis et al., 2021; Peer et al., 2017). However, concerns include inattentive responding, repeated participation, and fraudulent activity such as bots (Cheung et al., 2017). While some studies highlight MTurk's relatively diverse participant pool as an advantage (Aguinis et al., 2021), others note its limited representativeness compared to everyday consumers—a challenge also shared by organizational samples, student samples, and snowball sampling methods (Cheung et al., 2017; Landers & Behrend, 2015). Thus, the appropriateness of MTurk—or any convenience sampling method—should be evaluated in light of the specific research questions being addressed (Cheung et al., 2017). Prolific, developed specifically for academic research, addresses many of these issues through enhanced participant tracking, pre-screening tools, and demographic targeting (Palan & Schitter, 2018). However, it is more expensive for researchers, and its hourly payment rates do not account for participants' cultural or regional economic differences (Palan & Schitter, 2018). Professional panels (e.g., Qualtrics, Dynata, and Ipsos), which are actively managed, provide highly validated and demographically representative samples; however, their higher monetary and administrative time costs can be prohibitive for many academic researchers (Arndt et al., 2022; Berry et al., 2022; Peer et al., 2022). In-person methods, such as field experiments, offer medium to high internal and external validity (Roe & Just, 2009). Student samples are convenient and low-cost, and in some cases recruitment software has professionalized subject pool management (Palan & Schitter, 2018). However, they often lack demographic diversity and have lower external validity (Landers & Behrend, 2015). In contrast, community-based and field data collection provides valuable real-world insights but requires considerable time, resources, and logistical effort (Shadish et al., 2002).

In this research, we selected MTurk for its efficiency and suitability for experimental studies. Prior research has shown that MTurk samples often demonstrate attentiveness and scale reliability comparable to, or even exceeding, those of student samples (Arndt et al., 2022). To mitigate potential risks, we adopted several best-practice procedures. First, we limited participation to U.S.-based workers, who have been shown to provide higher-quality responses than international samples (Berry et al., 2022; Kees et al., 2017; Smith et al., 2016). Second, we recruited only high-reputation workers (approval rating $\geq 95\%$), which enhances data quality and reliability

(Berry et al., 2022; Peer et al., 2014). Third, we blocked duplicate IP addresses to prevent multiple submissions (Berry et al., 2022). Fourth, we included a simple attention check (e.g., "Please choose 'completely' for this question") to ensure attentiveness (Aguinis et al., 2021). Fifth, we required participants to view the advertisement stimuli for at least 20 s and pre-tested the display across devices—particularly mobile—to ensure clarity (Berry et al., 2022). Additionally, we monitored completion times and flagged unusually fast submissions as potential indicators of low engagement. Finally, we reviewed demographic data and confirmed that our sample was balanced in terms of age, gender, and education. These procedures, grounded in recent literature, ensured the data collected via MTurk were valid, reliable, and appropriate for the goals of this research.

Methods

Participants and design. One hundred and fifteen participants located in the U.S. were recruited through Amazon Mechanical Turk¹ (64.3% male, $M_{\text{age}} = 36.36$, $SD = 10.45$). Each participant was paid \$0.50 to complete the survey, which aligns with the typical compensation rates for studies conducted on MTurk (Arndt et al., 2022). Regarding religious affiliation, 52.2% of the participants identified as religious and 47.8% as non-religious. Prior research has shown that religious appeals tend to elicit less favorable evaluations among individuals with lower levels of religiosity, such as a less positive attitude toward advertisements (Muralidharan & Ferle, 2018) and lower perceptions of service provider quality (Taylor et al., 2017). Given the approximately equal proportion of religious and non-religious participants in this study, it is unlikely that the influence of religious appeals will be skewed by a majority of non-religious participants. Study 1 used a single-factor, two-level (appeal: religious and general) between-subjects design.

Procedure. Participants completed one task in which they evaluated an ad about reducing food waste, which employed either a religious or a general appeal, designed based on the themes identified by Kuo (2006) and tailored to the food waste context (see Appendix A). As a manipulation check, participants were asked to indicate whether there was a religious reference in the ad (Muralidharan & Ferle, 2018). They then responded to the questions about their intention to reduce food waste (White et al., 2011) by completing three items ($\alpha = .94$) and their attitude toward the environment (Chang, 2011) by rating three items ($\alpha = .83$). All of the scales were measured on a 9-point scale (1 = not at all, 9 = extremely). See Appendix B for the scales. Finally, participants answered questions for demographic variables (age, gender, and religious affiliation).

Results and discussions

Manipulation checks. Manipulation checks for religious (vs. general) appeals revealed that participants noticed a religious reference in the religious condition, but not in the general condition ($M_{\text{religious}} = 8.20$, $M_{\text{general}} = 2.22$, $t = 15.83$, $p < .001$). The significant difference confirms that the manipulation worked as intended—participants accurately perceived the presence or absence of religious content, indicating that both appeals effectively captured the constructs they were designed to represent.

Intention to reduce food waste. A two-way ANCOVA was conducted with religious/general appeals as the independent variable and intention to reduce food waste as the dependent variable. Attitude to the environment and religious affiliation were controlled. The result revealed a significant effect of religious/general appeals on

intention to reduce food waste ($M_{\text{religious}} = 6.88, M_{\text{general}} = 7.56, F(1, 111) = 5.08, p = .026$). We also found a significant effect of attitude to the environment ($F(1, 111) = 10.11, p = .002$) and a marginally significant effect of religious affiliation ($F(1, 111) = 3.23, p = .075$) on intention, so both covariates will be controlled in further studies. The results of Study 1 reject Hypothesis 1.

Discussion: This rejection of Hypothesis 1 indicates that religious appeals, compared to general appeals, result in lower levels of intention to reduce food waste. In fact, the findings suggest that it is the general appeals that lead to higher levels of intention to reduce food waste.

Study 2

Study 2 sought to investigate Hypothesis 2. In this study, we tested the moderating impact of communal (vs. agentic) appeals on the relationship between religious (vs. general) appeals and intention to reduce food waste. Consistent with Hypothesis 2, we expect that religious (vs. general) appeals lead to higher levels of intention to reduce food waste and that this relationship is moderated by communal (vs. agentic) appeals.

Methods

Participants and design. Two hundred and seventy-three participants located in the U.S. were recruited through Amazon Mechanical Turk (53.1% male, $M_{\text{age}} = 39.86, SD = 11.91$). A similar amount to that in Study 1 was paid to participants for completing the survey. Further, 67.4% of participants identified as religious and 32.6% as non-religious. Again, this suggests that any observed effect is unlikely to be caused by a higher proportion of non-religious participants. In this study, we employed a 2 (appeal: religious and general) \times 2 (appeal: communal and agentic) between-subjects design.

Procedure. Participants were asked to evaluate an ad using two types of appeals, namely religious (vs. general) appeals and communal (vs. agentic) appeals (see Appendix A). Pairing two types of appeals, we had four conditions to which participants were randomly assigned. For Study 2, new ads were designed, based on Whillans et al. (2017) and tailored to the food waste context. The ads with religious appeals included words like sacred planet and faith, while the ads with general appeals featured words like planet and care. Regarding the communal appeal, the ad emphasized joining a community to reduce food waste, while in the agentic appeal, the focus was on taking individual actions (Whillans et al., 2017). As manipulation checks for the two appeal types, participants responded to three questions. First, they answered whether there was a religious reference in the ad, then with two separate questions, they indicated whether the ads emphasized a communal or an agentic orientation. Importantly, before the two questions, we provided a brief definition of communal and agentic orientations to ensure that participants had a consistent understanding of these concepts (Whillans et al., 2017). This was followed by the same questions as used in Study 1 (Appendix B): intention to reduce food waste ($\alpha = .94$), the level of hope, measured using one item consistent with prior research (Khalil et al., 2022), and attitude to the environment ($\alpha = .89$). Finally, participants answered questions for demographic variables (age, gender, and religious affiliation).

Results and discussions

Manipulation checks. Manipulation checks for religious (vs. general) appeals revealed that participants noticed a religious reference

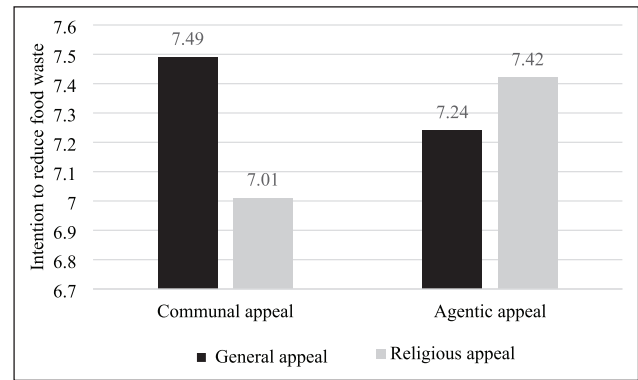


Figure 2. The interaction effect of two appeal types on behavioral intention (Study 2).

in the religious condition, but not in the general condition ($M_{\text{religious}} = 7.13, M_{\text{general}} = 2.56, t = 15.22, p < .001$). Likewise, manipulation checks for the communal (vs. agentic) appeal showed that participants rated communal appeals more communal than agentic ($M_{\text{communal}} = 7.29, M_{\text{agentic}} = 5.79, t = -5.66, p < .001$), and those in the agentic condition rated agentic appeals as more agentic than communal ($M_{\text{communal}} = 4.56, M_{\text{agentic}} = 6.19, t = 5.54, p < .001$). This indicates that participants effectively differentiated between the four types of appeals, confirming that the manipulation was successful.

Intention to reduce food waste. We conducted a two-way ANCOVA with religious/general appeals, communal/agentic appeals, and their interaction as independent variables, and intention to reduce food waste as the dependent variable. We also controlled attitude towards the environment and religious affiliation. The results revealed a non-significant main effect of religious/general appeals ($F(1, 267) = 0.73, p = .395$) and communal/agentic appeals ($F(1, 267) = .22, p = .642$). Similarly to Study 1, we found a significant effect of both covariates on intention (attitude to the environment scores: $F(1, 267) = 131.01, p < .001$, religious affiliation scores: $F(1, 267) = 8.41, p = .004$). Importantly and as predicted, we found a marginally significant interaction between the two types of appeals ($F(1, 267) = 3.81, p = .052$). While neither religious/general nor communal/agentic appeals had a significant effect on their own, the marginally significant interaction ($p = .052$) suggests that the impact of one type of appeal may depend on the other. This lends support to our hypothesis that combining different appeal types can influence intentions to reduce food waste. (see Figure 2.)

To better understand which types of appeals are most effective when paired, we examined the effects within each condition. In the agentic condition, the difference between religious and general appeals was non-significant ($M_{\text{religious}} = 7.42, M_{\text{general}} = 7.23, F(1, 267) = 0.58, p = .445$), suggesting that the type of appeal (religious vs. general) had little impact when paired with agentic framing. However, in the communal condition, participants evaluating religious (vs. general) appeals showed lower intention to reduce food waste ($M_{\text{religious}} = 7.01, M_{\text{general}} = 7.49, F(1, 267) = 0.399, p = .047$), which rejects Hypothesis 2 and is also consistent with the results found in Study 1. Taken together, these results suggest that pairing communal framing with religious appeals may be less effective, whereas general appeals appear more persuasive when combined with a communal message.

Discussion. Rejecting Hypothesis 2, the results demonstrate that communal (vs. agentic) appeals have moderating impacts on the relationship between religious (vs. general) appeals and intention to reduce

Table 1. Full Mediation Result (Study 3a).

Variables	Consequence							
	Hope (M)				Intention to reduce food waste (Y)			
Antecedent	Coeff	SE	t	p	Coeff	SE	t	p
Constant	4.735	0.751	6.304	<.001	2.621	0.650	4.029	<.001
Religious/general appeals (X)	-0.426	0.166	-2.559	.011	-0.555	0.133	-4.162	<.001
Attitude to the environment (covariate)	0.358	0.089	4.028	<.001	0.407	0.073	5.588	<.001
Religious affiliation (covariate)	-0.438	0.081	-5.373	<.001	-0.070	0.069	-1.015	.311
Hope (M)	—	—	—	—	0.301	0.057	5.329	<.001
Model summary	$R^2 = .182$ $F = 14.504, p \leq .001$				$R^2 = .347$ $F = 25.723, p < .001$			

food waste, such that the effect of a religious appeal leads to a lower intention, and this is moderated by communal (vs. agentic) appeals. In other words, in order to reduce food waste, general appeals should be paired with communal appeals.

Study 3a

Study 3a aimed to test Hypotheses 1 and 3, but by using only religious vs. general appeals. In fact, the appeals were designed to focus on the necessity to reduce food waste by emphasizing only communal motivations.

Methods

Participants and design. One hundred and ninety-nine participants located in the U.S. were recruited through Amazon Mechanical Turk (64.8% male, $M_{age} = 37.15$, $SD = 10.27$). A similar amount to that in Study 1 was paid to participants for completing the survey. Regarding religious affiliation, 51.8% of participants were religious and 48.2% were non-religious. This again indicates that any effect is not caused by an extremely high proportion of non-religious participants. To accomplish the aim of Study 3a, we employed a one-factor, two-level (appeal: religious, general) between-subjects design.

Procedure. Participants completed one task in which they evaluated an ad with a specifically religious (vs. general) reference (see Appendix A). The religious appeal contained the words “Jesus said,” “Christians,” and “God,” which were similar to religious cues used in prior research (Muralidharan & Ferle, 2018). However, these references were not used in the general appeal. Both appeals emphasized that reducing food waste should be approached communally. As a manipulation check, participants responded to the same item used in Study 1 for the religious (vs. general) appeal. They then completed the same questions as used in Studies 1 and 2 about intention to reduce food waste ($\alpha = .95$), their level of hope, attitude to the environment ($\alpha = .91$), and finally demographic variables (age, gender, and religious affiliation).

Results and discussions

Manipulation checks. An independent sample *t*-test was performed to investigate differences in perception of the religious reference in the ads. As predicted, those evaluating the religious appeal indicated that the ad contained a religious reference, and those evaluating the general appeal indicated that it did not reference religious words ($M_{religious} = 8.56$, $M_{general} = 2.01$, $t = 28.91$, $p < .001$). This indicates that the

manipulation was successful, with participants clearly distinguishing between the two types of appeals.

Intention to reduce food waste. Two one-way ANCOVAs were conducted with the religious and general appeals as the independent variable and behavioral intention and hope as dependent variables. Attitude to the environment and religious affiliation were controlled. We found a significant main effect of appeal type on intention ($M_{religious} = 6.25$, $M_{general} = 7.21$, $F(1, 195) = 23.78$, $p < .001$) and on hope ($M_{religious} = 4.88$, $M_{general} = 5.29$, $F(1, 195) = 6.55$, $p = .011$). Taken together, these main effects demonstrate the relative advantage of general over religious appeals in enhancing both behavioral intentions and the positive emotion of hope. Both covariates showed a significant effect on behavioral intention (attitude to the environment scores: $F(1, 195) = 47.41$, $p < .001$, religious affiliation scores: $F(1, 195) = 8.64$, $p = .004$) and hope (attitude to the environment scores: $F(1, 195) = 16.22$, $p < .001$, religious affiliation scores: $F(1, 195) = 28.87$, $p < .001$). Both covariates—attitude toward the environment and religious affiliation—significantly influenced behavioral intention and hope, underscoring their relevance as control variables in the analysis. The results were consistent with Study 1.

Mediation analysis. The mediation analysis provides further insights into the relationship between appeal type and intention to reduce food waste. To test Hypothesis 3, we ran a mediation analysis using PROCESS Model 4 (Hayes, 2018) with 5,000 bootstrap samples. The analysis examined the indirect effects of a religious (vs. general) appeal on the intention to reduce food waste via hope. The result revealed a significant main effect of religious/general appeals on hope ($B = -0.43$, $SE = 0.16$, $t = -2.56$, $p = .011$) and of hope on intention to reduce food waste ($B = 0.30$, $SE = 0.06$, $t = 5.33$, $p < .001$). We also find a significant indirect effect of religious/general appeals on intention via hope ($B = -0.13$, $SE = 0.06$, 95% CI [-0.27, -0.03]). Specifically, the results show that religious appeals reduce hope, which, in turn, negatively affects the intention to reduce food waste, which rejects Hypothesis 3. We also controlled for the covariates on behavioral intention (attitude to the environment scores: $B = 0.41$, $SE = 0.07$, $t = 5.59$, $p < .001$, religious affiliation scores: $B = -0.07$, $SE = 0.07$, $t = -1.01$, $p = .31$) and on hope (attitude to the environment scores: $B = 0.36$, $SE = 0.09$, $t = 4.03$, $p < .001$, religious affiliation scores: $B = -0.44$, $SE = 0.08$, $t = -5.37$, $p < .001$; Table 1).

Discussion. These results reject Hypotheses 1 and 3 and show that religious (vs. general) appeals lead to lower intentions to reduce food waste and that the underlying mechanism is hope. Specifically, the results demonstrate that religious (vs. general) appeals lead to lower levels of hope, and consequently lower levels of intention to reduce food waste.

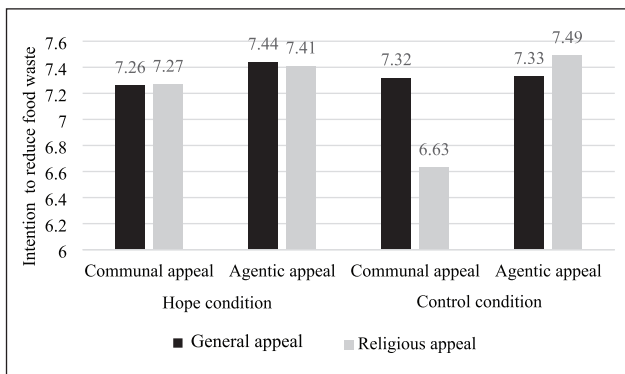


Figure 3. The interaction effect of two appeal types on behavioral intention in hope and control conditions (Study 3b).

Study 3b

Study 3b aimed to test Hypotheses 1, 2, and 3, but by designing two types of appeals. In addition to the religious (vs. general) appeal, the moderating effect of communal (vs. agentic) appeals was tested by two ads. In this study, the hypotheses were tested by using the “moderation of process” approach (Spencer et al., 2005). Specifically, if hope indeed mediates the effects of the appeals (religious/general and communal/agentic) on intention to reduce food waste, manipulating hope should attenuate the effects. We predict that differences between the appeals would emerge in the control condition but not in the hope condition.

Methods

Participants and design. Five hundred participants located in the U.S. were recruited using Amazon Mechanical Turk (51.6% male, $M_{age} = 43.6$, $SD = 12.83$). A similar amount to that in Study 1 was paid to participants for completing the survey. The results showed that 69.2% of participants identified as religious and 30.8% as non-religious, again indicating that any effect would not be caused by a sample skewed toward non-religious participants. This study used a 2 (appeals: religious and general) \times 2 (appeals: communal and agentic) \times 2 (emotion: hope and control) between-subjects design.

Procedure. Participants completed two ostensibly unrelated tasks. The first task was designed to elicit emotion states by asking participants to read a narrative (Griskevicius et al., 2010; Winterich & Haws, 2011). In the hope condition, participants imagined a hopeful situation in which they were looking for a job, whereas in the control condition, they imagined that they were doing laundry. As a manipulation check, participants indicated their level of hope with a single item (Winterich & Haws, 2011).

In the second task, the ads used in Study 2 were employed, but with a small change in the wording and reasoning. The ads now focus on food insecurity and saving lives (see Appendix A). As manipulation checks for the two appeal types, participants responded to the same three items used in Study 2. Similarly to the previous studies, they then answered questions about intention to reduce food waste ($\alpha = .91$), attitude to the environment ($\alpha = .92$), and demographics (age, gender, and religious affiliation).

Results and discussions

Manipulation checks. Three manipulation checks were conducted for emotion conditions and the two appeal types. Examination of hope scores revealed that in the hope condition, participants reported

higher levels of hope compared to those in the control condition ($M_{hope} = 7.87$, $M_{control} = 4.61$, $t = 15.95$, $p < .001$). Manipulation checks for religious/general appeals also showed that participants noticed a religious reference in the religious condition, but not in the general condition ($M_{religious} = 6.95$, $M_{general} = 2.13$, $t = 23.46$, $p < .001$). Likewise, manipulation checks for communal/agentic appeals showed that participants rated communal appeals more communal than agentic ($M_{agency} = 6.03$, $M_{communal} = 7.34$, $t = -6.28$, $p < .001$), while agentic appeals were rated as more agentic than communal ($M_{agency} = 5.94$, $M_{communal} = 3.97$, $t = 8.58$, $p < .001$). These results confirm that the manipulations effectively elicited the intended emotional and appeal conditions, ensuring the validity of the experimental design.

Intention to reduce food waste. Consistent with Hypothesis 3, we expected the moderating impact of communal (vs. agentic) appeals on the relation between religious (vs. general) appeals should be attenuated in the hope condition. We conducted a three-way ANCOVA with two appeal types, the emotion condition, and their interaction as the independent variable, and intention to reduce food waste as the dependent variable. We also included attitude to the environment and religious affiliation as covariates. Similarly to our previous studies, the covariates had a significant effect on intention (attitude to the environment scores: $F(1, 509) = 201.27$, $p < .001$, religious affiliation scores: $F(1, 509) = 7.71$, $p = .006$). The result also revealed a non-significant main effect of religious/general appeals ($F(1, 509) = 1.19$, $p = .275$) and of hope/control conditions ($F(1, 509) = 0.32$, $p = .569$), but a significant main effect of communal/agentic appeals ($F(1, 509) = 5.38$, $p = .021$) on intention to reduce food waste. Importantly, this was qualified by a marginally significant interaction between two types of appeals and the emotion condition ($F(1, 509) = 3.13$, $p = .077$). The marginally significant interaction between appeal types and the emotion condition suggests that the impact of the appeal type may depend on the emotional context, particularly in how the emotional condition (hope) interacts with the type of appeal used. (see Figure 3).

The results revealed a significant interaction effect between two types of appeals in the control condition ($F(1, 264) = 5.32$, $p = .022$), but not in the hope condition ($F(1, 243) = .02$, $p = .888$). In the control condition, participants evaluating communal ads showed lower intention in the religious condition ($M_{religious} = 6.63$, $M_{general} = 7.32$, $F(1, 264) = 7.08$, $p = .008$), but there were no differences between religious/general appeals in the agentic condition ($M_{religious} = 7.49$, $M_{general} = 7.32$, $F(1, 264) = 0.39$, $p = .530$). In the hope condition, however, these differences were non-significant in both communal ($F(1, 243) = .001$, $p = .974$) and agentic conditions ($F(1, 243) = 0.03$, $p = .867$). The results are consistent with Studies 1 and 2 and reject Hypotheses 1, 2, and 3.

Discussion. The results of Study 3b show that after manipulating the feeling of hope, the evaluation of the appeals did not show a difference in intention among participants in the hope condition, but participants showed higher intention when a general appeal was paired with a communal appeal in the control condition. This rejects the Hypotheses, but it is in line with Studies 1 and 2 that a religious (vs. general) appeal leads to lower intention to reduce food waste when moderated by communal (vs. agentic) appeals. Importantly, the results using the moderation-of-process show that hope is the underlying mechanism.

General discussion

This research investigates the effect of religious (vs. general) and communal (vs. agentic) appeals on intention to reduce food waste and examines the effect of hope as the underlying mechanism. Across

four studies, we showed that moderated by a communal (vs. agentic) appeal (Study 2 and Study 3b), religious (vs. general) appeals lead to lower intention to reduce food waste (Study 1, Study 2, Study 3a, and Study 3b), and that hope is the underlying mechanism of this effect (Study 3a and Study 3b).

Our research has several contributions. First, our findings add to the literature on religious appeals by showing that a religious (vs. general) appeal leads to lower intentions to reduce food waste. This is a novel contribution, as it identifies a context in which religious appeals can backfire. One potential explanation—also reflected in our original assumption—lies in the pragmatic nature of food waste. Reducing food waste is typically perceived as a practical, solution-oriented behavior, associated with planning, efficiency, and sustainability—domains often aligned with scientific reasoning (EPA, 2025; J. Kim et al., 2019; Lim et al., 2017; Urugo et al., 2024). Within this framework, religious appeals may appear less relevant or even incongruent, thereby weakening their persuasive impact. According to Henley et al. (2009), when perceived as irrelevant to the advertising context, religious appeals can backfire. This interpretation is further supported by findings that religious and scientific framings are often seen as incompatible (Isaac et al., 2021). Cam et al.'s (2025) meta-analysis also reinforces the view that the effectiveness of religious appeals is highly dependent on the context. The current study contributes to this literature by offering empirical evidence that, in contexts emphasizing practical, science-based solutions, religious messaging may be less persuasive—or even counterproductive.

Second, it contributes to hope theory by showing that general appeals paired with communal framing lead to an increase in state hope. This adds to the literature by demonstrating, for the first time, that advertisements explicitly designed around the internal and external dimensions of hope show that only the external dimension—in this case, communal support—effectively elicits hope. Prior research has primarily examined these dimensions through self-report scales and has found that both can be associated with higher levels of hope (Bernardo & Nalipay, 2016; Bernardo et al., 2017; Demirli et al., 2015; Y. Jiang et al., 2018; Ong et al., 2006; Schornick et al., 2023; Strauss et al., 2015), though the results have sometimes been inconsistent particularly when the effectiveness of receiving support from God was explored (Bernardo et al., 2018; H. F. Du & King, 2013). Our study moves beyond measurement by applying the theoretical dimensions of hope theory in a message design context and empirically testing their effects. Our results show that only the external source of hope—specifically, support from the community—is effective in eliciting state hope in the context of food waste reduction. This is a significant contribution, as it demonstrates the practical application of hope theory in persuasive communication and highlights the unique role of external, communal support in fostering hope for action. Further, this research shows that hope is not solely about feeling good about the future, but also about the contextual relevance of its source. This is also consistent with prior research by Chernyak-Hai et al. (2024) showing that perceived organizational support leads to hope, and also aligns with work demonstrating that communal motivation is associated with positive valence (Suitner & Maass, 2008).

Furthermore, while extending hope theory by showing that support from God does not lead to state hope, our findings challenge earlier studies linking higher religiosity with greater trait hope—a more stable, enduring characteristic (Aghababaei et al., 2016; Ai et al., 2007; Chang et al., 2013; Counted et al., 2022). These studies suggest that religious belief strengthens internal hope, yet our research reveals a paradox: although religiosity is often associated with trait hope, religious messaging may reduce state hope. Our findings align with Casidy et al. (2021), who showed that religious belief

and religious priming can have divergent effects on behavior, suggesting that “the influence of religious priming on behavior dampens the effect of the religious belief” (p. 776). While we did not intend to directly compare belief and priming, our study similarly shows that religious appeals underperform in eliciting state hope—particularly when compared to general, communal appeals. One possible explanation lies in the nature of the context. Reducing food waste requires actionable steps (J. Kim et al., 2019; Lim et al., 2017; Urugo et al., 2024) and a sense of personal or collective efficacy (Ivanovic et al., 2025; Schanes & Stagl, 2019). When religious appeals focus mainly on moral or spiritual obligations without offering practical guidance, they may feel abstract or disconnected from the behavior. This lack of relevance may cause these messages to fail (Henley et al., 2009; Isaac et al., 2021), reducing individuals' confidence in their ability to make a meaningful impact. In contrast, general communal appeals not only provide relevant information but also convey social support, making individuals feel they are part of a collective effort. This combination of guidance and support fosters more concrete motivations, enhancing hope. Thus, when an appeal is perceived as irrelevant or misaligned with the behavior, it can hinder, rather than help. Therefore, the effectiveness of religious messaging in promoting hope and behavioral intention depends largely on its alignment with the practical and motivational needs of the context.




Third, our findings contribute to the literature on communal versus agentic motivations by demonstrating that general appeals should be paired with communal framing to increase the intention to reduce food waste. This extends existing research by offering a deeper understanding of how communal motivations influence behavioral change. While prior work has linked communal traits with social assimilation rather than religiosity (Gebauer, Paulhus, et al., 2013), our results suggest that communal appeals foster a sense of collective effort, helping individuals feel they are not alone in addressing a significant issue like food waste. However, our research also shows that communal appeals alone are insufficient. They need to be paired with general appeals that raise awareness of the issue and its significance. Our findings provide empirical support for J. Kim et al. (2019), who argue that personal interactions humanize the food waste issue, making it more relatable and actionable. Y. Dai et al. (2016) also support this, demonstrating that campaigns with interpersonal elements are more effective in prompting behavioral change. Importantly, this pairing cannot include religious appeals, as they may be perceived as value-laden or moralizing, especially in a context that requires clear, practical, and science-based solutions.

Finally, this research contributes to the growing food waste literature by identifying message strategies that effectively enhance state hope and intention to reduce food waste. From a practical standpoint, our findings offer actionable guidance for designing persuasive communications—demonstrating that general appeals with communal framing are more effective than religious appeals in this context. This underscores the importance of tailoring messages to align with the pragmatic and solution-focused nature of food waste reduction efforts. It also challenges the assumption that religious framing is universally persuasive, highlighting the need to carefully consider contextual relevance when crafting messages for behavioral change and promoting sustainability.

This research has several limitations, each of which provides important avenues for future studies. First, while we found that religious (vs. general) appeals led to lower levels of state hope, prior studies have shown that religiosity is generally associated with higher levels of trait hope. Given the significant role of religiosity in consumer behavior (Casidy et al., 2021), the widespread use of religious appeals in advertising (Zehra & Minton, 2020), and the centrality of food and food waste in many religious traditions, future research

should investigate the conditions under which religious appeals might effectively reduce food waste. Second, while we took precautions to ensure high data quality through MTurk, future research could replicate these findings using alternative platforms such as Prolific to increase generalizability and strengthen the robustness of the results. Furthermore, another limitation of this study is the use of a U.S.-based sample, where Christianity is the predominant religion (PRC, 2025; Statista, 2024). We focused on Christian-based appeals to ensure cultural relevance for this sample. However, this focus may restrict the generalizability of the findings, particularly in more culturally or religiously diverse settings. It remains uncertain whether similar effects would be observed among participants from other religious traditions. Future studies should expand the scope to include other faith groups and cross-cultural samples to assess the broader applicability of these findings. Finally, although we controlled for religious affiliation and environmental attitudes, we did not account for other potential confounding variables, such as prior food waste behavior, socioeconomic status, and cultural background. Future research should consider these factors to gain a deeper understanding of how religious appeals impact food waste behaviors.

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Note

1. Across all four studies, we prioritized data quality by selecting MTurk participants located in the United States who had a strong track record, indicated by an approval rating of 95% or higher. Previous research supports the use of U.S.-based samples as a reliable method for enhancing data validity (Kees et al., 2017; Smith et al., 2016). Additionally, Peer et al. (2014) suggest that “sampling high-reputation workers [95% approval ratings] can ensure high-quality data without having to resort to using ACQs [attention check questions]” (p. 1023).

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Appendix A

Study 1: Religious versus general appeals

Reduce Food Waste

In the US, households are wasting 30% of their food each year, causing financial, social and environmental issues.

As **Christians**, we believe in the **Lord's wonder working power and our ability** that we can reduce food waste and address its related issues.

Zero Waste Church

Reduce Food Waste

In the US, households are wasting 30% of their food each year, causing financial, social and environmental issues.

As **consumers**, we believe in **our ability** that we can reduce food waste and address its related issues.

Zero Waste

Study 3a: Religious versus general appeals

Jesus said: let no food be wasted

In the US, each family is wasting 30% of food, costing us money and damaging the environment.

As **Christians**, if we reduce food waste, **God** will help us save money and protect the environment.

zerowastechurch.org

Let no food be wasted

In the US, each family is wasting 30% of food, costing us money and damaging the environment.

As **citizens**, if we reduce food waste, we will save money and protect the environment.

zerowaste.org

Study 2: Religious and agentic condition Instruction

This is an ad from ZeroWasteChurch.org trying to help people to reduce food waste. Please take a moment to look over this advertisement. Zero Waste Church embraces faith and spreads knowledge of what each person can do individually to reduce food waste.

Study 3b: Religious and agentic condition Instruction

This is an advertisement from ZeroWasteChurch.org trying to help people to reduce food waste. Please take a moment to look over this ad. Zero Waste Church embraces faith and spreads knowledge of what each person can do individually to reduce food waste, increase food security, and save lives.

YOU = The Planet - Saver

Sometimes, one person needs to come forward and take individual action. This is one of those times. **Take individual action** to:

- Reduce Food Waste
- Protect your **Sacred Planet**

Show your faith and see what you can achieve.

zerowastechurch.org

In the US, food waste is a severe issue. Each family is wasting 30% of their food, damaging the environment and increasing food insecurity.

You can save lives

Sometimes, the actions of one person will make all the difference. This is one of those times. **Take individual action** to:

- Reduce Food Waste
- Increase food security
- Save lives

Show **your faith** and see what you can achieve.

zerowastechurch.org

In the US, food waste is a major issue. Each family is wasting 30% of their food, while 1 in 9 Americans faces food insecurity.

General and communal condition Instruction

This is an ad from ZeroWaste.org trying to help people to reduce food waste. Please take a moment to look over this advertisement. Zero Waste spreads knowledge of what all of us can do together to reduce food waste.

General and communal condition Instruction

This is an advertisement from ZeroWaste.org trying to help people to reduce food waste. Please take a moment to look over this ad. Zero Waste spreads knowledge of what all of us can do together to reduce food waste, increase food security, and save lives.

Let's Save The Planet Together

Sometimes, one community needs to come forward and support a common goal. This is one of those times. **Join your community** to:

- Reduce Food Waste
- Protect our Planet

Let's show we care and see what we can achieve together.

zerowaste.org

In the US, food waste is a severe issue. Each family is wasting 30% of their food, damaging the environment and increasing food insecurity.

We can save lives together

Sometimes, the actions of the community will make all the difference. This is one of those times. **Take communal action** to:

- Reduce Food Waste
- Increase food security
- Save lives

Let's show we care and see what we can achieve together.

zerowaste.org

In the US, food waste is a major issue. Each family is wasting 30% of their food, while 1 in 9 Americans faces food insecurity.

Appendix B: Scales

Scale	Items
Intention to reduce food waste	How likely are you to stop wasting food? How inclined are you to stop wasting food? How willing are you to stop wasting food?
Hope	In general, after watching the ad, do you feel hope?
Attitude to the environment	I am concerned about the environment. The condition of the environment affects the quality of my life. I am willing to make sacrifices to protect the environment.
