A MORAL PERSPECTIVE ON GUILT APPEALS:
EXAMINING THE MORAL MATCHING EFFECT

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ABSTRACT

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As a moral emotion, guilt can serve as a mechanism in social influence. However, literature showed that the effects of guilt appeals were mixed. This indicates that scholars scarcely understand the conditions under which guilt appeals work effectively. Drawing from Moral Foundation Theory (Graham et al., 2013), this study investigated the moderating role of moral foundations in guilt appeals. I argued that the match between the transgression focus of a guilt appeal and an endorsed moral foundation would increase the intensity of perceived guilt and reduce psychological reactance, thereby leading to a more positive attitude and stronger behavioral intention. A single factorial (care/harm guilt appeal vs. purity/degradation guilt appeal vs. liberty/oppression guilt appeal vs. control message) between-subject experiment was conducted to test the moral matching effect in the context of reducing children's consumption of sugary drinks. Results showed that care-focused guilt appeal elicited more guilt and less psychological reactance than purity-focused and liberty-focused guilt appeals. More importantly, the purity foundation mitigated the negative effect of purity-focused guilt appeal on psychological reactance, particularly on anger. The explanations for the findings, theoretical and practical implications, limitations of the study, and future research directions were discussed.

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INTRODUCTION

Emotional appeals are persuasion strategies that have the intent of changing message recipients' beliefs, attitudes or behaviors through the intentional use of an emotion-based framing (Dillard & Peck, 2000; Nabi, 2003). As one type of emotional appeal, guilt appeals have been shown to play a role in shaping attitudes and promoting behavioral intentions across various contexts such as STI prevention and climate change (Turner, 2012); however, the effectiveness of this strategy is disputable. Although some research has demonstrated that guilt is an effective strategy to influence attitudes and intentions (Basil et al., 2006, 2008; Chang, 2011, 2012; Lee, 2013; Turner & Underhill, 2012), other studies find that guilt appeals have a small effect (Antonetti et al., 2018), or a negative effect on attitudes and intentions (Bessarabova et al., 2015; Jiménez & Yang, 2008). As such, scholars of emotions do not fully understand the conditions under which guilt appeals affect persuasive outcomes nor do they understand the underlying mechanisms that explain those effects.

In this study, I will explicate the relationship between guilt and message persuasiveness and investigate the moderating effects of moral foundations in a public health context. Drawing from Moral Foundations Theory (MFT; Graham et al., 2013), I argue that the match between the focus of the moral transgression communicated in the guilt appeal (message variable) and individuals' endorsed moral foundation (individual difference variable) will both increase perceived guilt and reduce psychological reactance (Brehm & Brehm, 1981), and thus improve persuasive outcomes. This study will bridge the gap between guilt appeal research and moral persuasion and provide a new theoretical perspective to study guilt appeals. The study will also render practical implications for message designers and health communicators who want to use guilt appeals in campaigns.

The paper is organized as follows. First, I introduce guilt as a moral emotion and discuss the concept of guilt appeals. Next, I review the effects of guilt appeals and explain the relationship between guilt intensity and persuasive outcomes. Then I argue that focusing on the moral perspective is promising to guilt appeal research. After that, MFT is introduced, relevant moral persuasion studies are reviewed, and the matching effects between the transgression focus of guilt appeal and moral foundation are discussed. Finally, I present the research design and the findings.

LITERATURE REVIEW

Guilt: A Moral Emotion

The core relational theme of guilt is related to moral transgression (Lazarus, 1991). Guilt is aroused when individuals realize that they have committed a moral transgression or anticipate that a violation of moral rules will happen in the future (Lazarus, 1991; O'Keefe, 2002). People can also experience guilt without having engaged in a morally deficient behavior that violates their own moral standards. Huhmann and Brotherton (1997) divided guilt into three subcategories: reactive guilt (i.e., an individual has committed a moral transgression), existential guilt (i.e., an individual is comparing self with others), and anticipatory guilt (i.e., an individual envisions a future or potential moral transgression).

From the perspective of cognitive appraisal theories, guilt is elicited when people appraise situations or stimuli as high self-control and high self-responsibility (Lazarus, 1991; Lerner & Keltner, 2000; Smith & Ellsworth, 1985; Smith & Lazarus, 1993). Individuals who feel guilty believe that morally deficient behaviors they personally engaged in (or could perform in the future) are not attributed to a third party or surroundings/contexts but to themselves. For guilt to occur, individuals need to believe that they had a choice in engaging (or potentially engaging) in immoral actions and are responsible for their (future) moral transgressions (Lazarus, 1991; Tangney et al., 1996).

Guilt is associated with making moral judgement about the self's behavior (Tangney, 1992). Notably, guilt is a response to a moral violation and arises as a result of perceived moral transgressions. Moreover, guilt is related to moral behavioral intention (Tangney et al., 2007). As a self-conscious emotion, guilt is often accompanied with self-evaluation and self-reflection, which prompts reparative actions (Roseman et al., 1994; Tangney, 1999). Individuals feeling

guilty often regret the perceived wrong behaviors they have committed, want to be forgiven, and hope to take compensatory measures to alleviate negative feelings caused by guilt and re-meet their moral standards (Izard, 1977; Lazarus, 1991). Therefore, guilt creates a motivational force and spurs moral behaviors such as helping others (Boster et al., 1999). As O'Keefe (2000) argued, message induced guilt can serve as a mechanism in social influence.

Given its concept, origin and social function, the moral nature of guilt is worthy of attention and should be a focus in the studies investigating the role of guilt in message processing and effects. In the following sections, I will discuss the conceptualization of guilt appeals and elaborate the message effects of guilt appeals.

The Concept of Guilt Appeals

Emotional appeals are defined by the linguistic devices they employ (O'Keefe, 2003). O'Keefe (2000) proposed that guilt appeals are comprised of at least two basic elements: (1) a message component that intends to arouse guilt by indicating the inconsistency between one's standard and behavior and (2) a call of compensatory actions that can make amends for the transgression (also see Turner & Rains, 2021).

It is important to note that this definition of guilt appeals does not use the psychological or emotional outcomes of the appeal as its definition. This is critical for a few reasons. First, the ability of an emotional appeal to evoke a particular emotion is contingent upon the receiver's outcome involvement or perceived importance of the issue. Hence, a guilt appeal could ostensibly not cause guilt if the audience member has never engaged in the behavior discussed in the message or if the topic was irrelevant or unimportant to them. Second, message recipients can experience guilt when they are exposed to other types of emotional appeals (e.g., a shame appeal), rendering it impossible that experienced guilt is the only indicator of the emotional

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appeal (Boudewyns et al., 2013). An emotional appeal can elicit multiple discrete emotions (Dillard et al., 1996; Dillard & Nabi, 2006; Boudewyns et al., 2013). Defining guilt appeals based on how much guilt one experiences obfuscates the boundary between guilt appeal and other emotional appeals. Finally, defining guilt appeals from message features allows researchers and message designers to create guilt appeals in a consistent way and examine message effects systematically, whereas defining guilt appeal from emotion induction leads to idiosyncratic message operations, which may increase confounds in research and result in meaningless comparison between messages (O'Keefe, 2003).

The Effects of Guilt Appeals

It has been argued that receivers of guilt appeals who experience feelings of guilt are more motivated to alleviate the unpleasant emotional state and make reparation for the transgressions, thus complying with the recommended actions in the message (Boster et al., 1999; O'Keefe, 2000). The persuasiveness of guilt appeals has been found in diverse contexts ranging from marketing domains to prosocial areas, including brand evaluation and purchase intention (Coulter & Pinto, 1995; Pinto & Priest, 1991; Pinto & Worobetz, 1992), charity donation (Basil et al., 2006, 2008; Chang, 2014; Lwin & Phau, 2014), organ donation (Lindsey, 2005; Lindsey et al., 2007; Wang, 2011), pro-environmental behavior (Antonetti et al., 2018; Chang, 2012; Elgaaied, 2012), and health-related behavior (Boudewyns et al., 2013; Lee & Paek, 2013; Netemeyer et al., 2016; Turner & Underhill, 2012).

However, guilt appeals do not always change or affect persuasive outcomes. Some forms of guilt appeals can elicit psychological reactance, an aversive state comprised of anger and counterarguing (Brehm & Brehm, 1981; Dillard & Shen, 2005; Rains, 2013; Rains & Turner, 2007). The theory of psychological reactance proposes that when individuals perceive their

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freedoms are threatened with elimination or are eliminated, they experience psychological reactance and are motivated to restore threatened freedoms (Brehm, 1966; Brehm & Brehm, 1981). When message recipients perceive that guilt appeals are manipulative and limit their freedom to choose an alternative, they may experience reactance, getting angry at the message and its source and counter-arguing the points in the message. Consequently, the persuasiveness of guilt appeals decreases.

Several studies have found that intense guilt appeals can cause anger and perceptions of being manipulated (Bessarabova et al., 2015; Coulter & Pinto, 1995; Pinto & Priest, 1991; Turner et al., 2018). Guilt appeal intensity refers to "the explicitness with which the message attempts to evoke guilt in the receivers" (O'Keefe, 2000, p. 80). Early studies suggested that there was a curvilinear relationship (i.e., inverse-U shape) between guilt appeal intensity and persuasive outcomes. For instance, Pinto and Priest (1991) investigated the effects of guilt appeals with three different levels of intensity (i.e., low vs. moderate vs. high) on working mothers' perceived guilt and purchase intention. They found that the moderate guilt appeal elicited greater amount of guilt and lead to stronger purchase intention than weak guilt appeal and strong guilt appeal. They also found that the high intensity guilt appeal elicited the most anger, followed by the moderate guilt appeal, and the low guilt appeal elicited the least anger. Coulter and Pinto (1995) further examined the relationship between guilt appeal intensity and persuasive outcomes in commercial contexts. Their results showed that participants exposed to moderate guilt appeals had stronger guilty feelings and more positive attitudes toward message and brand than participants exposed to weak or strong guilt appeals. Again, they found that the high guilt appeals elicited the strongest anger. Of note, the inverse-U relationship between guilt

appeal intensity and attitudes was merely found in the domain of advertising and marketing (Turner et al., 2018).

However, when health and risk communication scholars embarked on guilt appeal research, their experimental investigations showed different findings on the effects of guilt appeals. Multiple studies suggested that there was a positive and linear relationship between guilt appeal intensity and message persuasiveness (Lindsey, 2005; Lindsey et al., 2007; Turner & Underhill, 2012; Wang, 2011). For example, in Lindsey's (2005) study, participants were assigned randomly to one of three guilt appeals varying in guilt intensity about bone marrow donation, and she found that guilt appeal intensity was positively associated with amount of perceived guilt and donation-registry-related intention in a linear fashion. Turner and Underhill (2012) examined the effects of guilt appeals in the context of emergency preparedness. They found that strong guilt appeals elicited greater guilt than weak and moderate guilt appeals, and perceived guilt was positively related to risk perception on terrorist attacks and attitude toward preparing for the disaster.

On the contrary, other studies indicated that guilt appeal intensity was negatively related to persuasive outcomes (Bessarabova et al., 2015; Jiménez & Yang, 2008). For instance, Bessarabova et al. (2015) investigated how high school students responded to guilt appeals, but they found that guilt appeals did not work among adolescents, and participants even had a less positive attitude toward taking school seriously when they received more intense guilt appeals.

The mixed results of guilt appeals point to the likelihood of moderators in guilt appeal research. Boudewyns et al. (2013) investigated the influence of shame theme in guilt appeals. They found that compared to individuals who received a shame-free guilt appeal, individuals who received a shame-infused guilt appeal felt greater anger and had stronger feelings of being

manipulated by the message. The authors argued that high-intensity guilt appeals designed in previous research may be shame-infused guilt appeals containing shame language that increased message recipients' perceived threat to freedom and elicited psychological reactance, thereby leading to a less positive attitude. These results were also consistent with Bennett's (1998) finding that individuals exposed to high-intensity guilt ads had more favorable responses than individuals exposed to high-intensity shame ads.

Another moderator is profit motive. Turner et al. (2018) found that when the sponsor motive of guilt appeals was commercially oriented, strong guilt appeals resulted in less message liking than weak and moderate guilt appeals, but message liking was not significantly different among nonprofit guilt appeals. Profit guilt appeals were equivalently persuasive regardless of appeal intensity, whereas nonprofit guilt appeals with high intensity were significantly more persuasive than those with low or moderate intensity.

Other than message variables, demographic variables may also moderate the effects of guilt appeals. Bessarabova et al. (2015) suggested that age may be a key moderator as they discovered that guilt appeals backfired among adolescents. Basil et al. (2008) examined the effects of guilt appeals in the context of charity donation and found that age, income, and sex were significantly associated with perceived guilt and donation intention. In the study, younger female participants who had lower incomes were more likely to donate.

The existent literature on guilt appeals clearly shows that the impact of guilt appeals is moderated by multiple factors. In fact, Turner and Rains's (2021) meta-analysis of 26 experiments on guilt appeals across diverse topics (e.g., health and commercial) revealed that guilt appeal intensity did not have a linear nor a curvilinear relationship with attitudes and behavioral intentions. This fully moderated model indicated that guilt appeals worked only under

certain conditions (e.g., evoking strong feelings of guilt with little anger). To advance our understanding of guilt appeals, it is imperative to explore and examine more moderators that influence the effects of guilt appeals.

Surprisingly, no one has investigated the impact of individual moral concerns in guilt appeal research. Recall that guilt is a moral emotion of which the core relational theme is related to moral transgressions (Lazarus, 1991). To arouse guilt, guilt appeals need to help message recipients realize that they have committed or will commit moral transgressions, and they are responsible for the transgressions. However, individuals may not perceive equivalent amount of guilt when they conduct a same morally deficient behavior. For example, student A may feel extremely guilty after he or she copied other students' homework because the student thinks fairness is a critical moral value, and academic plagiarism is unfair to other students. On the contrary, student B who also plagiarizes the same work may not perceive too much guilt because he or she thinks being harmless is the most important virtue but stealing does not really hurt anyone. Accordingly, student B probably will not be persuaded by the guilt appeal that indicates academic plagiarism is a serious moral transgression leading to unfairness. Pluralism theories in moral psychology posit that morality does not only have one basic value but contain multiple moral principles (Haidt & Joseph, 2004; Shweder et al., 1997). Moreover, the salience of moral principles varies person to person and culture to culture (Haidt & Joseph, 2008). By this logic, there is also a set of types of moral transgressions that cause different levels of perceived severity and responsibility of transgression, which influences the quantity of guilt perceived by transgressors. Therefore, focusing on the moral dimension of persuasion is key to guilt appeal research. I argue that individual moral foundation is an essential moderator of guilt appeals, and the match between type of moral transgression (message variable) and endorsed moral

foundation (individual variable) can improve message persuasiveness. In the next section, I will introduce the Moral Foundations Theory and review relevant studies on moral persuasion.

Moral Foundations Theory

The Moral Foundations Theory (MFT; Graham et al., 2013; Haidt, 2012) proposes that individuals develop moral opinions based on multiple moral principles called moral foundations. These moral foundations function as the basis to build morality and guide moral judgements. The theory consists of four primary propositions. First, the MFT posits that "there is a first draft of the moral mind" (Graham et al., 2013, p. 63) developed in human evolutionary history to overcome adaptive challenges such as protecting offspring and avoiding contagious diseases. The draft of moral mind is universal, and it precedes any individual experience. Second, the draft of the moral mind can be revised and shaped via cultural learning. Individuals who live in different societies and have distinct cultural experiences may endorse different moral foundations (Haidt & Joseph, 2008; Haidt et al., 1993). Third, in most situations, individuals tend to make a moral judgement based on moral intuitions rather than moral reasoning (Haidt, 2001; Haidt, 2012). Moral intuition refers to "the sudden conscious appearance of a moral judgment, including an affective valence (good-bad, like-dislike) without any conscious awareness of having gone through steps of searching, weighing evidence, or inferring a conclusion" (Haidt, 2001, p. 818). It is a gut feeling that occurs rapidly and automatically without effortful thinking. In contrast, moral reasoning is more like arguing for one's moral judgement, which occurs purposefully and demands thoughtful deliberation. Finally, consistent with the perspective of moral pluralism, the MFT presents six moral foundations that has been evidenced by research, including care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, sanctity/degradation, and liberty/oppression.

Individuals who endorse the care/harm foundation favor the virtue of caring for others and criticize harming innocent people. Individuals who have a strong fairness/cheating foundation highly appraise the moral value of fairness and justice and oppose cheating and deception. The loyalty/betrayal foundation is associated with evaluating the extent to which a person devotes to himself or herself to collectives. Individuals who highlight this moral concern advocate the virtue of patriotism and self-sacrifice for the collective. The authority/subversion foundation involves endorsing social order in a hierarchical system and approving the virtue of being obedient and deferential to authority. Individuals who own a solid sanctity/degradation foundation praise the virtue of purity and sacredness. Many of them will feel disgusted when they perceive something or someone is unnatural, unclean and impure (e.g., homosexuality). Liberty/oppression foundation highlights the significance of freedom and autonomy. Individuals who prioritize liberty/oppression foundation (e.g., libertarians) strongly value liberty and less often consider other moral concerns (Iyer et al., 2012). Although the MFT does not indicate an exact number of moral foundations, the aforementioned six moral foundations have been commonly found across cultures (Haidt & Joseph, 2008; Iyer et al., 2012; Nilsson & Erlandsson, 2015; Talhelm et al., 2015; Yilmaz et al., 2016).

MFT not only succinctly taxonomizes human morality but also provides an effective research framework to explain diverse social behaviors. Research shows that moral foundation is highly associated with political ideology and behaviors related to political issues or politicized social topics, including presidential voting (Enke, 2020; Franks & Scherr, 2015), illegal immigration (Koleva et al., 2012), and climate change (Dickinson et al., 2016). In the arena of American politics, liberals tend to make moral judgements depending on harm, fairness, and liberty foundations, whereas the moral opinions of conservatives relatively rest on all six

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foundations (Graham et al., 2009; Hadit, 2012; Iyer et al., 2012). Liberals evaluate a person more negatively than conservatives when they think the person morally violated care or fairness foundations, whereas conservatives have more negative attitudes toward the transgressor than do liberals if they violate loyalty, authority, or sanctity foundations (Smith et al., 2019). Besides, multiple studies found that moral concerns predicted health-related attitudes and behaviors (Amin et al., 2017; Christie et al.,2019; Karimi-Malekabadi et al., 2021; Rossen et al., 2019). For example, to understand the relationship between intuitive moral judgements and parental vaccine hesitancy about the HPV vaccine, Amin et al. (2017) investigated American parents' attitudes toward childhood vaccination, vaccine behaviors, and moral foundation endorsement. They found that compared to low-hesitancy parents, medium-hesitancy parents had a stronger preference for sanctity and purity, and high-hesitancy parents emphasized both sanctity and liberty foundations. These findings indicated that sanctity and liberty foundations may predict parental vaccine hesitancy more reliably than harm foundation which was commonly believed as an important predictor. Karimi-Malekabadi et al. (2021) examined how county-level endorsement of moral foundations was related to COVID-19 vaccination rate. They found that the model including moral foundations as additional predictors explained more variance than the model only using demographics and political affiliation as predictors. Fairness and loyalty foundations positively predicted vaccine rate, whereas sanctity foundation made a negative prediction. Other than health and political domains, moral foundation is also likely to explain the intention of prosocial behavior such as charity donation (Hoover et al., 2018). In the area of media entertainment and selection, the model of intuitive morality and exemplars (MIME) was developed based on MFT to shed light on the reciprocal influence of media content and viewers' morality (Tamborini, 2011).

Moral Framing, Matching Effects and Guilt Appeals

Based on MFT, a set of persuasion studies examine the effects of moral framing on message recipients. Moral framing refers to a message strategy that makes efforts to persuade people by unfolding specific issues with moral terms and linking the issues to moral values of audience (Feinberg & Willer, 2019). Given that the "cultural war" between political parties in the American public field become more significant, this body of scholarship mostly involves political or politicized subjects such as environmental conservation (Kidwell et al., 2013; Wolsko et al., 2016), vaccination importance (Amin et al., 2017), same-sex marriage (Feinberg & Willer, 2015), and presidential voting (Voelkel & Feinberg, 2018). Notably, researchers found that when these contentious issues in messages were framed in moral terms appealing to strongly endorsed moral foundations, the message recipients who usually hold a hostile position were more likely to be persuaded to change attitudes. For instance, in Feinberg and Willer's (2013) study about the effects of moral messages on environmental attitudes, participants were randomly assigned to one of three conditions and were asked to read a care/harm message, a sanctity/degradation message or a control message irrelevant to the issue of environment. The results showed that in the care/harm and control conditions, conservatives who were typically regarded as opponents of environmental protection reforms scored significantly lower on the pro-environmental attitudes than liberals who generally advocate policies intended to improve the environment. However, the pro-environmental attitudes were not significantly different between conservatives and liberals who received the sanctity/degradation message. In the domain of relatively apolitical context such as smoking prevention, Yang (2019) also showed similar results. He found that the persuasiveness of care/harm moral appeals increased as message recipients had a stronger endorsement of care/harm foundation.

The persuasive effects of morally framed messages can be explained by the moral matching hypothesis that message recipients' attitudes are likely to be influenced when they perceive a match between their endorsed moral foundations and the moral arguments in the message (Feinberg & Willer, 2019; Luttrell et al., 2019). Value-expression is one of the basic functions that attitude serves (Katz, 1960). Research has shown that messages were more persuasive when they targeted the attitude's function of the audience more precisely (Carpenter, 2012). Moral values are crucial to one's concept and deeply entrenched in individuals. Along with the logic of functional approach of attitude, message recipients are not motivated to discount or counter argue a persuasive message that highlights the moral values to which individuals' attitudes are anchored. As a results, message recipients intuitively judge the moral values that the message communicates and may change their attitudes if they resonate with the matched moral arguments.

Guilt appeals are similar to moral appeals as they both share some message components (e.g., moral arguments) and arouse the audience's sense of morality. They differ in that guilt appeals particularly aim at evoking the specific moral emotion of guilt, but moral appeals are not designed with this purpose. Lipstiz (2018) argued that moral appeals used in political campaigns were inherently emotional appeals as they were strategically designed to evoke message receivers' emotions. Moral appeal research also showed that moral appeals indeed elicited multiple moral emotions (e.g., anger and disgust), and these emotions have been found to mediate the effects of moral appeals (Yang, 2019). Comparably, it is possible that individual moral foundations impact the extent to which receivers of guilt appeals perceive the severity of moral transgression and therefore affect how much guilt message receivers feel. In the case shown earlier, a student who strongly endorses care foundation may not feel academic plagiarism

is a serious moral violation when told that it is unfair to other students. Yet if the person believes fairness is the most important moral principle and receives the message indicating plagiarism leads to unfairness, it is reasonable to speculate that he or she perceives plagiarism is a severe moral transgression and therefore experiences a large amount of guilt. Guilt appeal research showed that the discrepancy between moral standards and actual behaviors (i.e., perceived severity of moral transgression) was positively related to the extent of perceived guilt (Bessarabova et al., 2015). Based on above reasoning, the match between the transgression focus of the guilt appeal and endorsed moral foundation may influence the intensity of perceived guilt. Considering the moral principal differences across liberals (mainly endorsing care and fairness foundations), conservatives (endorsing all foundations) and libertarians (prioritizing liberty foundation above others) as well as appropriate moral transgression foci that can be framed in guilt appeals that aim to promote healthy behaviors, this study will examine the matching effects regarding care, purity, and liberty foundations.

H1: There will be a moral matching effect on perceived guilt such that **(a)** when receiving a care-focused guilt appeal, message recipients who have a stronger care foundation will perceive more intense guilt than those who have a weaker care foundation; **(b)** when receiving a purity-focused guilt appeal, message recipients who have a stronger purity foundation will perceive more intense guilt than those who have a weaker purity foundation; and **(c)** when receiving a liberty-focused guilt appeal, message recipients who have a stronger liberty foundation will perceive more intense guilt than those who have a weaker liberty foundation.

Moral message-foundation match may also enhance the effectiveness of guilt appeals by reducing counterarguing. When guilt appeals are poorly designed (e.g., including shame

language) or they are sent to an inappropriate audience (e.g., adolescents), receivers of guilt appeals experience reactance and thus have a less positive outcome attitude (Bessarabova et al., 2015; Boudewyns et al., 2013; Quick et al., 2015). Even though message designers attempt to create effective guilt appeals, reactance is also likely to be aroused because diverse message variables beyond one's consideration can lead to anger and counterarguing. Given that moral appeal research suggests that the message-foundation match can strengthen the moral arguments of the message and improve message persuasiveness (Feinberg & Willer, 2019; Yang, 2019), the match may cause similar effects in the case of guilt appeals. Where there is a match, receivers of guilt appeal are less likely to perceive any manipulative intent of the message and refute the moral arguments which are consistent with their prioritized moral values. Therefore, I put forth the following hypotheses:

> **H2**: There will be a moral matching effect on psychological reactance such that **(a)** when receiving a care-focused guilt appeal, message recipients who have a stronger care foundation will experience less reactance than those who have a weaker care foundation; **(b)** when receiving a purity-focused guilt appeal, message recipients who have a stronger purity foundation will experience less reactance than those who have a weaker purity foundation; and **(c)** when receiving a liberty-focused guilt appeal, message recipients who have a stronger liberty foundation will experience less reactance than those who have a weaker liberty foundation.
>
> **H3**: There will be a moral matching effect on attitude such that **(a)** when receiving a care-focused guilt appeal, message recipients who have a stronger care foundation will have a more positive attitude than those who have a weaker care foundation; **(b)** when receiving a purity-focused guilt appeal, message recipients who have a stronger purity foundation

will have a more positive attitude than those who have a weaker purity foundation; and **(c)** when receiving a liberty-focused guilt appeal, message recipients who have a stronger liberty foundation will have a more positive attitude than those who have a weaker liberty foundation.

H4: There will be a moral matching effect on behavioral intention such that **(a)** When receiving a care-focused guilt appeal, message recipients who have a stronger care foundation will have a stronger behavioral intention than those who have a weaker care foundation; **(b)** when receiving a purity-focused guilt appeal, message recipients who have a stronger purity foundation will have a stronger behavioral intention than those who have a weaker purity foundation; and **(c)** when receiving a liberty-focused guilt appeal, message recipients who have a stronger liberty foundation will have a stronger behavioral intention than those who have a weaker liberty foundation.

Scant research has investigated how the mismatch between message and foundation influence persuasive outcomes. For example, when people receive a care-focused guilt appeal, are there any differences in perceived guilt, reactance, attitude, or behavioral intention between message recipients who have a stronger purity-foundation and those who have a weaker purity-foundation? There might be no differences in emotional or attitudinal outcomes because only moral matching effects impact message effects. That is to say, in the case of care-focused guilt appeal, purity foundation does not moderate any effects, but care foundation does. It is also possible that the care-focused guilt appeal is less persuasive when it targets the strong purity group because the message recipients are less likely to resonate with the moral arguments about caring for others. To investigate this issue, the following research question is proposed.

RQ1: Will the mismatch between guilt appeal and moral foundation influence perceived guilt, psychological reactance, attitude, or behavioral intention?

It remains unclear whether the intensity of perceived guilt varies with the violation of different moral foundations. MFT contends that the violation of each moral transgression is connected to several characteristic emotions, and guilt is a characteristic emotion corresponding to the violation of fairness foundation (Graham et al., 2013). However, it is unlikely that people feel less guilty when they violated other moral foundations because the core relational theme of guilt is about moral transgression (Lazarus, 1991). Additionally, MFT indicates that the link between moral foundation and corresponding characteristic emotions is not exclusive; The moral transgression can lead to various emotions, but the characteristic emotions of a moral foundation should be experienced more intensely than other emotions. There is a debate on whether these transgression-emotion links are stably held (see Cameron et al, 2015). Evidence suggests that some moral emotions such as disgust mostly correspond to sanctity foundation, but others such as anger may not be consistently related to violation of a specific moral foundation (Cannon et al., 2011; Horberg et al., 2009; Landmann & Hess, 2018; Russell & Giner-Sorolla, 2011; Steiger & Reyna, 2017; Wagemans et al., 2018). Little empirical research has examined how moral transgression type impacts guilt intensity. Oda and Sawada (2021) investigated the relationship between guilt intensity and specific moral transgression among Japanese adults. The participants were asked to report how much guilt they perceived if others saw they violated care, fairness, loyalty, authority, or sanctity foundations, respectively. The results showed that individuals did feel guilty in all conditions, but participants experienced stronger guilt when they imagined that they violated care or loyalty foundations than in the situation where they violated fairness, authority, or purity foundations. Of note, the study did not control the severity of the five cases

of moral transgression, which may confound the results. Given the explorative purpose of this relationship in nature, the following research questions are proposed:

RQ2: Will harm/care-focused, sanctity/degradation-focused, and liberty/oppression-focused guilt appeals lead to significantly different guilt intensity, psychological reactance, attitude, or behavioral intention?

METHOD

The study consists of a pilot and a main experiment. The purpose of the pilot study is to assess whether the guilt appeals developed for this study successfully manipulate the transgression focus of the message. After ensuring that message recipients can perceive different transgression foci across messages, the guilt appeals were used as message stimuli in the main experiment.

Stimuli Design

Three guilt appeals on reducing children's consumption of sugary drinks were designed as message stimuli. The messages were developed to mimic the home page of a website. I selected the context of sugary drinks based on two major concerns: (1) Moral foundation is highly associated with political ideology (Graham et al., 2013). Compared to other topics (e.g., vaccination), reducing sugary drinks is a less politicized health issue. In this context, the results are less likely to be confounded by political partisanship. (2) As obesity rates among Americans constantly increase, the excessive consumption of sugary drinks is a key predictor. From the practical point of view, testing message effects in this context contributes to addressing real health issues.

Each guilt appeal includes four paragraphs and the same image showing a girl drinking colorful sugary beverages. The first paragraph introduces the definition of sugary drinks and common sugary drinks in daily life. The second paragraph argues that adults should not provide children with too many sugary drinks. This part is intended to induce participants' guilt by indicating that allowing children to consume sugary drinks is a moral transgression. The care-focused guilt appeal states sugary drinks harm children's health (i.e., violating care foundation), the purity-focused guilt appeal claims sugary drinks are disgusting and unnatural (i.e., violating

purity foundation), and the liberty -focused guilt appeal shows sugary drinks are addictive (i.e.,

violating liberty foundation). Each guilt appeal uses moral terms corresponding to its moral

foundation (c.f. Moral Foundations Dictionary; Graham & Haidt, 2012) to depict the moral

transgression that parents may commit. The third paragraph suggests actions that help reducing

sugary drinks. The last paragraph gives an action call and highlights its moral value (i.e., taking

care of children in the care-focused guilt appeal, keeping children pure in purity-focused guilt

appeal, and keeping children's freedom in the liberty-focused guilt appeal). The first and third

paragraphs are same across three guilt appeals. The control message mainly reports some facts

over sugary drinks and include the same paragraph recommending behaviors that help reducing

sugary drinks. The image used in the control message shows sugary beverages only without kids.

It is not intended to enable message recipients perceive any moral transgressions or to elicit any

particular emotions. All messages were designed as online articles from the Centers for Disease

Control and Prevention. They share same webpage features, and their lengths are approximately

equivalent (around 300 words). See Appendix B for all messages.

Pilot Study

To assess whether message recipients perceived the different transgression foci across

three guilt appeals, 79 American parents who currently had at least one child younger than 18

years old were recruited from Prolific as participants for the pilot study. Prolific is an online

survey platform where academic and marketing researchers can recruit target participants. The

mean age of the participants was 37.71 years ($SD = 8.01$). Twenty-one participants (26.6%) were

male, and 58 (73.4%) were female. Most participants were White/Caucasian (81.0%), followed

by Asian (7.6%), Hispanic/Latino (6.3%), and Black/African American (5.1%). Each participant

approximately had 2 kids ($M = 1.96$, $SD = 1.07$) and the age of the youngest kid was 6.39 years old ($SD = 4.82$).

Participants were randomly assigned to one of four conditions (Care-focused guilt appeal, Purity-focused guilt appeal, Liberty-focused guilt appeal, Control message) and were asked to report their perceptions about the transgression focus of the message they read. Care/harm and sanctity/degradation foundations were measured using the sub-scale of the Moral Foundations Scale (Graham et al., 2011). Liberty/oppression foundation was measured on the Lifestyle Liberty Foundation Scale (Iyer et al., 2012). Participants were asked to indicate the extent to which the items were relevant to their moral judgements or how they agreed with several moral statements on 6-point Likert scales (1 = Not very relevant/Strongly disagree, 6 = Extremely relevant/Strongly agree). Each scale showed acceptable internal consistency (Cronbach's a_{care} = .75; Cronbach's a_{purity} = .84; Cronbach's $a_{liberty}$ = .70).

One-way ANOVAs were conducted with perceived transgression of care, perceived transgression of purity, and perceived transgression of liberty as dependent variables. These data showed that participants exposed to different messages perceived significantly different levels of transgression of care, $F(3, 75) = 18.99$, $p < .001$. A post hoc analysis indicated that participants perceived stronger transgression of care in the care-focused condition ($M = 5.71$, $SD = .95$) relative to participants in the control condition ($M = 3.46$, $SD = 1.39$), $p < .001$. However, when compared to purity-focused condition ($M = 5.84$, $SD = .82$) and liberty-focused condition ($M = 5.46$, $SD = 1.33$), there were no significant differences in perceived transgression of care.

Regarding the perceived transgression of purity, results showed that there were significant differences across message conditions, $F(3, 75) = 16.48$, $p < .001$. A post hoc analysis indicated that participants perceived stronger transgression of purity in the purity-focused

condition ($M = 6.01$, $SD = 1.08$) than participants in the care-focused condition ($M = 4.30$, $SD = 1.56$), liberty-focused condition ($M = 4.16$, $SD = 1.16$), and control condition ($M = 3.12$, $SD = 1.39$).

Perceived transgression of liberty was perceived as significantly different across four conditions, $F(3, 75) = 35.92$, $p < .001$. A post hoc analysis indicated that participants perceived stronger transgression of liberty in the liberty-focused condition ($M = 5.99$, $SD = .93$) than participants in the care-focused condition ($M = 2.51$, $SD = 1.46$), purity-focused condition ($M = 3.88$, $SD = 1.71$), and control condition ($M = 2.00$, $SD = 1.13$).

Based on these data, I moved forward with the main experiment. Although all guilt appeals elicited perceived transgression of care, the purity-focused guilt appeal elicited the strongest perceived transgression of purity, and the liberty-focused guilt appeal elicited the strongest perceived transgression of liberty, which can make three guilt appeals distinct from each other. I cannot remove the information about caring for others absolutely from purity-focused and liberty-focused guilt appeals because caring is highly related to the context of the message (i.e., reducing children's consumption of sugary drinks).

The Main Experiment

The main experiment adopted a posttest only between-subject research design. Participants were randomly assigned to one of the four conditions (Care-focused guilt appeal vs. Purity-focused guilt appeal vs. Liberty-focused guilt appeal vs. Control message) and received a message stimulus. Then they were asked to complete a survey designed via Qualtrics.

American parents who had at least one child were recruited as research participants from Prolific in April 2022. Only parents whose youngest child was under 18 years old were qualified to participate in the experiment. After completing consent forms, eligible participants were asked

to respond to selected items for measuring individual moral foundations before being exposed to any stimuli since morally relevant messages may influence the salience of one's moral intuitions (Eden et al., 2014). Next, participants were asked to watch a 1 minute 36 seconds car-oil check video that is irrelevant to the study. The goal of this step is to reduce potential effects from answering questions of moral foundations and conceal the purpose of the experiment. Then participants were randomly assigned to one of four conditions. They received a guilt appeal or a control message. After reading the message, they were asked to respond to items measuring the constructs of interest and report demographics. Participants were debriefed and compensated financially after completing the questionnaire.

Participants

The study used a convenience sample. An a priori analysis, based on the critical region of $\alpha = .05$ and the effect size of $\eta^2 = .03$ (Turner & Underhill, 2012; Turner et al, 2018), indicated that a sample size of 360 participants would yield acceptable power ($1-\beta > .80$) for detecting the difference in perceived guilt intensity across four message conditions. Moreover, given that the moral persuasion only produced a small effect size (Feinberg & Willer, 2015; Voelkel & Feinberg, 2018), I planned to recruit 400 participants in the experiment.

In total, 402 eligible American parents participated in the main experiment. After excluding those who failed the attention check or whose the youngest kid exceeded 18 years old, the study obtained a final sample size of 396. Participants ranged in age from 21 to 63 years old ($M = 39.15$, $SD = 7.89$). 234 participants were female (59.1%), 160 were male (40.4%), 1 (0.3%) claimed nonbinary gender and 1 (0.3%) preferred not to say. The sample predominantly consisted of White/Caucasian (81.8%), followed by 7.3% Hispanic/Latino, 4.8% Black/African American, 4.8% Asian, 1.0% other race or ethnicity and 0.3% Native Hawaiian/Pacific Islander.

On average, each participant had 2 kids ($SD = 1.07$) and the age of the youngest kid was 7.30

years old ($SD = 4.91$). The care foundation ($M = 4.78$, $SD = .80$) was mostly endorsed among

participants, followed by the liberty foundation ($M = 4.59$, $SD = .95$) and the purity foundation

($M = 3.47$, $SD = 1.28$).

Measurement

Care/harm and sanctity/degradation foundations were assessed by the sub-scale of the

Moral Foundations Scale (Graham et al., 2011). Liberty/oppression foundation was measured

with three items adapted from the Lifestyle Liberty Foundation Scale (Iyer et al., 2012).

Participants were asked to indicate the extent to which the items were relevant to their moral

judgements or how they agreed with several moral statements on 6-point Likert scales (1 = Not

very relevant/Strongly disagree, 6 = Extremely relevant/Strongly agree). The example items of

care foundation included "Whether or not someone cared for someone weak or vulnerable."

(Cronbach's $a = .76$, RMSEA = .07, CFI = .97, SRMR = .04). The example items of sanctity

foundation included "Whether or not someone did something disgusting." (Cronbach's $a = .87$,

RMSEA = .25, CFI = .83, SRMR = .08). The example items of liberty foundation included

"People should be free to decide what group norms or traditions they themselves want to

follow." (Cronbach's $a = .67$).

Each perceived transgression focus was measured with four items on a 7-point Likert

scale (1 = Strongly disagree, 7 = Strongly agree; Yang, 2019). Participants were provided with

the definitions of three moral norms (i.e., norms of care, purity and liberty), and then they were

asked to report the extent to which they agreed with the statements. The example items of care

transgression included "The message indicates that if parents allow children to drink sugary

beverages, they are harming children." (Cronbach's $a = .85$, RMSEA = .33, CFI = .89, SRMR

= .08). The example items of purity transgression included "The message indicates that parents should not let children drink sugary beverages because those drinks contaminate children's bodies." (Cronbach's *a* = .91, RMSEA = .29, CFI = .94, SRMR = .04). The example items of liberty transgression included "The message indicates that allowing children to drink sugary beverages is depriving them of freedom." (Cronbach's *a* = .95, RMSEA = .21, CFI = .98, SRMR = .02).

Participants were asked to report how much guilt they perceived when they read the message. Perceived guilt was measured with four items (i.e., guilty, regretful, remorseful, and blameworthy) on a 11-point scale (0 = None of this feeling, 10 = A great deal of this feeling). (Cronbach's *a* = .96, RMSEA = .12, CFI = .99, SRMR = .01).

Perceived freedom threat was assessed using a four-item 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree; Dillard & Shen, 2005). The example items included "The message tried to make a decision for me." (Cronbach's *a* = .92, RMSEA = .10, CFI = .99, SRMR = .01).

Anger toward message was measured with four items on a 7-point Likert scale (Dillard & Shen, 2005). The example items included "This message made me feel irritated." (Cronbach's *a* = .95, RMSEA = .35, CFI = .95, SRMR = .03).

Counterarguing was assessed using a four-item 7-point Likert-type scale adapted from Silvia (2006). The example items included "Were you criticizing the message while you were reading it?" (Cronbach's *a* = .93, RMSEA = .15, CFI = .99, SRMR = .02)

Attitude toward reducing the consumption of sugary drinks was measured using a five-item 7-point semantic differential scale (Dillard & Shen, 2005). The example word pairs were

unimportant/important, foolish/wise, unfavorable/favorable, unnecessary/necessary and detrimental/beneficial (Cronbach's a = .95, RMSEA = .11, CFI = .99, SRMR = .02).

Participants were asked to respond to a three-item 7-point scale for measuring how likely they would be to reduce the number of sugary drinks they would offer to a child (1 = Very unlikely, 7 = Very likely). The example items included "In the next month, would you be to replace sugary drinks with water when a child asks for them?" (Cronbach's a = .89).

Past behavior of consuming sugary drinks was measured using a single question item: "On average, how many cans (12 oz standard) of sugary drinks do your kids consume on a daily basis? Sugary drinks include regular soda, energy drinks, sport drinks, and juice boxes."

Other than gender, age, races and ethnicity, participants were also asked to report the number of children and the age of the youngest child.

Data Analysis

A one-way ANOVA was performed to assess the manipulation on perceived transgression focus.

To test hypotheses about moral matching effects (H1, H2, H3 and H4) and answer the question about mismatching effects (RQ1), first, K-means cluster analyses were conducted with 10 iterations for moral foundation segmentation. The scores of moral foundations were standardized (i.e., z-score) before the clustering, and each moral foundation was divided into two groups (e.g., high care foundation vs. low care foundation). Next, independent t-tests were separately performed in each guilt appeal condition with perceived guilt, perceived freedom threat, anger, counterarguing, attitude and behavioral intention as dependent variables. Specifically, in the care-focused guilt appeal condition, the high care foundation group was compared to the low care foundation group. In the purity-focused guilt condition, the high purity

foundation group was compared to the low purity foundation group. In the liberty-focused guilt appeal condition the high liberty foundation group was compared to the low liberty foundation group.

After t-tests, multiple regression analyses were conducted to further examine the moral matching effect. Message conditions were coded as new dummy variables. Specifically, if participants received the message (e.g., care-focused guilt appeal), they were coded as 1. Otherwise (e.g., receiving purity-focused guilt appeal, liberty-focused guilt appeal, or control message), they were coded as 0. The dummy variables of guilt appeal conditions were added to the regression model, and control message condition was treated as reference group (i.e., the intercept of the model). After creating the model showing the main effect of guilt appeals, each standardized moral foundation (e.g., purity foundation) and the interaction term of the standardized moral foundation and its matched guilt appeal (e.g., purity foundation and purity-focused guilt appeal) were added to the model. If the interaction is significant, other two moral foundations (e.g., care foundation and liberty foundation) were added to the model as covariates to see whether the result would be still significant. This procedure was repeated for perceived guilt, perceived freedom threat, anger, counterarguing, attitude, and behavioral intention as dependent variables.

Mismatching effects were also examined through t-tests first. For example, in the care-focused guilt appeal condition, the high purity foundation group was compared to the low purity foundation group in terms of persuasive outcomes. If the result of the independent t-tests was significant, a regression analysis was performed to examine the moderating effect of mismatched moral foundation. Moral matching and mismatching effects were assessed based on the results of both independent-test and regression analysis.

Multiple one-way ANOVAs were conducted to test whether there are differences in guilt intensity, reactance, attitude, and behavioral intention across message conditions (RQ2).

RESULTS

Manipulation Checks

Results of one-way ANOVAs showed that there was a significant difference in transgression focus across message conditions, $F(3, 392) = 71.32$, $p < .001$. Post hoc analysis indicated that participants receiving the care-focused guilt appeal ($M = 5.53$, $SD = 1.04$) perceived a stronger transgression of care than participants receiving the control message ($M = 3.61$, $SD = 1.34$), $p < .001$, but there were no significant differences when compared to those receiving the purity-focused guilt appeal ($M = 5.58$, $SD = .91$) or the liberty-focused guilt appeal ($M = 5.39$, $SD = 1.14$). Results also showed that there was a significant difference in perceived transgression of purity across conditions, $F(3, 392) = 64.00$, $p < .001$. The purity-focused guilt appeal ($M = 5.93$, $SD = 1.11$) elicited a stronger perception of transgression of purity than the care-focused guilt appeal ($M = 4.10$, $SD = 1.58$), $p < .001$, the liberty-focused guilt appeal ($M = 4.07$, $SD = 1.55$), $p < .001$, and the control message ($M = 3.13$, $SD = 1.51$), $p < .001$. With respect to transgression of liberty, results showed that there was a significant difference across conditions, $F(3, 392) = 170.31$, $p < .001$. Participants in the liberty condition ($M = 6.06$, $SD = 1.25$) perceived a stronger transgression of liberty than participants in the care condition ($M = 2.54$, $SD = 1.32$), $p < .001$, purity condition ($M = 3.26$, $SD = 1.53$), $p < .001$, and control condition ($M = 2.21$, $SD = 1.24$), $p < .001$. Consistent with the pilot study, the manipulation of moral transgression foci was considered successful.

Characteristics of Moral Foundation Clusters

Before testing the moral matching hypothesis, K-means cluster analyses were performed to segment participants into two groups for each moral foundation (low moral foundation group vs. high moral foundation group). This method is advantageous over doing a median split. K-

means clusters will iterate until groups are formed that are statistically distinct from each other; regardless of cell size. In other words, individuals in the high moral foundation group will have a stronger endorsement of the corresponding moral foundation, whereas individuals in the low moral foundation group will have a relatively weaker endorsement of the moral foundation.

Results showed that participants in the high care foundation group had a significantly stronger care foundation ($M = 5.27$, $SD = .42$) than participants in the low care foundation group ($M = 3.88$, $SD = .50$), $p < .001$ (see Table 3). It is not surprising that the high care foundation group also rated a higher score on the purity foundation ($M = 3.58$, $SD = 1.35$) relative to the low care foundation group ($M = 3.26$, $SD = 1.10$), $p = .016$. The high care foundation group also had a stronger liberty foundation ($M = 4.67$, $SD = .96$) relative to the low care foundation group ($M = 4.43$, $SD = .93$), $p = .014$. This provides evidence that people with strong care moral foundation may be high in all 3 types of moral foundation.

Participants in the high purity foundation group had a significantly stronger purity foundation ($M = 4.44$, $SD = .72$) than participants in the low purity foundation group ($M = 2.32$, $SD = .71$), $p < .001$ (see Table 4). The high purity foundation group also rated higher on the care foundation ($M = 4.92$, $SD = .75$) than the low purity foundation group ($M = 4.61$, $SD = .82$), $p < .001$. There was no difference in liberty foundation between the low purity foundation group ($M = 4.65$, $SD = .92$) and high purity foundation group ($M = 4.53$, $SD = .98$), $p = .22$.

For the liberty foundation clusters, the high liberty foundation group only showed a significantly stronger endorsement of liberty foundation ($M = 5.10$, $SD = .54$) than the low liberty foundation group ($M = 3.46$, $SD = .63$), $p < .001$ (see Table 5). There was no difference in care foundation nor in purity foundation between the low liberty foundation group ($M_{care} = 4.68$,

SD_{care} = .78; M_{purity} = 3.55, SD_{purity} = 1.14) and high liberty foundation group (M_{care} = 4.83, SD_{care} = .80; M_{purity} = 3.44, SD_{purity} = 1.33), p = .08 and p = .42, respectively.

Additionally, variables that may influence message effects (e.g., daily consumption of sugary drinks) were also examined across two moral foundation groups. There were no significant differences between the low and high moral foundation groups in those variables.

These data implied that these moral foundations might be correlated. Therefore, a correlation analysis was conducted to examine the relationship between moral foundations (see Table 1). Results showed that both purity foundation and liberty foundation were positively correlated with care foundation, r = .20, p < .001; r = .14, p = .007, respectively. There was no association between purity foundation and liberty foundation, r = −.07, p = .16. Given that the correlations between moral foundations, though at a low level, may confound the results of t-tests in which two moral foundation groups were compared, regression analyses were conducted after t-tests to examine whether the effect of guilt appeal was significantly moderated by the matched moral foundation.

Moral Matching Effects on Perceived Guilt

H1 predicted that there would be moral matching effects on perceived guilt. Independent t-tests showed that when receiving care-focused guilt appeal, participants who had a stronger care foundation (M = 4.06, SD = 2.83) did not perceive more intense guilt than participants who had a weaker care foundation (M = 3.55, SD = 3.08), $t(98)$ = .86, p = .39, d = .18 (see Table 6 and Figure 1). When receiving purity-focused guilt appeal, participants who had a stronger purity foundation (M = 3.00, SD = 2.85) also did not perceive more intense guilt than those who had weaker purity foundation (M = 2.40, SD = 2.42), $t(96)$ = 1.11, p = .27, d = .23 (see Table 10 and Figure 2). In the liberty-focused guilt appeal condition, the difference in perceived guilt between

the high purity group ($M = 2.27$, $SD = 2.39$) and low purity group ($M = 2.24$, $SD = 2.71$) was not significant, $t(97) = -.06$, $p = .95$, $d = -.01$ (see Table 14 and Figure 3). Moreover, regression analyses showed that there were no significant interactions on perceived guilt between the care foundation and care-focused guilt appeal, $b = -.09$, $SE = .31$, $p = .78$, between the purity foundation and purity-focused guilt appeal, $b = -.12$, $SE = .32$, $p = .70$, nor between the liberty foundation and liberty-focused guilt appeal, $b = -.06$, $SE = .29$, $p = .83$ (see Table 15). Given that t-tests and regression analyses indicated that there was not a moral matching effect on perceived guilt, H1 was not supported.

Moral Matching Effects on Psychological Reactance

H2 predicted that there would be moral matching effects on psychological reactance, including perceived freedom threat, anger and counterarguing. Independent t-tests showed that in the care-focused guilt appeal condition, participants with a stronger care foundation ($M = 3.93$, $SD = 1.75$) did not perceive weaker freedom threat than participants with a weaker care foundation ($M = 4.07$, $SD = 1.41$), $t(98) = -.44$, $p = .66$, $d = -.09$ (see Table 6 and Figure 1). Participants with a stronger care foundation ($M = 2.96$, $SD = 1.69$) also did not feel less angry toward message than participants with a weaker care foundation ($M = 3.04$, $SD = 1.37$), $t(98) = -.25$, $p = .80$, $d = -.05$. There was no significant difference in counterarguing between the high care foundation group ($M = 2.92$, $SD = 1.47$) and low care foundation group either ($M = 3.10$, $SD = 1.47$), $t(98) = -.61$, $p = .54$, $d = -.12$. Regression analyses indicated that there were no significant moderating effects of care foundation on the relationship between care-focused guilt appeal and perceived freedom threat $b = .09$, $SE = .19$, $p = .63$ (see Table 16: Model 2), between care-focused guilt appeal and anger $b = .12$, $SE = .20$, $p = .56$ (see Table 17: Model 2), nor

between care-focused guilt appeal and counterarguing (see Table 18: Model 2), $b = .04$, $SE = .19$, $p = .84$. H2 (a) was not supported.

For matching effects of purity foundation and purity-focused guilt appeal, independent t-tests showed that there was a marginally significant difference in perceived freedom threat between participants with stronger purity foundation ($M = 4.51$, $SD = 1.65$) and participants with lower purity foundation ($M = 5.17$, $SD = 1.68$), $t(96) = -1.94$, $p = .055$, $d = -.39$ (see Table 10 and Figure 2). High purity group ($M = 3.54$, $SD = 1.86$) significantly felt less anger than low purity group ($M = 4.50$, $SD = 1.97$), $t(96) = -2.49$, $p = .015$, $d = -.50$. There was also a marginally significant difference in counterarguing between high purity group ($M = 3.99$, $SD = 1.68$) and low purity group ($M = 4.70$, $SD = 1.85$), $t(96) = -1.99$, $p = .050$, $d = -.40$. A regression analysis without covariates showed that purity foundation negatively moderated the effect of purity-focused guilt appeal on anger, $b = -.49$, $SE = .21$, $p = .018$ (see Table 17: Model 3.1). Additionally, a regression analysis with care foundation and liberty foundation as covariates showed that the moderation was still significant, $b = -.47$, $SE = .21$, $p = .026$. (see Table 17: Model 3.2). However, there were no significant interactions of purity foundation and purity-focused guilt appeal on perceived freedom threat, $b = -.29$, $SE = .20$, $p = .14$ (see Table 16: Model 3), nor on counterarguing, $b = -.21$, $SE = .19$, $p = .27$ (see Table 18: Model 3). Given that both the t-test and regression analyses showed that there was a moral matching effect on anger, H2 (b) was partially supported.

For matching effects of liberty foundation and liberty-focused guilt appeal, independent t-tests showed there were no significant differences between high liberty foundation and low liberty foundation in perceived freedom threat ($M_{high} = 4.49$, $SD_{high} = 1.90$; $M_{low} = 4.99$, $SD_{low} = 1.38$), $t(97) = 1.42$, $p = .16$, $d = -.29$, anger ($M_{high} = 3.58$, $SD_{high} = 2.02$; $M_{low} = 3.93$, $SD_{low} = $

1.82), $t(97) = .87$, $p = .38$, $d = -.18$, nor counterarguing ($M_{high} = 4.31$, $SD_{high} = 2.01$; $M_{low} = 4.59$, $SD_{low} = 1.53$), $t(97) = .72$, $p = .47$, $d = -.15$ (see Table 14 and Figure 3). Regression analyses also indicated that there were no significant interactions of liberty foundation and liberty-focused guilt appeal on perceived freedom threat, $b = -.21$, $SE = .18$, $p = .24$ (see Table 16: Model 4), on anger, $b = .11$, $SE = .19$, $p = .56$ (see Table 17: Model 4), nor on counterarguing, $b = -.09$, $SE = .18$, $p = .61$ (see Table 18: Model 4). H2 (c) was not supported.

Moral Matching Effects on Attitude

H3 predicted that there would be a moral matching effects on attitude. Independent t-tests showed that when receiving care-focused guilt appeal, participants with stronger care foundation ($M = 6.24$, $SD = 1.07$) did not have more positive attitudes toward reducing sugary drinks than participants with weaker care foundation ($M = 5.87$, $SD = 1.24$), $t(98) = 1.60$, $p = .11$, $d = .33$ (see Table 6 and Figure 1), and care foundation did not moderate the effect of care-focused guilt appeal on attitude, $b = .08$, $SE = .13$, $p = .53$ (see Table 19: Model 2).

In the purity-focused guilt appeal condition, participants with stronger purity foundation ($M = 6.06$, $SD = 1.27$) did not have more positive attitudes than those with weaker purity foundation ($M = 5.77$, $SD = 1.13$), $t(96) = 1.21$, $p = .23$, $d = .25$ (see Table 10 and Figure 2), and purity foundation did not moderate the effect of purity-focused guilt appeal on attitude, $b = .01$, $SE = .14$, $p = .94$ (see Table 19: Model 3).

In the liberty-focused guilt appeal condition, participants with stronger liberty foundation ($M = 6.13$, $SD = 1.22$) also did not have more positive attitudes than those with weaker liberty foundation ($M = 6.09$, $SD = .90$), $t(97) = -.14$, $p = .89$, $d = -.03$ (see Table 14 and Figure 3), and there was no significant interaction of liberty foundation and liberty-focused guilt appeal, $b = -.15$, $SE = .12$, $p = .21$ (see Table 19: Model 4). H3 was not supported.

Moral Matching Effects on Behavioral Intention

H4 predicted that there would be a moral matching effects on behavioral intention. An independent t-test showed that when receiving care-focused guilt appeal, participants with stronger care foundation ($M = 6.02$, $SD = .98$) were more willing to reduce sugary drinks than participants with weaker care foundation ($M = 5.24$, $SD = 1.22$), $t(98) = 3.58$, $p < .001$, $d = .73$ (see Table 6 and Figure 1). A regression analysis indicated that care foundation positively moderated the effect of care-focus guilt appeal on behavioral intention, but it was not significant, $b = .27$, $SE = .16$, $p = .091$ (see Table 20: Model 2). Rather, care foundation significantly predicted behavioral intention, $b = .44$, $SE = .08$, $p = .034$, Therefore, H4 (a) was not supported.

In the purity-focused guilt appeal condition, participants with stronger purity foundation ($M = 5.37$, $SD = 1.54$) did not have a stronger intention than participants with weaker purity foundation ($M = 5.08$, $SD = 1.82$), $t(96) = .85$, $p = .40$, $d = .17$ (see Table 10 and Figure 2). A regression analysis indicated that there was no significant interaction of purity foundation and purity-focused guilt appeal, $b = .10$, $SE = .17$, $p = .55$, but purity foundation significantly predicted behavioral intention, $b = .31$, $SE = .08$, $p = .008$ (see Table 20: Model 3). H4 (b) was not supported.

In the liberty-focused guilt appeal condition, results showed that there was no significant difference in behavioral intention between high liberty group ($M = 5.73$, $SD = 1.39$) and low liberty group ($M = 5.43$, $SD = 1.38$), $t(97) = -1.06$, $p = .29$, $d = -.22$ (see Table 14 and Figure 1). Also, there was no significant interaction of liberty foundation and liberty-focused guilt appeal, $b = .10$, $SE = .15$, $p = .51$ (see Table 20: Model 4). H4 (c) was not supported.

Mismatching Effects

Independent t-tests showed that most mismatches between guilt appeal and moral foundation did not significantly impact any outcomes (see Table 7, 8, 9, 11, 12, and 13). Nevertheless, when receiving purity-focused guilt appeal, the high liberty foundation group perceived more intense guilt ($M = 3.01$, $SD = 2.66$), had a more positive attitude ($M = 6.08$, $SD = 5.26$) and had a stronger behavioral intention ($M = 5.40$, $SD = 1.54$) than the low liberty foundation, perceived guilt ($M_{guilt} = 1.47$, $SD_{guilt} = 2.37$; $M_{attitude} = 5.26$, $SD_{attitude} = 1.88$; $M_{intention} = 4.54$, $SD_{intention} = 2.06$), $t(96) = -2.25$, $p = .027$, $d = -.59$; $t(96) = -2.70$, $p = .008$, $d = -.71$; $t(96) = -2.00$, $p = .048$, $d = -.52$, respectively (see Table 11). A regression analysis without covariates showed that the liberty foundation did not moderate the relationship between purity-focused guilt appeal and perceived guilt, $b = .54$, $SE = .34$, $p = .12$ (see Table 21: Model 1), but it positively moderated the effect of purity-focused guilt appeal on attitude, $b = .30$, $SE = .14$, $p = .035$ (see Table 21: Model 5.1). A regression analysis with care foundation and purity foundation as covariates showed that the moderation on attitude was not significant, $b = .25$, $SE = .14$, $p = .069$ (see Table 21: Model 5.2). The positive moderating effect on behavioral intention was not significant, $b = .35$, $SE = .18$, $p = .053$ (see Table 21: Model 6). According to these analyses, there was not a mismatching effect of purity-focused guilt appeal and liberty foundation on attitude or behavioral intention.

Another possible mismatching effect was found in the liberty guilt appeal condition. Results showed that when receiving liberty-focused guilt appeal, the high purity foundation group perceived more intense guilt ($M = 3.04$, $SD = 2.81$) and had a stronger behavioral intention ($M = 5.91$, $SD = 1.18$) than the low purity foundation group ($M_{guilt} = 1.56$, $SD_{guilt} = 1.96$; $M_{intention} = 5.35$, $SD_{intention} = 1.52$), $t(97) = 3.08$, $p = .003$, $d = .62$; $t(97) = 2.07$, $p = .041$, $d = .42$,

respectively (see Table 13). Regression analyses showed that the purity foundation positively moderated the effect of liberty-focused guilt appeal on perceived guilt, but the moderation was not significant, $b = .52$, $SE = .30$, $p = .080$ (see Table 22: Model 1). The moderating effect of purity foundation on the relationship between liberty-focused guilt appeal and behavioral intention was also not significant, $b = .16$, $SE = .16$, $p = .311$ (see Table 22: Model 6). Therefore, there was not a mismatching effect of liberty-focused guilt appeal and purity foundation on perceived guilt or behavioral intention.

Comparisons between Guilt Appeals

RQ2 asked whether guilt appeals with distinct moral foci would elicit significantly different levels of guilt intensity, psychological reactance, attitude, and behavioral intention. A one-way ANOVA showed that there was a significant difference in perceived guilt across message conditions, $F(3, 392) = 9.10$, $p < .001$, $\eta^2 = .07$ (see Table 2 and Figure 4). Post hoc analyses indicated that the care-focused guilt appeal ($M = 3.85$, $SD = 2.93$) evoked stronger guilt than purity-focused guilt appeal ($M = 2.72$, $SD = 2.67$), $p = .017$, liberty-focused guilt appeal ($M = 2.26$, $SD = 2.50$), $p < .001$, and control message ($M = 1.98$, $SD = 2.61$), $p < .001$. However, participants receiving purity-focused guilt appeal ($M = 2.72$, $SD = 2.67$) or liberty-focused guilt appeal ($M = 2.26$, $SD = 2.50$) did not perceive significantly stronger guilt than participants receiving control message, $p = .21$ and $p = .88$, respectively.

Regarding the effect on psychological reactance, there were significant differences across message conditions in perceived freedom threat, $F(3, 392) = 29.54$, $p < .001$, $\eta^2 = .18$, in anger, $F(3, 392) = 16.31$, $p < .001$, $\eta^2 = .11$, and in counterarguing, $F(3, 392) = 30.84$, $p < .001$, $\eta^2 = .19$ (see Table 2, Figure 5, Figure 6 and Figure 7). A post-analysis indicated that care-focused guilt appeal elicited weaker perceived freedom threat ($M = 3.99$, $SD = 1.61$) than purity-focused

guilt appeal ($M = 4.81$, $SD = 1.68$), $p = .003$, and liberty focused guilt appeal ($M = 4.68$, $SD = 1.73$), $p = .017$. Likewise, care-focused guilt appeal elicited less anger ($M = 3.00$, $SD = 1.56$) than purity-focused guilt appeal ($M = 3.98$, $SD = 1.96$), $p < .001$, and liberty-focused guilt appeal ($M = 3.72$, $SD = 1.95$), $p = .019$. Individuals receiving care-focused guilt appeal also counter argued ($M = 2.99$, $SD = 1.47$) less than individuals receiving purity-focused guilt appeal ($M = 4.32$, $SD = 1.79$), $p < .001$, and those receiving liberty-focused guilt appeal ($M = 4.42$, $SD = 1.83$), $p < .001$. Additionally, control message elicited the least amount of perceived freedom threat ($M = 2.84$, $SD = 1.56$), anger ($M = 2.42$, $SD = 1.45$), and counterarguing ($M = 2.64$, $SD = 1.36$) among the four messages. In short, care-focused guilt appeal elicited weaker psychological reactance than purity-focused guilt appeal and liberty-focused guilt appeal, and guilt appeals elicited stronger reactance relative to control message.

There was no difference in attitudes across care-focused guilt appeal ($M = 6.09$, $SD = 1.15$), purity-focused guilt appeal ($M = 5.93$, $SD = 1.21$), liberty-focused guilt appeal ($M = 6.12$, $SD = 1.11$) and control message ($M = 6.16$, $SD = 1.03$), $F(3, 392) = .77$, $p = .51$, $\eta^2 = .00$ (see Table 2 and Figure 8).

There was a significant difference in behavioral intention across four messages, $F(3, 392) = 3.04$, $p = .029$, $\eta^2 = .02$ (see Table 2 and Figure 9). A post hoc analysis indicated that care-focused guilt appeal ($M = 5.70$, $SD = 1.14$) did not lead to a stronger intention than liberty-focused guilt appeal ($M = 5.62$, $SD = 1.39$), $p = .91$, and the difference between care-focused guilt appeal and purity-focused guilt appeal ($M = 5.24$, $SD = 1.67$) was not significant, $p = .095$. Notably, purity-focused guilt appeal led to significantly weaker behavioral intention than control message ($M = 5.80$, $SD = 1.35$), $p = .026$.

DISCUSSION

Previous research has shown that guilt appeals produce diverse persuasive outcomes (Turner & Rains, 2021), but theoretical accounts for this issue are still inadequate. The goal of this study was to untangle the mixed effects of guilt appeals from a moral perspective and test moral matching effects. I argued that moral foundation was an essential moderator in guilt appeal research and predicted that the match between the moral transgression focus of a guilt appeal and its corresponding endorsed moral foundation would increase perceived guilt, decrease psychological reactance, and strengthen message recipients' attitude and behavioral intention. This study also examined whether different guilt appeals led to different persuasive outcomes. Although the data did not support multiple hypotheses, many findings are worth further discussing.

First, there were significant differences in the main effect of guilt appeals that used different moral transgression foci. In general, care-focused guilt appeal outperformed purity-focused and liberty-focused guilt appeals since it elicited more guilt but weaker psychological reactance. One plausible explanation for the differences is that because the care foundation is the most universally endorsed moral foundation (Graham et al., 2009), there was a greater chance that people accept the moral arguments of care-focused guilt appeal and perceive moral transgressions. Moreover, participants (American parents) were more likely to agree that excessive consumption of sugary drinks harms children's health as it is a common and well-established argument in health communication. In contrast, the argument is relatively novel and unsolid that sugary beverages are disgusting and contaminate children's bodies or sugary drinks are addictive and thus limit children's freedom. Consequently, message recipients were more

likely to refute purity-focused and liberty-focused guilt appeals and experienced less guilt than the care-focused guilt appeal.

Of note, these findings should be interpreted cautiously since this study only examined the effects of guilt appeals in the context of reducing children's consumption of sugary drinks. It seems that this message topic intrinsically concerns the responsibility of parents to take care of children, which highly matches the core moral value of individuals who endorse a strong care foundation. Although the effectiveness of care-focused appeals has also been found in the context of smoking reduction (Yang, 2019), future research should continue to examine the effects of guilt appeals in more contexts and test whether the match between message topic and transgression focus of a guilt appeal influences message persuasiveness.

Second, there was a moral matching effect in guilt appeals, but it was only found in the purity-focused guilt appeal. In the purity-focused guilt appeal condition, the study found that message recipients with a stronger purity foundation experienced less reactance (particularly anger) than message recipients with a weaker purity foundation. This finding was primarily consistent with the hypothesis that the moral matching effect could reduce psychological reactance. Nevertheless, the matching effects on perceived guilt, attitude, and behavioral intention were not found. These results can be explained by the low intensity of perceived guilt. That is, purity-focused guilt appeal was not persuasive in the context of sugary drink reduction and did not induce sufficient guilty feelings to increase individuals' behavioral intentions. In this regard, the matching effect was too small to be detected.

When receiving care-focused guilt appeal, message recipients who endorsed a stronger care foundation had a stronger intention to reduce the number of sugary drinks offered to a child than message recipients who had a weaker care foundation. However, this was not due to the

moderation of care foundation on the effect of care-focused guilt appeal. Rather, it was because care foundation was positively related to behavioral intention. Similarly, purity foundation was also found positively associated with behavioral intention. It is plausible that guilt appeals have a greater impact on behavioral outcomes among people who have a general higher level of morality, regardless of which moral foundation message recipients prioritize.

Inconsistent with the prior prediction, the match between care-focused guilt appeal and care foundation did not increase guilt or reduce psychological reactance. One explanation for the nonsignificant results is that people have already realized and thought that offering sugary drinks to children would harm their health. Consequently, when receiving care-focused guilt appeals, individuals with a stronger care foundation did not feel guiltier or did not have strong feelings of being manipulated. As shown in the results of the main effects, care-focused guilt appeal indeed elicited the strongest perceived guilt and the weakest reactance among the three guilt appeals.

For attitude change, the match between the transgression focus of a guilt appeal and the moral foundation had little impact in all message conditions, including care-focused guilt appeal. This finding may be explained by the fact that participants already had a highly positive attitude toward reducing sugary drinks, and the ceiling effect limited the moderating effect of moral foundations.

There were no such matching effects for liberty-focused guilt appeal found in the study. Although individuals strongly endorsing the liberty foundation are prone to experience psychological reactance (Iyer et al., 2012), it is not the case here since the data showed no difference in reactance between the low liberty group and high liberty group. Maybe whether an individual prioritizes liberty foundation did not affect the persuasiveness of liberty-focused guilt appeal just because a child's freedom is not the primary concern in this message topic.

This study showed mismatched moral foundations did not negatively influence the effects of guilt appeals. It should be noted that previous studies examining the effects of moral messages on attitude toward politicized issues found that mismatched moral messages were less persuasive than matched moral messages (e.g., Feinberg & Willer, 2013). Despite the encouraging finding, again, it should be interpreted with the caution that this result was found in a relatively apolitical context.

There are multiple theoretical and practical implications in this study. First, this study fills the gap in guilt appeal research by bridging Moral Foundations Theory (Graham et al., 2013), introducing a novel theoretical perspective to untangle the mixed effects of guilt appeals. It enriches the guilt appeal literature by demonstrating that guilt appeals using distinct moral transgression foci lead to different persuasive outcomes. More importantly, the study has tested moral match hypotheses and provided initial evidence that individual moral foundations influence the effects of guilt appeals. The match between the transgression focus of a guilt appeal and individual moral foundation can improve the effects of guilt appeals (e.g., reducing psychological reactance), though the effects vary depending on specific types of guilt appeals.

From a practical viewpoint, the findings suggest that health communication practitioners should carefully design persuasive messages that use guilt appeals because moral transgression foci of guilt appeals have a great impact on message effects. As far as research shows, care-focused guilt appeals are the most effective among the three types of guilt appeals in the health context. Message designers also need to do audience segmentation based on individual characteristics such as moral foundations before distributing guilt appeals. In this way, matched audiences are less likely to resist messages, and guilt appeals can exert their power as anticipated.

LIMITATIONS

Inevitably, there are several limitations in the current study. First, the message stimuli used in the experiment only contained visual content (i.e., text and picture), but media modalities may influence the persuasive outcomes of guilt appeals (Xu & Guo, 2018). Future research needs to replicate the study using other types of stimuli (e.g., audiovisual messages) to see whether there is a conditional boundary in guilt appeals.

Second, this study examined guilt appeals and moral matching effects only in one health context, limiting the generalizability of the findings. The effects of moral transgression foci and moral foundations should be further investigated in more diverse health contexts (e.g., vaccination). This research line will also help investigate whether there is a matching effect of message context and moral transgression focus.

Third, since this is the first study testing moral matching effects in guilt appeals, each guilt appeal stimulus merely involved one discrete moral transgression focus. However, it is worth noting that a persuasive message can include several moral messages in real-world health campaigns. Comparably a guilt appeal can indicate more than one moral transgression. Given that we do not know whether the accumulation of moral transgressions or the interaction between moral transgressions sways the effects of guilt appeals, research on this issue (e.g., content analyzing existing guilt appeals) can further advance our understanding of guilt appeals.

Last, an individual usually endorses multiple moral foundations, but this study examined the role of three moral foundations separately for testing each moral matching hypothesis. In other words, the study did not consider the interplay between individuals' moral foundations. We should not ignore the complex nature of human beings, and future research needs to investigate the role of moral foundations in guilt appeals in a more nuanced way.

APPENDICES

APPENDIX A:

Tables and Figures

Table 1: Correlation Matrix of Variables

	1	2	3	4	5	6	7	8	9	10
1. Guilt	-									
2. Freedom threat	$-.03$	-								
3. Anger	.05	$.63^{**}$	-							
4. Counterarguing	$-.13^{**}$	$.68^{**}$	$.73^{**}$	-						
5. Attitude	.08	$-.20^{**}$	$-.17^{**}$	$-.30^{**}$	-					
6. Intention	$.14^{**}$	$-.25^{**}$	$-.26^{**}$	$-.38^{**}$	$.53^{**}$	-				
7. Care foundation	.08	$-.05$	$-.05$	$-.12^{*}$	$.22^{**}$	$.17^{**}$	-			
8. Purity foundation	$.15^{**}$	$-.10^{*}$	$-.16^{**}$	$-.16^{**}$	$.10^{*}$	$.17^{**}$	$.20^{**}$	-		
9. Liberty foundation	.05	$-.05$	$-.09$	$-.01$	$.13^{**}$	.07	$.14^{**}$	$-.07$	-	
10. Consumption of sugary drinks	$.15^{**}$	$-.03$	$-.01$	.02	$-.02$	$-.08$	.03	.02	.07	-

Note. $N = 396$. $^{*}p < .05$. $^{**}p < .01$.

Table 2: The Main Effects of Messages

Measure	Care-focused Guilt appeal (*n*= 100)	Purity-focused Guilt appeal (*n* = 98)	Liberty-focused Guilt Appeal (*n* = 99)	Control Message (*n* = 99)	$F(df)$	η^2
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*		
Guilt	3.85 (2.93)	2.72[a] (2.67)	2.26[a] (2.50)	1.98[a] (2.61)	9.41*** (3, 392)	.07
Freedom Threat	3.99[d] (1.61)	4.81[ad] (1.68)	4.68[ad] (1.73)	2.84 (1.56)	29.54*** (3, 392)	.18
Anger	3.00 (1.56)	3.98[ad] (1.96)	3.72[ad] (1.95)	2.42 (1.45)	16.31*** (3, 392)	.11
Counter-arguing	2.99 (1.47)	4.32[ad] (1.79)	4.42[ad] (1.83)	2.64 (1.36)	30.84*** (3, 392)	.19
Attitude	6.09 (1.15)	5.93 (1.21)	6.12 (1.11)	6.07 (1.12)	.77 (3, 392)	.00
Intention	5.70 (1.14)	5.24[d] (1.67)	5.62 (1.39)	5.80 (1.35)	3.04* (3, 392)	.02

Note. N = 396. * p < .05. *** p < .001.
[a] indicates significant result in comparison with the care-focused guilt appeal.
[b] indicates significant result in comparison with the purity-focused guilt appeal.
[c] indicates significant result in comparison with the liberty-focused message.
[d] indicates significant result in comparison with the control message.

Table 3: Characteristics of Low and High Care Foundation Clusters

Measure	Low Care Foundation (n = 139)		High Care Foundation (n = 257)		t(394)	p	d
	M	SD	M	SD			
Care Foundation	3.88	.50	5.27	.42	29.39***	< .001	3.09
Purity Foundation	3.26	1.10	3.58	1.35	2.42*	.016	.26
Liberty Foundation	4.43	.93	4.67	.96	2.46*	.014	.26
Number of Children	1.90	.93	2.06	1.13	1.42	.156	.15
The Youngest Child's Age	7.60	5.22	7.13	4.74	−.92	.359	−.10
Consumption of Sugary Drinks	.79	1.18	.85	1.32	.45	.656	.05

Note. * p < .05. *** p < .001.

Table 4: Characteristics of Low and High Purity Foundation Clusters

Measure	Low Purity Foundation (n = 181)		High Purity Foundation (n = 215)		$t(394)$	p	d
	M	SD	M	SD			
Care Foundation	4.61	.82	4.92	.75	3.87***	< .001	.39
Purity Foundation	2.32	.71	4.44	.72	29.40***	< .001	2.97
Liberty Foundation	4.65	.92	4.53	.98	−1.22	.224	−.12
Number of Children	1.98	1.09	2.02	1.04	.33	.743	.03
The Youngest Child's Age	7.35	4.90	7.25	4.93	−.19	.847	−.02
Consumption of Sugary Drinks	.77	1.28	.88	1.27	.88	.420	.08

Note. ** $p < .01$.

Table 5: Characteristics of Low and High Liberty Foundation Clusters

Measure	Low Liberty Foundation (n = 124)		High Liberty Foundation (n = 272)		$t(394)$	p	d
	M	SD	M	SD			
Care Foundation	4.68	.78	4.83	.80	−1.76	.079	−.19
Purity Foundation	3.55	1.14	3.44	1.33	.81	.419	.09
Liberty Foundation	3.46	.63	5.10	.54	−26.63***	< .001	−2.89
Number of Children	2.01	1.05	2.00	1.08	.07	.944	.01
The Youngest Child's Age	6.87	4.86	7.49	4.93	−1.17	.245	−.13
Consumption of Sugary Drinks	.68	1.14	.90	1.33	−1.55	.121	−.17

Note. ** $p < .01$.

Table 6: Effects of Care-focused Guilt Appeal between Low Care Foundation Group and High Care Foundation Group

Measure	Low Care Foundation (n = 41)		High Care Foundation (n = 59)		t(98)	p	d
	M	SD	M	SD			
Guilt	3.55	3.08	4.06	2.83	.86	.390	.18
Freedom Threat	4.07	1.41	3.93	1.75	−.44	.661	−.09
Anger	3.04	1.37	2.96	1.69	−.25	.800	−.05
Counterarguing	3.10	1.47	2.92	1.47	−.61	.544	−.12
Attitude	5.87	1.24	6.24	1.07	1.60	.113	.33
Intention	5.24	1.22	6.02	.98	3.58***	< .001.	.73

Note. *** $p < .001$.

Table 7: Effects of Care-focused Guilt Appeal between Low Purity Foundation Group and High Purity Foundation Group

Measure	Low Purity Foundation (n = 46)		High Purity Foundation (n = 54)		$t(98)$	p	d
	M	SD	M	SD			
Guilt	3.73	2.86	3.96	3.02	.39	.698	.08
Freedom Threat	3.92	1.84	4.04	1.41	.36	.718	.07
Anger	2.95	1.53	3.03	1.60	.26	.796	.05
Counterarguing	2.99	1.55	2.99	1.41	.01	.996	.00
Attitude	6.00	1.31	6.16	1.00	.67	.506	.13
Intention	5.63	1.18	5.76	1.12	.56	.577	.11

Table 8: Effects of Care-focused Guilt Appeal between Low Liberty Foundation Group and High Liberty Foundation Group

Measure	Low Liberty Foundation (n = 37)		High Liberty Foundation (n = 63)		t(98)	p	d
	M	SD	M	SD			
Guilt	3.90	2.95	3.83	2.94	.12	.905	.03
Freedom Threat	4.03	1.45	3.96	1.71	.19	.852	.04
Anger	3.32	1.73	2.80	1.43	.31	.106	.34
Counterarguing	2.88	1.34	3.06	1.54	.29	.563	−.12
Attitude	5.93	1.34	6.18	1.03	.37	.295	−.22
Intention	5.72	1.00	5.69	1.23	.11	.890	.03

Table 9: Effects of Purity-focused Guilt Appeal between Low Care Foundation Group and High Care Foundation Group

Measure	Low Care Foundation (n = 35)		High Care Foundation (n = 63)		t(96)	p	d
	M	SD	M	SD			
Guilt	2.56	2.69	2.82	2.67	.46	.646	.10
Freedom Threat	4.96	1.56	4.73	1.75	−.63	.533	−.13
Anger	3.84	1.91	4.06	2.00	.51	.609	−.11
Counterarguing	4.44	1.79	4.25	1.80	−.49	.625	−.10
Attitude	5.69	1.30	6.06	1.14	1.49	.138	.32
Intention	5.13	1.62	5.30	1.71	.46	.646	.10

Table 10: Effects of Purity-focused Guilt Appeal between Low Purity Foundation Group and High Purity Foundation Group

Measure	Low Purity Foundation (n = 45)		High Purity Foundation (n = 53)		t(96)	p	d
	M	SD	M	SD			
Guilt	2.40	2.42	3.00	2.85	1.11	.269	.23
Freedom Threat	5.17	1.68	4.51	1.65	−1.94	.055	−.39
Anger	4.50	1.97	3.54	1.86	−2.49*	.015	−.50
Counterarguing	4.70	1.85	3.99	1.68	−1.99	.050	−.40
Attitude	5.77	1.13	6.06	1.27	1.21	.229	.25
Intention	5.08	1.82	5.37	1.54	.85	.395	.17

Note. * $p < .05$.

Table 11: Effects of Purity-focused Guilt Appeal between Low Liberty Foundation Group and High Liberty Foundation Group

Measure	Low Liberty Foundation (n = 18)		High Liberty Foundation (n = 80)		t(96)	p	d
	M	SD	M	SD			
Guilt	1.47	2.37	3.01	2.66	−2.25*	.027	−.59
Freedom Threat	4.43	1.58	4.90	1.70	−1.07	.287	−.28
Anger	4.11	1.98	3.95	1.97	.31	.755	.08
Counterarguing	4.39	1.80	4.30	1.80	.19	.850	.05
Attitude	5.26	1.88	6.08	.95	−2.70**	.008	−.71
Intention	4.54	2.06	5.40	1.54	−2.00*	.048	−.52

Note. * p < .05. ** p < .01.

Table 12: Effects of Liberty-focused Guilt Appeal between Low Care Foundation Group and High Care Foundation Group

Measure	Low Care Foundation (n = 34)		High Care Foundation (n = 65)		$t(97)$	p	d
	M	SD	M	SD			
Guilt	1.87	1.98	2.47	2.73	1.14	.258	.24
Freedom Threat	4.76	1.58	4.64	1.81	−.31	.755	−.07
Anger	3.90	1.93	3.62	1.96	−.69	.492	−.15
Counterarguing	4.77	1.52	4.23	1.96	−1.40	.164	−.30
Attitude	6.02	1.18	6.16	1.07	.59	.554	.13
Intention	5.81	.89	5.51	1.58	−1.03	.308	−.22

Table 13: Effects of Liberty-focused Guilt Appeal between Low Purity Foundation Group and High Purity Foundation Group

Measure	Low Purity Foundation (n = 52)		High Purity Foundation (n = 47)		t(97)	p	d
	M	SD	M	SD			
Guilt	1.56	1.96	3.04	2.81	3.08**	.003	.62
Freedom Threat	4.84	1.62	4.51	1.84	−.97	.337	−.19
Anger	3.90	1.91	3.52	1.99	−.98	.331	−.20
Counterarguing	4.68	1.71	4.13	1.94	−1.50	.137	−.30
Attitude	6.01	1.24	6.23	.93	.98	.330	.20
Intention	5.35	1.52	5.91	1.18	2.07*	.041	.42

Note. * $p < .05$. ** $p < .01$.

Table 14: Effects of Liberty-focused Guilt Appeal between Low Liberty Foundation Group and High Liberty Foundation Group

Measure	Low Liberty Foundation (n = 38)		High Liberty Foundation (n = 61)		t(97)	p	d
	M	SD	M	SD			
Guilt	2.24	2.71	2.27	2.39	−.06	.952	−.01
Freedom Threat	4.99	1.38	4.49	1.90	1.42	.158	-.29
Anger	3.93	1.82	3.58	2.02	.87	.384	−.18
Counterarguing	4.59	1.53	4.31	2.01	.72	.472	−.15
Attitude	6.09	.90	6.13	1.22	−.14	.886	−.03
Intention	5.43	1.38	5.73	1.39	−1.06	.294	−.22

Table 15: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Perceived Guilt

| | b | SE | 95% CI | | p | $F(df)$ | R^2 |
			LL	UL			
Model 1: Main Effects of Guilt Appeals							
Intercept	1.98***	.27	1.45	2.51	< .001		
Care Guilt Appeal	1.87***	.38	1.13	2.62	< .001	9.41***	
Purity Guilt Appeal	.75	.38	−.01	1.50	.052	(3, 392)	.07
Liberty Guilt Appeal	.28	.38	−.47	1.03	.459		
Model 2: Moderating Effects of Care Foundation							
Intercept	1.95***	.27	1.42	2.48	< .001		
Care Guilt Appeal	1.93	.38	1.18	2.68	< .001		
Purity Guilt Appeal	.79*	.38	.04	1.54	.039	6.63***	
Liberty Guilt Appeal	.29	.38	−.46	1.04	.444	(5, 390)	.08
Care Foundation	.23*	.16	.00	.44	.046		
Care Guilt Appeal* Care Foundation	−.09	.31	−.69	.52	.780		
Model 3: Moderating Effects of Purity Foundation							
Intercept	1.93***	.27	1.41	2.46	< .001		
Care Guilt Appeal	1.94***	.38	1.20	2.68	< .001		
Purity Guilt Appeal	.78*	.38	.04	1.53	.039	8.03***	
Liberty Guilt Appeal	.37	.38	−.37	1.11	.326	(5, 390)	.09
Purity Foundation	.35***	.15	.13	.57	.002		
Purity Guilt Appeal* Purity Foundation	−.12	.32	−.75	.51	.703		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	1.97***	.27	1.43	2.50	< .001		
Care Guilt Appeal	1.90***	.38	1.15	2.65	< .001		
Purity Guilt Appeal	.74	.38	−.01	1.49	.055	5.89***	
Liberty Guilt Appeal	.31	.38	−.44	1.07	.414	(5, 390)	.07
Liberty Foundation	.11	.16	−.10	.32	.300		
Liberty Guilt Appeal* Liberty Foundation	−.06	.29	−.64	.51	.827		

Note. * $p < .05.$ *** $p < .001.$ Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 16: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Perceived Freedom Threat

	b	SE	95% CI LL	95% CI UL	p	$F(df)$	R^2
Model 1: Main Effects of Guilt Appeals							
Intercept	2.84***	.17	2.52	3.17	< .001		
Care Guilt Appeal	1.14***	.23	.69	1.60	< .001	29.54***	
Purity Guilt Appeal	1.97***	.24	1.51	2.43	< .001	(3, 392)	.18
Liberty Guilt Appeal	1.84***	.23	1.38	2.30	< .001		
Model 2: Moderating Effects of Care Foundation							
Intercept	2.85***	.17	2.53	3.18	< .001		
Care Guilt Appeal	1.14***	.24	.67	1.60	< .001		
Purity Guilt Appeal	1.96***	.24	1.49	2.42	< .001	17.83***	
Liberty Guilt Appeal	1.84***	.24	1.38	2.30	< .001	(5, 390)	.19
Care Foundation	.01	.10	−.18	.20	.373		
Care Guilt Appeal* Care Foundation	.09	.19	−.28	.47	.625		
Model 3: Moderating Effects of Purity Foundation							
Intercept	2.85***	.17	2.53	3.18	< .001		
Care Guilt Appeal	1.13***	.23	.67	1.59	< .001		
Purity Guilt Appeal	1.97***	.23	1.51	2.43	< .001	18.91***	
Liberty Guilt Appeal	1.82***	.23	1.36	2.28	< .001	(5, 390)	.20
Purity Foundation	−.37	.09	−.95	.20	.414		
Purity Guilt Appeal* Purity Foundation	−.29	.20	−.68	.10	.139		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	2.84***	.17	2.52	3.17	< .001		
Care Guilt Appeal	1.45***	.23	.69	1.61	< .001		
Purity Guilt Appeal	1.97***	.24	1.51	2.43	< .001	18.10***	
Liberty Guilt Appeal	1.81***	.24	1.35	2.27	< .001	(5, 390)	.18
Liberty Foundation	−.21	.10	−.76	.35	.931		
Liberty Guilt Appeal* Liberty Foundation	−.21	.18	−.57	.14	.236		

Note. *** $p < .001$. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 17: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Anger

| | b | SE | 95% CI | | p | $F(df)$ | R^2 |
			LL	UL			
Model 1: Main Effects of Guilt Appeals							
Intercept	2.42***	.18	2.07	2.76	< .001		
Care Guilt Appeal	.58*	.25	.09	1.06	.020	16.31***	
Purity Guilt Appeal	1.56***	.25	1.07	2.05	< .001	(3, 392)	.11
Liberty Guilt Appeal	1.30***	.25	.81	1.79	< .001		
Model 2: Moderating Effects of Care Foundation							
Intercept	2.43***	.18	2.08	2.77	< .001		
Care Guilt Appeal	.57*	.25	.08	1.06	.022		
Purity Guilt Appeal	1.55***	.25	1.06	2.04	< .001	9.97***	
Liberty Guilt Appeal	1.30***	.25	.81	1.79	< .001	(5, 390)	.11
Care Foundation	.02	.10	−.58	.22	.311		
Care Guilt Appeal* Care Foundation	.12	.20	−.28	.52	.557		
Model 3.1: Moderating Effects of Purity Foundation without Covariates							
Intercept	2.43***	.17	2.09	2.78	< .001		
Care Guilt Appeal	.56*	.24	.08	1.03	.023		
Purity Guilt Appeal	1.56***	.25	1.08	2.05	< .001	13.21***	
Liberty Guilt Appeal	1.27***	.24	.79	1.75	< .001	(5, 390)	.15
Purity Foundation	−.65	.10	−1.43	.13	.105		
Purity Guilt Appeal* Purity Foundation	−.49*	.21	−.90	−.09	.018		
Model 3.2: Moderating Effects of Purity Foundation with Covariates							
Intercept	2.45***	.17	2.11	2.79	< .001		
Care Guilt Appeal	.52*	.24	.05	1.00	.032		
Purity Guilt Appeal	1.57***	.24	1.09	2.05	< .001		
Liberty Guilt Appeal	1.23***	.25	.75	1.71	< .001	10.03***	
Care Foundation	−.01	.09	−.18	.17	.956	(7, 388)	.15
Purity Foundation	−.64	.10	−1.40	.12	.079		
Liberty Foundation	−.17	.09	−.34	.00	.055		
Purity Guilt Appeal* Purity Foundation	−.47*	.21	−.87	−.06	.026		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	2.43***	.18	2.09	2.78	< .001		
Care Guilt Appeal	.55***	.25	.06	1.03	.027		
Purity Guilt Appeal	1.57***	.25	1.08	2.06	< .001	10.58***	
Liberty Guilt Appeal	1.27***	.25	.78	1.76	< .001	(5, 390)	.12
Liberty Foundation	−.09	.11	−.19	.01	.065		
Liberty Guilt Appeal* Liberty Foundation	.11	.19	−.26	.49	.557		

Note. * p < .05. *** p < .001. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 18: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Counterarguing

| | b | SE | 95% CI | | p | $F(df)$ | R^2 |
			LL	UL			
Model 1: Main Effects of Guilt Appeals							
Intercept	2.64***	.16	2.32	2.96	< .001		
Care Guilt Appeal	.35	.23	-.10	.80	.131	30.84***	
Purity Guilt Appeal	1.68***	.23	1.22	2.13	< .001	(3, 392)	.19
Liberty Guilt Appeal	1.78***	.23	1.32	2.23	< .001		
Model 2: Moderating Effects of Care Foundation							
Intercept	2.66***	.16	2.34	2.98	< .001		
Care Guilt Appeal	.30	.23	-.15	.76	.189		
Purity Guilt Appeal	1.64***	.23	1.19	2.10	< .001	20.12***	
Liberty Guilt Appeal	1.78***	.23	1.32	2.22	< .001	(5, 390)	.21
Care Foundation	−.19*	.10	−.34	−.04	.019		
Care Guilt Appeal* Care Foundation	.04	.19	−.33	.40	.843		
Model 3: Moderating Effects of Purity Foundation							
Intercept	2.64***	.16	2.35	2.98	< .001		
Care Guilt Appeal	.35	.23	-.13	.77	.164		
Purity Guilt Appeal	1.68***	.23	1.22	2.12	< .001	21.17***	
Liberty Guilt Appeal	1.78***	.23	1.29	2.19	< .001	(5, 390)	.21
Purity Foundation	−.42*	.09	−.78	−.06	.025		
Purity Guilt Appeal* Purity Foundation	−.21	.19	−.60	.17	.273		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	2.64***	.16	2.32	2.96	< .001		
Care Guilt Appeal	.35	.23	-.10	.81	.128		
Purity Guilt Appeal	1.67***	.23	1.22	2.13	< .001	18.47***	
Liberty Guilt Appeal	1.77***	.23	1.31	2.23	< .001	(5, 390)	.19
Liberty Foundation	−.06	.10	−.17	.13	.774		
Liberty Guilt Appeal* Liberty Foundation	−.09	.18	−.44	.26	.611		

Note. * $p < .05$. *** $p < .001$. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 19: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Attitude

| | b | SE | 95% CI | | p | $F(df)$ | R^2 |
			LL	UL			
Model 1: Main Effects of Guilt Appeals							
Intercept	6.16***	.11	5.93	6.38	< .001		
Care Guilt Appeal	−.07	.16	−.38	.25	.672	.77	
Purity Guilt Appeal	−.23	.16	−.54	.09	.158	(3, 392)	.01
Liberty Guilt Appeal	−.04	.16	−.36	.27	.801		
Model 2: Moderating Effects of Care Foundation							
Intercept	6.13***	.11	5.92	6.35	< .001		
Care Guilt Appeal	−.01	.16	−.31	.30	.97		
Purity Guilt Appeal	−.94	.16	−.50	.12	.22		
Liberty Guilt Appeal	−.03	.16	−.34	.27	.83	4.55***	
Care Foundation	.31***	.06	.18	.44	< .001	(5, 390)	.06
Care Guilt Appeal* Care Foundation	.08	.13	−.17	.33	.53		
Model 3: Moderating Effects of Purity Foundation							
Intercept	6.14***	.11	5.92	6.37	< .001		
Care Guilt Appeal	−.05	.16	−.36	.26	.751		
Purity Guilt Appeal	−.22	.16	−.53	.10	.173		
Liberty Guilt Appeal	−.02	.16	−.33	.30	.906	1.33	
Purity Foundation	.13	.06	−.01	.27	.075	(5, 390)	.02
Purity Guilt Appeal* Purity Foundation	.01	.14	−.26	.28	.938		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	6.14***	.11	5.92	6.36	< .001		
Care Guilt Appeal	−.04	.16	−.35	.28	.821		
Purity Guilt Appeal	−.24	.16	−.55	.08	.140		
Liberty Guilt Appeal	−.02	.16	−.33	.30	.924	2.26*	
Liberty Foundation	.05**	.07	.02	.08	.003	(5, 390)	.03
Liberty Guilt Appeal* Liberty Foundation	−.15	.12	−.39	.09	.214		

Note. ** p < .01. *** p < .001. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 20: Moderating Effects of Moral Foundation on the Relationship between Guilt Appeal and Behavioral Intention

|	b	SE	95% CI LL	95% CI UL	p	$F(df)$	R^2
Model 1: Main Effects of Guilt Appeals							
Intercept	5.80***	.14	5.53	6.08	< .001		
Care Guilt Appeal	−.10	.20	−.49	.29	.610	3.04*	
Purity Guilt Appeal	−.56**	.20	−.96	−.17	.005	(3, 392)	.02
Liberty Guilt Appeal	−.19	.20	−.58	.21	.352		
Model 2: Moderating Effects of Care Foundation							
Intercept	5.78***	.14	5.51	6.06	< .001		
Care Guilt Appeal	−.03	.20	−.41	.36	.884		
Purity Guilt Appeal	−.54**	.20	−.93	−.15	.006	4.85***	
Liberty Guilt Appeal	−.18	.20	−.57	.20	.357	(5, 390)	.06
Care Foundation	.44*	.08	.03	.85	.034		
Care Guilt Appeal* Care Foundation	.27	.16	−.04	.58	.091		
Model 3: Moderating Effects of Purity Foundation							
Intercept	5.78***	.14	5.51	6.05	< .001		
Care Guilt Appeal	−.07	.20	−.46	.32	.720		
Purity Guilt Appeal	−.55**	.20	−.94	−.16	.006	4.16***	
Liberty Guilt Appeal	−.15	.20	−.53	.24	.460	(5, 390)	.05
Purity Foundation	.31**	.08	.15	.47	.008		
Purity Guilt Appeal* Purity Foundation	.10	.17	−.23	.43	.551		
Model 4: Moderating Effects of Liberty Foundation							
Intercept	5.79***	.14	5.52	6.07	< .001		
Care Guilt Appeal	−.09	.20	−.48	.30	.656		
Purity Guilt Appeal	−.57**	.20	−.96	−.18	.005	2.41*	
Liberty Guilt Appeal	−.15	.20	−.54	.24	.449	(5, 390)	.03
Liberty Foundation	.18	.09	−.12	.48	.346		
Liberty Guilt Appeal* Liberty Foundation	.10	.15	−.20	.30	.513		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 21: Mismatching Effects of Purity-focused Guilt Appeal and Liberty Moral Foundation

| | b | SE | 95% CI | | p | $F(df)$ | R^2 |
			LL	UL			
Model 1: Perceived Guilt as Dependent Variable							
Intercept	1.98***	.27	1.45	2.51	< .001		
Care Guilt Appeal	1.88***	.38	1.13	2.63	< .001		
Purity Guilt Appeal	.67	.38	−.08	1.43	.080	6.41***	.08
Liberty Guilt Appeal	.29	.38	−.46	1.05	.443	(5, 390)	
Liberty Foundation	.58	.15	−.93	2.09	.768		
Purity Guilt Appeal* Liberty Foundation	.54	.34	−.13	1.21	.116		
Model 2: Perceived Threat as Dependent Variable							
Intercept	2.85***	.17	2.52	3.18	< .001		
Care Guilt Appeal	1.13***	.24	.67	1.59	< .001		
Purity Guilt Appeal	1.96***	.24	1.49	2.42	< .001	17.86***	.19
Liberty Guilt Appeal	1.82***	.24	1.36	2.28	< .001	(5, 390)	
Liberty Foundation	.05	.09	-.13	.23	.362		
Purity Guilt Appeal* Liberty Foundation	.14	.21	−.28	.55	.514		
Model 3: Anger as Dependent Variable							
Intercept	2.43***	.18	2.08	2.78	< .001		
Care Guilt Appeal	.56*	.25	.08	1.05	.023		
Purity Guilt Appeal	1.61***	.25	1.12	2.10	< .001	10.93***	.12
Liberty Guilt Appeal	1.28***	.25	.79	1.76	< .001	(5, 390)	
Liberty Foundation	−.41	.10	−.99	.17	.297		
Purity Guilt Appeal* Liberty Foundation	−.30	.22	−.74	.13	.171		
Model 4: Counterarguing as Dependent Variable							
Intercept	2.64***	.16	2.32	2.96	< .001		
Care Guilt Appeal	.36	.23	−.10	.81	.122		
Purity Guilt Appeal	1.71***	.23	1.25	2.17	< .001	18.90***	.20
Liberty Guilt Appeal	1.79***	.23	1.33	2.25	< .001	(5, 390)	
Liberty Foundation	−.24	.09	−.84	.36	.529		
Purity Guilt Appeal* Liberty Foundation	−.29	.21	−.70	.11	.158		
Model 5.1: Attitude as Dependent Variable without Covariates							
Intercept	6.15***	.11	5.93	6.37	< .001		
Care Guilt Appeal	−.05	.16	−.36	.26	.739		
Purity Guilt Appeal	−.27	.16	−.58	.04	.092	2.86*	
Liberty Guilt Appeal	−.02	.16	−.33	.29	.910	(5, 390)	.04
Liberty Foundation	.39	.06	−.06	.84	.131		
Purity Guilt Appeal* Liberty Foundation	.30*	.14	.02	.58	.035		

Table 21 (cont'd)

Model 5.2: Attitude as Dependent Variable with Covariates							
Intercept	6.12***	.11	5.90	6.34	< .001		
Care Guilt Appeal	.00	.16	−.30	.31	.739		
Purity Guilt Appeal	−.23	.16	−.53	.08	.092		
Liberty Guilt Appeal	.00	.16	−.31	.31	.910	4.74***	.08
Care Foundation	.21***	.06	.10	.32	< .001	(7, 388)	
Purity Foundation	.08	.06	−.03	.19	.165		
Liberty Foundation	.34	.06	−.12	.80	.192		
Purity Guilt Appeal* Liberty Foundation	.25	.14	−.02	.53	.069		
Model 6: Behavioral Intention as Dependent Variable							
Intercept	5.78***	.14	5.52	6.07	< .001		
Care Guilt Appeal	−.09	.20	−.48	.29	.633		
Purity Guilt Appeal	−.61**	.20	−1.00	−.22	.002	3.10**	.04
Liberty Guilt Appeal	−.18	.20	−.57	.22	.380	(5, 390)	
Liberty Foundation	.39	.08	−.19	.97	.575		
Purity Guilt Appeal* Liberty Foundation	.35	.18	−.004	.69	.053		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Table 22: Mismatching Effects of Liberty-focused Guilt Appeal and Purity Moral Foundation

	b	SE	95% CI LL	95% CI UL	p	$F(df)$	R^2
Model 1: Perceived Guilt as Dependent Variable							
Intercept	1.95***	.27	1.43	2.47	< .001		
Care Guilt Appeal	1.92***	.38	1.18	2.66	< .001		
Purity Guilt Appeal	.77*	.38	.03	1.51	.042	8.68***	.10
Liberty Guilt Appeal	.38	.38	−.36	1.12	.309	(5, 390)	
Purity Foundation	.82	.16	−.02	1.66	.055		
Liberty Guilt Appeal* Purity Foundation	.52	.30	−.06	1.11	.080		
Model 2: Perceived Threat as Dependent Variable							
Intercept	2.85***	.17	2.53	3.18	< .001		
Care Guilt Appeal	1.13***	.23	.67	1.59	< .001		
Purity Guilt Appeal	1.96***	.24	1.50	2.42	< .001	18.52***	.19
Liberty Guilt Appeal	1.81***	.23	1.35	2.27	< .001	(5, 390)	
Purity Foundation	−.25	.10	-.65	.15	.292		
Liberty Guilt Appeal* Purity Foundation	−.15	.21	−.51	.22	.432		
Model 3: Anger as Dependent Variable							
Intercept	2.44***	.17	2.10	2.78	< .001		
Care Guilt Appeal	.54*	.25	.06	1.03	.027		
Purity Guilt Appeal	1.55***	.25	1.06	2.03	< .001	12.02***	.13
Liberty Guilt Appeal	1.25***	.25	.76	1.73	< .001	(5, 390)	
Purity Foundation	−.37*	.10	−.69	−.05	.023		
Liberty Guilt Appeal* Purity Foundation	−.13	.20	−.51	.25	.499		
Model 4: Counterarguing as Dependent Variable							
Intercept	2.66***	.16	2.34	2.98	< .001		
Care Guilt Appeal	.33	.23	−.12	.77	.154		
Purity Guilt Appeal	1.66***	.23	1.21	2.11	< .001	21.76***	.22
Liberty Guilt Appeal	1.72***	.23	1.27	2.17	< .001	(5, 390)	
Purity Foundation	−.50	.10	−1.06	.06	.089		
Liberty Guilt Appeal* Purity Foundation	−.34	.18	−.70	.02	.061		
Model 5: Attitude as Dependent Variable							
Intercept	6.15***	.11	5.92	6.37	< .001		
Care Guilt Appeal	−.05	.16	−.37	.26	.744		
Purity Guilt Appeal	−.22	.16	−.53	.10	.171	1.35	.02
Liberty Guilt Appeal	−.02	.16	−.33	.30	.916	(5, 390)	
Purity Foundation	.15	.07	−.04	.34	.116		
Liberty Guilt Appeal* Purity Foundation	.05	.13	−.20	.29	.721		

Table 22 (cont'd)

Model 6: Behavioral Intention as Dependent Variable							
Intercept	5.78***	.14	5.51	6.06	< .001		
Care Guilt Appeal	−.07	.20	−.46	.31	.708		
Purity Guilt Appeal	−.55**	.20	−.94	−.16	.006	4.30***	
Liberty Guilt Appeal	−.14	.20	−.52	.25	.489	(5, 390)	.05
Purity Foundation	.35	.08	.05	.65	.022		
Liberty Guilt Appeal* Purity Foundation	.16	.16	−.15	.47	.311		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Message conditions were coded as dummy variables. The control message was treated as reference group in the model. The scores of moral foundations (continuous variables) were standardized.

Figure 1: Effects of Care-focused Guilt Appeal between Low Care Foundation Group and High Care Foundation Group
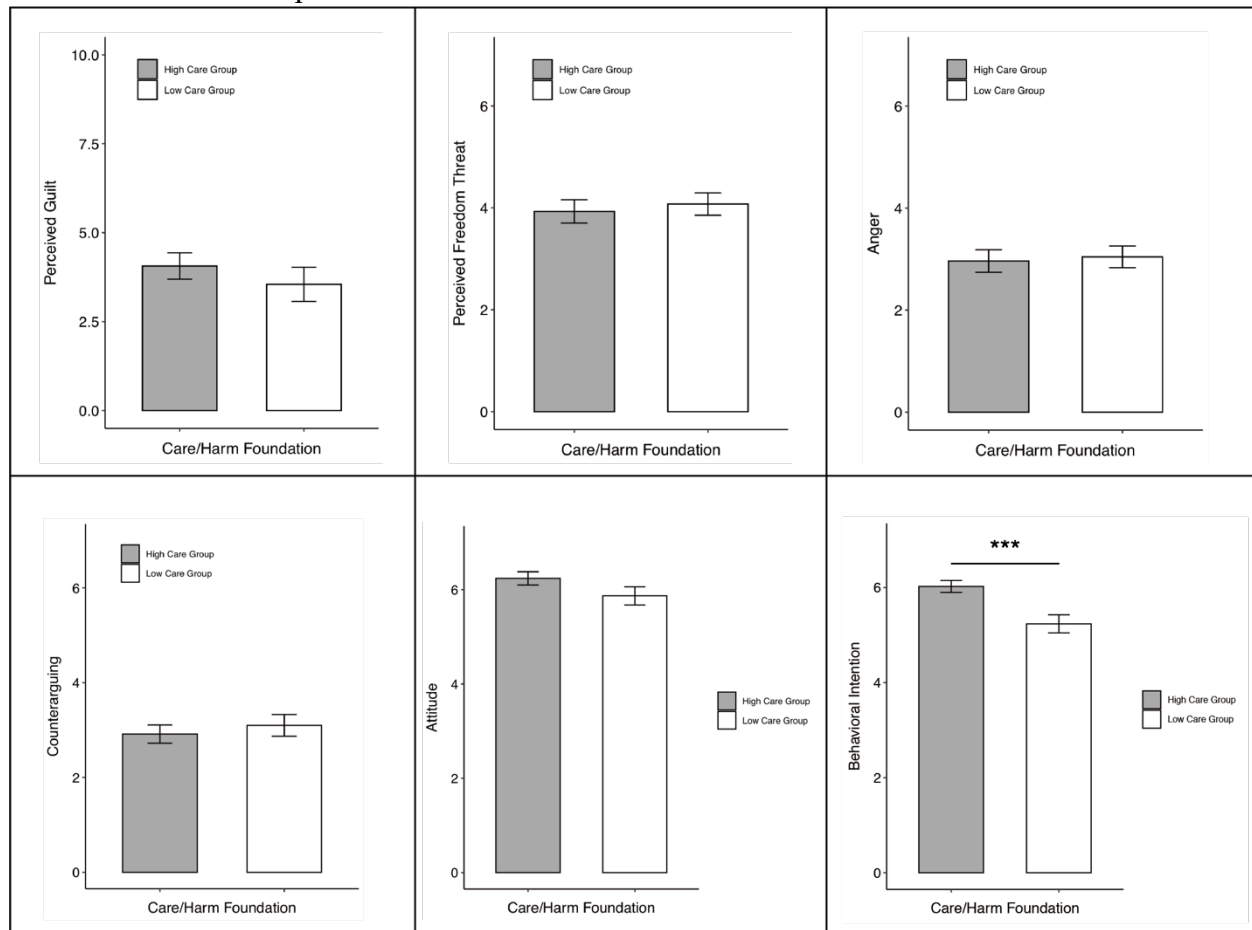
Note. *** *p* < .001. Error bars represent 95% confidence intervals.

Figure 2: Effects of Purity-focused Guilt Appeal between Low Purity Foundation Group and High Purity Foundation Group
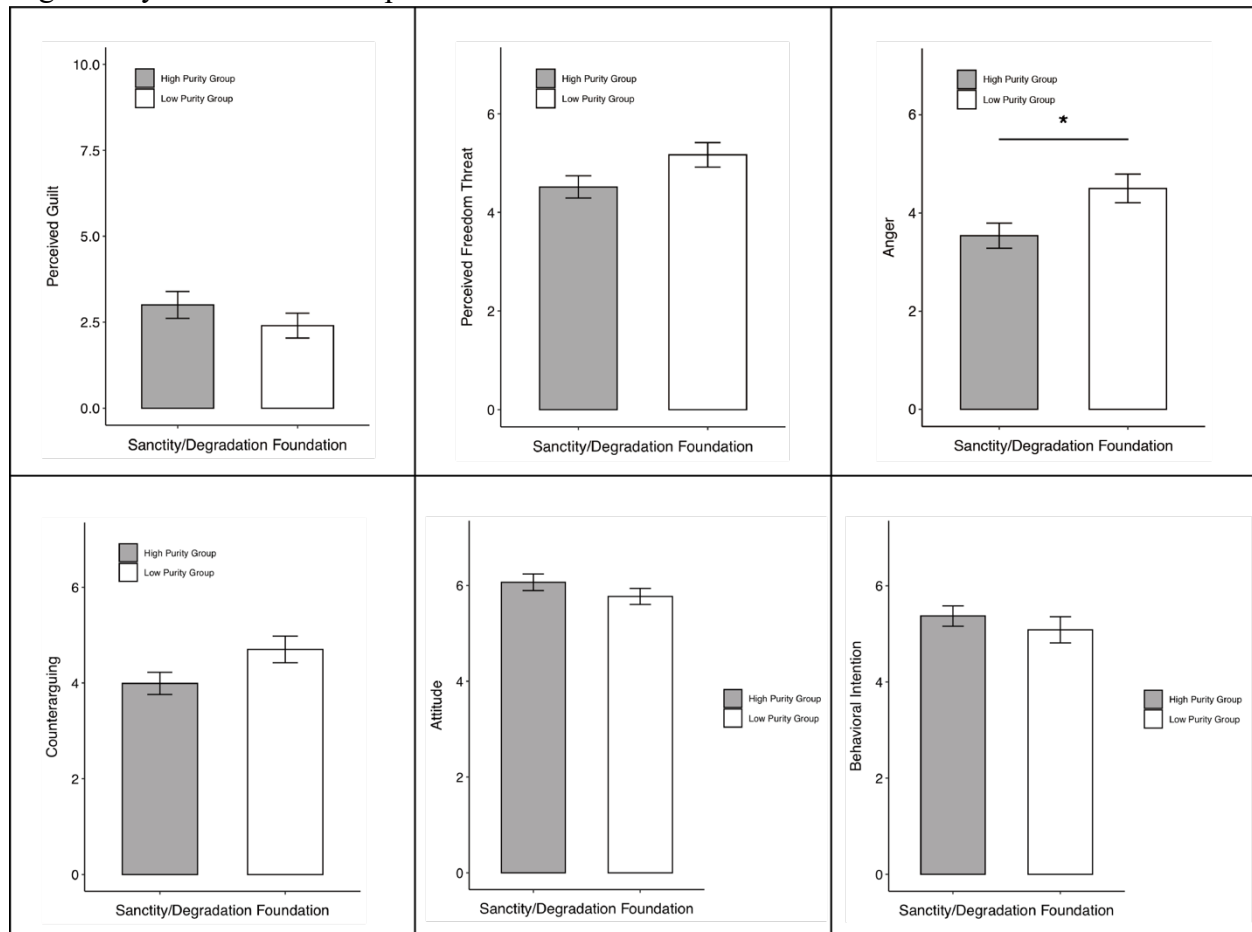
Note. * *p* < .05. Error bars represent 95% confidence intervals.

Figure 3: Effects of Liberty-focused Guilt Appeal between Low Liberty Foundation Group and High Liberty Foundation Group
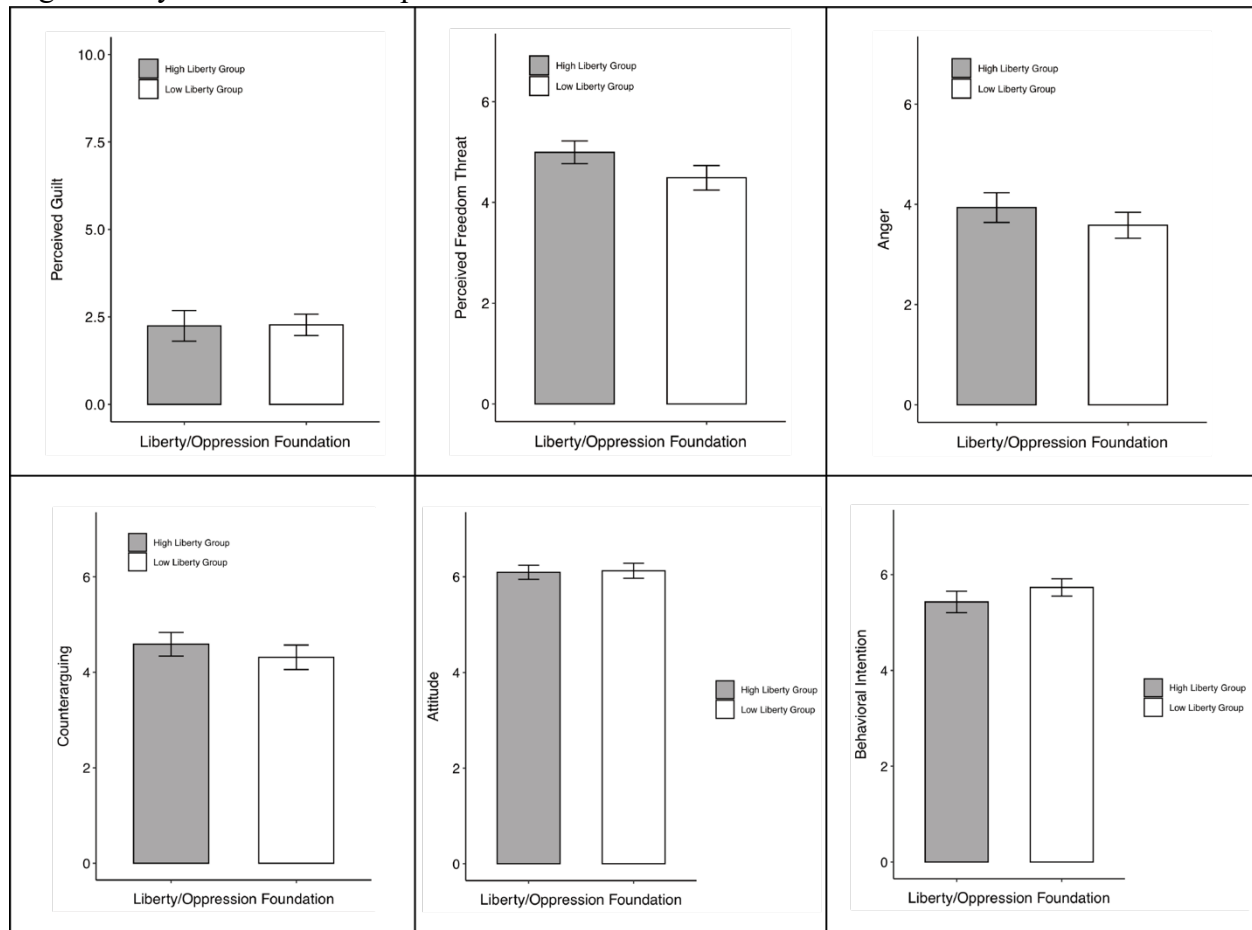
Note. Error bars represent 95% confidence intervals.

Figure 4: Main Effects of Messages on Perceived Guilt
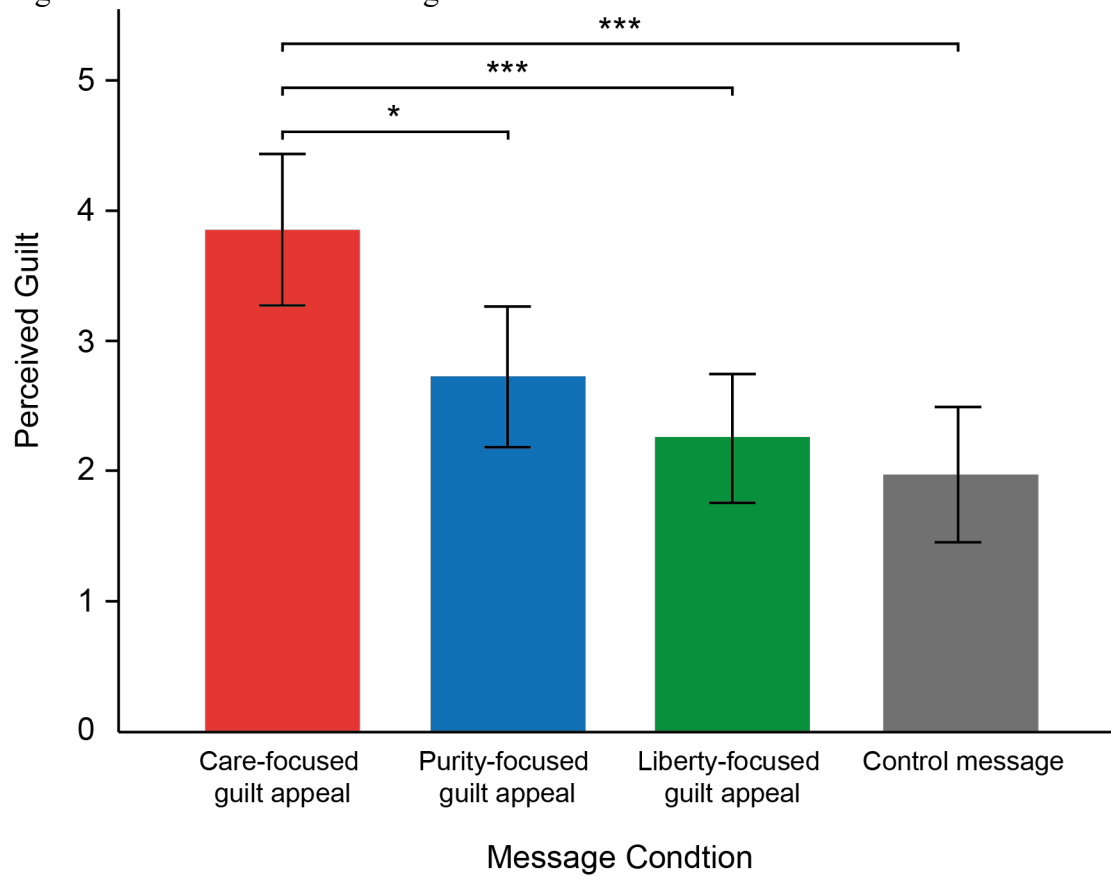
Note. * $p < .05$. *** $p < .001$. Error bars represent 95% confidence intervals.

Figure 5: Main Effects of Messages on Perceived Freedom Threat
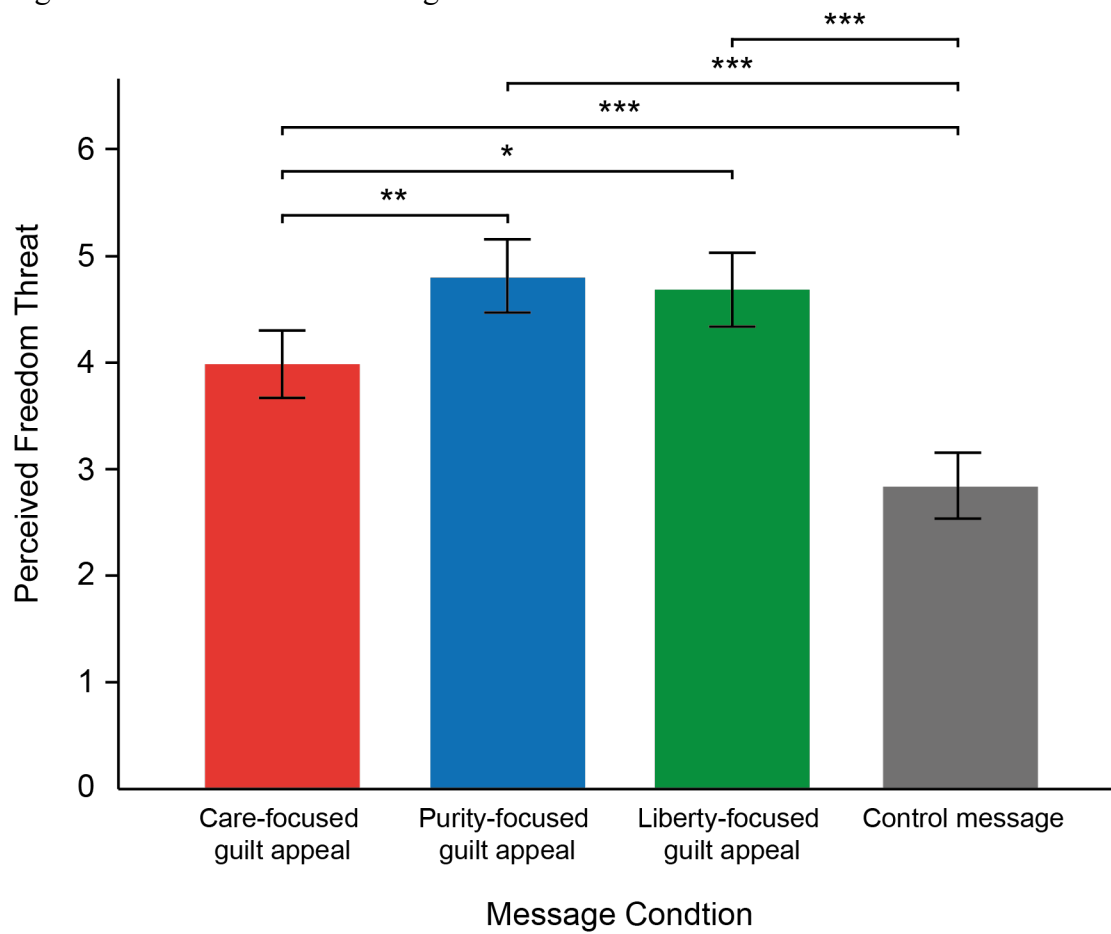
Note. * *p* < .05. *** *p* < .001. Error bars represent 95% confidence intervals.

Figure 6: Main Effects of Messages on Anger

Message Condtion
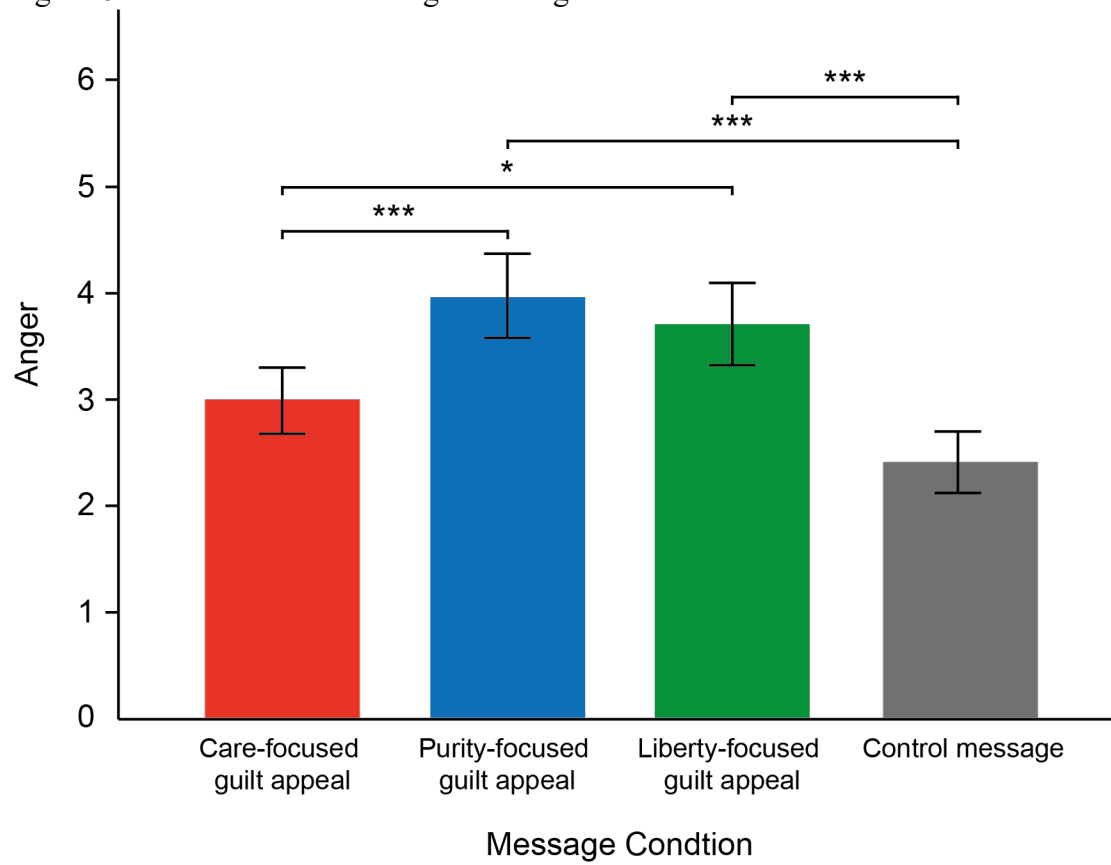
Note. * *p* < .05. *** *p* < .001. Error bars represent 95% confidence intervals.

Figure 7: Main Effects of Messages on Counterarguing
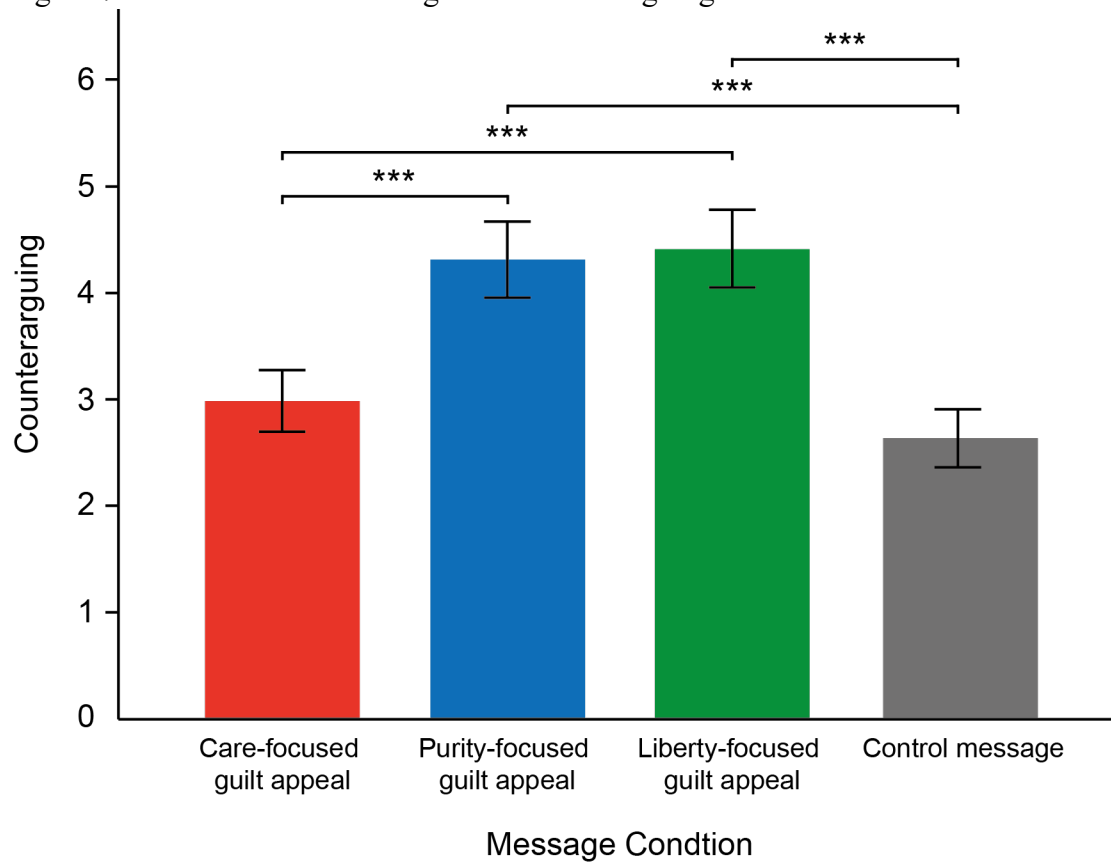
Note. *** *p* < .001. Error bars represent 95% confidence intervals.

Figure 8: Main Effects of Messages on Attitude
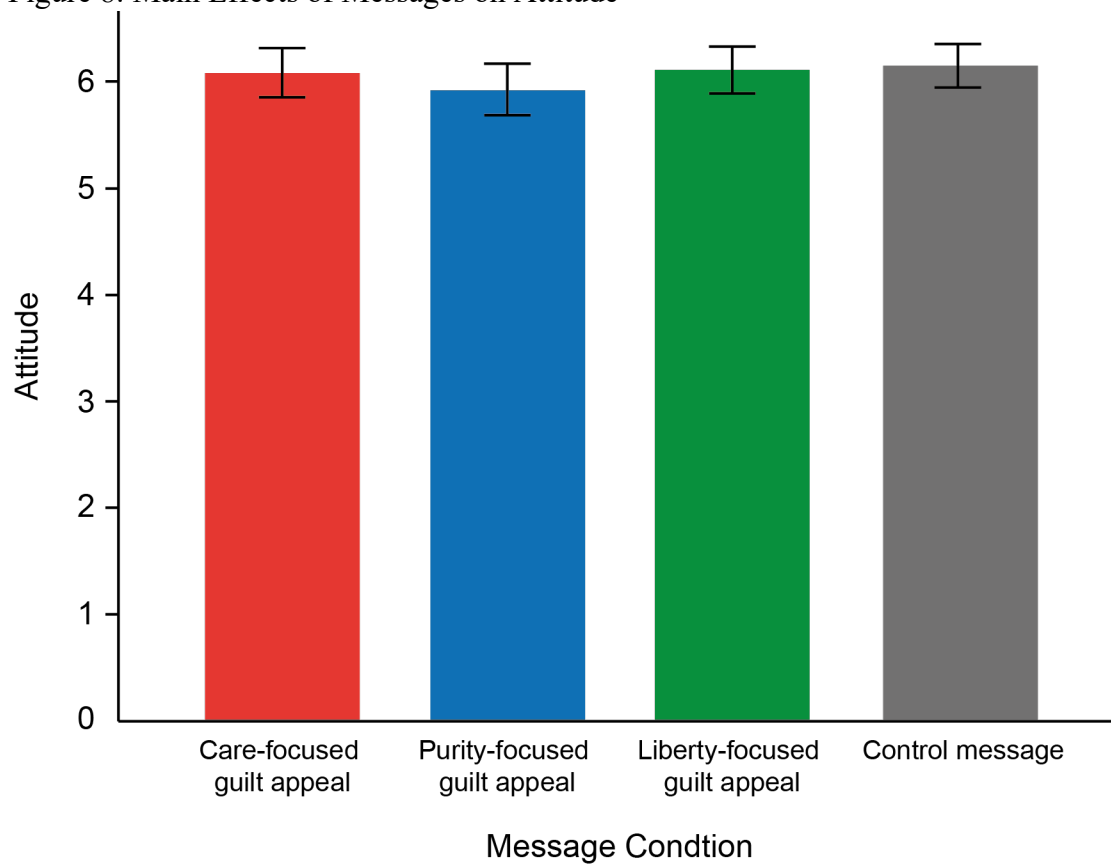
Note. Error bars represent 95% confidence intervals.

Figure 9: Main Effects of Messages on Behavioral Intention
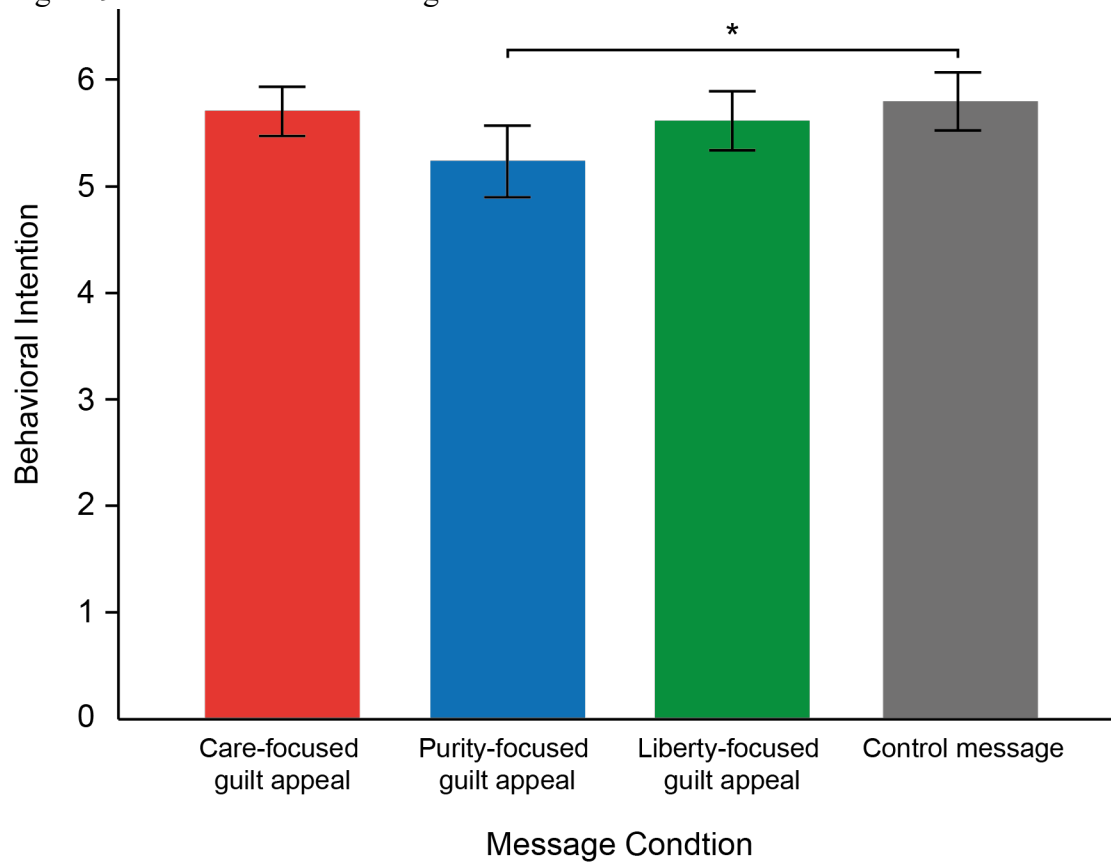
Note. * $p < .05$. Error bars represent 95% confidence intervals.

APPENDIX B:

Message Stimuli

Figure 10: Care/Harm Focused Guilt Appeal

Figure 11: Sanctity/Degradation Focused Guilt Appeal

Figure 12: Liberty/Oppression Focused Guilt Appeal

No More Sugary Drinks: Keep Your Kids' Freedom!

Did you know that children should not consume more than 6 teaspoons of added sugar per day? On average, U.S. children consume 17 teaspoons of added sugars daily. Sugary drinks are the leading source of added sugars in the American diet. Sugary drinks are any liquids that are sweetened with added sugars. Regular soda, sports drinks, energy drinks and fruit-flavored drinks (e.g., juice boxes) are typical sugary drinks. In fact, many Americans don't know how much and what kinds of sugar are in their beverages.

As a parent, when you allow your kids to have sugary drinks, you may not realize it, *but you are depriving children of their personal freedom*. There are substances that can take addictive control of children and inhibit their freedom. Sugar is one such substance. Consuming sugar causes a euphoric effect that triggers the production of dopamine in human brain, a neurotransmitter that controls pleasure and is responsible for reward motivated behavior. Studies show sugar is super addictive. When children have sugary drinks, they are basically giving up their freedom and letting sugar take control of them. Independence is one of our most valued rights, and we should help children hold their autonomy. Have you given too many sugar-sweetened beverages to children before? Do you notice that your kids are becoming addicted and losing freedom because you allow them to consume these addictive drinks? Next time, think about how bad you might feel if you decide to let children drink sugar-sweetened beverages.

Here are two tips on how to cut back on sugary drinks. (1) Read nutrition labels and ingredients carefully. Sugary drinks can be deceiving. Common forms of added sugars are sucrose, glucose, fructose, maltose, and dextrose. (2) Replace sugary drinks with water. If children don't like drinking water, add slices of their favorite fruits for a flavor boost or try sparking water.

Keep children away from sugary drinks. Keep their **FREEDOM** and **LIBERTY**!

Figure 13: Control Message

Sugar-Sweetened Beverages and Consumption

Sugar-sweetened beverages (SSBs) or sugary drinks are leading sources of added sugars in the American diet. Sugar-sweetened beverages are any liquids that are sweetened with various forms of added sugars like brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, lactose, malt syrup, maltose, molasses, raw sugar, and sucrose. Examples of SSBs include, but are not limited to, regular soda (not sugar-free), fruit drinks, sports drinks, energy drinks, sweetened waters, and coffee and tea beverages with added sugars. Chocolate milk and some milk alternatives also contain added sugar.

On average, US youth consume 143 calories from SSBs and US adults consume 145 calories from SSBs on a given day. Among youth, SSB intake is higher among boys, adolescents, non-Hispanic Black youth, or youth in families with low-incomes. Among adults, SSB intake is higher among males, young adults, non-Hispanic Black or Mexican American adults, or adults with low-incomes. The prevalence of Americans who drink SSB at least once per day differs geographically. For example, 68% of adults living in the Northeast, 67% of adults living in the South, 61% of adults living in the West, and 59% of adults living in the Midwest reported drinking SSBs one or more times per day. About 31% of adults in nonmetropolitan counties and 25% of adults in metropolitan counties reported drinking SSBs one or more times per day. Americans drink 52% of SSB calories at home and 48% of SSB calories away from home.

Here are two tips on how to cut back on sugary drinks. (1) Read nutrition labels and ingredients carefully. Sugary drinks can be deceiving. Common forms of added sugars are sucrose, glucose, fructose, maltose, and dextrose. (2) Replace sugary drinks with water. If children don't like drinking water, add slices of their favorite fruits for a flavor boost or try sparking water.

APPENDIX C:

Scales and Questions

Moral Foundations 1

When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:

1 = Not at all relevant (This consideration has nothing to do with my judgments of right and wrong)

6 = Extremely relevant (This is one of the most important factors when I judge right and wrong)

Harm/Care

Whether or not someone suffered emotionally

Whether or not someone cared for someone weak or vulnerable

Whether or not someone was cruel

Sanctity/Degradation

Whether or not someone violated standards of purity and decency

Whether or not someone did something disgusting

Whether or not someone acted in a way that God would approve of

Liberty/Oppression

Whether or not everyone was free to do as they wanted

Moral Foundations 2

Please read the following sentences and indicate your agreement or disagreement (1 = Strongly disagree, 6 = Strongly agree).

Harm/Care

Compassion for those who are suffering is the most crucial virtue.

One of the worst things a person could do is hurt a defenseless animal.

It can never be right to kill a human being.

Sanctity/Degradation

People should not do things that are disgusting, even if no one is harmed.

I would call some acts wrong on the grounds that they are unnatural.

Chastity is an important and valuable virtue.

Liberty/Oppression

I think everyone should be free to do as they choose, so long as they don't infringe upon the equal freedom of others.

People should be free to decide what group norms or traditions they themselves want to follow.

Transgression Focus

There are many moral norms in human society, such as the norm of care, purity, and liberty.

Here are the definitions of three moral norms. Care: One should care for someone weak or vulnerable and despise cruelty. Purity: One should preserve the purity and decency of the body and the soul and avoid doing "disgusting" things. Liberty: One should be free to do as they choose and despise oppression and interference from those in positions of power.

Based on your perceptions about the message instead of your attitudes toward the issue, please indicate the extent to which you agree with the following statements. (1 = Strongly disagree, 7 = Strongly agree).

Violation of Care

The message indicates that if parents allow children to drink sugary beverages, they are harming children.

The message indicates that allowing kids to drink sugary beverages is putting them in danger.

The message indicates that when parents allow children to drink sugary beverages, they don't care for children.

The message argues that allowing kids to consume sugary drinks violates the norm of care.

Violation of Purity

The message indicates that parents should not let children drink sugary beverages because those drinks contaminate children's bodies.

The message indicates that keeping kids away from sugary drinks is a way to keep their bodies sacred and pure.

The message indicates that if parents allow kids to drink sugary beverages, they are allowing them to consume disgusting stuffs.

The message argues that allowing children to drink sugary beverages violates the norm of purity.

Violation of Liberty

The message indicates that parents should keep kids away from sugary drinks because drinking them ultimately limits the freedom of kids.

The message indicates that allowing children to drink sugary beverages is depriving them of freedom.

The message indicates that if children are allowed to have sugary drinks, they will be addicted to these beverages and lose their freedom.

The message argues that allowing children to consume sugary drinks violates the norm of liberty.

Induced Emotions

Sometimes messages are emotional. What did you feel when you were reading the message?

Please rate the degree to which you felt any of the following emotions (0 = None of this feeling, 10 = A great deal of this feeling).

Happy

Hopeful

Sad

Regretful

Guilty

Remorseful

Blameworthy

Anxious

Fearful

Ashamed

Disgusted

Anger toward Message

(1 = Strongly disagree, 7 = Strongly agree)

The message made me feel ____.

Irritated

Angry

Annoyed

Aggravated

Counterarguing

(1 = Strongly disagree, 7 = Strongly agree)

I was criticizing the message while I was reading it.

While reading the message, I was thinking of points that were against the message.

While reading the message, I was feeling skeptical of the message.

I found myself opposing the message's points.

Threat to Freedom

(1 = Strongly disagree, 7 = Strongly agree)

The message tried to make a decision for me.

The message tried to manipulate me.

The message threatened my freedom to choose.

The message tried to pressure me.

Attitude

(7-point semantic differential scale)

I think reducing sugary drinks in diets for children is ____.

Unimportant - Important

Foolish - Wise

Unfavorable - Favorable

Unnecessary - Necessary

Detrimental - Beneficial

Behavioral Intention

(1 = Very unlikely, 7 = Very likely)

In the next month, would you be to reduce the number of sugary drinks offered to a child?

In the next month, would you be to read nutrition labels carefully before giving beverages to a child?

In the next month, would you be to replace sugary drinks with water when a child asks for them?

Consumption of Sugary Drinks

On average, how many cans (12 oz standard) of sugary drinks do your kids consume on a daily basis? Sugary drinks include regular soda, energy drinks, sport drinks, and juice boxes.

REFERENCES

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Amin, A. B., Bednarczyk, R. A., Ray, C. E., Melchiori, K. J., Graham, J., Huntsinger, J. R., & Omer, S. B. (2017). Association of moral values with vaccine hesitancy. *Nature Human Behaviour*, *1*(12), 873-880. https://doi.org/10.1038/s41562-017-0256-5

Basil, D. Z., Ridgway, N. M., & Basil, M. D. (2006). Guilt appeals: The mediating effect of responsibility. *Psychology & Marketing*, *23*(12), 1035-1054. https://doi.org/10.1002/mar.20145

Basil, D. Z., Ridgway, N. M., & Basil, M. D. (2008). Guilt and giving: A process model of empathy and efficacy. *Psychology & Marketing*, *25*(1), 1-23. https://doi.org/10.1002/mar.20200

Bennett, R. (1998). Shame, guilt & responses to non-profit & public sector ads. *International Journal of Advertising*, *17*(4), 483-499. https://doi.org/10.1080/02650487.1998.11104734

Bessarabova, E., Turner, M. M., Fink, E. L., & Blustein, N. B. (2015). Extending the theory of reactance to guilt appeals. *Zeitschrift für Psychologie*. https://doi.org/10.1027/2151-2604/a000223

Boles, M., Adams, A., Gredler, A., & Manhas, S. (2014). Ability of a mass media campaign to influence knowledge, attitudes, and behaviors about sugary drinks and obesity. *Preventive Medicine*, *67*, S40-S45. https://doi.org/10.1016/j.ypmed.2014.07.023

Boster, F. J., Mitchell, M. M., Lapinski, M. K., Cooper, H., Orrego, V. O., & Reinke, R. (1999). The impact of guilt and type of compliance-gaining message on compliance. *Communications Monographs*, *66*(2), 168-177. https://doi.org/10.1080/03637759909376470

Boudewyns, V., Turner, M. M., & Paquin, R. S. (2013). Shame-free guilt appeals: Testing the emotional and cognitive effects of shame and guilt appeals. *Psychology & Marketing*, *30*(9), 811-825. https://doi.org/10.1002/mar.20647

Brehm, J. W. (1966). *A theory of psychological reactance*. New York, NY: Academic Press.

Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. Academic Press.

Cameron, C. D., Lindquist, K. A., & Gray, K. (2015). A constructionist review of morality and emotions: No evidence for specific links between moral content and discrete emotions. *Personality and Social Psychology Review*, *19*(4), 371-394. https://doi.org/10.1177/1088868314566683

Carpenter, C. J. (2012). A meta-analysis of the functional matching effect based on functional attitude theory. *Southern Communication Journal*, *77*(5), 438-451. https://doi.org/10.108 0/1041794X.2012.699989

Chang, C. T. (2011). Guilt appeals in cause-related marketing: The subversive roles of product type and donation magnitude. *International Journal of Advertising*, *30*(4), 587-616. https://doi.org/10.2501/IJA-30-4-587-616

Chang, C. T. (2012). Are guilt appeals a panacea in green advertising? The right formula of issue proximity and environmental consciousness. *International Journal of Advertising*, *31*(4), 741-771. https://doi.org/10.2501/IJA-31-4-741-771

Chang, C. (2014). Guilt regulation: The relative effects of altruistic versus egoistic appeals for charity advertising. *Journal of Advertising*, *43*(3), 211-227. https://doi.org/10.1080/00913367.2013.853632

Cannon, P. R., Schnall, S., & White, M. (2011). Transgressions and expressions: Affective facial muscle activity predicts moral judgments. *Social Psychological and Personality Science*, *2*(3), 325-331. https://doi.org/10.1177/1948550610390525

Coulter, R. H., & Pinto, M. B. (1995). Guilt appeals in advertising: What are their effects? *Journal of Applied Psychology, 80*(6), 697–705. https://doi.org/10.1037/0021-9010.80.6.697

Christie, N. C., Hsu, E., Iskiwitch, C., Iyer, R., Graham, J., Schwartz, B., & Monterosso, J. R. (2019). The moral foundations of needle exchange attitudes. *Social Cognition*, *37*(3), 229-246. https://doi.org/10.1521/soco.2019.37.3.229

Dickinson, J. L., McLeod, P., Bloomfield, R., & Allred, S. (2016). Which Moral Foundations Predict Willingness to Make Lifestyle Changes to Avert Climate Change in the USA?. *PLoS ONE*, *11*(10). https://doi.org/10.1371/journal.pone.0163852

Dillard, J. P. & Nabi, R. L. (2006). The persuasive influence of emotion in cancer prevention and detection messages. *Journal of Communication*, *56*, S123-S139. https://doi.org/10.1111/j.1460-2466.2006.00286.x

Dillard, J. P. & Peck, E. (2000). Affect and persuasion: Emotional responses to public service announcements. *Communication Research*, *27*(4), 461-495. https://doi.org/10.1177/0093 65000027004003

Dillard, J. P., Plotnick, C. A., Godbold, L. C., Freimuth, V. S., & Edgar, T. (1996). The multiple affective outcomes of AIDS PSAs: Fear appeals do more than scare people. *Communication Research*, *23*(1), 44-72. https://doi.org/10.1177/009365096023 001002

Dillard, J. P., & Shen, L. (2005). On the nature of reactance and its role in persuasive health communication. *Communication Monographs*, *72*(2), 144-168. https://doi.org/10.108 0/03637750500111815

Eden, A., Tamborini, R., Grizzard, M., Lewis, R., Weber, R., & Prabhu, S. (2014). Repeated exposure to narrative entertainment and the salience of moral intuitions. *Journal of Communication*, *64*(3), 501-520. https://doi.org/10.1111/jcom.12098

Elgaaied, L. (2012). Exploring the role of anticipated guilt on pro-environmental behavior–a suggested typology of residents in France based on their recycling patterns. *Journal of Consumer Marketing, 29*(5), 369-377. https://doi.org/10.1108/07363761211247488

Enke, B. (2020). Moral values and voting. *Journal of Political Economy*, *128*(10), 3679-3729. https://doi.org/10.3386/w24268

Feinberg, M., & Willer, R. (2013). The moral roots of environmental attitudes. *Psychological Science*, *24*(1), 56-62. https://doi.org/10.1177/0956797612449177

Feinberg, M., & Willer, R. (2019). Moral reframing: A technique for effective and persuasive communication across political divides. *Social and Personality Psychology Compass*, *13*(12), 1-12. https://doi.org/10.1111/spc3.12501

Franks, A. S., & Scherr, K. C. (2015). Using moral foundations to predict voting behavior: Regression models from the 2012 US presidential election. *Analyses of Social Issues and Public Policy*, *15*(1), 213-232. https://doi.org/10.1111/asap.12074

Graham, J. & Haidt, J. (2012). The moral foundations dictionary. https://moralfoundations.org/

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*(5), 1029-1046. https://doi.org/10.1037/a0015141

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S. P., & Ditto, P. H. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. In *Advances in experimental social psychology* (Vol. 47, pp. 55-130). Academic Press. https://doi.org/10.1016/B978-0-12-407236-7.00002-4

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108*(4), 814–834. https://doi.org/10.1037/0033-295X.108.4.814

Haidt, J. (2012). *The righteous mind: Why good people are divided by politics and religion*. Vintage.

Haidt, J., & Joseph, C. (2008). The moral mind: How five sets of innate intuitions guide the development of many culture-specific virtues, and perhaps even modules. In P. Carruthers, S. Laurence, & S. Stich (Eds.), *The innate mind Vol. 3. Foundations and the future* (pp. 367-391). Oxford University Press. https://doi.org/10.1093/acprof:oso/97801 95332834.003.0019

Hoover, J., Johnson, K., Boghrati, R., Graham, J., Dehghani, M., & Donnellan, M. B. (2018). Moral framing and charitable donation: Integrating exploratory social media analyses and

confirmatory experimentation. *Collabra: Psychology*, *4*(1). https://doi.org/10.1525/colla bra.129

Horberg, E. J., Oveis, C., Keltner, D., & Cohen, A. B. (2009). Disgust and the moralization of purity. *Journal of Personality and Social Psychology*, *97*(6), 963-976. https://doi.org/10.1037/a0017423

Iyer, R., Koleva, S., Graham, J., Ditto, P., & Haidt, J. (2012). Understanding libertarian morality: The psychological dispositions of self-identified libertarians. *PLoS ONE 7*(8): e42366. https://doi.org/10.1371/journal.pone.0042366

Izard, C. E. (1977). *Human emotions*. New York, NY: Plenum Press.

Jiménez, M. & Yang, K. C. (2008). How guilt level affects green advertising effectiveness?. *Journal of Creative Communications*, *3*(3), 231-254. https://doi.org/10.1177/09732586 1000300301

Karimi-Malekabadi, F., Reimer, N. K., Atari, M., Trager, J., Kennedy, B., Graham, J., & Dehghani, M. (2021). Moral values predict county-level COVID-19 vaccination rates in the United States. https://psyarxiv.com/z6kxm/

Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly*, *24*(2), 163-204. https://doi.org/10.1086/266945

Kidwell, B., Farmer, A., & Hardesty, D. M. (2013). Getting liberals and conservatives to go green: Political ideology and congruent appeals. *Journal of Consumer Research*, *40*(2), 350-367. https://doi.org/10.1086/670610

Koleva, S. P., Graham, J., Iyer, R., Ditto, P. H., & Haidt, J. (2012). Tracing the threads: How five moral concerns (especially Purity) help explain culture war attitudes. *Journal of Research in Personality*, *46*(2), 184-194. https://doi.org/10.1016/j.jrp.2012.01.006

Landmann, H., & Hess, U. (2018). Testing moral foundation theory: Are specific moral emotions elicited by specific moral transgressions?. *Journal of Moral Education*, *47*(1), 34-47. https://doi.org/10.1080/03057240.2017.1350569

Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford, UK: Oxford University Press.

Lee, Y. K. (2013). The influence of message appeal, environmental hyperopia, and environmental locus of control on green policy communication. *Social Behavior and Personality: An International Journal*, *41*(5), 731-738. https://doi.org/10.2224/sbp.2013.41.5.731

Lee, H., & Paek, H. J. (2013). Impact of norm perceptions and guilt on audience response to anti-smoking norm PSAs: The case of Korean male smokers. *Health Education Journal*, *72*(5), 503-511. https://doi.org/10.1177/0017896912450249

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgement and choice. *Cognition & Emotion*, *14*(4), 473-493. https://doi.org/10.1080/026999300402763

Lindsey, L. L. M. (2005). Anticipated guilt as behavioral motivation: An examination of appeals to help unknown others through bone marrow donation. *Human Communication Research*, 31, 453–481. https://doi.org/10.1111/j.1468-2958.2005.tb00879.x

Lindsey, L. L. M., Yun, K. A., & Hill, J. B. (2007). Anticipated guilt as motivation to help unknown others: An examination of empathy as a moderator. *Communication Research*, *34*(4), 468-480. https://doi.org/10.1177/0093650207302789

Lipsitz, K. (2018). Playing with emotions: The effect of moral appeals in elite rhetoric. *Political Behavior*, *40*(1), 57-78. https://doi.org/10.1007/s11109-017-9394-8

Luttrell, A., Philipp-Muller, A., & Petty, R. E. (2019). Challenging moral attitudes with moral messages. *Psychological Science*, *30*(8), 1136-1150. https://doi.org/10.1177/0956797619854706

Lwin, M., & Phau, I. (2014). An exploratory study of existential guilt appeals in charitable advertisements. *Journal of Marketing Management*, *30*(13-14), 1467-1485. https://doi.org/10.1080/0267257X.2014.939215

Nabi, R. L. (2003). Exploring the framing effects of emotion: Do discrete emotions differentially influence information accessibility, information seeking, and policy preference? *Communication Research*, *30*(2), 224-247. https://doi.org/10.1177/0093650202250881

Netemeyer, R. G., Burton, S., Andrews, J. C., & Kees, J. (2016). Graphic health warnings on cigarette packages: the role of emotions in affecting adolescent smoking consideration and secondhand smoke beliefs. *Journal of Public Policy & Marketing*, *35*(1), 124-143. https://doi.org/10.1509/jppm.15.008

Nilsson, A., & Erlandsson, A. (2015). The Moral Foundations taxonomy: Structural validity and relation to political ideology in Sweden. *Personality and Individual Differences*, *76*, 28-32. https://doi.org/10.1016/j.paid.2014.11.049

O'Keefe, D. J. (2000). Guilt and social influence. *Annals of the International Communication Association*, *23*(1), 67-101. https://doi.org/10.1080/23808985.2000.11678970

O'Keefe, D. J. (2002). Guilt as a mechanism of persuasion. *The persuasion handbook: Developments in theory and practice*, 329-344.

O'Keefe, D. J. (2003). Message properties, mediating states, and manipulation checks: Claims, evidence, and data analysis in experimental persuasive message effects research. *Communication Theory*, *13*(3), 251-274. https://doi.org/10.1111/j.1468-2885.2003.tb00292.x

Pinto, M. B. & Priest, S. (1991). Guilt appeals in advertising: An exploratory study. *Psychological Reports*, *69*(2), 375-385. https://doi.org/10.2466/pr0.1991.69.2.375

Pinto, M. B. & Worobetz, N. D. (1992). Note on guilt appeals in advertising: Covariate effects of self-esteem and locus of control. *Psychological Reports*, *70*(1), 19-22. https://doi.org/10.2466/pr0.1992.70.1.19

Quick, B. L., Kam, J. A., Morgan, S. E., Montero Liberona, C. A., & Smith, R. A. (2015). Prospect theory, discrete emotions, and freedom threats: An extension of psychological reactance theory. *Journal of Communication*, *65*(1), 40-61. https://doi.org/10.1111/jcom.12134

Rains, S. A. (2013). The nature of psychological reactance revisited: A meta-analytic review. *Human Communication Research*, *39*(1), 47-73. https://doi.org/10.1111/j.1468-2958.2012.01443.x

Rains, S. A., & Turner, M. M. (2007). Psychological reactance and persuasive health communication: A test and extension of the intertwined model. *Human Communication Research*, *33*(2), 241-269. https://doi.org/10.1111/j.1468-2958.2007.00298.x

Roseman, I. J., Wiest, C., & Swartz, T. S. (1994). Phenomenology, behaviors, and goals differentiate discrete emotions. *Journal of Personality and Social Psychology*, *67*(2), 206-221. https://doi.org/10.1037/0022-3514.67.2.206

Rossen, I., Hurlstone, M. J., Dunlop, P. D., & Lawrence, C. (2019). Accepters, fence sitters, or rejecters: Moral profiles of vaccination attitudes. *Social Science & Medicine*, *224*, 23-27. https://doi.org/10.1016/j.socscimed.2019.01.038

Russell, P. S., & Giner-Sorolla, R. (2011). Moral anger is more flexible than moral disgust. *Social Psychological and Personality Science*, *2*(4), 360-364. https://doi.org/10.1177/1948550610391678

Shweder, R. A., Much, N. C., Mahapatra, M., & Park, L. (1997). The" big three" of morality (autonomy, community, divinity) and the "big three" explanations of suffering. In A. Brandt & P. Rozin (Eds.), *Morality and health* (pp. 119-169), Routledge, New York. https://doi.org/10.4324/9780203707463

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*(4), 813-818. http://doi.org/10.1037//0022-3514.48.4.970

Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition & Emotion*, *7*(3-4), 233-269. https://doi.org/10.1080/02699939308409189

Smith, C. T., Ratliff, K. A., Redford, L., & Graham, J. (2019). Political ideology predicts attitudes toward moral transgressors. *Journal of Research in Personality*, *80*, 23-29. https://doi.org/10.1016/j.jrp.2019.04.002

Steiger, R. L., & Reyna, C. (2017). Trait contempt, anger, disgust, and moral foundation values. *Personality and Individual Differences*, *113*, 125-135. https://doi.org/10.1016/j.paid.2017.02.071

Talhelm, T., Haidt, J., Oishi, S., Zhang, X., Miao, F. F., & Chen, S. (2015). Liberals think more analytically (more "WEIRD") than conservatives. *Personality and Social Psychology Bulletin*, *41*(2), 250-267. https://doi.org/10.1177/0146167214563672

Tamborini, R. (2011). Moral intuition and media entertainment. *Journal of Media Psychology, 23, 39-45*. https://doi.org/10.1027/1864-1105/a000031.

Tangney, J. P. (1999). The self-conscious emotions: Shame, guilt, embarrassment and pride. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 541-568). John Wiley & Sons Ltd. https://doi.org/10.1002/0470013494.ch26

Tangney, J. P., Miller, R. S., Flicker, L., & Barlow, D. H. (1996). Are shame, guilt, and embarrassment distinct emotions?. *Journal of Personality and Social Psychology*, *70*(6), 1256-1269. https://doi.org/10.1037/0022-3514.70.6.1256

Turner, M. M. (2012). Using emotional appeals in health messages. *Health Communication Message Design. Thousand Oaks: Sage Publications, Inc*, 59-73.

Turner, M. M., Mabry-Flynn, A., Shen, H., Jiang, H., Boudewyns, V., & Payne, D. (2018). The effects of guilt-appeal intensity on persuasive and emotional outcomes: the moderating role of sponsor motive. *Journal of Nonprofit & Public Sector Marketing*, *30*(2), 134-150. https://doi.org/10.1080/10495142.2017.1326345

Turner, M., & Rains, S. (2021). Guilt appeals in persuasive communication: A meta-analytic review. *Communication Studies*, *72*(4), 684-700. https://doi.org/10.1080/10510974.2021.1953094

Turner, M. M., & Underhill, J. C. (2012). Motivating emergency preparedness behaviors: The differential effects of guilt appeals and actually anticipating guilty feelings. *Communication Quarterly*, *60*(4), 545-559. https://doi.org/10.1080/01463373.2012.705780

Voelkel, J. G., & Feinberg, M. (2018). Morally reframed arguments can affect support for political candidates. *Social Psychological and Personality Science*, *9*(8), 917-924. https://doi.org/10.1177/1948550617729408

Wagemans, F., Brandt, M. J., & Zeelenberg, M. (2018). Disgust sensitivity is primarily associated with purity-based moral judgments. *Emotion*, *18*(2), 277-289. https://doi.org/10.1037/emo0000359

Wang, X. (2011). The role of anticipated guilt in intentions to register as organ donors and to discuss organ donation with family. *Health Communication*, *26*(8), 683-690. https://doi.org/10.1080/10410236.2011.563350

Wolsko, C., Ariceaga, H., & Seiden, J. (2016). Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. *Journal of Experimental Social Psychology*, *65*, 7-19. https://doi.org/10.1016/j.jesp.2016.02.005

Xu, Z., & Guo, H. (2018). A meta-analysis of the effectiveness of guilt on health-related attitudes and intentions. *Health Communication*, *33*(5), 519-525. https://doi.org/10.1080/10410236.2017.1278633

Yilmaz, O., Harma, M., Bahçekapili, H. G., & Cesur, S. (2016). Validation of the Moral Foundations Questionnaire in Turkey and its relation to cultural schemas of individualism and collectivism. *Personality and Individual Differences*, *99*, 149-154. https://doi.org/10.1016/j.paid.2016.04.090

Yang, S. (2019). Morality in tobacco control messaging: Effects of moral appeals on persuasion and retransmission. *Publicly Accessible Penn Dissertations*. 3527. https://repository.upenn.edu/edissertations/3527/