Political Psychology

Political Psychology, Vol. 40, No. 1, 2019
doi: 10.1111/pops.12507

How Emotional Frames Moralize and Polarize Political Attitudes

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Moralized issues, such as abortion and same-sex marriage, are some of the most polarizing and divisive issues in politics. These topics motivate political engagement but present a barrier to democratic resolution. Yet we know little about how some issues become "moral issues" and others do not. In this article, I argue that exposure to persuasive frames, particularly those eliciting anger and disgust, serves to moralize and polarize public opinion. I test these hypotheses across three experiments on emerging debates over food politics. The results consistently show that persuasive frames increase issue moralization and, in turn, facilitate polarization. A panel analysis demonstrates that the effect of a single exposure lasts at least two weeks. Mediation analyses suggest that feelings of disgust and anger help explain how persuasive frames moralize political attitudes, while anger alone seems to explain the polarizing effects of framing. Overall, the findings provide new insight into framing, emotion, and the development of moral issues.

KEY WORDS: anger, disgust, framing, moral conviction, moralization

Issues like same-sex marriage, immigration, and abortion are some of the most polarizing topics in American political debate, creating deep moral conflict among the public. These types of moralized issues tend to be salient and technically simple (Mooney & Schuldt, 2008), leading to increased political participation (Biggers, 2010; Nicholson, 2003). But they are also socially divisive. The value conflict endemic to moral issues creates strong emotions, decreased willingness to compromise, and lower tolerance for disagreement (Mooney & Schuldt, 2008). Thus, moralized issues spur citizens into action but reduce the prospects for a peaceful, democratic resolution to the debate (Mooney, 1999).

Recent research, however, demonstrates that there may be more variation in the extent of attitude moralization *within* issues than between issues (Ryan, 2014). For example, while many people see their attitudes on the death penalty as a reflection of their moral beliefs, some do not. Focusing on "moral issues" thus misses much of the variation in attitude moralization. Fortunately, the individual-level research on moral conviction conforms well to the findings from the morality policy literature. Morally convicted attitudes are more strongly linked to emotions (Brandt, Wisneski, & Skitka, 2015; Skitka & Wisneski, 2011) and foment political engagement (Skitka & Bauman, 2008). Moral conviction also creates a barrier to policy resolution by reducing willingness to compromise (Ryan, 2016) and undermining belief in fair processes (Skitka, Bauman, & Lytle, 2009). And moral conviction facilitates social polarization in the form of more negative feelings toward disagreeing others (Ryan, 2014; Skitka, Bauman, & Sargis, 2005). In short, variation in individuals'

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perceptions that their attitudes are rooted in fundamental right and wrong help explain social and political polarization.

In spite of the importance of these findings, we know little about how individuals come to moralize their attitudes toward particular political issues while others do not. Recent research suggests that integral emotion may be an important antecedent to moral conviction (Wisneski & Skitka, 2017) and that exposure to political campaigns might play a role in this process (Brandt et al., 2015). Yet we have little evidence as to whether and how political communication can facilitate attitude moralization and, in turn, increase political polarization.

In this article, across three experimental studies, I provide some of the first direct evidence that political communication plays an important role in attitude moralization. Exposure to persuasive frames consistently leads to increases in moral conviction and often causes downstream effects on social polarization as well. A panel analysis finds that the effects of a single exposure to a persuasive frame last at least two weeks. Finally, a series of mediation analyses provide suggestive evidence that persuasive frames increase moralization primarily by activating feelings of anger and disgust, while anger alone seems to drive polarization. I focus my investigation on the topic of food and health politics, a cluster of issues that is growing in prominence but has yet to become heavily politicized. By studying this emerging set of issues, I minimize problems with pretreatment bias (Druckman & Leeper, 2012; Slothuus, 2016) and advance our understanding of how issues evolve. Overall, the results show that emotional appeals have the power to transform otherwise nonsalient political topics into moralized issues, creating the social and political polarization that is characteristic of moral issues.

Moral Conviction and Political Polarization

A long line of research demonstrates that strong attitudes are more resistant to persuasion, more stable over time, and more closely tied to other attitudes and behaviors (e.g., Petty & Krosnick, 1995). Attitude strength is a multidimensional construct, however, and different aspects of attitude strength, such as importance or certainty, have different antecedents and different consequences (e.g., Visser, Bizer, & Krosnick, 2006). Recent work has demonstrated the utility of moral conviction—the perception that one's attitude is a question of fundamental right and wrong—as a distinct form of attitude strength (Skitka et al., 2005). Thus, a person might hold a strong opinion about tax reform that is not moralized (e.g., based on perceptions of costs and benefits), while another person may hold a strong opinion that is highly moralized (e.g., based on perceptions of deservingness or inequality).

Holding an attitude with moral conviction has a number of distinct consequences, particularly for outcomes related to political polarization (for a review, see Skitka & Morgan, 2014). Moral conviction is unique in that moralized claims are perceived as objective statements of fact that are universally applicable to others, regardless of their agreement with the claim (Skitka et al., 2005). Moralized claims thus tend to encourage rule-based or deontological thinking, rather than consequentialist thinking (Ryan, 2016). As a result, moralized attitudes tend to generate all of the hallmarks of political polarization—an unwillingness to compromise (Ryan, 2016), lower tolerance for disagreement and greater desired social distance from disagreeing others (Cole Wright, Cullum, & Schwab, 2008; Skitka et al., 2005), strong emotions (Skitka & Wisneski, 2011), higher levels of political participation (Skitka & Bauman, 2008), and even hostile forms of collective action (Zaal, Laar, Ståhl, Ellemers, & Derks, 2011).

While moral conviction predicts many of the defining features of political polarization, we know relatively little about the antecedents of moral conviction (for a review, see Skitka, Wisneski, & Brandt, 2017). Levels of moral conviction on an issue tend to be highly stable over time (Skitka, 2010), but recent work has documented changes in moralization over the course of an election

(Brandt et al., 2015). Some have suggested that elite framing may contribute to issue moralization (Conover & Miller, 2017), but there have been no empirical tests of this hypothesis.

One promising antecedent to moral conviction is emotion. Early work on the topic found that affect, particularly disgust, and beliefs about harm and benefits were both associated with attitude moralization (Rozin & Singh, 1999; Rozin, Markwith, & Stoess, 1997), but these studies were limited by a reliance on cross-sectional data. A recent longitudinal study found that feelings of hostility, but not fear or beliefs about harm, predicted increases in moral conviction in the context of an election (Brandt et al., 2015). In one of the few experimental tests of moralization, Wisneski and Skitka (2017) demonstrated that exposure to topically relevant disgusting imagery increased moral conviction and that these effects were driven by feelings of disgust rather than beliefs about harm. Moreover, neither subliminal exposure to disgusting imagery, nor supraliminal exposure to irrelevant disgusting imagery, increased moral conviction. Emotion has thus been the most consistent antecedent of moralization. However, contrary to intuitionist theories of morality, moralization seems to respond primarily to integral, rather than incidental emotion (Skitka et al., 2017).

Framing Emotion

Emotion plays a critical role in political communication. Campaigns and interest groups frequently appeal to emotions and strategically target different emotions (Brader, 2006; Ridout & Searles, 2011). News coverage of political events can evoke powerful emotions, such as fear, that can influence political attitudes (Gadarian, 2010). Although framing research has long focused on cognitive mechanisms (e.g., Nelson et al., 1997; Slothuus, 2008), recent work suggests that examining emotional responses may aid our understanding of what makes a strong frame and for whom (Aarøe, 2011; Druckman & McDermott, 2008). For example, emotional responses to frames help explain the strength of episodic frames (Aarøe, 2011; Gross, 2008; Gross & D'Ambrosio, 2004), and people who are dispositionally sensitive to particular emotions are more responsive to corresponding emotional appeals (e.g., Cassese & Hannagan, 2014; Clifford & Piston, 2016). Different frames can generate different emotions, changing the behavioral response (Kuhne & Schemer, 2015; Nabi, 2003). Emotion can thus "provide a foundation upon which the framing of particular options can be based or constructed" and help explain what makes certain appeals effective (Druckman & McDermott, 2008, p. 316).

A wide variety of emotions can be triggered by political arguments, but two emotions stand out as likely facilitators of moralization and polarization: anger and disgust. In contrast to other negative emotions (e.g., anxiety and sadness), anger and disgust are known as "other-condemning" emotions that serve to regulate and suppress immorality (Haidt, 2003). In the section below, I discuss each emotion and its implications for political moralization and polarization.

Disgust

The core appraisal theme of disgust is contamination and impurity (Horberg, Oveis, & Keltner, 2011). Disgust functions as part of a behavioral immune system that helps us avoid substances that might make us sick (Curtis, Aunger, & Rabie, 2004; Curtis, de Barra, & Aunger, 2011). Feelings of disgust motivate an aversive response to food, people, animals, or other objects that represent potential sources of contamination. Accounts of the precise structure of disgust vary, but key disgust elicitors include spoiled food, blood and gore, pests and animals, and sex (Haidt, McCauley, & Rozin, 1994; Olatunji et al., 2007; Tybur, Lieberman, & Griskevicius, 2009; Tybur, Lieberman, Kurzban, & DeScioli, 2013). All of these core disgust elicitors are in some way linked to the spread of pathogens (Curtis et al., 2011). The primary behavioral response of disgust is physical avoidance, which plays a clear functional role in avoiding contamination by an offending substance.

While disgust has its origins in pathogen avoidance, there is substantial evidence that disgust is linked to moralization. From an evolutionary perspective, there are clear self-interested reasons to avoid personally engaging in disgusting actions. However, there are similar reasons to condemn these actions in others. Socializing with others, especially through physical contact or sharing food, poses a threat of contamination. Thus, supporting a rule that prohibits disgusting behavior and condemns violations of that rule comes at little cost to oneself but facilitates fitness by reducing the likelihood of contamination (for discussion, see Tybur et al., 2013). Thus, the avoidant response of disgust extends beyond the offending object to any object or person that may have been contaminated. This avoidant response is characterized as prosocial because "[b]y ostracizing those who trigger moral disgust, people in a society set up a reward and punishment structure that acts as a strong deterrent to culturally inappropriate behaviors, particularly those involving the body" (Haidt, 2003, p. 858). In sum, feelings of disgust are an important input to moral condemnation, the construction of rules for acceptable behavior, and the avoidance of individuals who violate these rules.

Supporting this view, individuals who are more dispositionally sensitive to disgust tend to make harsher moral judgments in a wide variety of domains (Chapman & Anderson, 2014; Jones & Fitness, 2008), though this effect may be particularly strong for purity issues that are thematically related to disgust (Horberg, Oveis, Keltner, & Cohen, 2009; Wagemans, Brandt, & Zeelenberg, 2017). Feelings of integral disgust are also strongly associated with moral judgments, particularly purity violations (Horberg et al., 2009; Rozin, Lowery, Imada, & Haidt, 1999; Russell, Piazza, & Giner-Sorolla, 2012).

Anger

According to appraisal theories of emotion, anger derives from negative events that are perceived as controllable and for which another person is responsible (Small & Lerner, 2008; Smith & Ellsworth, 1985). The antecedents of anger are also core causes of moral judgment (e.g., Cushman, 2008). Indeed, a variety of studies have identified anger as the primary emotional response to cheating or unfairness, even when involving a third-party victim (Gummerum, Van Dillen, Van Dijk, & López-Pérez, 2016; Petersen, 2010; Petersen, Sznycer, Cosmides, & Tooby, 2012; Seip, Van Dijk, & Rotteveel, 2014). Thus, the appraisal themes of anger suggest it may play a critical role in moralization.

Anger also motivates behaviors that serve to regulate social behavior. For example, anger has been linked to punishment in economic games (Gummerum et al., 2016; Seip et al., 2014), more vengeful foreign policy attitudes (Lerner, Gonzalez, Small, & Fischhoff, 2003; Skitka, Bauman, Aramovich, & Morgan, 2006), and other punitive policy attitudes (Gault & Sabini, 2000). And these effects are supported by individualistic attributions of responsibility (Petersen, 2010; Small & Lerner, 2008; Small, Lerner, & Fischhoff, 2006). Taken together, the literature suggests that anger is "designed to manage social rule violations" (Petersen, 2010, p. 358). Situations that involve an individual committing a harmful or unfair action spur anger, facilitating moral condemnation and punitive attitudes and behaviors.

Based on the literature reviewed above, persuasive frames that raise considerations about harm and injustice or contamination and impurity should cause feelings of anger and disgust, respectively. Both emotions should facilitate the moralization of political attitudes, as well as downstream effects on social polarization. Sadness and anxiety, on the other hand, should not have these moralizing effects. In contrast to anger and disgust, sadness and anxiety both stem from appraisals of low certainty and situational control (Smith & Ellsworth, 1985). As a result, sadness and anxiety are unlikely to facilitate moralization.

An Application to Food Politics

The topic of food politics provides a unique opportunity for studying attitude moralization for two reasons. First, while topics like genetically modified food, organic food, factory farming, and obesity are gaining attention, they have not yet become highly politicized. Once issues have been on the political agenda, they become pretreated, making it difficult to assess how early frames shaped public opinion (Druckman & Leeper, 2012). Second, food politics often invokes considerations of purity and contamination (Clifford & Wendell, 2016; Mäkiniemi, Pirttilä-Backman, & Pieri, 2012), as well as harm done to the environment, animals, or to humans. Food politics thus provides a unique test case for examining how persuasive framing can moralize political attitudes.

Expectations and Overview of Studies

Based on the theory discussed above, I expect that frames invoking purity and contamination considerations will elicit disgust while frames raising harm and injustice considerations will elicit anger. Feelings of disgust and anger should both increase moralization of food-purity attitudes, as well as facilitate persuasion. Due to the link between moral conviction and polarization, anger and disgust should also cause greater political polarization, in the form of increased social distance from disagreeing others and decreased willingness to compromise on the issue.

I test these hypotheses in a series of three experimental studies conducted in the United States. I begin by describing each study and the main treatment effects on emotional responses, policy attitudes, moralization, and polarization. Next, I provide evidence that the moralizing effects of persuasive frames persist over the course of two weeks. Finally, I pool the data from all three studies to explore whether emotional reactions mediate the treatment effects. Together, the studies consistently show that persuasive frames can moralize and polarize political attitudes, that these effects persist over time, and suggest that anger and disgust may be the mechanisms behind these effects.

STUDY 1

As an initial test, I sought to expose respondents to a variety of persuasive arguments made in support of natural food. To develop the arguments, I reviewed relevant advocacy websites, such as Natural News, PETA, and Mercola. From these sites, I developed a set of 11 disgust arguments and 11 harm arguments that were rated as equally persuasive but made differential appeals to disgust (see the online supporting information for details on pretesting). For example, a disgust claim stated that factory-farmed tilapia are tightly packed into small ponds and generate huge amounts of waste, which the fish are forced to live in, and which often leaks into the surrounding environment. A comparable harm claim stated that tilapia is one of the most invasive fish species and often escape from pens and devastate local fish populations.

For the primary study, I recruited 504 subjects from Mechanical Turk who reside in the United States. Although Mechanical Turk does not provide a nationally representative sample, it is more diverse than common student samples (Berinsky, Huber, & Lenz, 2012). Moreover, a wide variety of experiments (Berinsky et al., 2012; Mullinix, Leeper, Druckman, & Freese, 2016) and observational studies (Clifford, Jewell, & Waggoner, 2015) have been closely replicated on Mechanical Turk.

Subjects assigned to the treatment condition were asked to rate the persuasiveness of a random subset of 13 of the 22 frames. This design resulted in subjects rating at least three of each type of frame. Following this task, subjects were asked their opinions on 10 issues related to natural foods, GMOs, and factory farming (e.g., banning GMOs, taxing junk food). These 10 items were averaged to create an index of policy attitudes ($\alpha = .90$), and this index was folded at the midpoint to create a measure of attitude extremity. Respondents were then asked a two-item measure of moral conviction

on the issue of natural food (α = .86; Skitka & Morgan, 2014) and how upset they would be about a family member disagreeing with them on the issue. This latter question captures a respondent's discomfort with having someone who is socially close to them disagree on the topic and is used here as an indicator of social distance (Iyengar, Sood, & Lelkes, 2012). Finally, respondents were asked how willing a politician should be to compromise on the issue in order to secure gains on other issues. Subjects assigned to the control condition did not rate any claims but instead proceeded directly to the outcome measures.

This design serves two purposes. First, since one-quarter of the subjects (n = 128) did not rate any frames, it allows a test of whether exposure to the arguments affects attitudes toward moral conviction, polarization, and policy attitudes toward natural food. Second, it allows an examination of explicit ratings of frame strength (results analyzed elsewhere).

The effects of exposure to the arguments on emotions are plotted in the left-hand panel of Figure 1. All emotions and outcomes are scaled to range from 0 to 1. Exposure to the arguments led to higher levels of disgust ($t(503) = 8.68$, $p < .001$, $d = .89$), anger ($t(503) = 5.12$, $p < .001$, $d = .52$), anxiety ($t(503) = 4.56$, $p < .001$, $d = .47$), and sadness ($t(503) = 6.38$, $p < .001$, $d = .65$). Thus, exposure to the arguments led to a variety of negative emotions, yet the largest effect was on disgust.

The right-hand panel of Figure 2 displays the treatment effects for the main attitudinal outcomes. Support for food-purity policies was above the midpoint of the scale in the control condition ($M = 0.62$). Exposure to the arguments led to higher policy support, but this effect was not statistically significant ($t(502) = 0.99$, $p = .32$, $d = .10$). However, the treatment did lead to an increase in attitude extremity ($t(502) = 2.40$, $p = .017$, $d = .25$). Exposure to the arguments also significantly increased levels of moral conviction from a mean of 0.43 to 0.53 ($t(503) = 3.08$, $p = .002$, $d = .31$).

Turning to polarization, respondents in the control condition scored low on the measure of social distance ($M = 0.18$), and exposure to the arguments significantly increased how upset subjects would be about a disagreeing family member ($M = 0.23$; $t(503) = 2.28$, $p = .023$, $d = .23$). Respondents in the control condition scored near the midpoint of the opposition compromise measure ($M = 0.59$), but exposure to the arguments did not affect attitudes toward compromise ($M = 0.59$; $t(503) = 0.03$, $p = .975$, $d = .003$).

Overall, while exposure to the arguments did not change policy attitudes, it led to an increase in moral conviction and attitude extremity. This former finding is notable as there is little work demonstrating the antecedents of moral conviction (Wisneski & Skitka, 2017). There was also some

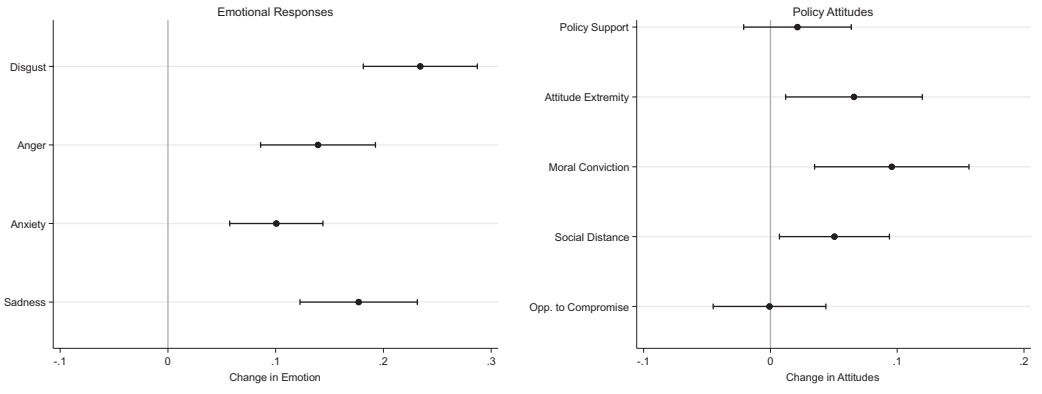

Figure 1. Effects of frame exposure on emotions, moralization, and polarization. The figure displays the difference in means between the frame exposure condition and the control condition. All variables are scaled to range between 0 and 1. Lines represent 95% confidence intervals.

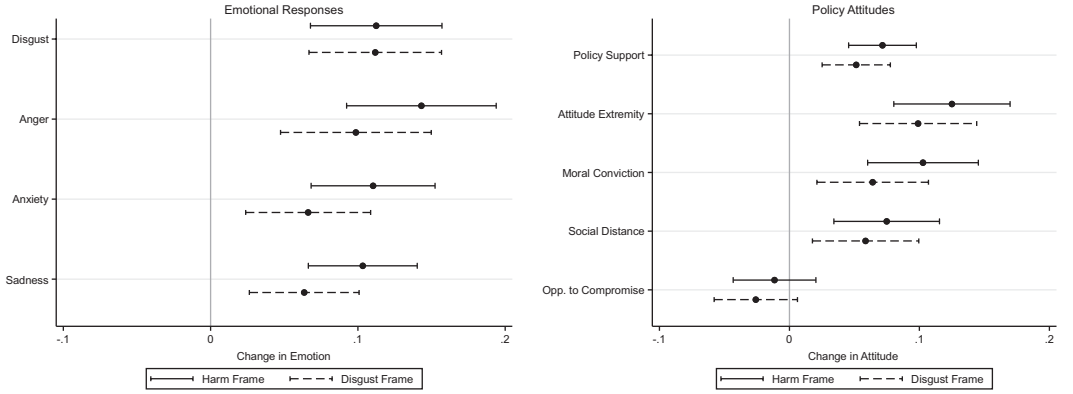

Figure 2. Effects of harm and disgust frames on emotions, moralization, and polarization. The figure displays the difference in means between each treatment condition and the control condition. All variables are scaled to range between 0 and 1. Lines represent 95% confidence intervals. Solid lines correspond with the "Harm" condition while dashed lines correspond with the "Disgust" condition.

evidence that exposure to the emotional frames had downstream effects on polarization as well, as it increased social distance from disagreeing others. The null effect on opposition to compromise, however, is surprising given its link to moral conviction in past work (Ryan, 2016). Nonetheless, this study provides some of the first evidence that exposure to emotional appeals can cause issue moralization and polarization.

STUDY 2

As a second test of my hypotheses, I conducted a framing experiment on the issue of factory farming and animal welfare, specifically on the treatment of pigs. Two pro-animal-welfare frames were constructed, again on the basis of arguments made by interest groups, such as the Humane Society and PETA. For this study, I designed two similar frames focusing on either harm or disgust. The harm frame highlighted the harm done to pigs in factory farming operations, such as breaking the tips of teeth off with pliers to prevent biting (full text shown in the online supporting information). Due to the emphasis on intentional harm done to the animals, it was expected that the harm frame would particularly elicit feelings of anger. The disgust frame made a similar argument, also focusing on the living conditions of pigs, but instead highlighted themes of filth and contamination. For example, the frame mentioned that animals live among their feces and urine and spread diseases rapidly through the facilities.

During the fall of 2017, 921 respondents were recruited from introductory courses in political science at a large public university in the southern United States.[1] After answering questions for an unrelated study, subjects were randomly assigned to read the harm frame, the disgust frame, or no frame (control condition). Next, subjects reported their support for seven policies, such as banning factory farming and greater FDA oversight of farms ($\alpha = .75$). Subjects then answered questions about their levels of moral conviction and polarization on the issue and their emotional responses. At the end of the survey, subjects were asked if they would be willing to participate in a second wave of the study. This aspect of the study is discussed in detail in a section below.

[1] A smaller pilot test of this design was conducted during the spring and summer of 2015 (see the online supporting information).

The effects of each frame (relative to the control) are shown in the left-hand panel of Figure 2. A series of one-way ANOVAs shows that both frames created strong emotional responses, but unfortunately, both frames significantly increased disgust, anger, anxiety, and sadness (ps < .01). While the two treatment conditions did not differ in levels of disgust ($F(1, 918) = 0.00$, $p = .977$, $\omega^2 = .000$) or anger ($F(1, 918) = 3.00$, $p = .084$, $\omega^2 = .002$), the harm condition created higher levels of anxiety ($F(1, 918) = 4.29$, $p = .039$, $\omega^2 = .004$) and sadness ($F(1, 917) = 4.52$, $p = .034$, $\omega^2 = .004$) than the disgust frame. Thus, while the two frames generated different patterns of emotional responses, they failed to isolate specific emotions.

The right-hand panel of Figure 2 displays the treatment effects on the attitudinal outcomes. A one-way ANOVA demonstrates a significant effect of condition on support for factory farming laws ($F(2, 918) = 15.32$, $p < .001$, $\omega^2 = .030$). While support for restrictive factory farming laws was already high in the control condition ($M = 0.67$), both the harm ($M = 0.74$; $F(1, 918) = 29.06$, $p < .001$, $\omega^2 = .030$) and disgust conditions significantly increased support for food regulation ($M = 0.72$; $F(1, 918) = 14.74$, $p < .001$, $\omega^2 = .015$). Perhaps unsurprisingly, experimental condition also affected policy-attitude extremity ($F(2, 918) = 16.52$, $p < .001$, $\omega^2 = .033$). Relative to the control condition, respondents held more extreme policy attitudes in both the harm ($F(1, 918) = 29.99$, $p < .001$, $\omega^2 = .031$) and the disgust conditions ($F(1, 918) = 18.51$, $p < .001$, $\omega^2 = .019$).

Levels of moral conviction also significantly varied as a function of treatment condition ($F(2, 918) = 11.36$, $p < .001$, $\omega^2 = .022$). Moral conviction was near the midpoint of the scale ($M = 0.55$) in the control condition, but both the harm ($M = 0.65$, $F(1, 918) = 22.38$, $p < .001$, $\omega^2 = .023$) and disgust ($M = 0.61$, $F(1, 918) = 8.56$, $p = .004$, $\omega^2 = .008$) conditions significantly increased moral conviction.

Social distance from disagreeing others was also affected by treatment condition ($F(2, 918) = 7.14$, $p < .001$, $\omega^2 = .013$). Social distance was low in the control condition ($M = .30$), and both the harm ($M = .38$, $F(1, 918) = 13.04$, $p < .001$, $\omega^2 = .013$) and disgust ($M = .36$, $F(1, 918) = 7.87$, $p = .005$, $\omega^2 = .007$) conditions increased social distance. Opposition to compromise did not, however, vary by experimental condition ($F(2, 918) = 1.26$, $p < .285$, $\omega^2 = .0006$).

Overall, Study 2 provides further evidence that emotional frames can cause issue moralization and downstream increases in social distance. However, due to the inability to experimentally isolate specific emotional reactions, it remains unclear which emotional responses may be driving these effects. The next study provides a final test of the hypotheses using a more diverse sample and different persuasive frames.

STUDY 3

For the third study, I recruited a sample of 786 U.S. respondents through Qualtrics Panels in May 2016.[2] The sample is not nationally representative, but invitations to participate in the survey were balanced on census demographics (age, gender, ethnicity, and census region) and partisanship. As a result, the sample is highly diverse and similar to census demographics on many dimensions (see the online supporting information for details).

Following a series of questions about their political attitudes, values, and personality, respondents were randomized into one of three conditions. In the two treatment conditions, respondents were asked to read two short paragraphs (approximately 210 words) arguing against GMOs. The two treatment conditions differed in three ways that were designed to affect the level of disgust induced in readers. The low-disgust condition included an image of a rat, an ear of corn, and a fish. The high-disgust condition displayed a rat with a tumor, an unhealthy-looking ear of corn, and a lumpy, distorted fish (see the online supporting information for details). Additionally, where the low-disgust condition mentioned "health problems" in livestock, the high-disgust condition mentioned "tumor

[2] This total sample size does not include respondents who were excluded prior to the experiment for failing attention checks. Details are shown in the online supporting information.

growth" and "spontaneous abortions and deformities." The control group did not receive any text or images.[3]

Following the treatment, respondents were asked about their attitudes on six issues related to regulating GMOs, which are combined into an index of GMO policy attitudes ($\alpha = .83$). Next, respondents answered the same set of measures of moral conviction and polarization used in the previous studies. Finally, they were asked to report their emotions regarding GMOs (disgusted, grossed out, angry, mad, worried, afraid, sad).

The left-hand panel of Figure 3 shows the treatment effects on emotions. A series of one-way ANOVAs shows that condition assignment had a significant on disgust, anger, anxiety, and sadness (ps < .05). While the high-disgust condition significantly increased feelings of disgust ($F(1, 781) = 11.91$, $p < .001$, $\omega^2 = .014$) relative to the control condition, the low-disgust condition did not ($F(1, 781) = 3.41$, $p = .065$, $\omega^2 = .003$). However, the two treatment conditions did not differ from each other ($F(1, 781) = 2.48$, $p = .116$, $\omega^2 = .002$). Similarly, the high-disgust condition significantly increased anger ($F(1, 779) = 5.33$, $p = .021$, $\omega^2 = .006$), while the low-disgust condition did not ($F(1, 779) = 3.65$, $p = .056$, $\omega^2 = .003$). Both the high-disgust ($F(1, 780) = 6.48$, $p = .011$, $\omega^2 = .007$) and low-disgust ($F(1, 780) = 4.36$, $p = .037$, $\omega^2 = .004$) conditions increased anxiety. The two treatments did not differ from each other in levels of anger or anxiety, however (ps > .65). Finally, the high-disgust condition generated higher feelings of sadness than both the control ($F(1, 781) = 8.04$, $p = .005$, $\omega^2 = .009$) and the low-disgust condition ($F(1, 781) = 4.01$, $p = .046$, $\omega^2 = .004$), which did not differ from the control ($F(1, 781) = 0.63$, $p = .426$, $\omega^2 = .000$). Thus, while each frame elicited emotion, they did not generate distinct patterns of emotional responses.

The right-hand panel of Figure 3 displays the treatment effects on the main attitudinal outcomes. Support for food regulation was already high in the control ($M = .71$). Nonetheless, both conditions significantly increased support for regulation (Low Disgust: $F(1, 781) = 9.73$, $p = .002$, $\omega^2 = .011$; High Disgust: $F(1, 781) = 6.64$, $p = .010$, $\omega^2 = .007$). Both conditions also significantly increased attitude extremity (Low Disgust: $F(1, 781) = 10.81$, $p = .001$, $\omega^2 = .012$; High Disgust: $F(1, 781) = 10.03$, $p = .002$, $\omega^2 = .011$).

Moral conviction was below the midpoint of the scale in the control condition ($M = .46$) but varied significantly as a function of experimental condition ($F(1, 782) = 7.34$, $p < .001$, $\omega^2 = .016$). Moral conviction was significantly higher in both the low-disgust ($M = .53$, $F(1, 782) = 5.66$, $p = .018$, $\omega^2 = .006$) and high-disgust ($M = .57$, $F(1, 782) = 14.29$, $p < .001$, $\omega^2 = .018$) conditions. Social distance also varied as a function of treatment assignment ($F(1, 783) = 4.19$, $p < .015$, $\omega^2 = .008$). Both the low- ($M = .33$, $F(1, 783) = 4.19$, $p = .032$, $\omega^2 = .005$) and high-disgust ($M = .34$, $F(1, 783) = 7.51$,

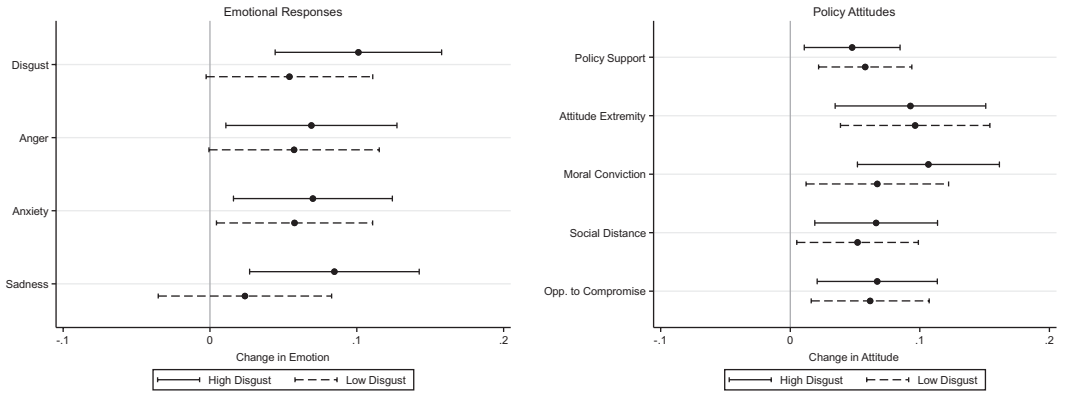

Figure 3. Effects of disgust frames on emotions, moralization, and polarization. The figure displays the difference in means between each treatment condition and the control condition. Lines represent 95% confidence intervals. Solid lines correspond with the "High Disgust" condition while dashed lines correspond with the "Low Disgust" condition.

p = .006, ω^2 = .005) conditions significantly increased social distance relative to the control (M = .28). Finally, contrary to the previous two experiments, treatment assignment significantly affected attitudes toward compromise ($F(1, 783) = 4.88$, p = .008, ω^2 = .010), with both the low- (M = .60, $F(1, 783) = 6.60$, p = .010, ω^2 = .007) and high-disgust (M = .61, $F(1, 783) = 7.84$, p = .005, ω^2 = .009) conditions increasing opposition to compromise relative to the control (M = .54). Overall, Study 3 provides further evidence that exposure to persuasive frames can generate strong emotional responses and facilitate moralization and polarization.[4]

The Duration of Treatment Effects

The three experiments described above provide consistent evidence of the moralizing effects of exposure to persuasive frames. All three experiments also provided evidence of downstream effects on social polarization, though the evidence for opposition to compromise was mixed. However, in all three experiments, the outcomes were measured immediately after exposure to the frames, raising the question of whether the treatments have an enduring effect on political attitudes, a common shortcoming in experimental research (Gaines, Kuklinski, & Quirk, 2007). To test the duration of these framing effects, respondents in Study 2 were recontacted two weeks after the initial wave was fielded and invited to complete a second wave of the study. Of the 925 respondents who participated in the experiment in the first wave, 643 completed the second wave, for a total response rate of 72%.[5] Respondents completed the second wave of the survey between 9 and 19 days after completing the first wave (M = 13.5).

Beginning with policy attitudes, treatment assignment still explained significant variation in Wave 2 ($F(1, 642) = 4.30$, p = .014, ω^2 = .010). The harm treatment predicted greater support for regulation ($F(1, 642) = 8.42$, p = .004, ω^2 = .011), while the disgust condition did not ($F(1, 642) = 1.18$, p = .279, ω^2 = .0110). Similarly, treatment assignment predicted Wave 2 policy attitude extremity ($F(1, 642) = 6.49$, p = .002, ω^2 = .017), but only the harm condition significantly increased attitude extremity ($F(1, 642) = 12.54$, $p < .001$, ω^2 = .018).[6]

Treatment assignment also predicted moral conviction ($F(1, 642) = 4.50$, p = .011, ω^2 = .011) and social distance in Wave 2 ($F(1, 642) = 3.60$, p = .028, ω^2 = .008) but did not predict attitudes toward compromise ($F(1, 642) = 1.42$, p =.242, ω^2 = .001). Both the harm ($F(1, 642) = 8.22$, p = .004, ω^2 = .011) and disgust ($F(1, 642) = 4.87$, p = .028, ω^2 = .006) conditions predicted higher Wave 2 moral conviction. The harm condition increased levels of Wave 2 social distance ($F(1, 642) = 6.64$, p = .010, ω^2 = .008), while the disgust condition fell short of statistical significance ($F(1, 642) = 3.78$, p = .052, ω^2 = .004).

Overall, the effects of the persuasive frames largely persisted approximately two weeks after initial exposure. The effects were particularly clear for moral conviction, which persisted for both frames. These findings suggest that the effects identified across the three experiments reported above represent durable changes in how people think about political issues.

The Mediating Effects of Disgust and Anger

The results above demonstrate that persuasive frames can serve to moralize and polarize political attitudes. However, because the experiments did not cleanly manipulate emotions, it remains unclear whether integral emotions contributed to these effects. To address these questions, I estimate a series of mediation models to test whether emotional responses help explain the treatment effects

[4] Consistent with the fact that both frames elicited similar emotions, they did not have statistically distinguishable effects on any of the outcome variables (ps <.10).

[5] Panel attrition was unrelated to experimental condition X(^{2}(2) 1.45, p = .484).

[6] The effect of the disgust condition was not statistically significant ($F(1, 642)$ 1.46, p = .227,^{2} .001).

Table 1. Anger and Disgust Mediate Framing Effects on Attitudes, Moralization, and Polarization

	Policy support	Moral conviction	Social distance	Opposition to compromise
Disgust	0.14*	0.19***	0.06*	−0.04
	0.03	0.03	0.03	0.04
Anger	0.19***	0.29***	0.35***	0.09*
	0.02	0.03	0.03	0.04
Anxiety	0.06*	0.01	0.06	0.00
	0.02	0.03	0.03	0.04
Sadness	−0.04	0.03	0.05	0.00
	0.02	0.03	0.03	0.03
Treatment	0.06*	0.13***	0.07	0.07
	0.03	0.04	0.04	0.04
Political ideology	−0.09***	−0.04*	−0.05**	0.03
	0.01	0.02	0.02	0.02
Male	−0.18***	−0.11**	−0.18***	−0.04
	0.03	0.04	0.04	0.06
Study 2	−0.16***	0.09*	0.16***	−0.36***
	0.03	0.04	0.04	0.05
Study 3	−0.22***	−0.30***	−0.10*	0.04
	0.04	0.05	0.05	0.06
Constant	0.18***	0.02	0.01	0.09
	0.03	0.05	0.05	0.05
N	2427	2428	2429	2429
R^2	0.29	0.27	0.29	0.04
Mediation effects (ACME):				
Disgust	**0.05**	**0.07**	0.02	−0.02
Anger	**0.05**	**0.08**	**0.10**	**0.02**
Anxiety	**0.01**	0.00	0.01	0.00
Sadness	−0.01	0.01	0.01	0.00

Note. Results above are the second stage of mediation models. The first stages of the models are shown in the online supporting information. * $p < .05$, ** $p < .01$, *** $p < .001$. Mediation effects that are statistically significant ($p < .05$) are shown in bold.

(Albertson & Gadarian, 2016). For each dependent variable, I estimate a mediation model using the mediation package in Stata (Hicks & Tingley, 2011). The package estimates a first-stage model predicting the emotional mediator (e.g., disgust, anger) as a function of treatment assignment and covariates. The second stage predicts the dependent variable (e.g., moral conviction) as a function of treatment assignment, emotional responses, and covariates. Each stage of the model controls for ideology and gender, each of which may be linked to emotional responses and food attitudes. Because emotional responses are correlated, the second-stage controls for feelings of disgust, anxiety, anger, and sadness (for a similar approach, see Gadarian & Albertson, 2014).

For the sake of brevity and statistical power, I pool all three studies, which utilized similar or identical measures (results are similar when analyzed separately; see the online supporting

information). Because the various treatment conditions had similar effects on emotions, I collapse across treatments to create a dichotomous variable indicating whether a respondent was an exposed to a frame. All variables that are not dichotomous are rescaled to range from 0 to 1. Each stage of the model also includes dummy variables for each study, with Study 1 as the excluded category. The second stage of each model is displayed in Table 1. I omit the first stage because the analysis above has already demonstrated the effects of the treatments on emotional responses.[7]

The first column of Table 1 shows the results for the policy attitudes outcome. Disgust, anger, and anxiety are all statistically significant predictors of support for food-purity policies, as well as significant mediators of the treatment effect. Turning to the second column, disgust and anger are the only emotions that significantly predict moral conviction, and both are significant mediators as well. Column three displays the results for social distance. In this case, anger and disgust both predict social distance, but only anger is a significant mediator. Finally, the last column shows that anger weakly mediates the framing effect on opposition to compromise, but most of the variance is left unexplained.

Overall, the results are consistent with expectations based on theories of emotion. Feelings of anger and disgust consistently helped explain how frames increase support for food regulation and moralize these attitudes. When it comes to polarization, however, only anger consistently mediated the framing effects. As a point of contrast, anxiety seemed to contribute to restrictive policy attitudes, consistent with findings that anxiety drives support for "protective" policies (Albertson & Gadarian, 2015), but it was unrelated to moralization and polarization. Sadness did not significantly predict any of the outcomes or mediate any of the framing effects. Of course, we cannot draw strong causal claims from these analyses (e.g., Bullock, Green, & Ha, 2010). However, the results are consistent with disgust and anger—but not anxiety or sadness—playing an important role in policy moralization.[8]

The results for political compromise were weak throughout, however, possibly due to measurement error. This is consistent with the very low R^2 of the model (.04) as compared to the other models (.27–.28). Additionally, opposition to compromise has a surprisingly weak relationship with moral conviction ($r = -.02$) and social distance ($r = -.08$), which contrasts with the strong relationship between the latter two variables ($r = .46$). Future work should explore alternative measures of attitudes toward compromise.

Discussion and Conclusion

Much of the existing work on political and social polarization has focused on partisan identity to the exclusion of alternative explanations (e.g., Huddy, Mason, & Aarøe, 2015; Iyengar et al., 2012). While partisanship no doubt plays an outsized role in polarization, recent work has shown that morally convicted attitudes are an important contributor to polarization. Yet we know little about how these attitudes become moralized in the first place. Across three experimental studies, my research shows that exposure to persuasive frames can cause individuals to moralize their political attitudes, and a panel study demonstrates that this effect persists up to two weeks later. This

[7] Due to the complexity of multiple mediators, for each dependent variable I estimate a separate model for each mediator (for a similar approach, see Albertson & Gadarian, 2015). I report the results from only the disgust model because the second stage of each model is essentially identical across the different mediation models.

[8] Following previous literature on the topic (e.g., Ryan, 2015, 2014), I have described moral conviction as causally prior to polarization. To test this assumption, I estimated two mediation models similar to those described above that specify polarization as the outcomes and moral conviction as the mediator. Consistent with previous literature, moral conviction mediated approximately 65% of the framing effect on social distance. However, moral conviction did not mediate the effects on compromise, which is unsurprising given the generally weak findings here. See the online supporting information for details.

increased moralization, in turn, facilitates social polarization in the form of greater desired social distance from disagreeing others. These findings provide some of the first evidence that exposure to emotional discourse contributes to the moralization and polarization of political attitudes.

While scholars have tended to focus on the cognitive mechanisms that make strong frames (e.g., Nelson et al., 1997; Slothuus, 2008), my work contributes to a growing recognition that emotions also play an important role in how issue framing influences public opinion (Aarøe, 2011; Arceneaux, 2012; Gross, 2008). In all three studies, exposure to issue frames generated strong emotional responses. The different frames did not clearly manipulate a single emotion, which may be unsurprising, as even targeted manipulations often fail to do so (Searles & Mattes, 2015). Moreover, the thought of farm animals laying around in their own filth is disgusting, but it likely also creates feelings of anxiety about food safety, anger about the management of these farms, and sadness about the plight of the animals. Nonetheless, mediation analyses suggest that feelings of anger and disgust, but not sadness or anxiety, drive the effects of the issue frames. Thus, while the results are not conclusive, they consistently suggest that anger and disgust help explain the moralizing effects of these issue frames. However, only anger consistently mediated the effects of frame exposure on social distance. This finding was surprising, but it may be consistent with evidence that anger and disgust drive different social responses to moral violations (Molho, Tybur, Güler, Balliet, & Hofmann, 2017). Specifically, anger is linked to more costly, direct aggression (such as verbal and physical aggression), while disgust is associated with social exclusion and gossip. The measure of social distance used here (being "upset" about a disagreeing friend or family member) may be more responsive to anger. Thus, an important question for future research is how emotions relate to different forms of social polarization.

To gain insight into how nascent issues become moralized, I focused here on food politics. This design choice allowed me to minimize methodological concerns about pretreatment (Druckman & Leeper, 2012), but it does raise a few questions about the generalizability of the results. First, it remains unclear whether more politically salient and polarized issues, like health care, can be further moralized through emotional framing. If respondents have already connected their attitudes on the issue to their moral beliefs and values, then it may not be possible. However, there is reason to doubt this conclusion as levels of moral conviction are only moderate on many politically salient issues (Ryan, 2014). Moreover, pretreatment may be less of a problem for moralizing an attitude than for changing an attitude itself. A second concern about generalizability is that food politics is an unusual topic that is uniquely susceptible to moralization. For example, it might be particularly easy to elicit disgust when discussing food. However, disgust plays an important role in attitudes toward immigration (Aarøe, Bang Petersen, & Arceneaux, 2017), sexuality, (e.g., Gadarian & van der Vort, 2017; Miller et al., 2017), vaccination (Clay, 2016), and a variety of other topics involving health or group attitudes (e.g., Kam & Estes, 2016). And anger, which is likely to be elicited by concerns about harm or injustice, should be easy to stimulate for a wide variety of topics, such as terrorism (Lerner et al., 2003), intergroup attitudes (Banks & Valentino, 2012), and social welfare (Petersen et al., 2012). Thus, it seems likely that emotional frames can further moralize a wide variety of issues, but this remains an empirical question.

Many scholars have long viewed moralization as the product of either intrinsic characteristics of issues (e.g., relevance to sexuality; for discussion, see Mooney & Schuldt, 2008) or dispositional differences between individuals (e.g., moral foundations; Graham, Haidt, & Nosek, 2009). Yet the moral conviction literature seems to conflict with both of these views, suggesting that attitude moralization is highly idiosyncratic both between and within individuals. By demonstrating that moral conviction is responsive to persuasive appeals, my findings represent a step toward reconciling these viewpoints. Moral appeals in the mass media vary across issues and over time, but they are particularly prevalent during political debate (Clifford & Jerit, 2013). Thus, variation in the information environment may help to explain why some issues are more aptly described as "moral issues" than

others. Additionally, some have argued that individual dispositions may moderate responsiveness to particular types of moral appeals (e.g., Clifford, Jerit, Rainey, & Motyl, 2015; Feinberg & Willer, 2013), though none of this research has directly examined moralization as an outcome measure. Taken together, further research on the interaction between the information environment and individual differences will likely lend new insight into why some people come to moralize some issues while others do not.

ACKNOWLEDGMENTS

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Distribution of Moral Conviction by Policy Attitudes
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