HARNESSING ANGER TO PROMOTE HEALTH AND ENVIRONMENTAL ACTIVISM: EXPLORING THE EFFECTIVENESS OF PERSUASIVE COUNTERINDUSTRY/ANGER APPEALS

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HARNESSING ANGER TO PROMOTE HEALTH AND ENVIRONMENTAL ACTIVISM: EXPLORING THE EFFECTIVENESS OF PERSUASIVE COUNTERINDUSTRY/ANGER APPEALS

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Anger is an energizing emotion, motivating individuals to approach the situation to retaliate against an appraised wrongdoing. The overarching goal of this dissertation was to investigate the conditions under which persuasive appeals to anger (termed "counterindustry/anger appeals") can influence activism-related outcomes in the context of pressing social issues (childhood obesity and climate change). Namely, this dissertation investigated matters related to (a) the moderating role of "retributive efficacy" (an anger-specific version of response efficacy that refers to beliefs that a course of action will effectively punish a wrongdoer), (b) the moderating role of prior attitudes toward the advocated issue, (c) the cognitive appraisals associated with anger, and (d) the emotional flow of anger.

Studies 1 and 2 validated a proposed measure of retributive efficacy. Studies 3-5 used qualitative (focus groups) and quantitative methods (survey experiments) to develop a set of counterindustry/anger appeals designed to induce different levels of anger toward corporations (the soda industry and fossil fuel industry) and retributive efficacy perceptions. Study 6 experimentally examined the messages' effects on support for public policies, activism intention, and intentions to perform personal behaviors around the issue.

Contrary to expectations, communicating retributive efficacy might not necessarily enhance the effectiveness of a counterindustry/anger appeal. This is because angry individuals are disinclined to take efficacy beliefs into consideration or because retributive efficacy appeals trigger defensive processing. If anything, retributive efficacy messaging may polarize audiences who hold the most extreme initial attitudes. By contrast, an appeal that included general cues

about the proposed solutions' effectiveness (relative to a control message) promoted policy support regardless of initial attitudes. The appraisal findings suggest that to strategically generate anger, the "offense" component of a counterindustry/anger appeal should include multiple subcomponents that target appraisals of the harm that was done, the culprit's responsibility, and the culprit's intentionality. Regarding emotional flow, counterindustry/anger appeals may need to generate different emotional flow experiences depending on the outcome advocated.

Together, these findings paint a complex portrait of the conditions under which counterindustry/anger appeals can persuade and point to several promising avenues for future research on emotional appeals.

BIOGRAPHICAL SKETCH

Originally from the Chicago suburbs, Christofer (Chris) Skurka received his bachelor's degree in Communication from Aquinas College in 2013. He continued his studies at the University of Illinois Urbana-Champaign where he received his MA in Communication in 2015. He pursued a PhD in Communication at Cornell University, graduating in 2019. As of August 2019, Chris will be an assistant professor at Pennsylvania State University in the Bellisario College of Communications, Department of Film/Video and Media Studies. His research centers on the role of emotion in how audiences process media messages that promote health and environmental issues.

For Mom.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

PREFACE

Over 1,000 years before social scientists began studying emotion in depth, Aristotle philosophized extensively on the subject. In *The Rhetoric*, he was particularly interested in understanding how orators might tap into their listeners' feelings to influence their beliefs, attitudes, and actions.

> "Take, for instance, the emotion of anger: here we must discover (1) what the state of mind of angry people is, (2) who the people are with whom they usually get angry, and (3) on what grounds they get angry with them. It is not enough to know one or even two of these points; unless we know all three, we shall be unable to arouse anger in anyone" (trans. 1924, book II).

In spite of the long tradition of interest on emotional appeals in the rhetorical tradition, modern social science has focused predominantly on persuasive appeals to a few discrete emotions, such as fear and guilt (Myrick, 2015; Nabi, 2018). As a result of this narrow focus, theory on persuasive appeals to other emotions (like anger) has been stagnant.

People experience anger on a regular basis (Averill, 1982), even more so than other commonly-experienced emotions like sadness, fear, joy, and guilt (Scherer & Wallbott, 1994). Humans have long thought of anger as an irrational passion to be controlled (Haidt, 2003; Potegal & Novaco, 2010), and without question, there are conditions under which anger had deleterious social and political consequences (e.g., Yip & Schweitzer, 2019). However, social science theory and research suggest that anger can facilitate thoughtful cognitive processing (Nabi, 1999, 2002a) and spur political action to rectify social injustices (Turner, 2007; Van Zomeren, Postmes, & Spears, 2008). For these reasons, anger may be useful for strategic

communicators who seek to promote social change—especially among "latent" publics who are in favor of an advocated issue but are not yet inclined to participate in the political process.

To this end, this dissertation explored the viability of persuasive appeals to anger. It utilized survey methods, focus groups, and experimental designs to test hypotheses and research questions informed by research in decision-making, psychology, and communication. Broadly, the goals of the dissertation were to (a) identify message features that may be necessary to evoke anger, (b) identify message components of such an anger appeal that may be helpful to promote various forms of social activism, and (c) examine how anger evoked by an anger appeal fluctuates during exposure to the message.

Chapter 1 provides background on the psychology of emotion and anger, which leads into a discussion of the literature on persuasive emotional appeals in Chapter 2. Building off of this literature, Chapter 3 outlines several hypotheses and research questions to move communication researchers toward a more refined theoretical understanding of how anger appeals operate. Chapters 4-6 describe six studies that address these hypotheses and research questions. Chapter 7 offers a general discussion of this dissertation's findings, emphasizing promising trajectories for future work in this space.

All told, this dissertation seeks to inform communicators how to design messages that harness anger about perceived injustices and to translate that emotion into activism. In doing so, this dissertation speaks to Aristotle's claims about the importance of understanding the psychological underpinnings of anger in order to tap into the public's anger. To start, I provide some background on the contexts of interest—childhood obesity and climate change.

Contexts of Interest

Advantages of a multi-topic investigation. A major limitation of persuasion research is that investigators typically test their hypotheses using a single topic (e.g., smoking, driving safety). Though there is much to be gained by aggregating results from individual studies that each focus on a specific topic, the use of a single topic prevents researchers from assessing the boundary conditions of their theoretical tests in a single investigation. Relatedly, using one context limits the conclusions that communication researchers can make about the generalizability of their messages' effects to other domains (Brashers & Jackson, 1999; Jackson, 1992). To address this limitation, the current project tests its propositions across two social problems for which there is scientific consensus about the magnitude of the problem and the need for collective solutions, one in the context of public health and the other in the context of environmental health.

Background

Childhood obesity. Childhood overweight or obesity affects 1 in 5 American children (Ogden, Carroll, Lawman, & et al., 2016). The percentage of children with obesity has increased threefold in the past half century (Fryar, Carroll, & Ogden, 2016). Overweight and obesity are associated with serious health consequences like type 2 diabetes and hypertension (Institute of Medicine, 2012) as well as tremendous financial burdens to families and the healthcare system more broadly (Finkelstein, Trogdon, Cohen, & Dietz, 2009).

Climate change. Since the end of the 19th Century, the Earth's average surface temperature has increased by about 2 degrees Fahrenheit. This increase has been accompanied by increases in ocean temperature, smaller ice sheets, and rising sea levels (NASA, 2017). Global warming is primarily attributable to human activity and will have devastating impacts on ecological and human health (Intergovernmental Panel on Climate Change, 2001).

Rationale for these contexts. These topics are appropriate for assessing the effects of anger-inducing persuasive messages for three reasons. First, both topics have human agents in the form of powerful corporate industries that have contributed to the severity of the issues. In the context of childhood obesity, advocates have identified food and beverage companies as important drivers of the obesity epidemic (Stuckler & Nestle, 2012). In particular, public health researchers have accorded causal responsibility to the advertising of unhealthy products (Harris, Brownell, & Bargh, 2009; Harris, Pomeranz, Lobstein, & Brownell, 2009; McGinnis, Gootman, & Kraak, 2006). Research has demonstrated that exposure to advertising for calorie-dense, nutrient-poor products correlates with adolescents' consumption of obesogenic products (Andreyeva, Kelly, & Harris, 2011; Olafsdottir et al., 2013) and even weight gain (Lobstein & Dibb, 2005). Further, evidence suggests that reducing exposure to advertising for such products would curb childhood obesity rates (Veerman, Van Beeck, Barendregt, & Mackenbach, 2009). In the case of climate change, climate researchers have argued that two major industries have played a major role in contributing to climate change (Frumhoff, Heede, & Oreskes, 2015). It is estimated that of all greenhouse gas emissions made since the Industrial Revolution, 63% is attributable to the actions of 90 fossil fuel and cement companies (Heede, 2014). Climate scientists have linked the emissions of these 90 entities to increases in atmospheric carbon dioxide, the Earth's surface temperature, and global sea level (Ekwurzel et al., 2017).

Second, these industries are aware of the implications of their actions. There are book-length treatises on the unethical strategies the fossil fuel industry (Oreskes & Conway, 2011), food industry (Nestle, 2007), and soda industry (Nestle, 2015) have employed to undermine the scientific research causally linking their actions/products to these issues. As will be discussed, believing that a culprit was aware of the harmful consequences of their actions is closely linked

to anger (Laurent, Nuñez, & Schweitzer, 2016). I argue that directing anger about these social issues toward their respective corporate culprits can promote activism under certain conditions.

A third reason for using these contexts is that both are politically divisive. Regarding climate change, political liberals are more likely than conservatives to share views consistent with scientific consensus, including beliefs that climate change is anthropogenic (McCright & Dunlap, 2011). A similar divide has emerged for obesity, as demonstrated by polarized responses to messages describing "upstream" social determinants that impact health (Byrne & Niederdeppe, 2011; Gollust, Lantz, & Ubel, 2009). Anger theorizing (soon to be discussed) suggests that people will respond differently to anger appeals depending on their initial position on the issue (Turner, 2007), so highly polarized topics about which people have strongly formed opinions (such as childhood obesity or climate change) are desirable to assess whether anger-inducing messages may persuade favorable audiences but backfire among other audiences.

CHAPTER 1: EMOTION AND ANGER

Defining Emotion

A consensual definition for emotion has proven elusive. Some theorists have argued that humans have a finite number of "basic" emotions like fear and surprise hardwired into our brains that, when activated, execute an orchestrated program of physiological and motor-expressive activity (Darwin, 1872/1965; Ekman & Friesen, 1969; Izard, 1977; Tomkins, 1963). Others reject these claims, arguing that emotions like fear and surprise are not ingrained in us; rather, emotions are social, linguistic, and cultural constructions of the affective signals we receive from our body (Russell, 2003; Barrett, 2006). Despite the heterogeneity in emotion conceptualizations, emotion theorists have increasingly recognized that emotions are multi-componential (Scherer, 2009; Izard, 2010). The five components that theorists most commonly address are: (a) a cognitive component (appraisals, to be defined), (b) a somatic component (neurophysiology), (c) a motor-expressive component (facial and vocal displays), (d) a phenomenological component (subjective feeling state), and (e) a motivational component to act (action tendency, to be defined) (Moors, 2012; Nabi, 2002b).

Though emotion scholars struggle to find a common definition for emotion, they demonstrate greater agreement with the claim emotion serves a functional purpose (Izard, 2010; Keltner & Gross, 1999). That is, as humans have evolved as a species, emotions have helped us respond to our surroundings in adaptive ways. "Emotions allow flexibility both in event interpretation and in response choice. Emotions, from this point of view, represent an important evolutionary alternative" (Ellsworth & Scherer, 2003, p. 572). Whereas lower-order animals rely on automatic trigger responses to deal with unfavorable or favorable circumstances, human emotion allows us to flexibly adapt in ways that are suitable for different environments (Plutchik,

1980a, 1980b). Emotions, therefore, are functional insofar as they help us survive physically and, as our species has evolved, socially.

In this dissertation, I assume that emotions are discrete. Discrete emotions can be defined as "valenced reactions to events, agents, or objects, with their particular nature being determined by the way in which the eliciting situation is construed" (Ortony, Clore, & Collins, 1988, p. 13). Whereas affect refers to global feelings of pleasantness (e.g., pleasure-displeasure, good-bad) that vary in intensity (Slovic, Finucane, Peters, & MacGregor, 2004), emotions are more specific in subjective experience and are more bounded in duration (J. A. Russell & Barrett, 1999). Emotions are elaborated versions of feelings of goodness/badness due to the cognitive work the brain performs to assess the environment relative to one's goals and needs (Peters, 2011).

This dissertation also draws extensively on the appraisal tradition of emotion. Appraisal theories focus on the underlying cognitive structure of emotion (Lazarus, 1991; Ortony et al., 1988; Roseman, 1984; Scherer, 1984; C. A. Smith & Ellsworth, 1985). *Appraisals* can be defined as the cognitive evaluations that we make when considering a situation's implications for our goals and well-being. Appraisals can be conscious, but more often, they are automatic, unconscious processes. According to appraisal theorists, different emotions are associated with unique combinations of appraisals (Lerner & Tiedens, 2006), which allow us to discriminate one emotion state from another (Roseman & Smith, 2001). Lazarus (1991) used to the term *core relational theme* to describe this blend of appraisals. The core relational theme summarizes the inherent harms or benefits of the environment-person relationship for each discrete emotion (C. A. Smith & Lazarus, 1993). For instance, the core relational theme for sadness is an irrevocable loss; disgust's core relational theme is proximity to a contaminated object.

Many emotion scholars acknowledge a motivational component of emotion, referred to as *action tendency* (Arnold, 1960; Frijda, 1986). An action tendency is a biological urge to take action (Lazarus, 1991). To the extent that an environment aligns with the goals we bring to an encounter, a new goal is set by the emotional experience to address the situation (Nabi, 1999). In this way, emotion interrupts the ongoing state of affairs and redirects our attention, resources, and energy toward matters related to the emotion (Frijda, 1986; Lazarus, 1991). Part of this systematic mobilization is preparing the body for behavioral action, and different emotional experiences are associated with different action tendencies.

For theorists who assume that emotions are dimensional, action tendencies map onto emotion based on valence (Bolls, A. Lang, & Potter, 2001; P. J. Lang, 1995; P. J. Lang, Bradley, & Cuthbert, 1990). Positive emotions are associated with an appetitive motivation to approach the emotion-inducing situation, and negative emotions are associated with an aversive motivation to avoid the emotion-inducing situation. By contrast, for theorists who assume emotions are discrete, action tendencies are one way of differentiating emotion categories (Frijda, 1986; Lazarus, 1991). Though action tendencies for emotions roughly fall into approach or avoid tendencies, discrete emotion theories posit that the tendencies for discrete emotions are nuanced. Guilt, for example, is associated with an approach tendency to seek reparations for a personal wrongdoing (Lazarus, 1991), but anger is associated with an antagonistic approach tendency to lash out at or hurt a wrongdoer (Frijda, Kuipers, & ter Schure, 1989; Harmon-Jones & Allen, 1998; Lazarus, 1991).

A discrete approach to emotion rooted in the appraisal tradition has much to offer researchers interested in the emotional effects of media messages, as outlined by Nabi (2010). First, the appraisal approach identifies appraisal patterns that are likely to give rise to different

emotions, so when designing a message to purposefully evoke a certain emotion, communicators can highlight that emotion's core relational theme in the message (Nabi, 1999). Second, a functional account of the appraisal tradition recognizes that emotions have distinct action tendencies. Understanding action tendencies is important for media researchers because it enables predictions about the probable effect(s) the induced emotion will have on downstream outcomes like attitudes, intentions, and behavior.

Anger

Emotion theorists who take a discrete, appraisal approach generally agree on the defining cognitive, subjective, and motivational characteristics for anger. Emotion theorists also recognize that anger can be an "other-critical" emotion. I describe each of these matters in turn.

The cognitive component of anger. In one of the earliest studies of emotion as cognitive appraisal, Smith and Ellsworth (1985) asked undergraduates to recall personal experiences in which they experienced fifteen emotions. Participants then completed a series of questions that represented several appraisal dimensions. Six dimensions emerged in the analyses: anticipated effort (how much effort will you have to exert to deal with the situation?), pleasantness (how positive or negative is this situation?), certainty (how much ability do you have to influence the situation?), attention (how much did the situation draw your attention?), responsibility (are you or is someone else responsible for causing the situation?), situational control (is this situation something anyone can influence or is it beyond the influence of human agency?). Though anger was not the only emotion to score low on the pleasantness dimension (sadness, contempt, and fear were also rated as highly unpleasant), anger noticeably diverged from neutral on the dimensions of certainty, control, and responsibility. Specifically, anger was associated with moderate-high levels of certainty, high levels of personal control, and high levels of other-

responsibility. In other words, when we feel angry, we believe that we have a heightened sense of awareness of the situation, that we have an ability to influence the situation, and that someone else was responsible for causing the situation.

These early findings provide a useful starting point for establishing the salient appraisals for anger. First, anger involves an appraisal of other-responsibility (Berkowitz & Harmon-Jones, 2004; Ellsworth & Smith, 1988; Frijda, 1986; Frijda et al., 1989; Kuppens, Van Mechelen, Smits, & De Boeck, 2003; Roseman, 1984; C. A. Smith & Ellsworth, 1985). Ortony et al. (1988) considered anger to be an emotion responsive to construals about an agent other than oneself, suggesting that anger is intimately tied to appraisals about the actions of another party. Though it is possible to experience anger at oneself (Ellsworth & Tong, 2006), an appraisal of self-responsibility typically gives rise to emotions other than anger (namely, guilt and shame). Second, there is an appraised interference with one's goals (Averill, 1982; Ellsworth & Smith, 1988; Frijda, 1986; Izard, 1977; Plutchik, 1980b; Shaver, Schwartz, Kirson, & O'Connor, 1987). This could involve an expectancy violation or an interruption of an ongoing activity or plan. Third, angry people have appraised the actions of another as unfair or illegitimate (Frijda et al., 1989; Kuppens et al., 2003; Roseman, 1984; Roseman, Wiest, & Swartz, 1994). In other words, the situation is "contrary to what ought to be" (Shaver et al., 1987, p. 1087) because the obstruction of one's goal is unwarranted (Averill, 1982; Haidt, 2003). These three cognitive dimensions of anger tend to also accompany attributions of blame, so anger theorists maintain that anger overlaps with blame judgments (Averill, 1982, 1983; Quigley & Tedeschi, 1996).

The subjective component of anger. The subjective feeling state of anger is that one's blood is boiling and one's muscles are tensing (Izard, 1977; Roseman et al., 1994; Scherer &

Wallbott, 1994). When angry, we often feel as if we could explode (Roseman et al., 1994). For these reasons, anger is generally considered a "hot" emotion (Tomkins, 1963).

The motivational component of anger. According to functional accounts of emotion, emotions interrupt our ongoing cognitive processes to focus our attention and cognitive processing on addressing the emotion (Izard, 2010). In terms of evolution, it has been argued that anger served to mobilize energy in order to ward off attackers (Izard, 1977). As humans have evolved, anger has come to serve an increasingly social role in terms of how we interface with other individuals, groups, and cultures (Hutcherson & Gross, 2011). This evolutionary history explains why anger's action tendency is to remove the obstacle, typically by lashing out against the perceived wrongdoer in order to "rectify injustice" (Ellsworth & Smith, 1988; Frijda et al., 1989, p. 1078; Lazarus, 1991; Roseman, 1984; Roseman et al., 1994). In a series of experiments, Lerner and Keltner (2000, 2001) demonstrated that fearful individuals tend to be pessimistic in their risk judgments and risk averse, but angry individuals tend to be optimistic and risk-seeking. This suggests that because anger is associated with perceived certainty and control over a situation, anger can energize and mobilize behavior (Averill, 1982; Shaver et al., 1987).

Because of this motivational predisposition to behave impulsively, some have argued that anger has become more of a social liability than an evolutionary advantage (Izard, 1977), yet moderate levels of anger may manifest as beneficial problem solving (Averill, 1982), especially when the information being processed by the emoter is relevant to felt anger (Nabi, 1999).

Anger as an "other-critical" emotion. Much research focuses on anger as a self-interested emotion, but anger does not require the wrongdoing to personally involve the individual. That is, anger can be an "other-critical" emotion (Rozin, Lowery, Imada, & Haidt,

1999). In line with this train of thought, emotion researchers have used a variety of labels for anger, such as intergroup anger, moral anger, moral outrage, and righteous anger.

The term *intergroup anger* comes from intergroup psychology, where it is believed that self-categorization in social groups generates group-based emotions that motivate behaviors to advance the group's interests (Van Zomeren et al., 2008; Van Zomeren, Spears, Fischer, & Leach, 2004). According to this perspective, we experience anger when we perceive that ingroup members are disadvantaged relative to outgroups, motivating collective behaviors to address the imbalance (Mackie & Smith, 2002). Aside from intergroup psychology, researchers have also used the terms *moral anger*, *moral outrage*, and *righteous anger* when studying anger that is not immediately tied to personal affronts. For example, moral anger has been defined as "an intense emotional state that follows from an initial, reflexive intuition of moral wrongness" (O'Reilly, Aquino, & Skarlicki, 2016, p. 172). Haidt (2003) argued that an emotion is a moral emotion if it meets two criteria. First, the emotion need not always involve the self, and second, the emotion must have prosocial action tendencies—that is, action tendencies to uphold the social order. Several studies have shown that anger about injustices faced by third parties may motivate individuals to perform behaviors that rectify the injustice (e.g., Cronin, Reysen, & Branscombe, 2012; Montada & Schneider, 1989; O'Reilly et al., 2016).

Regardless of the label used to describe other-critical anger, this body of work makes clear that anger should be of great interest to those who seek social change. This dissertation builds on this notion, exploring how communicators can harness anger about social issues to persuade by promoting civic engagement.

CHAPTER 2: THEORY AND RESEARCH ON PERSUASIVE APPEALS TO ANGER

Appealing to Emotion as a Persuasive Strategy

By and large, persuasion research on emotional appeals has centered on fear appeals (Myrick, 2015; Nabi, 2002b). Fear appeal research extends to the mid-20th century (Hovland, Janis, & Kelley, 1953), and along the way, scholars have proffered several theoretical models that aim to specify the conditions under which fear appeals can persuade audiences (Leventhal, 1970; Maddux & Rogers, 1983; Rogers, 1975; Witte, 1992). The most recent meta-analysis on the matter (Tannenbaum et al., 2015) indicates that fear appeals have a modest but positive effect on persuasive outcomes ($k = 248$, $d = 0.29$).

The Extended Parallel Process Model (EPPM, Witte, 1992), one of the most commonly used fear appeal frameworks, contends that a fear appeal should first communicate information about the threat (thereby inducing fear) then communicate information that will help the individual cope with the threat (by instilling beliefs about efficacy). The threat component of the message should focus on *severity* (that consequences of a risky behavior will be severe) and *susceptibility* (that the message receiver is vulnerable). The efficacy component should focus on *self-efficacy* (that the receiver is able to enact a recommended response) and *response efficacy* (that the response will effectively protect the receiver from the threat). A core proposition of the EPPM is that the interaction between threat appraisals and efficacy appraisals instilled by the message should lead to adaptive outcomes (e.g., message acceptance). By contrast, when the receiver perceives high threat but low efficacy, the receiver will be motivated to control the emotion not the threat, which should result in maladaptive responses (e.g., minimizing the existence of the threat). Although studies testing this contention have provided mixed evidence

for fear appeals (Popova, 2012), Tannenbaum and colleagues' (2015) meta-analysis indicates that including an efficacy component does enhance the persuasiveness of a fear appeal.

Beyond Fear Appeals

The EPPM laid an important theoretical foundation that has allowed persuasion researchers to unpack the design and effects of messages intentionally crafted to evoke emotion (Popova, 2012). Scholars have argued that this two-component message design of fear appeals can extend to appeals to other emotions (like anger). That is, an efficacy appeal should be the second component of an effective emotion-inducing message, following a first component that evokes the target emotion (Dillard & Nabi, 2006; Lewis, Watson, & White, 2013). Two theoretical frameworks incorporate this structure and are particularly relevant to understanding the effectiveness of persuasive appeals to anger.

The Cognitive-Functional Model. The Cognitive-Functional Model (CFM, Nabi, 1999) bridges cognitive theories of persuasion—namely, the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (Chaiken, 1980)—with functional emotion theories to explain (a) how communicators can craft persuasive messages to arouse discrete negative emotions, (b) how different emotional experiences are associated with varying levels of motivation to attend to and process the remainder of the persuasive message, and (c) the conditions under which motivation leads to different types of information processing and (ultimately) persuasive success. The CFM is broader in scope than the EPPM as it encompasses multiple negative emotions (fear, disgust, guilt, sadness, and anger), but the two models are similar in that both recognize the importance of assessments of reassurance. "In terms of response and self-efficacy, because the CFM is rooted in the cognitive response tradition, it is assumed that judgments of response and self-efficacy are part of the cognitions generated when

judging a message" (Nabi, 1999, p. 312). Consequently, the CFM implies the importance of including an efficacy component in any emotional appeal (including anger appeals). By incorporating efficacy cues that indicate to the message receiver that taking a recommended action will achieve a particular goal, the communicator can boost the persuasive effects of an anger appeal on attitudes, intentions, and behavior.

The Anger Activism Model. The Anger Activism Model (AAM, Turner, 2007) is a public relations model that focuses specifically on anger. Though the AAM is first and foremost a framework of publics, it has clear implications for the design of messages meant to evoke anger in order to promote activism. Broadly, the AAM suggests it is possible to translate anger into activism under certain conditions.

First, much like the EPPM and CFM, the AAM states that efficacy perceptions are necessary to translate emotion into action. That is, anger about a political or social issue will lead to activism only if the individual (a) believes they have ability to enact a recommended response (*self-efficacy*) and (b) believes that performing the response will be effective at addressing the issue (*response efficacy*). Crossing levels of anger with levels of perceived efficacy results in a four-cell typology of audiences. Individuals in the high anger-high efficacy cell (*activists*) should be most likely to engage in activism. Individuals who perceive a high level of efficacy but are not angry (*empowered*) should be second-most likely to engage in activism, followed by angry audiences who do not believe they have efficacy to take action (*angry*), and audiences who are neither angry nor efficacious (*disinterested*). Accordingly, a persuasive anger appeal is one that (a) evokes anger then (b) instills beliefs about self- and response efficacy.

Another prediction the AAM makes is that anger appeals will only be persuasive for some audiences. The model predicts that the anger-by-efficacy interaction will only apply to

audiences already in favor of the advocated issue (*pro-attitudinal* audiences). Audiences initially against the issue (*counter-attitudinal* audiences) will not experience anger about the topic. Instead, they should experience anger toward the message producer, and this "reactive" form of message-inconsistent anger should inhibit persuasion (J. W. Brehm, 1966; S. S. Brehm & Brehm, 1981).

Empirical evidence on anger appeals. In the intergroup psychology literature, psychologists have identified anger and efficacy as important determinants of collective action (Van Zomeren et al., 2008; Van Zomeren et al., 2004), which suggests anger and efficacy appeals could work synergistically to impact attitudinal and behavioral outcomes. However, only a few published studies have explicitly tested this notion (Ilakkuvan, Turner, Cantrell, Hair, & Vallone, 2017; Skurka, 2018). Using the AAM as a guiding framework, Ilakkuvan and colleagues (2017) examined adolescents' responses to two anti-tobacco ads from the *truth* campaign—specifically, self-reported anger and efficacy (i.e., "feeling powerful" because of the ad). Clustering participants into the AAM's four audience groups, the researchers found that means for the three measured outcomes generally followed the pattern the AAM predicts. For example, "activists" rated the ads as significantly more persuasive than "disinterested" respondents. However, not all differences between the groups were statistically significant—an issue that has also emerged in unpublished tests of the AAM (Turner et al., 2006). The cross-sectional nature of the data also raises questions about whether the stratifying variable of campaign "alignment" in fact represented respondents' initial positions (measured with items such as "Taking a stand against smoking is important to me"). Moreover, the authors did not explore whether the ads backfired among counter-attitudinal respondents, nor did the authors report formal interaction tests between anger and efficacy.

In light of the dearth of experimental tests of the AAM, Skurka (2018) examined the effects of a message about soda marketing to children on support for obesity-prevention policies and intentions to partake in activism around this issue. The study randomly assigned participants to read one of four messages that manipulated levels of anger intensity and levels of (self- and response) efficacy perceptions. Speaking to the effectiveness of persuasive anger appeals, the high anger appeal outperformed the low anger appeal on policy support and indirectly promoted intentions by way of increased anger toward the soda industry. However, the AAM's predicted anger-by-efficacy interaction did not emerge, and there was no evidence of a boomerang effect for counter-attitudinal individuals.

Anger and persuasion was the focus of a recent meta-analysis (Walter, Tukachinsky, Pelled, & Nabi, 2018), which summarized the results from $k = 55$ studies. The analysis revealed that anger manipulations (relative to neutral emotion conditions) have a positive, significant effect on behavior ($r = .15$) but non-significant effects on attitudes ($r = -.03$) and intentions ($r = .06$). Exploring moderating factors for attitude change, the authors found that anger manipulations have enhanced effects on attitudes when (a) anger is relevant to the topic and (b) the message's arguments are strong. In support of the AAM and CFM, the analysis indicated that anger manipulations are more persuasive when they include self- or response efficacy content (compared to when efficacy content is absent). Furthermore, anger intensity exhibited a curvilinear relationship with persuasion, such that anger had the greatest positive effect on persuasion at low to moderate levels of anger intensity.

In sum, this meta-analysis suggests anger appeals can be persuasive if certain conditions are met. That is, anger should be relevant to the message, the message should present strong arguments, the message should include efficacy content, and the message should not generate

extreme levels of anger arousal. With that said, there are limitations of the meta-analysis to bear in mind. First, many of meta-analytic effects for each persuasion outcome were small and/or non-significant, which may lead readers to question whether anger is a viable route to persuasion. As the authors pointed out, few studies of anger and persuasion have measured baseline attitudes toward the advocated issue, which implies that the effects they reported may underestimate persuasive effects among pro-attitudinal groups who (theoretically) should be most persuaded by an appeal to anger (Turner, 2007). Second, the meta-analysis was a broad overview of the relationship between anger and persuasion—not necessarily a meta-analysis of persuasive media messages strategically designed to induce anger. For example, many of the studies investigated the effects of anger expressed *by a communicator* on the recipient's responses rather than a strategic effort to generate anger *in the recipient*. Several of the included studies were in a negotiation context, which the authors noted, "differs substantially from other persuasive contexts in both the anger induction methods used…and the unique nature of this decision-making task" (p. 14). In fact, a closer inspection reveals that of the $k = 55$ studies included, only a handful examined the effects of mediated persuasive appeals to anger.

Without question, Walter and colleagues' (2018) meta-analysis has made an important theoretical contribution to our understanding of the role of anger in persuasion. However, this dissertation comes from a media effects paradigm, examining anger that is integrally related to and intentionally produced by the persuasive message. As such, readers should keep in mind the aforementioned limitations of the meta-analysis (and extant literature) when applying Walter et al.'s findings to the current investigation.

CHAPTER 3: REFINING OUR THEORETICAL UNDERSTANDING OF ANGER APPEALS

How Can a Message Evoke Anger?

Media psychologists have argued that communication scientists ought to devote considerable theoretical and empirical attention to the media messages themselves—not just their effects (A. Lang & Ewoldsen, 2010). In general, the science of message design lags behind the science of message effects (Cappella, 2006). This is manifest in the language of "emotional appeals"—defining persuasive appeals to emotion by their intended psychological response instead of their inherent message characteristics (O'Keefe, 2003).

To address this issue in the context of fear appeals, Dillard and Shen (2018) have adopted the term *threat appeal* to denote the entire, two-part fear appeal. The first part of the message (which should generate fear) they refer to as the *hazard component*, and the second part (which provides efficacy cues) they refer to as the *efficacy component* or *action component*. In the paragraphs below, I review relevant theory and evidence to identify terms persuasion scholars can use to signify inherent features of messages appealing to anger.

As a model of publics, the AAM does not provide guidance on designing persuasive messages to evoke anger, but the CFM does. The CFM states that a message can increase the likelihood of evoking a target emotion by emphasizing the core relational theme of that emotion (Lazarus, 1991). For anger, the CFM contends, "receivers must perceive a message to suggest a barrier or an affront that they face or is faced by someone with whom they empathize" (Nabi, 1999, p. 307). The present work build on this proposition to identify message features at a more molecular level of appraisal.

The evidence suggests that no single appraisal is necessary or sufficient for anger to occur (Kuppens et al., 2003), but a few appraisal "ingredients" are salient. Anger is associated

with appraisals of an autonomy infringement because someone was harmed (Giner-Sorolla, Bosson, Caswell, & Hettinger, 2012; P. S. Russell & Giner-Sorolla, 2011), so perceived harm is likely an important appraisal for anger. Yet perceived harm alone is insufficient to arouse anger because we can experience other discrete emotions when we perceive someone has been harmed (e.g., guilt, sadness). Whether perceived harm translates to anger, guilt, or sadness depends on attributions of responsibility for causing the harm-doing (C. A. Smith & Ellsworth, 1985). Anger is experienced when a person perceives someone else is responsible, but guilt is experienced when the person themself assumes personal responsibility. What distinguishes anger from sadness is controllability; we become angry for events within human control but sad for events beyond human control. Following this line of thought, anger must involve not only appraisals of harm but also appraisals of another agent's causal responsibility.

Additionally, because blame is a key feature for anger (Averill, 1982) and because blame is closely linked with perceptions of intentionality (Malle & Knobe, 1997), it follows that anger should associate with perceived intentionality (Darley & Pittman, 2003; Frijda, 1986). Pursuant to this claim, there is evidence demonstrating that perception of the wrongdoer's intentionality evokes anger (P. S. Russell & Giner-Sorolla, 2011) and augments the relationship between anger and attitudes toward punishment (Petersen, 2010). Relatedly, intentionality judgments are informed by perceptions of whether the third party was aware of their actions (Malle & Knobe, 1997). If we believe that an actor was aware that their actions were causing (or could cause) harm to others, we are likely to experience anger because the actor could have acted differently to avoid harm. In support of this claim, Laurent et al. (2016) found across two studies that perceptions of a culprit's awareness increases anger toward the culprit.

Taking into account all of this research on appraisals relevant to anger, I offer my first

hypothesis.

H1: Anger will correlate positively with (a) perceived harm, (b) perceived other-responsibility, (c) perceived intentionality, and (d) perceived awareness.

Assuming these appraisals are cognitive antecedents to anger, it follows that a message can evoke anger by including information that speaks to each appraisal. I refer to these inherent message features as a *harm component*, *offender component*, *intentionality component,* and *awareness component*, respectively. To induce greater levels of anger, I argue that an appeal to anger should include multiple components. In other words, a message that identifies a causal agent (e.g., the fossil fuel or soda industry) should not arouse as much industry-targeted anger as a message that also emphasizes the harmful implications of their actions as well as their intentionality and awareness. I predict:

H2: A message having a harm component, offender component, intentionality component, and awareness component will generate greater levels of (a) perceived harm, (b) perceived other-responsibility, (c) perceived intentionality, and (d) perceived awareness compared to an equivalent message having only an offender component.

H3: A message having a harm component, offender component, intentionality component, and awareness component will evoke more anger compared to an equivalent message having only an offender component.

Having discussed message ingredients that are likely to provoke an anger response, I would like to establish the terminology I will use in the remainder of this dissertation to signify the different parts of a persuasive anger appeal. I follow Dillard and Shen's (2018) lead in their work on threat/fear appeals. To denote the two-part anger appeal in its entirety, I use the term *counterindustry appeal*. The *truth* campaign used counterindustry messaging themes to foster

negative attitudes toward cigarette companies (Hersey et al., 2005), which likely triggered feelings of anger in the process (Ilakkuvan et al., 2017). In addition, counterindustry messages about soda companies using marketing to target children can elicit anger toward the soda industry (Skurka, 2018). Though not all anger appeals identify corporations as their target (e.g., political attack ads vilifying an opposing candidate), this dissertation examines the anger-generating effects of messages describing the questionable actions of corporate industries. As such, *counterindustry appeal* seems an appropriate label for the time being when discussing appeals to anger that use a counterindustry theme.

To denote the first part of the anger appeal (which theoretically should incite anger), I use the term *offense component*, echoing Lazarus's (1991) language for the core relational theme of anger ("a demeaning offense against me and mine"). The offense component includes the subcomponents of harm, offender, intentionality, and awareness. Finally, to denote the second part of the anger appeal (which should inculcate efficacy beliefs), I use the term *efficacy component* because the message inherently contains efficacy content.

The Framing Effects of Counterindustry/Anger Appeals

The AAM assumes that anger can be harnessed to bring about any kind of activist behavior. There is evidence consistent with this claim (e.g., Reese & Jacob, 2015), but emotion theory suggests anger's motivational effects may manifest primarily when the outcome is punitive. Consider again the action tendency for anger, which is an inclination to lash out or strike against a perceived wrongdoer (Frijda, 1986; Frijda et al., 1989; Shaver et al., 1987). If this is so, anger should especially motivate the individual to perform behaviors that serve the emotion-induced goal of retribution.

Consistent with this notion, anger seems to prime people to prefer information related to punishment, whereas fear and sadness prime people to prefer information related to protection and assistance, respectively (Kühne & Schemer, 2015; Nabi, 2003). Theorists have referred to this phenomenon as a framing effect (Nabi, 2003) or spotlight effect of emotion (Peters, Lipkus, & Diefenbach, 2006). Skurka (2018) found that participants exposed to a high counterindustry/anger appeal were more supportive of punitive policies than participants exposed to a low counterindustry/anger appeal; however, there was no difference between the appeals on non-punitive policies. Similar findings have been reported by Stürmer and Simon (2009), Kühne, Weber, and Sommer (2015), and Goodall, Slater, and Myers (2013). As such, it seems reasonable to expect a stronger effect of anger on policies with a punitive bent than policies with a non-punitive bent.

H4: Anger will correlate more strongly with support for punitively oriented policies than non-punitive policies.

Tailoring Response Efficacy

The meta-analysis on anger and persuasion (Walter et al., 2018) indicated that anger manipulations have a greater persuasive effect on attitudes when the message presents response efficacy content (r = .07, p = .04) than when the message does not present such content (r = -.08, p = .04). This is in line with the AAM's prediction that anger about an issue will only translate to activism when the individual perceives that the recommended response will be effective. An important next question is—effective at doing what?

In the context of threat/fear appeals, response efficacy refers to the extent to which one perceives a course of action will effectively protect oneself against a threat (Rogers, 1975; Witte, 1992). This conceptualization of response efficacy makes sense for threat/fear appeals because

the "emotivational" goal (Roseman, 1984) of fear is to protect oneself against the appraised threat (Frijda et al., 1989; Lazarus, 1991; Roseman et al., 1994). However, protecting oneself is not the emotivational goal associated with anger. Rather, angry people tend to seek retribution for an appraised offense, which suggests that angry individuals will be likely to perform actions that they believe will punish the offender. Following this line of thought, to enhance the persuasiveness of a counterindustry/anger appeal, it may make the most theoretical sense for response efficacy messaging in counterindustry/anger appeals to match anger's action tendency of retribution.

This is not necessarily a new idea. In 2006, Dillard and Nabi argued, "…whereas fear appeals might require information suggesting an efficacious response to protect against threat, an anger appeal would be more effective if it suggested an efficacious response to retaliate against the offending agent" (p. S132). One of the only studies examining the usefulness of tailoring efficacy cues (outside the context of threat/fear appeals) comes from the guilt literature. Graton, Ric, and Gonzalez (2016, Study 1) assigned French undergraduates to write about a time they felt guilt, shame, or had a typical day. They then had participants read a (fictitious) news story about waste management and environmental hazards. Half of the news stories emphasized the effectiveness of waste management at addressing environmental hazards (what the authors called the "reparatory" version), and the other stories emphasized that most French people have adopted waste management ("normative" version). The authors found that guilt increased pro-environmental outcomes but only among participants reading the reparatory news message. Though the authors were unable to replicate this finding (Graton, Ric, & Gonzalez, 2016, Study 2), this pattern is consistent with the idea that messages should tailor efficacy cues to focus on the goal of the emotion experienced (for this example, seeking reparations to atone for one's

guilt). However, these researchers looked at the effects of incidental emotion that was unrelated to the message topic, whereas this dissertation is focused on the effects of integral emotion (that is, emotion conceptually related to the topic in question). Moreover, this dissertation focuses on anger, so it remains to be seen whether communicating retribution (above and beyond general cues about response efficacy) can augment the persuasiveness of a counterindustry/anger appeal. I introduce the term *retributive efficacy component* to describe this second message component. Correspondingly, exposure to retributive efficacy messaging should instill beliefs that the recommended response will effectively punish the offender, which I call *perceived retributive efficacy*.

Instilling retributive efficacy beliefs may be especially important when the recommended response does not have an obviously punitive function. For certain kinds of responses (e.g., supporting a regulatory tax on fossil fuel companies), the response is clearly punitive and may not require the communicator to emphasize that the action will castigate the wrongdoer because retributive efficacy is already high. However, for other outcomes that do not have an obviously punitive orientation (e.g., supporting a tax subsidy for consumers of solar and wind energy), it may be necessary to communicate the retributive efficacy of the action (that encouraging people to shift from fossil fuels to renewable energy will cut into industry profits). Because initial, pre-message levels of retributive efficacy are presumably low for this kind of outcome, it should be particularly helpful to connect the dots for audiences and explain how the recommended response will punish the offender. This leads to the next hypothesis.

H5: There will be an interaction between an offense component and a retributive efficacy component on (a) policy support, (b) activism intentions, and (c) individual behavior

intentions. Specifically, an offense component will have a greater effect on these outcomes when a retributive efficacy component is present.

Counter-Attitudinal Audiences

The AAM predicts that audiences not initially in favor of the advocated issue will not experience message-consistent anger but will instead experience anger at the message producer. This kind of anger is consistent with the notion of psychological reactance (J. W. Brehm, 1966; S. S. Brehm & Brehm, 1981). This "reactive" form of anger should motivate the individual to reject the message or demonstrate boomerang effects, in which changes on the persuasive outcomes are in the direction opposite of what was intended (Byrne & Niederdeppe, 2011; H. Cho & Salmon, 2007).

The moderating role of initial attitudes in the context of anger appeals has received surprisingly little empirical attention (Walter et al., 2018). In one of the few studies that has measured prior attitudes toward the advocated issue (anti-immigration), Ness et al. (2017) found that even though prior attitudes moderated the effect of their anti-immigration anger appeal on anger intensity, the effects of the anger appeal on post-message attitudes, message derogation, and intentions were comparable between individuals for and against immigration. In Skurka's (2018) experimental test of the AAM, prior attitudes did not moderate the effects of counterindustry messages on counterarguing, policy support, or intentions. This unexpected finding may have been due to the fact that the sample (on average) was favorable toward industry regulation, which suggests that the participants categorized as counter-attitudinal may have actually been attitudinally neutral. If so, these participants may have been more receptive to the topic than individuals truly holding negative attitudes toward the topic. Further, the

counterindustry messages in that study advocated policies to protect children, who are generally considered a likable, vulnerable group.

Some evidence provides indirect support for the claim that anger appeals have polarizing effects for different groups. For instance, Feldman and Hart (2018) found that among political conservatives, anger was negatively associated with support for climate change mitigation policies, but among political liberals, anger was positively (but non-significantly) associated with policy support. Valentino and Neuner (2017) found that a message frame about Black voter disenfranchisement indirectly predicted political participation intentions via anger but only among Democrats. Another study asked participants to read message frames about climate change and select the sentences that made them angry (Myers, Nisbet, Maibach, & Leiserowitz, 2012). Though the authors did not report formal inferential tests, it appeared that participants selected different issues and ideas depending on their prior opinions about climate change's seriousness. The political science literature on attack ads is also relevant to this discussion given that extremely negative political campaigns can polarize voter turnout between strong partisans and Independents (Ansolabehere & Iyengar, 1995; Lau & Pomper, 2001).

Despite what theory would lead one to expect (Turner, 2007), the available evidence has not consistently demonstrated that counterindustry/anger appeals have polarizing effects on persuasive outcomes. In light of this discrepancy between theory and the published literature, I advance a research question:

RQ1: Will initial attitudes moderate the effect of counterindustry/anger appeals on (a) policy support, (b) activism intentions, and (c) individual behavior intentions?

Although it is unclear whether initial attitudes will moderate message effects on downstream persuasion outcomes, it seems likely that initial attitudes will moderate emotional

reactions to the message. That is, the offense component of the message should be more successful at evoking message-consistent anger (in this case, anger toward the [soda/fossil fuel] industry) among pro-attitudinal groups than counter-attitudinal groups. Humor theorists have advanced similar claims about the effects of appeals to humor—that appreciation of the humor depends on the audience's attitude toward the humor's target (Becker, 2014; Zillmann & Cantor, 1976). Regarding anger, Ness et al. (2017) found that an anti-immigration website designed to induce anger evoked more anger among participants against immigration than participants in favor of immigration.

Furthermore, because a counterindustry/anger appeal challenges their existing predispositions, counter-attitudinal individuals should experience "reactive" anger directed toward the message producer (as psychological reactance theory would lead us to expect, Quick et al., 2013; Rains, 2013). The reactive anger they experience should overshadow any anger they experience toward the industry. I expect:

> *H6: Upon exposure to a high offense appeal, counter-attitudinal individuals will experience (a) greater reactive anger and (b) less industry anger than pro-attitudinal individuals.*

In this way, this dissertation distinguishes message-consistent anger (intended by the message's source) from message-inconsistent anger (unintended by the source). Although the subjective experience of anger is comparable in both cases, the context of appraisals and the target are different (Dillard & Nabi, 2006; Myers et al., 2012). With message-consistent anger, the target is the culprit discussed in the message (the [soda/fossil fuel] industry), but with message-inconsistent anger, the target is the message creator.

Validating a Measure of Retributive Efficacy

Because this dissertation introduces a new concept that has not previously been measured, it is necessary to first validate a measure of retributive efficacy. Only after assessing the psychometric properties of this measure will it be possible to address the hypotheses and research questions described above. To do so, I examined three types of validity: face, nomological, and discriminant validity.

Face validity. Face validity refers to the extent to which a measure, on its face, captures the concept of interest (Krippendorff, 2008). It is a subjective assessment in which each item is compared to the conceptual definition. A logical mismatch between the item and conceptual definition suggests the item should be re-worded or dropped altogether. Because face validity is a subjective evaluation, face validity is an insufficient means of validating a measure (Drost, 2011). Nonetheless, face validity can be assessed systematically by having a panel of content experts judge the proposed measure. Although there are different methods for integrating judges' feedback, this approach has proven useful in marketing research (Hardesty & Bearden, 2004).

Nomological validity. Nomological validity refers to the extent to which a measure is related to measures of other logically related concepts (Shadish, Cook, & Campbell, 2002). Theoretically, the stronger the perception of retributive efficacy, the more likely people should be to perceive that various proposed solutions will effectively address the social issue (termed, *solution efficacy*), to support public policies addressing the issue, and to partake in political activism. I therefore predict:

H7: Retributive efficacy will correlate positively with (a) perceived solution efficacy, (b) policy support, and (c) activism intentions.

Discriminant validity. Researchers assess discriminant validity to make the case that a proposed measure does not correlate with (or correlates weakly with) measures of theoretically

unrelated concepts (Krippendorff, 2008). In other words, not all phenomena are conceptually linked, which means that measures of unrelated phenomena should not associate strongly with one another. In the present context, one would not expect retributive efficacy to have a strong relationship with external political efficacy, which refers to "beliefs about the government's responsiveness to citizen demands" (Hart & Feldman, 2016, p. 3). That is, just because a person believes that implementing a policy will punish a corporate culprit does not mean that they believe their political opinions and actions are heard on Capitol Hill. One could advance a similar argument for the relationship between retributive efficacy and self-efficacy. A person may believe that passing a law will punish an industry but may not feel confident in their ability to engage in the political process (or vice versa). Though people who are generally supportive of public policy efforts may score higher on different types of efficacy measures (in the sense that there should be positive correlations across all types of efficacy measures), it seems plausible to expect retributive efficacy to evidence weak relationships ($0 \leq r \leq .20$, Cohen, 1992) with these two types of efficacy.

H8: Retributive efficacy will correlate weakly with (a) external political efficacy and (b) self-efficacy to engage in personal actions to address the issue.

The Emotional Flow of Counterindustry/Anger Appeals

A limitation of emotional appeals research is that emotional responses are generally measured once after message exposure. Consequently, we know little about how the emotional experience evolves during message exposure. This notion that the emotional experience changes during exposure is *emotional flow* (Nabi, 2015). It may entail a shift from one discrete emotion to another or variation in the intensity of a single emotion. This dissertation focuses on the latter type of emotional flow.

Moving from a between-subjects approach (measuring the emotional experience once per participant) to a within-subjects approach (measuring the emotional experience more than once per participant) allows for greater understanding of the relationship between emotion and persuasion. Findings from recent studies are beginning to paint a picture of the trajectory of fear during threat/fear appeals (Dillard, Li, & Huang, 2017; Dillard, Li, Meczkowski, Yang, & Shen, 2017; Meczkowski, Dillard, & Shen, 2016; Shen & Coles, 2015; Shen & Dillard, 2014). The findings from these studies consistently demonstrate that, when taking a within-subjects approach, persuasion is predicted by an inverted-U curve for fear. In other words, receivers are more likely to comply with the message's recommendation when the threat component increases fear and the efficacy component subsequently reduces it.

The implication of this work is clear: If persuasive success requires a curvilinear emotional response to the message, by ignoring the dynamic nature of emotional reactions, persuasion researchers are poorly positioned to make claims about designing a maximally effective emotional appeal. Because the extant research on emotional flow has focused on fear, it remains to be seen how anger will fluctuate when audiences are exposed to a counterindustry/anger appeal.

Three trajectories for anger intensity are possible. In one scenario, anger increases upon exposure to the offense component and continues to increase upon exposure to the retributive efficacy component (linear trend). In a second scenario, anger increases and then remains steady during exposure to the retributive efficacy component (plateau trend). In a third scenario, anger increases then decreases (curvilinear trend).

The AAM implicitly addresses the emotional flow of anger when differentiating utilitarian from destructive anger. "The destructive effects of anger are reflected by people's

misjudgment of events and others. Whether or not anger elicits constructive or destructive consequences depends on the intensity of the anger experienced" (Turner, 2007, p. 116). Turner goes on to state, "perceiving that control can be taken over a bad situation is what separates utilitarian anger from destructive anger" (p. 116). If destructive anger equals high intensity anger and constructive anger is less intense than destructive anger, the implicit logic of the AAM is that appealing to efficacy should reduce the (destructive) anger evoked by the offense component of the message to utilitarian or constructive levels, which should facilitate persuasion. Thus, the AAM implies an inverted-U trajectory (curvilinear trend) for felt anger during exposure to a counterindustry/anger appeal, whereby the offense component of the message increases anger intensity and then the efficacy component dampens it.

An opposing argument would be that conveying retributive efficacy will sustain anger because focusing on ways to get back at the wrongdoer will intensify felt anger toward them. Aristotle wrote, "the angry man [*sic*] is aiming at what he can attain, and the belief that you will attain your aim is pleasant…It is also attended by a certain pleasure because the thoughts dwell upon act of vengeance…." The German emotion *schadenfreude* captures this feeling of satisfaction at the misfortunate of others. Though schadenfreude often results from misfortunes that befall a person we envy, schadenfreude can also be responsive to vengeance taken against injustice (R. H. Smith, Powell, Combs, & Schurtz, 2009). Resentment at another party and beliefs about that party's deservingness for misfortune (both of which are theoretically related to anger) have been found to positively predict feelings of schadenfreude (Feather & Nairn, 2005; Feather & Sherman, 2002). This research might lead one to predict that when people are presented with information about retribution against a transgressor, this retributive efficacy

messaging will preserve the level of anger intensity generated by the offense component of a counterindustry/anger appeal (plateau trend).

Given the opposing predictions one could make about the emotional flow of counterindustry/anger appeals, I ask:

RQ2: Which type of trend will best describe the emotional flow of anger in response to a high offense/high retributive efficacy message: linear, plateau, or curvilinear?

Relatedly, it is unclear which of these trends will be associated with persuasive success. The AAM would lead us to expect a curvilinear trend will predict persuasion—similar to the results of Dillard and Shen's work on threat/fear appeals (Dillard, Li, & Huang, 2017; Dillard, Li, Meczkowski, et al., 2017; Meczkowski et al., 2016; Shen & Coles, 2015; Shen & Dillard, 2014). However, anger is associated with a high degree of energy and motivation to take action, which means that it may be important to maintain anger's intensity rather than diminish it in order to achieve compliance with the persuasive message. I therefore ask:

RQ3: Which of the three trend types will best predict (a) policy support, (b) activism intentions, and (c) individual behavior intentions?

Overview of Studies

This dissertation addresses these hypotheses and research questions through six studies that employ qualitative and quantitative methods.

Studies 1 and 2: Measurement validation

The goal of the first two studies was to validate a proposed measure of retributive efficacy. Study 1 assessed the face validity of the measure by surveying leading experts in the field of communication who study persuasion and emotion. Study 2 provided an initial, cross-sectional test of hypotheses about the relationship between appraisals and anger (H1), the

relationship between anger and support for punitive vs. non-punitive policies (H4), and the anger-by-retributive efficacy interaction (H5). Study 2 tested these hypotheses under the assumption that the proposed measure of retributive efficacy demonstrates acceptable nomological (H7) and discriminant validity (H8).

Studies 3-5: Message development

The goal of the next three studies was to pilot-test messages that aim to (a) induce anger toward the soda and fossil fuel industries and (b) instill beliefs about retributive efficacy. In Study 3, I conducted focus groups to gather open-ended feedback about message drafts. After revising messages based on focus group feedback, I conducted Studies 4 and 5—between-subjects experiments that tested whether the message inductions were successful for anger (H2, H3) and retributive efficacy.

Study 6: A final experiment

All five of these studies culminated in Study 6. This final experiment tested the core prediction that including a retributive efficacy component in a counterindustry/anger appeal will enhance its effectiveness (H5) and explored the moderating role of prior attitudes (RQ1, H6). Additionally, Study 6 explored the emotional flow of anger appeals (RQ2, RQ3). It did so by assessing how anger intensity increases upon exposure to the offense component of the message and whether anger intensity fluctuates upon exposure to the retributive efficacy component.

CHAPTER 4: MEASUREMENT VALIDATION (STUDIES 1 AND 2)

In this chapter, I describe two studies that provide an initial assessment of the reliability and validity of a retributive efficacy scale. Study 1 surveyed experts to solicit feedback on the extent to which the proposed survey measure, on its face, captures the concept of retributive efficacy. Study 2 was a quantitative assessment of the scale's psychometric properties, examining the extent to which the proposed measure of retributive efficacy would demonstrate nomological (H7) and discriminant validity (H8). Study 2 also explored the relationship between anger and support for punitive vs. non-punitive policies (H4) and the predicted anger-by-retributive efficacy interaction (H5). Finally, in terms of understanding the appraisal ingredients for anger, Study 2 tested hypotheses about the relationship between cognitive appraisals and anger (H1). Although I offered the validation hypotheses last in the previous chapter, I address them first in this chapter because the primary goal of Studies 1 and 2 was measurement validation.

Study 1: Face Validity

Methods

Recruitment. I selected 11 experts in communication and public health who study persuasion, emotion, and efficacy to solicit feedback on the face validity of a proposed measure of retributive efficacy. In late July 2018, I sent topic experts an email inviting them to participate with a link to the survey. Five experts who did not respond to the email within two weeks received a follow-up email to encourage participation (if they had not already). The survey closed three weeks after topic experts received the first invitation email. To maximize anonymity, I did not look at the data until I closed the survey at the three-week mark. This

process resulted in $N = 7$ experts completing the survey with 6 complete responses for the close-ended questions (described below).

Procedure. Topic experts provided informed consent, then read an overview of the concept and corresponding hypotheses to provide context. This included a conceptual definition for retributive efficacy ("an individual's belief about the extent to which a course of action will effectively punish a wrongdoer"). On separate pages of the survey, topic experts were presented with each of the five proposed items for the retributive efficacy measure (using the climate change context as an example), and for each item, they provided quantitative and qualitative feedback.

Specifically, topic experts responded to one closed-ended question ("Bearing in mind the definition of retributive efficacy, to what extent do you think that this item represents the concept of retributive efficacy?") using a 4-point Likert scale (*very good representation*, *good representation*, *fair representation*, *poor representation*). I adapted this item from a study that used this practice of consulting topic experts to validate a measure of skepticism toward advertising (Obermiller & Spangenberg, 1998). Then, participants responded to an open-ended item that read, "Please elaborate on your response above. How might this item be improved?"

After giving feedback on the five proposed items, topic experts provided open-ended responses to two general questions: "Aside from the feedback you just provided, do you have any other suggestions or thoughts on this measure (e.g., instructions, scale used)?" and "Aside from the feedback you just provided, do you have any other suggestions or thoughts on the concept of retributive efficacy?"

Retributive efficacy measure. The proposed measure of retributive efficacy asked future participants to indicate their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with five

statements about whether a presented solution or policy would punish the soda/fossil fuel industry. Table 4.1 shows the original wordings, which used a variety of expressions and terms to denote punishment. Topic experts were not asked to complete the measure but did view a survey page that mimicked what future participants would see when completing the scale.

Findings

Rather than using formal statistical or qualitative techniques to analyze the feedback, I looked at trends and patterns in experts' responses to assess face validity. Table 4.1 shows frequencies for the close-ended responses.

Table 4.1 *Topic expert ratings on proposed items for retributive efficacy measure (Study 1)*

Item	Very good	Good	Fair	Poor
Implementing this policy would get back at fossil fuel companies.	5	1	0	0
Implementing this policy would be effective at punishing fossil fuel companies.	5	1	0	0
Implementing this policy would get even with fossil fuel companies.	4	1	1	0
Implementing this policy would teach fossil fuel companies a lesson.	4	2	0	0
Implementing this policy would make fossil fuel companies think twice about their actions.	3	2	1	0

Note. Values are frequencies. Climate change context used as an illustrative example.

Item-specific feedback. None of the items received a *poor representation* rating from topic experts, indicating that topic experts generally believed the proposed items accurately represented the construct of retributive efficacy. Three items received consistently high marks (*Implementing this policy would…get back at fossil fuel companies*, *…be effective at punishing fossil fuel companies*, *…teach fossil fuel companies a lesson*). All experts rated these three items

as being a *very good* or *good representation* of the concept. The other two items (*Implementing this policy would…get even with fossil fuel companies*, *…make fossil fuel companies think twice about their actions*) received more mixed ratings in the sense that each received one *fair* rating.

Regarding the *get even* item, one expert suggested that this language might seem odd to future participants—can one truly "get even" with companies rather than specific individuals? This expert raised the same concern for other items (e.g., *teach a lesson, think twice*). Another expert pointed out that "getting even" with a wrongdoer is not equivalent to punishing them: "If I wanted someone/something punished, I do not necessarily care about getting even, I wouldn't mind tipping the balance the other way."

The *think twice* item fared the worst of the five items (2 *good* ratings and 1 *fair*). Two experts astutely suggested that "making companies think twice" would accomplish a different goal than punishing them; that is, it would change the company's actions, which "taps a different dimension of retributive efficacy." Another expert noted that the *think twice* item "lacks the affective implication inherent in the other items."

General feedback. Multiple experts noted that it might help to specify the action for which one might want to punish an industry. In the words of one topic expert, "I wonder if there needs to be a target for 'getting back at'—meaning—why do we need to get back at them?" This is a fair point as emotion theorists have argued that even though anger is typically directed toward another party, it is the *action* of that party (not the party themself) that triggers an anger response (Ortony et al., 1988). Additionally, a few experts raised concerns about the language being too abstract. Rather than using vague terms about punishment (e.g., *get even, get back at*), these experts recommended identifying concrete ways that punishment is enacted (by hurting the companies' profits).

There were also miscellaneous suggestions to improve the measure. For example, one expert proposed using negative-worded items—presumably to prevent future participants from mindlessly completing the items. Another expert drew attention to the fact that every statement began with the same phrase (Implementing this policy…) and that it should be moved into a header to minimize fatigue for future participants. One expert pointed out that several items used idioms, which could be confusing for non-native English speakers.

Measure revisions

I made several changes to the items based on suggestions and themes that emerged in the open-ended responses, and Table 4.2 compares the original and revised versions. First, I removed the leading phrase *Implementing this policy….* and put it in a header. Second, given experts' concerns about two of the items (*think twice*, *get even*), I replaced these with new items: one that focuses on holding companies accountable (*Implementing this policy would do nothing to hold [soda/fossil fuel] companies accountable for*…) and another that focuses on the effects of policy implementation on company profits (*Implementing this policy would do nothing to impact the profits of [soda/fossil fuel] companies*). This latter change was based on the feedback that the items were too focused on the abstract idea of punishment and not concrete punitive actions. Third, I negatively worded these items to address one expert's suggestion to include a few reverse-coded items. Fourth, I added language to each item that specifies the offense committed by soda companies (*targeting children with marketing for sugary drinks*) or fossil fuel companies (*misleading the public about the risks their actions pose for climate change*). Finally, although I agree with one expert that many of the statements could be difficult to translate for individuals whose first language is not English, there are few verbs in English that are synonymous with punishment. It was for this reason that I used idiomatic phrases in the original

items to convey the notion of retribution (e.g., *teach a lesson*, *get back at*, *get even with*). I used the revised items in a cross-sectional survey to quantitatively evaluate the measure's psychometric properties.

Table 4.2 *Original and revised items for the retributive efficacy measure based on expert feedback in Study 1*

Original items	Revised items	
	Childhood obesity	Climate change
--	*Implementing this policy…*	
Implementing this policy would get back at [fossil fuel/soda] companies.	Would get back at soda companies for targeting children with marketing for sugary drinks	Would get back at fossil fuel companies for misleading the public about the risks their actions pose for climate change
Implementing this policy would be effective at punishing [fossil fuel/soda] companies.	Would effectively punish soda companies for targeting children with marketing for sugary drinks	Would effectively punish fossil fuel companies for misleading the public about the risks their actions pose for climate change
Implementing this policy would get even with [fossil fuel/soda] companies.	Would do nothing to impact the profits of soda companies*	Would do nothing to impact the profits of fossil fuel companies*
Implementing this policy would teach [fossil fuel/soda] companies a lesson.	Would teach soda companies a lesson for targeting children with marketing for sugary drinks	Would teach fossil fuel companies a lesson for misleading the public about the risks their actions pose for climate change
Implementing this policy would make [fossil fuel/soda] companies think twice about their actions.	Would do nothing to hold soda companies accountable for targeting children with marketing for sugary drinks*	Would do nothing to hold fossil fuel companies accountable for misleading the public about the risks their actions pose for climate change*

Note. *Reverse-coded items.

Study 2: Cross-Sectional Validation

Methods

Recruitment and sample. Participants in Study 2 were $N = 482$ adults recruited through Amazon Mechanical Turk (MTurk) in early October 2018. To be eligible for the study, participants had to be located in the US, had to have an approval rating of 99% or higher on previous MTurk tasks, and must have completed at least 1000 previous tasks on MTurk. These criteria are based on MTurk's recommended guidelines for reducing the likelihood of including bots (Amazon Mechanical Turk, 2018).

I calculated the target sample size for Study 2 using the *pwr* package for R. Based on a previous test of the AAM (Skurka, 2018), I expected small to medium effect sizes ($f^2 = .08$) (J. Cohen, 1992). For a general linear model (with: power = .80, numerator degrees of freedom = 14 [given an estimated 15 predictors – 1 intercept], significance level $\alpha = .05$), this results in about 226 df for the denominator. A simple calculation revealed a necessary sample size of 241 ($N =$ denominator df + numerator df + 1 intercept). Because this study included two randomized contexts (climate change, childhood obesity), I roughly doubled this estimate to recruit about 480 participants.

Table 4.3 presents sample characteristics for each context. The typical participant was 37 years old, non-Hispanic, White, college-educated, and politically liberal. The modal income bracket was $25,000-$49,999. Among participants in the childhood obesity condition, sugary drink consumption was low ($M = 1.60$, $SD = .58$, on a 4-point scale of consumption frequency over the past month). Among participants in the climate change condition, most believed that climate change is happening (85.9%) and anthropogenic (61.8%).

Table 4.3 *Sample characteristics (Study 2)*

	Childhood obesity (N = 235)	Climate change (N = 220)
Age	M = 37.69 (SD = 12.60)	M = 37.01 (SD = 11.44)
Gender		
Male	126 (53.6%)	124 (56.4%)
Female	108 (46.0%)	95 (43.2%)
Genderqueer/gender non-conforming[a]	1 (0.4%)	1 (0.5%)
Hispanic/Latinx	24 (10.2%)	18 (8.2%)
Race		
White	195 (83.0%)	190 (86.4%)
Black	26 (11.1%)	15 (6.8%)
Other non-White, non-Black race	24 (10.2%)	22 (10.0%)
College degree or higher	136 (57.9%)	129 (58.6%)
Income		
<$25,000	28 (11.9%)	37 (16.8%)
$25,000 - $49,999	89 (37.9%)	73 (33.2%)
$50,000 - $74,999	55 (23.4%)	62 (28.2%)
≥$75,000	63 (26.8%)	48 (21.8%)
Political party affiliation[b]		
Republican	43 (18.3%)	45 (20.5%)
Democrat	129 (54.9%)	84 (38.2%)
Independent	52 (22.1%)	85 (38.6%)
Another party	3 (1.3%)	2 (0.9%)
No preference	8 (3.4%)	4 (1.8%)
Political conservatism (1-7 scale)	M = 3.17 (SD = 1.81)	M = 3.41 (SD = 1.67)
Trait anger (1-7 scale, α = .97)	M = 2.35 (SD = 1.52)	M = 2.35 (SD = 1.45)
Previous activism (1-7 scale, α = .88)	M = 1.60 (SD = .73)	M = 1.72 (SD = .77)
Context-specific covariates		
SSB consumption (1-4 scale)	M = 1.60 (SD = .58)	--
Parent/guardian of any children under 18	20 (8.5%)	--
Believe climate change is happening	--	189 (85.9%)
Believe climate change is human-caused	--	136 (61.8%)

Notes. [a] Because only two participants identified as genderqueer/gender non-conforming, I recoded their gender identity values to be missing for inferential analyses. [b] Participants who did not identify as Republicans or Democrats were asked to indicate which of the two major parties they most closely identify ($\text{Democrats}_{\text{childhood obesity}}$ = 72.8%, $\text{Democrats}_{\text{climate change}}$ = 66.4%). SSB = sugar-sweetened beverage.

Procedure. After participants consented to participate, the survey randomly assigned them to one of two versions of the survey (childhood obesity or climate change) so that participants would complete the survey only in the context of their randomly assigned topic. An introduction briefly informed participants that some people say [soda/fossil fuel] companies have

contributed to [childhood obesity/climate change] by [targeting children with marketing for sugary drinks/misleading the public about the risks their actions pose for climate change]. Participants first reported on their attitudes toward industry regulation. Then, participants reported on their emotions about the issue and their cognitive appraisals (randomly presented).

A transition text informed participants that they would be asked to provide their thoughts on several proposed solutions to address [childhood obesity/climate change]. The following pages of the survey each presented a different solution (pages shown in random order), and for each solution, participants indicated their perceptions of retributive efficacy, perceptions of general effectiveness at addressing [childhood obesity/climate change], and their support for the policy. The next page of the survey measured self-efficacy and external political efficacy (randomly presented). Participants then self-reported their intentions to engage in activism around the issue and their intentions to perform individually focused behaviors (i.e., cutting back on sugary drinks or actions to mitigate their carbon footprint). Finally, participants completed demographic items and context-specific covariates. Participants received $1.00 for their time, which translates to $6.17/hour given that median duration on the survey was 9 minutes 43 seconds.

Measures. Reliabilities and means for all scales are available in Table 4.4. Generally speaking, scale reliabilities were above traditional standards of acceptability.

Attitude toward industry regulation. Using semantic differential scales of *negative-positive*, *bad-good*, *undesirable-desirable*, *unnecessary-necessary* (scored from 1 to 7), participants indicated their attitudes toward increased regulation of [soda/fossil fuel] companies to address [childhood obesity/climate change]. I averaged responses to these items to compute an attitude index.

Table 4.4 *Scale reliabilities, means, and standard deviations (Study 2)*

Variable	No. of items	Childhood obesity		Climate change	
		α/*r*	*M* (*SD*)	α/*r*	*M* (*SD*)
Attitude toward regulation	4	.98	4.44 (2.06)	.97	5.63 (1.65)
Anger	3	.95	3.13 (1.91)	.95	4.24 (1.91)
Appraisals					
Harm	2	*r*=.54	3.96 (1.64)	*r*=.78	5.35 (1.51)
Responsibility (specific)	1	--	5.45 (1.67)	--	5.65 (1.56)
Responsibility (general)	1	--	4.45 (1.80)	--	5.46 (1.57)
Intentionality	1	--	5.51 (1.34)	--	5.39 (1.48)
Awareness	1	--	5.44 (1.56)	--	5.51 (1.60)
Illegitimacy	1	--	4.68 (1.79)	--	5.68 (1.69)
Control	1	--	5.83 (1.25)	--	5.70 (1.44)
Moral violation	3	.96	4.83 (1.67)	.92	6.16 (1.00)
Efficacy variables					
Retributive efficacy (overall)	35	.92	3.90 (.92)	.93	3.94 (.95)
Retributive efficacy (policies)	30	.92	3.85 (.94)	.92	4.03 (.95)
Retributive efficacy (behavior)	5	.86	4.22 (1.51)	.87	3.45 (1.46)
Solution efficacy (overall)	21	.94	4.08 (1.20)	.96	4.74 (1.20)
Solution efficacy (policies)	18	.95	3.91 (1.29)	.96	4.70 (1.23)
Solution efficacy (behavior)	3	.95	5.07 (1.64)	.93	4.95 (1.48)
Self-efficacy	3	.86	4.74 (1.42)	.83	5.05 (1.15)
External political efficacy	3	.84	3.50 (1.45)	.90	3.35 (1.53)
Policy support	6	.81	4.68 (1.28)	.86	5.50 (1.22)
Punitive policies	3	.79	4.71 (1.57)	.73	5.48 (1.29)
Non-punitive policies	3	.60	4.64 (1.29)	.80	5.52 (1.33)
Activism intentions	5	.91	2.58 (1.63)	.90	3.24 (1.77)
Personal behavior intentions	5	.84	5.85 (2.04)	.75	4.45 (1.32)

Note. Cronbach's α was computed for scales with three or more items. Pearson's *r* was computed for the two-item harm scale. All scales measured on 7-point Likert scales.

Anger. The survey informed participants, *Recall that some people say that [soda/fossil fuel] companies have contributed to [childhood obesity/climate change] by [targeting children with marketing for sugary drinks/misleading the public about the risks their actions pose for*

climate change]. Participants then used a Likert-type scale of *none of this emotion* (1) to *a great deal of this emotion* (7) to respond to the stem: *When thinking about this idea, how much do you feel…?* Three items measured anger (*angry*, *outraged*, *infuriated*), which I averaged to create an index. I also included other emotion items to minimize demand effects (*disgusted*, *contemptuous*, *sad*, *afraid*, *anxious*, *guilty*, *hopeful*, *optimistic*).

Appraisals. Several items measured cognitive appraisals thought to be part of the anger experience. In addition to the four appraisals that I have previously discussed (harm, responsibility, intentionality, and awareness), I also included measures of other appraisals that emotion theorists have linked to anger: perceptions that the culprit's actions were illegitimate or unjustified (Haidt, 2003; Roseman, 1984; Shaver et al., 1987), perceptions that the culprit had control over their actions (Weiner, 2006), and perceptions that the culprit's actions have violated a moral standard (Mullen & Skitka, 2006; Rozin et al., 1999; Tangney, Stuewig, & Mashek, 2007).

Perceived harm. Adapted from previous work (Giner-Sorolla et al., 2012), two items assessed perceptions of harm on a Likert-type scale of *not at all* (1) to *completely* (7): *To what extent do you think [soda/fossil fuel] companies have…violated the rights of others? …been harmful to others?* I computed the mean of these responses to create a perceived harm index.

Perceived responsibility. Participants responded to two questions (Ellsworth & Smith, 1988) using a scale of *not at all responsible* (1) to *extremely responsible* (7). The stem read: *How responsible do you think [soda/fossil fuel] companies are for*…. For childhood obesity, the two items were *…targeting children with marketing for sugary drinks …contributing to childhood obesity*. In the context of climate change, the two items were *…misleading the public about the risks their actions pose for climate change …contributing to climate change*. The two items

correlated highly in the climate change data (r = .63), but the correlation was considerably weaker in the childhood obesity data (r = .34). In light of these mixed reliabilities, I treated the responsibility items as separate variables for the sake of consistency: one specific to the immediate harm done (targeting children/misleading the public) and one general about the long-term consequences of their actions (contributing to childhood obesity/climate change).

Perceived intentionality. Participants reported their agreement on a scale of *strongly disagree* (1) to *strongly agree* (7) with one item modified from P. S. Russell and Giner-Sorolla (2011): *[Soda/Fossil fuel] companies intended to [target children with marketing for sugary drinks/mislead the public about the risks their actions pose for climate change]*.

Perceived awareness. Participants reported their agreement on a scale of *strongly disagree* (1) to *strongly agree* (7) with one reverse-coded item: *The [soda/fossil fuel] companies were not aware of any harm they might be doing by [targeting children with marketing for sugary drinks/misleading the public about the risks their actions pose for climate change]*.

Perceived illegitimacy. Participants reported their agreement on a scale of *strongly disagree* (1) to *strongly agree* (7) with the following reverse-coded item: *[Soda/Fossil fuel] companies were justified in [targeting children with marketing for sugary drinks/misleading the public about the risks their actions pose for climate change]*.

Perceived control. Participants reported their agreement on a scale of *strongly disagree* (1) to *strongly agree* (7) with the following item: *It was within [soda/fossil fuel] companies' control whether they [targeted children with marketing for sugary drinks/misled the public about the risks their actions pose for climate change]*.

Perceived moral violation. Three items assessed the extent to which participants believed the industry's actions would be morally problematic on a scale of *strongly disagree* (1) to

strongly agree (7) (O'Reilly et al., 2016). The three statements began with the following lead-ins: *It would be unethical for… It would be morally wrong for… It would violate a significant moral standard if…* ending with…*[soda companies to target children with marketing for sugary drinks/fossil fuel companies to mislead the public about the risks their actions pose for climate change]*. I averaged responses to these three items to create a perceived moral violation scale.

Efficacy variables. The survey presented participants with six policies relevant to their randomly assigned context (three that were relatively more punitive, three that were relatively less punitive) as well as one solution that involved individual-level behavior change (i.e., cutting back on sugary drinks or environmentally conscious behaviors). I selected the six policies for each context based on previous public opinion research on these topics (e.g., Barry, Brescoll, Brownell, & Schlesinger, 2009; Feldman & Hart, 2016). See Table 4.5 for complete item wordings.

Retributive efficacy. Participants completed the 5-item retributive efficacy scale for each of the seven solutions. Table 4.5 presents the reliabilities and retributive efficacy means for each solution. I analyzed the retributive efficacy items in a few different ways. First, I took the average of all 35 items (7 solutions × 5 retributive efficacy items) to test hypotheses related to measurement validation. Second, I created a subscale of *policy retributive efficacy*, averaging the 30 items that were specific to public policies. I used this scale for H5 (regarding retributive efficacy moderating the relationship between anger and policy support). However, when looking at behavioral intentions as the outcome variable, it made more sense to use only the retributive efficacy items that were specific to individual-level behaviors, so I averaged those five items into a *behavioral retributive efficacy* scale.

Table 4.5 *Retributive efficacy reliabilities and means for various solutions (Study 2)*

Context	Solution	α	*M* (*SD*)
Childhood obesity	Prohibit all sugary-drink advertising on media that children are exposed to[a]	.86	4.81 (1.44)
	Prevent soda companies from deducting marketing and advertising expenses from their federal income taxes[a]	.86	4.66 (1.40)
	Eliminate sugary-drink concessions from our public schools and to use federal tax dollars to compensate the schools for the revenues they now make on these concessions[a]	.86	4.47 (1.42)
	People cutting back on drinking sugary drinks	.86	4.22 (1.51)
	Require that fast food chains only include toys in kids meals that meet nutritional standards[b]	.90	3.11 (1.51)
	Require television stations to provide free time for public-service announcements on healthy eating and exercise[b]	.86	3.03 (1.37)
	Provide funding to public schools to make low-fat milk available for free at school lunches[b]	.85	3.01 (1.31)
Climate change	Require fossil fuel companies to pay a carbon tax in proportion to the amount of carbon dioxide they produce[a]	.85	4.80 (1.39)
	Phase out subsidies for fossil fuel companies that produce oil, gas, and coal[a]	.84	4.78 (1.52)
	Require fossil fuel companies to produce at least 20% of their electricity from wind, solar, or other renewable energy sources[a]	.81	3.91 (1.30)
	Increase government investment in renewable energy industries like wind and solar[b]	.85	3.66 (1.42)
	Impose tougher fuel efficiency standards for automobiles and trucks[b]	.82	3.57 (1.29)
	People engaging in more environmentally conscious behaviors (for example, switching to renewable energy like solar and wind)	.87	3.45 (1.46)
	Institute a federal tax subsidy for people using wind and solar energy[b]	.83	3.43 (1.32)

Note. All items were measured on a Likert-type scale of 1-7 with higher values indicating greater perceptions of retributive efficacy. [a] These policies were identified a priori as punitive policies. [b] These policies were identified a priori as non-punitive policies.

Solution efficacy. Using a scale of *very unlikely* (1) to *very likely* (7), participants indicated how much they believed the seven solutions would be effective at addressing the issue in question (childhood obesity, climate change). For each of the seven solutions, participants

responded to three items: *Implementing this policy…would be a sure-fire way to address [childhood obesity/climate change]*, *…would be a good way to address [childhood obesity/climate change]*, *…would greatly reduce [children's risk for obesity/climate change]*. These items were based on response efficacy scales used in the context of threat appeals (Shen & Dillard, 2014). As with the retributive efficacy items, I split these items into an overall scale of solution efficacy (21 items), a subscale of *policy solution efficacy* (18 items), and a subscale of *behavioral solution efficacy* (3 items). The overall scale I used to test validation hypotheses, and the subscales I used to test H5.

Self-efficacy. Participants used a scale of *strongly disagree* (1) to *strongly agree* (7) to indicate their agreement with four items adapted from Stephenson and Witte (1998): (1) *I am able to take personal actions to address [climate change/childhood obesity],* (2) *Personal actions to address [climate change/childhood obesity] are easy*, (3) *I think that personal actions to address [climate change/childhood obesity] are inconvenient*, and (4) *I am capable of taking personal actions to address [climate change/childhood obesity]*. Because the third item reduced scale reliability considerably, I averaged responses to the other items into a three-item self-efficacy scale.

External political efficacy. Participants used a scale of *strongly disagree* (1) to *strongly agree* (7) to indicate their agreement with three statements (Hart & Feldman, 2016): *People like me don't have any say about what the government does about [childhood obesity/climate change]*, *Public officials don't care much about what people like me think about [childhood obesity/climate change]*, and *The government pays attention to what people like me think when they decide what to do about [childhood obesity/climate change]*. After reverse-coding the first two items, I averaged responses into an external efficacy scale.

Policy support. For each of the six policies that the survey presented, participants indicated their support for each policy using a Likert-type scale of *strongly oppose* (1) to *strongly support* (7). I took the average of these six items to create a composite policy support index. For the sake of post hoc exploratory analyses, I also looked at subscales of punitive and non-punitive policies. Support for the three policies that received the highest ratings of retributive efficacy were averaged to create an index of *punitive policy support*, and support for the three policies that received the lowest ratings of retributive efficacy were averaged to create an index of *non-punitive policy support*. Means for these two subscales were similar within each context (see Table 4.4). Although principal components analyses suggested all six policy support items loaded onto a single factor, I created these two subscales as a way to test predictions regarding the framing effects of anger on punitive (vs. non-punitive) outcomes.

Activism intentions. On a scale of *very unlikely* (1) to *very likely* (7), participants indicated how likely they are to engage in five behaviors over the next few months, which I adapted from previous work (Feldman & Hart, 2016; Skurka, 2018). The five behaviors were: (1) *Send a message to [beverage/fossil fuel] industry executives asking them to do more to [address childhood obesity/reduce climate change]*, (2) *Contact elected officials to urge them to take action to [address childhood obesity/reduce climate change]*, (3) *Sign a petition in support of taking action to [address childhood obesity/reduce climate change]*, (4) *Donate money to an organization working to [address childhood obesity/reduce climate change]*, and (5) *Join or volunteer with an organization working to [address childhood obesity/reduce climate change]*. I computed the mean of these responses to create a scale of activism intentions.

Demographics and covariates. Participants self-reported their age, gender identity, ethnicity, race, educational attainment, income, party affiliation, and political ideology. The

survey also included an abbreviated measure of STAXI-2 (Spielberger, 1999), a validated instrument for trait anger (e.g., *I am quick tempered*, *I am a hot-headed person*). Participants also reported on previous activism in the past 12 months, measured with five items that were general versions of the activism intention items reported above (e.g., *Signed a petition in support of a social issue such as climate change or obesity*).

Additionally, the survey measured context-specific covariates. Participants in the childhood obesity condition reported on their consumption of sugary drinks and whether they are parents or guardians of any children under 18 years. Participants in the climate change context reported on their beliefs that climate change is (a) happening and (b) human-caused.

Results

Analysis. Based on pre-registered data analysis plans, I excluded data from participants who spent more than 2 standard deviations above the mean on completing the survey (n = 27, 5.6%), assuming that these participants may have been distracted while completing the survey. This left N = 455 cases for analysis.

For descriptive statistics and correlations, I present results separately for the two contexts. For regression results, I first present results for the full dataset, followed with interaction tests to assess whether results differ significant for the two contexts (or subgroup analyses when using a structural equation framework, described below).

Reliability and validity of retributive efficacy scale. Before running inferential analyses to address my hypotheses and research questions, I assessed the reliability and validity of the proposed measure of retributive efficacy.

Reliability. A necessary (but insufficient) first step in establishing a scale's validity is internal consistency. I therefore computed Cronbach's α for each of the seven solutions (Tables

4.4 and 4.5). Inter-item reliabilities were consistently high, ranging from α = .85-.90 in the childhood obesity data and α = .81-.87 in the climate change data.

Validity. H7 predicted that retributive efficacy would evidence positive correlations with (a) perceptions of solution efficacy, (b) policy support, and (c) intentions to engage in activism. I tested these hypotheses by examining Pearson correlations (Table 4.6). In support of these hypotheses, correlations across the two contexts were all positive and moderate or large in magnitude, using Cohen's (1992) effect size guidelines. That is, retributive efficacy was positively associated with solution efficacy ($r_{\text{childhood obesity}} = .64$; $r_{\text{climate change}} = .57$), policy support ($r_{\text{childhood obesity}} = .44$; $r_{\text{climate change}} = .28$), and activism intentions ($r_{\text{childhood obesity}} = .32$; $r_{\text{climate change}} = .28$). It is worth noting here that retributive efficacy's correlations with solution efficacy were large, explaining a considerable portion of the variance in solution efficacy ($r^2_{\text{childhood obesity}} = .41$; $r^2_{\text{climate change}} = .32$). This was to be expected given that both types of efficacy pertain to beliefs about the consequences of taking action.

Table 4.6 *Zero-order correlations to assess nomological and discriminant validity (Study 2)*

	Retributive efficacy	Solution efficacy	Self-efficacy	External efficacy	Policy support	Activism intentions
Retributive efficacy	--	.57**	.19**	.29**	.28**	.28**
Solution efficacy	.64**	--	.47**	.21**	.65**	.39**
Self-efficacy	.16*	.28**	--	.28**	.44**	.31**
External efficacy	.15*	.23**	.31**	--	.03	.26**
Policy support	.44**	.58**	.16*	.08	--	.25**
Activism intentions	.32**	.53**	.25**	.25**	.32**	--

Note. Correlations below the diagonal are for childhood obesity. Correlations above the diagonal are for climate change. * $p \leq .05$. ** $p \leq .01$.

According to H8, retributive efficacy should correlate weakly with (a) external political efficacy and (b) self-efficacy. Based on effect size conventions (J. Cohen, 1992), I expected a

weak correlation to be $0 \leq r \leq .20$. The data supported H8b but provided mixed support for H8a. As predicted, retributive efficacy evidenced positive but small correlations with self-efficacy ($r_{\text{childhood obesity}} = .16$; $r_{\text{climate change}} = .19$). Although retributive efficacy was weakly correlated with external political efficacy in the childhood obesity data ($r = .15$), this correlation was of moderate magnitude in the climate change data ($r = .29$).

Framing effects of anger. H4 predicted that anger would have a stronger relationship with punitive policy support than non-punitive policy support. I tested this hypothesis within a structural equation framework, which allowed me to simultaneously model anger as a predictor of punitive policy support and non-punitive policy support and statistically compare the two anger coefficients. Using the *lavaan* package for R (Rosseel, 2012), I specified a path model with the same set of exogenous variables (demographics, covariates, attitudes, context, anger, retributive efficacy) and the two policy support subscales as endogenous variables (punitive and non-punitive policy support). I allowed the two policy support scales to covary, and I specified a subtraction equation to assess whether the statistical effect of anger on punitive policy support was stronger than the statistical effect of anger on non-punitive policy support. I conducted this analysis three times (once for the combined dataset and once per context).

For the combined dataset, the anger coefficient for punitive policy support (standardized b = .13, $p < .001$) was slightly larger than the anger coefficient for non-punitive policy support (standardized b = .10, $p = .001$), but this difference was not significant (difference b = .03, $p = .35$). For the childhood obesity data, the anger coefficient for punitive policy support (standardized b = .15, $p = .001$) was similar to the anger coefficient for non-punitive policy support (standardized b = .15, $p = .001$), and the difference coefficient was not significant (difference b = -.003, $p = .94$). For climate change, the anger coefficient for punitive policy

support (standardized b = .07, p = .027) was greater than the anger coefficient for non-punitive policy support (standardized b = .001, p = .97). Though small, this difference was statistically significant (difference b = .07, p = .049). These results provide mixed support for H4.

The moderating role of retributive efficacy. H5 predicted that a retributive efficacy message component would moderate the effect of an offense message component on (a) policy support, (b) activism intentions, and (c) personal behavior intentions. This hypothesis is particular to message effects, but to indirectly test it in this study, I looked at the relationship between anger and persuasion outcomes as moderated by retributive efficacy perceptions. I tested these predictions with hierarchical linear regressions. The first blocks included demographics and covariates, the second blocks included anger and retributive efficacy, and the third blocks included the anger × retributive efficacy interaction term. I also included a fourth block with two- and three-way interactions with context. As noted in the measures section, I used the policy retributive efficacy subscale when policy support was the criterion variable, and I used the behavioral retributive efficacy subscale when the intention variables were the criterion variables.

Policy support. Block 1 (Table 4.7) indicated that participants were more supportive of climate change mitigation policies than obesity-prevention policies (b = .45, p < .001). In Block 2, anger (b = .10, p < .001) and policy retributive efficacy (b = .36, p < .001) both predicted greater levels of policy support, and their interaction in Block 3 was marginally significant (b = -.04, p = .096). This does not support H5a. Because none of the interactions with context were statistically significant in Block 4, I do not present results separately for each context.

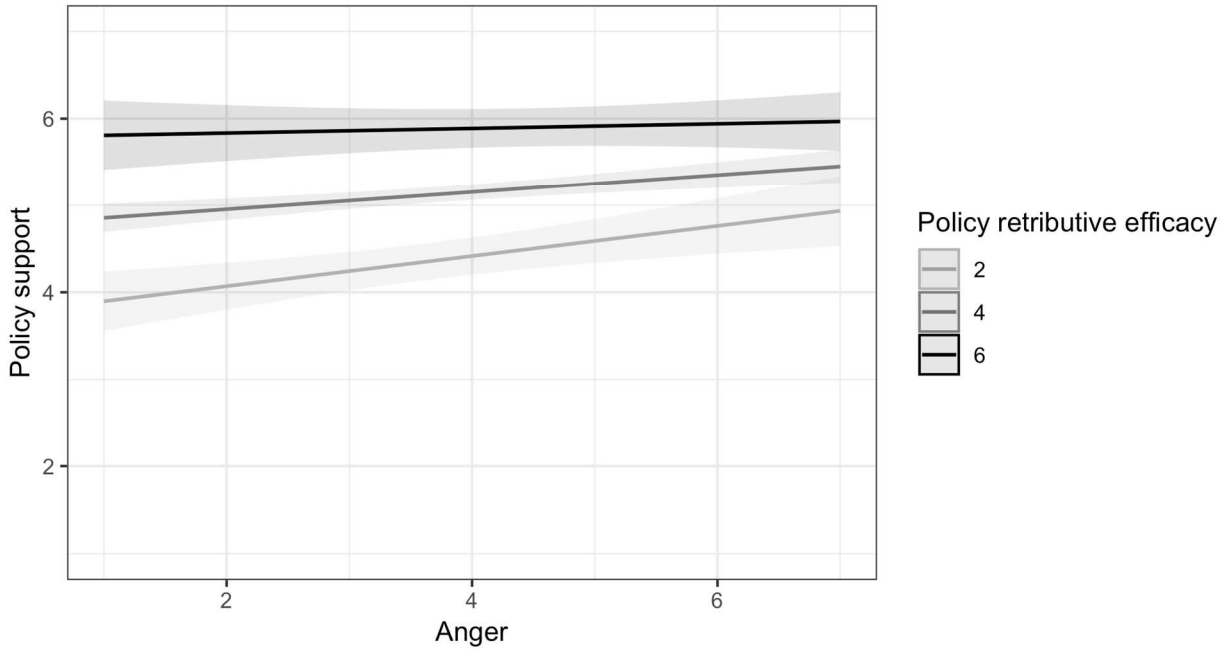
Table 4.7 *Unstandardized beta coefficients (and standard errors) from linear regressions predicting overall policy support and punitive policy support (Study 2)*

	Overall policy support				Punitive policy support			
	Block 1	Block 2	Block 3	Block 4	Block 1	Block 2	Block 3	Block 4
Demographics/covariates	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)
Context (ref = childhood obesity)	.45 (.10)***	.37 (.10)***	.37 (.10)***	.12 (.82)	.30 (.12)*	.20 (.11)$^{\#}$	.19 (.11)$^{\#}$	.55 (.92)
Anger	--	.10 (.03)***	.25 (.09)**	.23 (.14)$^{\#}$	--	.12 (.03)***	.33 (.10)**	.38 (.15)*
Retributive efficacy	--	.36 (.05)***	.51 (.10)***	.48 (.13)***	--	.42 (.06)***	.63 (.12)***	.65 (.15)***
Anger × retributive efficacy	--	--	-.04 (.02)$^{\#}$	-.03 (.03)	--	--	-.05 (.02)*	-.06 (.04)
Context × anger	--	--	--	.04 (.19)	--	--	--	-.10 (.21)
Context × retributive efficacy	--	--	--	.09 (.21)	--	--	--	-.06 (.23)
Context × anger × retributive efficacy	--	--	--	-.02 (.05)	--	--	--	.02 (.05)
Adjusted R^2	.41	.50	.50	.50	.41	.48	.49	.50
N	453	453	453	453	453	453	453	453

Notes. $^{\#}$ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Models controlled for age, gender identity, race, ethnicity, educational attainment, income, political party affiliation, political ideology, trait anger, previous activism, and attitudes toward industry regulation.

Though marginal, I plotted the two-way interaction between anger and policy retributive efficacy on policy support to get a sense of the interaction pattern (Figure 4.1). Contrary to the predicted pattern, retributive efficacy tended to predict policy support more strongly at lower (rather than higher) levels of anger toward the industry. Put differently, retributive efficacy had the weakest relationship with policy support when participants reporting being very angry toward the industry.

Figure 4.1 *Plot for the (marginal) interaction between anger and retributive efficacy on (predicted) overall policy support (Study 2)*



Note. All variables measured on 7-point Likert scales. Bands indicate 95% confidence intervals.

Activism intentions. Block 1 of the regression model for activism intentions (not shown in tables) indicated that participants were more likely to engage in climate change activism than childhood obesity activism (b = .31, p = .019). In Block 2, greater levels of anger (b = .09, p = .011) and behavioral retributive efficacy (b = .18, p < .001) were associated with greater

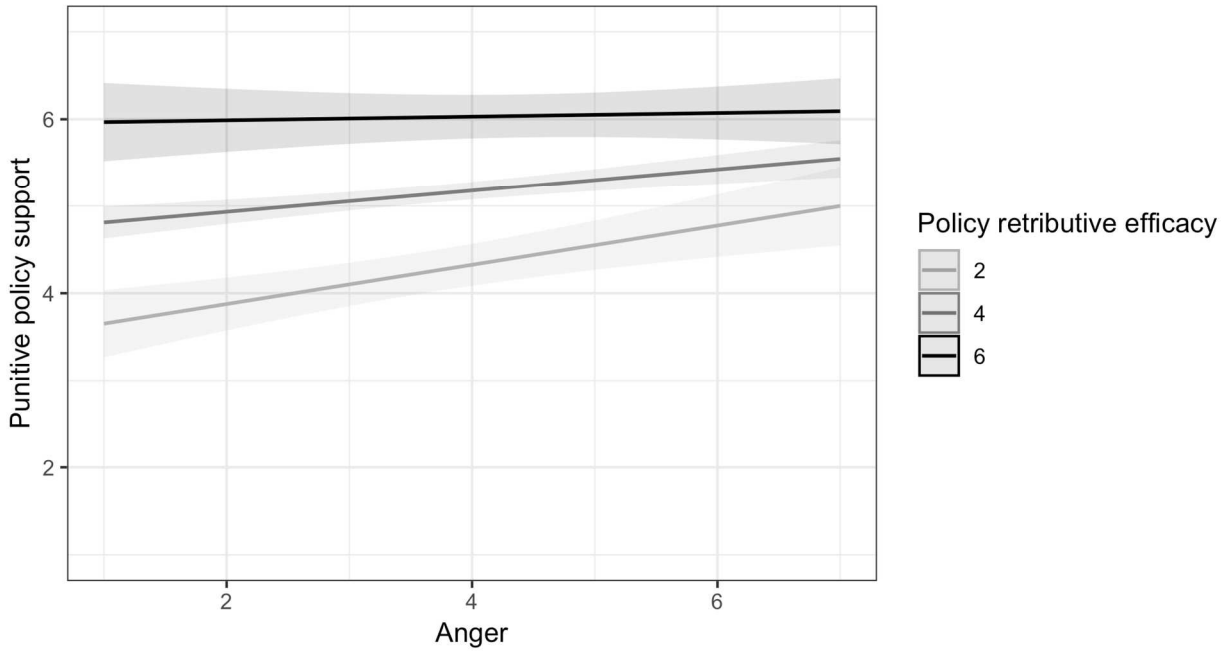
intentions, but their interaction term was not significant in Block 3 (b = .004, p = .84), which does not support H5b. Again, none of the two- or three-way interactions with context were significant in Block 4 (ps > .05), so I do not present the results separately by context.

Personal behavior intentions. In Block 1, the context dummy was significant (b = -1.51, p < .001, not shown in tables), indicating that participants were less likely to perform environmentally conscious behaviors than they were to cut back on sugary drinks. In Block 2, anger (b = .11, p = .012) and behavioral retributive efficacy (b = .15, p = .005) both predicted individual behavioral intentions. However, failing to support H5c, their interaction term in Block 3 was not significant (b = .01, p = .74). Furthermore, none of the two- or three-way interactions with context were significant in Block 4 (ps > .05). As such, I do not present separate results for each context.

Post hoc analyses. The results above do not provide support for H5—that retributive efficacy perceptions would strengthen the relationship between anger and persuasion outcomes. However, given that the anger × retributive efficacy interaction was marginally significant for overall policy support, I ran analogous models to the ones just described with punitive policy support and non-punitive policy support as the criterion variables.

Punitive policy support. Looking at punitive policy support (Table 4.7), the anger × policy retributive efficacy interaction was significant (b = -.05, p = .040). As plotted in Figure 4.2, participants angry at the industry were supportive of punitive policies almost regardless of retributive efficacy perceptions. However, for less angry participants, greater retributive efficacy was associated with stronger support for punitive policies.

Figure 4.2 *Plot for the interaction between anger and retributive efficacy on (predicted) punitive policy support (Study 2)*



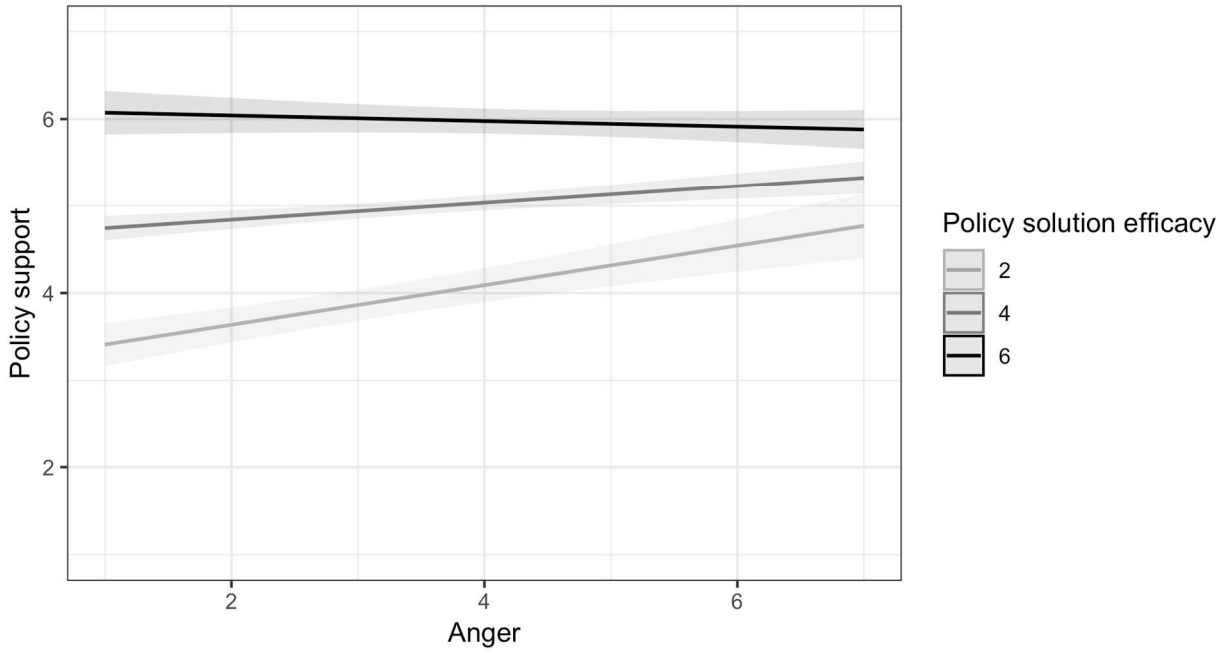
Note. All variables measured on 7-point Likert scales. Bands indicate 95% confidence intervals.

Non-punitive policy support. The two-way interaction between anger and policy retributive efficacy was not significant for non-punitive policy support (b = -.03, p = .33).

Other efficacy beliefs as moderators. H5 tested the moderating role of retributive efficacy. Might other efficacy beliefs (e.g., general perceptions of policy efficacy, external efficacy) moderate anger's relationship with policy support? A similar set of hierarchical regression models indicated that policy solution efficacy moderated anger's relationship with overall policy support (b = -.06, p < .001), punitive policy support (b = -.08, p < .001), and non-punitive policy support (b = -.05, p = .003). These interaction patterns were identical to the interaction between anger and retributive efficacy on punitive policy support. As shown in Figure 4.3 (composite policy support as an example), policy solution efficacy had a stronger

association with policy support when anger intensity was low rather than high. Anger's relationship with policy support was not contingent on external political efficacy beliefs (interaction *p*s > .05), which is not surprising given that zero-order correlations between external efficacy and policy support were not significant (Table 4.6).

Figure 4.3 *Plot for the interaction between anger and policy solution efficacy on (predicted) overall policy support (Study 2)*



Note. All variables were measured on 7-point scales. Bands indicate 95% confidence intervals.

Cognitive appraisals for anger. H1 predicted that anger would positively associate with perceptions of (a) harm, (b) other-responsibility, (c) intentionality, and (d) awareness. Zero-order correlations supported these predictions (see Table 4.8). Anger correlated positively with harm ($r_{\text{childhood obesity}} = .54$; $r_{\text{climate change}} = .53$), specific appraisals of industry responsibility ($r_{\text{childhood obesity}} = .25$; $r_{\text{climate change}} = .36$), more general appraisals of industry responsibility ($r_{\text{childhood obesity}} =$

.53; $r_{\text{climate change}} = .37$), perceived intentionality ($r_{\text{childhood obesity}} = .24$; $r_{\text{climate change}} = .42$), and perceived awareness ($r_{\text{childhood obesity}} = .18$; $r_{\text{climate change}} = .31$). As demonstrated in Table 4.8, anger was positively correlated with an array of other appraisals—especially appraisals that a moral violation has occurred ($r_{\text{childhood obesity}} = .58$; $r_{\text{climate change}} = .38$). These results supported H1.

To control for anger's relationships with all appraisals simultaneously (a more conservative test of H1), I ran hierarchical linear regressions with anger as the criterion variable. The first blocks included demographics and covariates as predictors, and the second blocks included the appraisal variables as predictors. I first ran these regression models on the combined dataset. For the combined dataset, I removed the domain-specific covariates, and I included a third block to include all interaction terms between appraisals and context (see Table 4.9).

Demographics and covariates (Block 1) were able to explain a small portion of the variance in anger (adjusted $R^2 = .22$), but variance explained was considerably higher in Block 2 with appraisals included (adjusted $R^2 = .40$). For both contexts, Block 2 indicated that perceptions of harm (b = .28, $p < .001$), intentionality (b = .17, $p = .033$), and moral violation (b = .35, $p < .001$) predicted anger toward the industry. Variance inflation factors for the appraisals in Block 2 were not extreme (VIFs < 3), indicating that the appraisals were moderately correlated but that multicollinearity was not a concern. Block 3 indicated that two appraisals were differentially associated with anger across the contexts: harm (b = .42, $p = .005$) and general perceptions of responsibility (b = -.24, $p = .057$).

Table 4.8 *Zero-order correlations for anger and cognitive appraisals (Study 2)*

	Anger	Harm	Respon-sibility (spec.)	Respon-sibility (gen.)	Intention-ality	Aware-ness	Illegiti-macy	Control	Moral violation
Anger	--	.53**	.36**	.37**	.42**	.31**	.23**	.22**	.38**
Harm to others	.54**	--	.67**	.67**	.65**	.51**	.40**	.46**	.59**
Responsibility (specific)	.25**	.39**	--	.63**	.70**	.52**	.32**	.49**	.56**
Responsibility (general)	.53**	.66**	.34**	--	.53**	.43**	.25**	.35**	.50**
Intentionality	.24**	.42**	.48**	.22**	--	.51**	.30**	.59**	.55**
Awareness	.18**	.27**	.23**	.19**	.26**	--	.64**	.41**	.51**
Illegitimacy	.33**	.43**	.17**	.33**	.08	.54**	--	.31**	.51**
Control	.13	.23**	.36**	.06	.58**	.21**	.04	--	.56**
Moral violation	.58**	.60**	.25**	.55**	.20**	.29**	.58**	.16*	--

Note. Correlations below the diagonal are for childhood obesity. Correlations above the diagonal are for climate change. * $p \leq .05$. ** $p \leq .01$.

Table 4.9 *Unstandardized beta coefficients (and standard errors) from linear regressions predicting anger from demographics, covariates, and appraisals (Study 2)*

	Both contexts			Childhood obesity		Climate change	
	Block 1	Block 2	Block 3	Block 1	Block 2	Block 1	Block 2
Demographics/covariates	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)
Context (ref = childhood obesity)	.68 (.18)***	.13 (.17)	.78 (.91)	--	--	--	--
Appraisals							
Harm	--	.28 (.08)***	.09 (.10)	--	.11 (.10)	--	.53 (.12)***
Responsibility (specific)	--	-.002 (.06)	.01 (.07)	--	-.001 (.07)	--	-.12 (.12)
Responsibility (general)	--	.10 (.06)	.22 (.08)*	--	.24 (.08)**	--	-.02 (.11)
Intentionality	--	.17 (.08)*	.14 (.11)	--	.12 (.10)	--	.18 (.12)
Awareness	--	.09 (.06)	.07 (.09)	--	.11 (.09)	--	.18 (.11)
Illegitimacy	--	-.004 (.06)	-.02 (.08)	--	-.01 (.08)	--	-.01 (.10)
Control	--	-.10 (.07)	-.02 (.10)	--	-.01 (.10)	--	-.15 (.11)
Moral violation	--	.35 (.01)***	.42 (.09)***	--	.40 (.09)***	--	.32 (.18)$^{\#}$
Appraisals × Context							
Harm	--	--	.42 (.15)**	--	--	--	--
Responsibility (specific)	--	--	-.12 (.13)	--	--	--	--
Responsibility (general)	--	--	-.24 (.13)$^{\#}$	--	--	--	--
Intentionality	--	--	.03 (.16)	--	--	--	--
Awareness	--	--	.06 (.13)	--	--	--	--
Illegitimacy	--	--	.05 (.12)	--	--	--	--
Control	--	--	-.14 (.14)	--	--	--	--
Moral violation	--	--	-.13 (.19)	--	--	--	--
Adjusted R^2	.22	.40	.41	.21	.42	.14	.30
N	453	453	453	233	234	219	219

Notes. $^{\#}$ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

In light of these two significant interaction terms, I ran the regression models separately for the two contexts to examine how harm and general responsibility appraisals differentially predicted anger (Table 4.9). Harm was a strong predictor of anger toward fossil fuel companies (b = .53, $p < .001$) but was not a predictor of anger toward soda companies (b = .11, $p = .31$). By contrast, general responsibility appraisals (the belief that the industry contributed to [childhood obesity/climate change]) predicted anger toward the soda industry (b = .24, $p = .005$) but not anger toward the fossil fuel industry (b = -.02, $p = .83$). Again, appraisal VIFs in these models were modest (VIFs < 3.25), which suggests multicollinearity was not problematic.

General Discussion of Studies 1 and 2

The first two studies in this dissertation make three key contributions, which I discuss in turn in the following sections.

A validated measure of retributive efficacy. First, Studies 1 and 2 assessed the psychometric properties of a new measure of retributive efficacy. On almost all accounts, the proposed measure of retributive efficacy demonstrated acceptable reliability and validity. Internal consistency of the five-item scale was high for over a dozen solutions (both public policies and individual actions) across two social issue contexts (childhood obesity and climate change). Further, the measure demonstrated high levels of nomological and discriminant validity—particularly in the childhood obesity data—and topic experts endorsed the face validity of the measure in Study 1.

Although these data cannot speak to the long-term stability of the measure (i.e., test-retest reliability), Studies 1 and 2 offer researchers a validated measure that assesses perceptions of whether a particular course of action will punish a wrongdoer. Roser-Renouf, Atkinson, Maibach, and Leiserowitz (2016) recently investigated consumer activism response efficacy

(measured with the single item *How much do you think your actions influence companies?*) in the context of environmentally conscious behaviors. They found that people generally do not believe their actions will impact companies, recommending that environmental communicators seek to promote such beliefs to motivate consumer activism. Researchers heeding this call should consider measuring retributive efficacy as it clearly fits within the conceptual umbrella of consumer activism response efficacy. Retributive efficacy might be particularly relevant when predicting boycotting behaviors, which are punishment-motivated (Copeland, 2014; Friedman, 2002).

The compensatory role of retributive efficacy. Second, Study 2 provides cross-sectional evidence that retributive efficacy moderates anger's relationship with support for different kinds of policies. Interestingly, the interaction pattern that emerged ran counter to a priori predictions. Although it was hypothesized that retributive efficacy would only matter at high levels of anger intensity (i.e., a synergistic relationship), retributive efficacy mattered most at low levels of anger intensity (i.e., a compensation relationship). That is, angry individuals were generally supportive of (punitive) policies regardless of whether they believed implementing the policy would punish the industry. By contrast, less angry individuals were only supportive of punitive policies if they believed the policies would punish the industry. Moreover, anger exhibited the same interaction pattern with general perceptions of policy effectiveness. To my knowledge, social scientists have not explicitly studied the relationship between anger and beliefs about retributive efficacy, but the psychology literature on retributive justice may shed light on this counterintuitive finding.

Haidt (2008, 2012) has argued that when passing moral judgments, individuals are more likely to base judgments on intuitive reactions that bolster their initial positions than on

deliberate, "reasoned" processes. Relatedly, Carlsmith and his colleagues (Carlsmith, 2006; Carlsmith, Darley, & Robinson, 2002) have conducted several experiments that investigate why people punish wrongdoers, drawing on philosophies of retributive justice. Generally speaking, there are two philosophical camps on what motivates punishment of wrongdoers. The Kantian *just deserts* or *deservingness* perspective contends that wrongdoers deserve punishment in proportion to the magnitude of the moral violation committed. In this perspective, "the critical variable for retribution…is the moral outrage generated by the crime" (Carlsmith & Darley, 2008, p. 199). The *utilitarian* perspective, on the other hand, holds that wrongdoers should be punished in order to prevent future offenses, thereby maintaining social harmony. Experiments have consistently shown that even though people generally endorse both positions, people punish based on the just deserts model, assigning punishment to fit the severity of the offense (Carlsmith, 2008; Carlsmith et al., 2002; Darley, Carlsmith, & Robinson, 2000). Moreover, moral outrage mediates the relationship between perceived seriousness of the offense and willingness to impose harsh punishment on the offender (Carlsmith et al., 2002). In the words of Wenzel and Okimoto (2016), "punishment responses may thus be much more emotional than rational, more intuitive than reasoned" (p. 243).

Applied to the current project, this evidence suggests that individuals angered by an offense are motivated to punish in accordance with their intuitive reactions about deservingness. Consequently, they may not be consciously weighing efficacy beliefs whether a given solution would negatively impact the culprit. One of the topic experts in Study 1 alluded to this possibility, asking, "When people are motivated by anger, do they really weigh the levels of retributive and self-efficacy consciously? To what extent does the anger/rage color their judgments?" If it is the case that angry individuals punish based on intuitive responses rather

than beliefs about effectiveness, it may be difficult for a persuasive message to instill efficacy beliefs when the recipient is angry. The next few studies in this dissertation will experimentally investigate this possibility.

Appraisal ingredients for an anger-inducing message. Third, Study 2 offers insight into the cognitive appraisals that are linked to anger and, by extension, has implications for persuasive message design. Bivariate correlations indicated that anger associates with many of the appraisals that emotion theorists have associated with anger—perceived harm done to others, perceived other-responsibility, perceived intentionality of the culprit, and perceived awareness of the culprit (among others). Although patterns were similar across contexts, harm appraisal was associated with anger toward fossil fuel companies but not anger toward soda companies. Conversely, participants who believed that soda companies have contributed to childhood obesity tended to be angrier than participants who believed fossil fuel companies have contributed to climate change. These slightly divergent results underscore the utility of studying multiple contexts to ascertain the conditions under which certain cognitive appraisals may be more or less salient for an emotion like anger.

The purpose of measuring these appraisals in Study 2 was to illuminate ways that communicators can create persuasive messages with message components that are likely to evoke anger. The Cognitive Functional Model (Nabi, 1999) offers broad guidance: The message should emphasize anger's core relational theme (a demeaning offense), which theoretically should stimulate cognitive appraisals underlying anger. Study 2 drills down on this notion to a molecular level of appraisal in order to identify more fine-grained message components that communicators can include in the offense component to increase the chances of arousing anger.

Namely, Study 2 findings suggest that an offense component include a harm subcomponent (emphasizing the negative effects of the offender's actions on others), an intentionality subcomponent (that the offender intended to cause harm), and/or a moral violation subcomponent (that the offender's actions have transgressed a significant moral principle). Chadwick (2015) conducted a similar exercise in the context of persuasive hope appeals, recommending that communicators include message components of importance, goal congruence, and future possibility to generate hope. More recently, Shen (2018) investigated features of media messages that predict empathy (e.g., showing pain and suffering, portraying a character's perspective). These efforts are theoretically and practically important as they move communication scholars away from defining messages by their intended psychological response and toward defining messages by their inherent properties (O'Keefe, 2003).

Limitations. Readers should interpret the present findings in light of several limitations. Most of the appraisals in Study 2 were measured with one item, which raises questions about measurement error. The decision to use single items was based on concerns for participant fatigue and the fact that anger appraisals were not the primary goal of this dissertation. Further, single-item measures of appraisals are a standard technique in the emotion literature (Tong, 2010). A second limitation is that Study 2 measured a limited number of appraisals, omitting other appraisals that have appeared in the literature (e.g., frustration, coping potential) (Berkowitz & Harmon-Jones, 2004; Kuppens et al., 2003). I chose to measure the appraisals that (a) are most commonly discussed in the psychological literature on anger and (b) lend well to information that communicators can embed in a persuasive media message. On a related note, Study 2 examined the *magnitude* of cognitive appraisals, but it is possible that emotion evocation depends on *changes* in appraisals or some *threshold* that demarcates the presence or absence of

the appraisal (Chadwick, 2015). It has also been shown that appraisals relate to emotion in non-linear ways (Meuleman, Moors, Fontaine, Renaud, & Scherer, 2019; Tong, Ellsworth, & Bishop, 2009)—an interesting notion that I did not explore here.

Another limitation of Study 2 is the assumption that participants were currently experiencing anger about their assigned issue. Although participants did receive a one-sentence prompt about the soda/fossil fuel industry's actions, it is hard to imagine that this brief prompt would generate the physiological, subjective "feeling" that accompanies anger (that is, feeling fiery and energized). One could therefore argue that even participants who reported experiencing high levels of anger intensity (e.g., a 5 on the 7-point scale) were not viscerally experiencing anger. This raises an important question: Were participants in Study 2 experiencing bona fide anger? If not, Study 2 likely underestimated anger's association with the other variables that should be strongly associated with anger (e.g., cognitive appraisals, support for punitive outcomes).

A final limitation of Study 2 is the use of cross-sectional data, which means causal relationships between anger, retributive efficacy, policy support, and behavioral intentions cannot be established. The remaining studies in this dissertation build toward an experimental design that will address this limitation, enabling causal claims about the effects of counterindustry/anger appeals on activism outcomes.

Summary

The first two studies of this dissertation validated a measure of retributive efficacy and explored the viability of retributive efficacy as a moderator of the link between anger and activism outcomes. Having done so, the next stage of this dissertation was developing a series of persuasive messages that instill different levels of anger toward corporate industries and different

perceptions of retributive efficacy. This was a necessary intermediary step before investigating the causal effects of counterindustry/anger appeals on persuasion.

CHAPTER 5: MESSAGE DEVELOPMENT (STUDIES 3-5)

The next three studies (3-5) served as formative tests of the messages that were used to experimentally induce anger and retributive efficacy perceptions in Study 6. Study 3 involved a series of focus groups to explore readers' reactions to the messages. In Studies 4 and 5, I used the messages developed from the focus groups in online survey experiments that quantified their ability to instill anger and retributive efficacy.

Study 3 (Focus Groups)

The goals of Study 3 were to gain a nuanced understanding of readers' reactions to the messages and then revise the messages in light of constructive feedback. I chose to conduct focus groups for a few reasons. First, focus groups are advantageous relative to individual in-depth interviews because they are less likely to put participants on the defensive and provide socially desirable responses (Barbour, 2008). Second, focus groups have been a staple of marketing research in which marketers expose groups to campaign materials and elicit feedback (Barbour, 2008). In this way, focus groups are exploratory (Creswell & Clark, 2007), shedding light on how communicators should design media messages by providing rich data that go beyond close-ended survey measures. Moreover, audiences are likely to consume media content in the presence of others. Focus groups embrace the social side of media consumption, whereas other methods (e.g., in-depth interviews, surveys) silo media consumers (Lunt & Livingstone, 1996).

Recruitment and procedure. The study was advertised as "Civic Engagement and Social Issues" to undergraduate students participating in a department recruitment system. Students participate in research studies posted in the system in exchange for course credit or monetary incentives. The advertisement for the study indicated that participants would take part in a focus group session in which they would be asked to read a few messages then provide their

opinions on those messages. Focus group experts recommend anywhere from three to 10 participants per session (Barbour, 2008; Morgan, 1997), so I allowed a maximum of 12 participants to register per session under the assumption that not all registered individuals would attend. I initially scheduled three focus groups, and I decided to stop collecting data after the third session because no new responses or opinions emerged in the third session, indicating that saturation had been reached (Glaser & Strauss, 1967). Table 5.1 displays the make-up of each focus group.

Focus group discussions ran about 60 minutes in length and began with participants reading and signing an informed consent document. Following a short icebreaker, the focus groups included three major sections. The first section involved participants describing their thoughts, experiences, and opinions regarding beverage brands like Coca-Cola or Pepsi. The purpose of this warm-up section was to help participants become comfortable sharing their thoughts on a relatively innocuous topic that was relevant to the messages. In the second section, participants read the two childhood obesity messages. They first read an appeal meant to evoke high levels of anger toward the soda industry for strategically marketing their sugary drinks to kids (offense component). Participants shared their impressions of the message before reading the second childhood obesity message—an appeal designed to induce high perceptions of retributive efficacy (retributive efficacy component). This was followed by a discussion about participants' reactions to the retributive efficacy component. The third section was identical to the second section except with analogous messages focusing on the fossil fuel industry's role in contributing to climate change. To conclude the focus groups, participants completed a brief survey that assessed demographics and relevant characteristics (e.g., belief in climate change, sugary drink consumption).

Table 5.1 *Sample characteristics (Study 3)*

	Focus Group 1 (n = 9)	Focus Group 2 (n = 11)	Focus Group 3 (n = 7)
Age	M = 19.11 (SD = 1.05)	M = 19.45 (SD = 1.04)	M = 19.29 (SD = 1.11)
Gender			
Male	1 (11.1%)	5 (45.5%)	2 (28.6%)
Female	8 (88.9%)	6 (54.5%)	5 (71.4%)
Race			
White	5 (55.6%)	3 (27.3%)	4 (57.1%)
Black American	0 (0%)	1 (9.1%)	0 (0%)
Black non-American	0 (0%)	1 (9.1%)	0 (0%)
East Asian	3 (33.3%)	5 (45.5%)	3 (42.9%)
Bi-racial/mixed/multiracial	1 (11.1%)	0 (0%)	0 (0%)
Hispanic/Latino/Chicano	0 (0%)	1 (9.1%)	0 (0%)
Political party affiliation			
Republican	1 (11.1%)	1 (9.1%)	0 (0%)
Democrat	5 (55.6%)	7 (63.6%)	3 (42.9%)
Independent	1 (11.1%)	1 (9.1%)	1 (14.3%)
Another party	2 (22.2%)	0 (0%)	1 (14.3%)
Prefer not to say	0 (0%)	2 (18.2%)	2 (28.6%)
Previous activism (1-7 scale, α = .90)	M = .47 (SD = .66)	M = 1.35 (SD = 1.00)	M = .94 (SD = .76)
Domain-specific covariates			
SSB consumption (1-4 scale)	M = 1.51 (SD = .51)	M = 1.45 (SD = .34)	M = 1.94 (SD = .46)
Believe climate change is happening	8 (88.9%)	11 (100%)	7 (100%)
Believe climate change is human-caused	9 (100%)	10 (90.9%)	6 (85.7%)

Notes. SSB = sugar-sweetened beverage.

Messages

Offense component. For each context, I created an offense component of a counterindustry/anger appeal, designed to induce anger toward the soda/fossil fuel industry (Table 5.2). The messages began by linking the social issue (childhood obesity/climate change) to human actions (consumption of sugary drinks/burning of fossil fuels). The messages then highlighted the role of industry actions in contributing to these issues. In the case of childhood obesity, the messages focused on the soda companies targeting young people with exploitative

marketing for their unhealthy products. In the case of climate change, the messages focused on the fossil fuel companies' strategic efforts to mislead the public about the risks their actions pose for climate change. In the following paragraph, the messages went on to emphasize the harmful effects that the industry's actions have had (harm subcomponent). The next paragraph in the messages indicated that the industry is aware of the harm inflicted by their actions (awareness subcomponent) and that the industry deliberately engaged in these activities (intentionality subcomponent). The two versions of the offense component were of similar length (childhood obesity = 239, climate change = 246).

Retributive efficacy component. The retributive efficacy components (Table 5.4) mentioned four solutions that have been proposed to address the issue. I selected two solutions that received high mean ratings for retributive efficacy in Study 1 and two solutions that received low mean ratings. This ensured that the messages promoted a variety of recommended responses that vary in baseline beliefs about punitiveness (three public policies and personal behavior changes). The efficacy messages summarized each proposed solution and maintained that each solution would help to address childhood obesity/climate change. Importantly, the messages emphasized that each solution would be effective at castigating the companies for their actions, which in theory should instill retributive efficacy beliefs. The retributive efficacy messages were the same length for both contexts (239 words).

Table 5.2 *Offense components (high) used in Study 3 (focus groups) and revised versions for Study 4 (MTurk Pilot 1)*

Childhood obesity		Climate change	
Focus Group Version (239 words)	MTurk Pilot Version (260 words)	Focus Group Version (246 words)	MTurk Pilot Version (265 words)
Public health advocates have argued that consumption of sugary drinks (like sodas and energy drinks) is a major contributor to childhood obesity—especially because of the deceptive strategies used by soda companies to make their harmful products appeal to young children. Each month, kids are bombarded by ads for sugary drinks that are paid for by soda companies. The soda industry takes advantage of children who are too young to realize that they are being targeted. This means kids are vulnerable to the soda industry's marketing efforts to entice them. In fact, the more soda marketing a child sees, the more soda that child is likely to drink, which increases their risk for serious health conditions like obesity and diabetes. Industry executives are fully aware of the implications of their actions. Current laws say that soda companies are not supposed to place ads on media programming	Consumption of sugary drinks (like sodas and energy drinks) is a major contributor to childhood obesity. Although parents play a critical role in monitoring their children's soda consumption, public health advocates have argued that soda companies also share some of the blame—especially because of the deceptive strategies used by these companies to make their harmful products appeal to young children. Each day, kids are bombarded by ads for sugary drinks that are paid for by soda companies. The soda industry has taken advantage of children who are too young to realize that they are being targeted. This means kids are vulnerable to the soda industry's marketing efforts to entice them. In fact, the more soda marketing a child sees, the more soda that child is likely to drink, which increases their risk for serious health conditions like obesity and diabetes. Industry executives are fully	Environmental advocates have argued that the burning of fossil fuels (like oil, coal, and gas) is a major contributor to climate change—especially because of the deceptive strategies used by fossil fuel companies to cover up the harmful effects of their actions on climate change. For years, the public has been bombarded with conflicting information about whether burning fossil fuels causes climate change. The fossil fuel industry has taken advantage of the public by strategically misleading consumers and policymakers about the effects that their own activities have on the environment. This includes advertising campaigns to cast doubt on climate change research. In fact, just 90 fossil fuel and cement companies are responsible for the majority of greenhouse gases emitted since the Industrial Revolution. Industry executives are fully aware of the implications of their	The burning of fossil fuels (like oil, coal, and gas) is a major contributor to climate change. Although consumers play a critical role in monitoring their own carbon emissions, environmental advocates have argued that fossil fuel companies also share some of the blame—especially because of the deceptive strategies used by these companies to conceal the harmful effects of their actions on climate change. For years, the public has been bombarded with conflicting information about whether burning fossil fuels causes climate change. The fossil fuel industry has taken advantage of the public by strategically misleading consumers and policymakers about the effects that their own activities have on the environment. This includes advertising campaigns to cast doubt on climate change science. In fact, just 90 fossil fuel and cement companies are responsible for the majority of greenhouse

watched primarily by kids, but companies have found loopholes, carefully disguising their marketing as product placement, toys, phone apps, or celebrity endorsements. In other words, these companies are exploiting young children to sell their products when industry executives know full well that their marketing works and that their sugary products jeopardize kids' health. The bottom line is that corporate actions are putting kids' health at risk, and the industry has done this on purpose. So what can be done to address childhood obesity and stop the soda industry from intentionally manipulating American children?	aware of the implications of their actions. Current laws say that soda companies are not supposed to place ads on media programming watched primarily by kids. However, companies have found loopholes, carefully disguising their marketing as product placement, toys, phone apps, or celebrity endorsements. In other words, these companies are exploiting young children to sell their products when industry executives know full well that their marketing works and that their sugary products jeopardize kids' health. The bottom line is that corporate actions are putting kids' health at risk, and the industry has done this knowingly. So what can be done to address childhood obesity and stop the soda industry from knowingly manipulating American children?	actions. According to industry documents, these companies recognize that climate change is real and that burning fossil fuels causes climate change. However, the vast majority of their public communications express doubt about the existence and causes of climate change. In other words, these companies are deceiving the public about the risks of climate change when industry executives know full well their efforts are deceptive and that their actions accelerate climate change. The bottom line is that corporate actions are putting the environment at risk, and the industry has done this on purpose. So what can be done to address climate change and stop the fossil fuel industry from intentionally manipulating the American public?	gases emitted since the Industrial Revolution. Industry executives are fully aware of the implications of their actions. According to industry documents, these companies recognize that climate change is real and that burning fossil fuels causes climate change. However, the vast majority of their public communications express doubt about the existence and causes of climate change. In other words, these companies are deceiving the public about the risks of climate change when industry executives know full well their efforts are deceptive and that their actions accelerate climate change. The bottom line is that corporate actions are putting the environment at risk, and the industry has done this knowingly. So what can be done to address climate change and stop the fossil fuel industry from knowingly manipulating the American public?

Table 5.3 *Offense components (low) used in Study 3 (focus groups) and versions for Study 4 (MTurk Pilot 1)*

Childhood obesity		Climate change	
Focus Group Version	MTurk Pilot Version (217 words)	Focus Group Version	MTurk Pilot Version (219 words)
(None)	Consumption of sugary drinks (like sodas and energy drinks) is a major contributor to childhood obesity. Although parents play a critical role in monitoring their children's soda consumption, public health advocates have argued that soda companies also share some of the blame because of the actions of the soda companies. Each day, kids are exposed to ads for sugary drinks that are paid for by soda companies. The soda industry markets to young people using cutting-edge strategies like developing "shareworthy" advertisements and products. These techniques often involve telling a story through data-driven applications to connect with kids. According to health advocates, the soda industry is responsible for causing childhood obesity by marketing sugary drinks to kids. If this is the case, industry executives may not be aware of the implications of their actions. Current laws say that soda companies are not supposed to	(None)	The burning of fossil fuels (like oil, coal, and gas) is a major contributor to climate change. Although consumers play a critical role in monitoring their own carbon emissions, environmental advocates have argued that fossil fuel companies also share some of the blame because of the actions of fossil fuel companies. For years, the public has been exposed to conflicting information about whether burning fossil fuels causes climate change. The fossil fuel industry communicates with the public using a variety of social media platforms. This involves participating in constructive dialogue on climate policy options. According to climate advocates, the fossil fuel industry is responsible for causing climate change by misleading the public about climate change risks. If this is the case, industry executives may not have been aware of the implications of their actions. According to industry documents, these companies

	place ads on media programming watched primarily by kids. However, these companies have been proactive about addressing childhood obesity by offering consumers more choices to control the amount of sugar in the beverages they drink. For example, some companies have expanded packaging availability to allow consumers to choose smaller, more convenient beverage containers. The bottom line is that childhood obesity is putting kids' health at risk. So what can be done to address childhood obesity?		recognize that climate change is real and that burning fossil fuels causes climate change. However, these companies have been proactive about addressing climate change by helping consumers control their carbon emissions through the responsible use of fossil fuels. For example, some companies have contributed to battery technology benefiting hybrid vehicles for consumers who choose these energy-efficient products. The bottom line is that climate change is putting the environment at risk. So what can be done to address climate change?

Table 5.4 *Retributive efficacy components (high) used in Study 3 (focus groups) and revised versions for Study 4 (MTurk Pilot 1)*

Childhood obesity		Climate change	
Focus Group Version (239 words)	MTurk Pilot Version (266 words)	Focus Group Version (239 words)	MTurk Pilot Version (262 words)
There is no simple solution for addressing childhood obesity, but certain strategies will be effective and will punish the soda industry for their actions. For example, implementing policies that reduce or eliminate the advertising of sugary drinks (like soda and energy drinks) to kids will help reduce kids' demands for these beverages. And when kids nag their parents less for sugary drinks, parents will be less likely to purchase them, which will cut into the soda companies' profits. Another solution that will teach soda companies a lesson is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. This strategy will level the playing field by encouraging kids to spend their money on healthy drinks (like water and low-fat milk) and keep money out of soda companies' pockets.	There is no simple solution for addressing childhood obesity. Along with parents carefully monitoring their kids' diet, it is important to consider additional solutions that will effectively address childhood obesity and punish the soda industry for their actions. For example, implementing policies that reduce or eliminate the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. And when kids nag their parents less for sugary drinks, parents will be less likely to purchase them. Furthermore, reduced sales of sugary drinks will cut into the soda companies' profits. Another solution that will teach soda companies a lesson is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. This strategy will level the playing field by reducing kids' requests for sugary drinks. When	There is no simple solution for addressing climate change, but certain strategies will be effective and will punish the fossil fuel industry for their actions. For example, implementing policies that increase taxes for burning fossil fuels (like oil, gas, and coal) will motivate fossil fuel companies to use cleaner forms of energy (like wind and solar). This will reduce their carbon emissions, and making fossil fuel companies pay for their carbon emissions will cut into their profits. Another solution that will teach fossil fuel companies a lesson is to establish federal tax subsidies for consumers who use wind, solar, and other forms of renewable energy. This strategy will level the playing field by encouraging consumers to invest their money in renewable energy instead of traditional forms of energy. This will keep money out of fossil fuel companies' pockets. Another solution that will make fossil fuel companies think twice	There is no simple solution for addressing climate change. Along with consumers carefully monitoring their carbon emissions, it is important to consider additional solutions that will effectively address climate change and punish the fossil fuel industry for their actions. For example, implementing policies that increase taxes for burning fossil fuels will motivate fossil fuel companies to use cleaner forms of energy (like wind and solar). Switching to clean energy will ultimately reduce their carbon emissions. Furthermore, making fossil fuel companies pay for their carbon emissions will cut into their profits. Another solution that will teach fossil fuel companies a lesson is to establish federal tax subsidies for consumers who use wind, solar, and other forms of renewable energy. This strategy will level the playing field by encouraging consumers to invest their money in renewable energy instead of traditional forms of energy. When

Another solution that will make soda companies think twice is closing the loophole in the tax code, which allows soda companies to deduct advertising expenses for marketing unhealthy drinks. Closing the loophole will reduce childhood obesity and get back at soda companies by striking a blow to their bottom line. Lastly, consumers can do their part by changing personal behaviors. Although it may not seem that personal behaviors will have an impact, personal actions like boycotting sugary drinks can reduce weight gain and sends a message to soda companies that consumers will not tolerate the industry's actions.	parents purchase fewer sugary drinks for their kids, this will keep money out of soda companies' pockets. Another solution that will make soda companies think twice is closing the loophole in the tax code, which allows soda companies to deduct advertising expenses for marketing unhealthy drinks. Not only will closing the loophole reduce childhood obesity, it will also get back at soda companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors will make a difference, personal actions like boycotting sugary drinks and switching to healthier options can reduce weight gain. Importantly, it will send a message to soda companies that consumers will not tolerate the industry's actions.	is eliminating subsidies to fossil fuel companies, which lower the cost of producing fossil fuels. Getting rid of these subsidies will reduce carbon emissions and get back at fossil fuel companies by striking a blow to their bottom line. Lastly, consumers can do their part by changing personal behaviors. Although it may not seem that personal behaviors will have an impact, actions like boycotting fossil fuels and switching to clean energy can reduce carbon emissions and sends a message to fossil fuel companies that consumers will not tolerate the industry's actions.	consumers refrain from using fossil fuels, this will keep money out of fossil fuel companies' pockets. Another solution that will make fossil fuel companies think twice is eliminating subsidies to fossil fuel companies, which make it cheaper to produce fossil fuels. Not only will getting rid of these subsidies reduce carbon emissions, it will also get back at fossil fuel companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors will make a difference, personal actions like boycotting fossil fuels and switching to clean energy can reduce carbon emissions. Importantly, it will send a message to fossil fuel companies that consumers will not tolerate the industry's actions.

Table 5.5 *Retributive efficacy components (low) used in Study 3 (focus groups) and versions for Study 4 (MTurk Pilot 1)*

Childhood obesity		Climate change	
Focus Group Version	MTurk Pilot Version (206 words)	Focus Group Version	MTurk Pilot Version (202 words)
(None)	There is no simple solution for addressing childhood obesity. Along with parents carefully monitoring their kids' diet, it is important to consider additional solutions that will effectively address childhood obesity. For example, implementing policies that reduce (or even eliminate) the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. And when kids nag their parents less for sugary drinks, parents will be less likely to purchase them. Another solution that has been proposed is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. This strategy will level the playing field by reducing kids' requests for sugary drinks, which will result in parents purchasing fewer sugary drinks for their kids. Another solution that will be	(None)	There is no simple solution for addressing climate change. Along with consumers carefully monitoring their carbon emissions, it is important to consider additional solutions that will effectively address climate change. For example, implementing policies that increase taxes for burning fossil fuels (like oil, gas, and coal) will motivate fossil fuel companies to use cleaner forms of energy (like wind and solar). Switching to clean energy will ultimately reduce their carbon emissions. Another solution that has been proposed is to establish federal tax subsidies for consumers who use wind, solar, and other forms of renewable energy. This strategy will level the playing field by encouraging consumers to invest their money in renewable energy instead of traditional forms of energy. Another solution that will be effective is eliminating subsidies

	effective is closing the loophole in the tax code, which allows soda companies to deduct advertising expenses for marketing unhealthy drinks. Closing the loophole will reduce childhood obesity. Lastly, you can do your part by changing personal behaviors (such as cutting back on sugary drinks). Although it may not seem that individual behaviors will make a difference, personal actions like foregoing sugary drinks and switching to healthier options can reduce weight gain.		to fossil fuel companies, which make it cheaper to produce fossil fuels. Getting rid of these subsidies will reduce carbon emissions by encouraging companies to emit less carbon. Lastly, you can do your part by changing personal behaviors (such as switching to renewable energies like wind or solar). Although it may not seem that individual behaviors will make a difference, personal actions like foregoing fossil fuels and switching to clean energy can reduce carbon emissions.

Findings

Analysis. I used member checking throughout the focus group discussions to ensure that the moderator and note-taker were interpreting participants' comments accurately (Lincoln & Guba, 1985; Maxwell, 1996). After each focus group ended, the moderator and note-taker met to compare observations. After all data were collected, an undergraduate research assistant transcribed audio files, which I analyzed using qualitative analysis techniques outlined by Lofland, Snow, Anderson, and Lofland (2006). This involved performing open coding of the data to identify themes. Then, based on Barbour's (2008) recommendations, I entered dominant themes into a coding grid to identify patterns across the focus groups. Below, I have loosely organized my findings into three sections: comparing the two contexts, responses to the offense components, and responses to the retributive efficacy components.

Childhood obesity vs. climate change. In general, participants were less receptive to the childhood obesity messages than the climate change messages. This was evidenced by the extensive counterarguments that participants presented for childhood obesity. The most common rebuttal to industry accountability was parental responsibility. In the words of one participant, "I feel like there are many ways that like this advertisement can be combatted by like parents and schools and stuff. And like it's not like a 6-year-old is going to like walk to a store and buy a thing of soda, right?" (focus group 1, "FG1"). Several participants pointed out that socioeconomic and structural barriers (e.g., cost, food deserts) prevent individuals from purchasing healthier drink alternatives. A few individuals noted the critical role of taste in driving children's soda consumption. One participant in the second focus group justified the soda companies' marketing practices by saying "companies are supposed to make money" (FG2).

By contrast, arguments for the accountability of non-industry actors were less common for the fossil fuel messages. Indeed, participants in the second session and (especially) third session explicitly commented on their preferences for the climate change messages. When asked to compare the two contexts, one participant stated, "I think that this [climate change message] is a lot more powerful just because I think it's easier to see the effects of like climate change. At least personally, I'm like more familiar with like things that are happening with climate change than like obesity..." (FG3).

As evidenced in this quote, prior knowledge seemed to play an important role in shaping participants reactions to the two topics. For instance, one participant brought up her experience working with an environmental public interest group, and another mentioned taking an oceanography course where she learned about issues similar to the ones discussed in the fossil fuel messages. At the very least, previous exposure to the ideas presented in the climate change messages opened participants to the arguments that the messages made.

However, a few participants suggested that not all individuals would be receptive to these messages. In the words of one participant, "I really believe all this…but I wouldn't show this to someone who wasn't convinced" (FG2). A few participants felt as though the messages were written as if to be presented at a political rally to an already activist audience. Such concerns speak to the Anger Activism Model's prediction that anger appeals will backfire among counter-attitudinal audiences (Turner, 2007).

The offense component. Participants felt the offense component of the message (which aimed to induce anger) lacked details, evidence, and specificity. This critique in some form or another was the most common theme throughout the focus groups. Participants indicated that they could not accept the claims at face value without substantiation for the claims made, and

participants lodged similar critiques of the efficacy messages. According to one participant, the messages read like a persuasive paper that a high school student would write, selectively presenting evidence to support the author's biased position. Only one participant in the focus groups defended the messages' brevity, drawing an analogy to abstracts for research papers that tease the larger project or ideas.

When asked what emotional response the author aimed to evoke in their audience, participants seemed to recognize the intent to provoke anger. "They all used words like bombarded and intentionally manipulating people or children or like all these buzz words but—so I can tell they were trying to make people angry" (FG1). However, when explicitly asked about their own emotional reaction to the message, participants did not report feeling angry. Their nonverbal behavior (e.g., facial expressions, vocalics) told a similar story. No participant seemed particularly fired up about the subject matter—though some participants did verbally state the description of the fossil fuel companies' actions upset them.

The retributive efficacy component. Participants across the three focus groups felt the language of the retributive efficacy appeals was too strong. They described the tone as "aggressive," "negative," "angry," "rebellious," and "looking for revenge." Several individuals felt the pointed tone of the message undermined its objectivity. For example, one participant recommended "They should be less angry because it sounds less objective even if you have the facts. They're being too one-sided" (FG2). Although participants did not enjoy the punishment-oriented tone of the efficacy appeals, many participants appreciated that the efficacy messages provided information on ways to take action—especially compared to the offense messages that focused exclusively on the problem.

As for the solutions mentioned in the efficacy messages, participants expressed different degrees of confidence in the solutions' ability to address childhood obesity/climate change. Multiple participants agreed that the climate change solutions seemed more feasible than the childhood obesity solutions and that the climate change solutions would have further-reaching consequences for "the whole fate of humanity" (FG3). One participant felt that it would be easier to rally people around a common enemy of polluting fossil fuel companies, whereas people just think about a bottle of Coke if they read the childhood obesity messages. Several participants commented that they had difficulty following the logic of the solutions presented simply because of how the sentences were structured.

Limitations. Study 3 used a population that differs from the populations to be used in the following studies, which likely limits the transferability of the findings. Additionally, Study 3 was limited in that I did not cluster the sessions into homogenous groups. Ideally, the researcher should segment focus groups based on some characteristic relevant to the study aims (e.g., gender identity, race). For this project, this could have involved clustering the focus groups based on attitude toward industry regulation (or perhaps a more readily available proxy metric like political orientation). However, Morgan (1997) has argued "the goal [of segmenting focus groups] is homogeneity in background and not homogeneity in attitudes. If all the participants share virtually identical perspectives on a topic, this can lead to a flat, unproductive discussion" (p. 36). This quote supports the decision not to cluster focus groups by baseline attitudes or political leaning.

Message revisions. It was clear from the focus groups that participants did not enjoy reading the messages, but because the goals of the messages were to evoke anger and inculcate retributive efficacy beliefs, it was not feasible to modify the messages' tone. Furthermore, I was

hesitant to add additional content to the message. Although extra content would have provided more evidence to support the claims made (as participants requested), doing so would have lengthened the messages considerably, which likely would have increased participant fatigue. Adding evidence and statistics would likely introduce a confound as the next step was to create "low" versions of the offense and efficacy messages, which would not contain as much information as the "high" versions.

That being said, I did make a few revisions before launching an experimental test of the messages (see Tables 5.2 and 5.4 for message comparisons). First, I added language to the offense components to mention that the industry is not the only responsible party in causing childhood obesity/climate change. The goal of this revision was to recognize existing beliefs about responsible actors in causing childhood obesity (i.e., parents) and climate change (i.e., society writ large), thereby minimizing potential counterarguments. This technique of acknowledging preexisting beliefs has been shown to be helpful when communicating the social determinants of health (Gollust & Cappella, 2014). I added similar language to the efficacy components to acknowledge that personal actions (e.g., cutting back on sugary drinks, engaging in more environmentally conscious behaviors) are also important to address these societal issues. Second, I restructured some of the arguments in the retributive efficacy messages to avoid run-on sentences and make the content easier to process. Third, I changed language about kids' agency based on participants' skepticism that kids have any purchasing power relative to their parents.

Study 4 (MTurk Pilot Test 1)

The goal of Study 4 was to experimentally induce anger and retributive efficacy by exposing participants to strategically designed counterindustry messages about childhood obesity or climate change. Study 4 was a necessary step before investigating the message's effects on

persuasion. In doing so, Study 4 provided tests of H2 and H3, which pertained to the effects of an offense component on appraisals and anger, respectively. It also investigated whether an appeal to anger would be more effective for individuals favorable toward the topic than individuals unfavorable toward the topic (H6).

Method

Recruitment and sample. Again, I recruited through MTurk, using the same exclusion criteria as Study 2. Workers who completed Study 2 were not permitted to participate in Study 4.

As with Study 2, I expected small to moderate effect sizes based on a previous test of the AAM (Skurka, 2018). For a two-way ANOVA, this translates to an approximate effect size of f = .15 (J. Cohen, 1992). Assuming this effect size for main effects of both factors (power = .80, significance level α = .05, iterations = 100), this amounts to ~88 participants/cell. With an eight-cell design, this resulted in a target sample size of N = 700. Table 5.6 presents sample characteristics split by context, which are similar to sample characteristics of Study 2.

Procedure. Study 4 was a 2 (context: childhood obesity vs. climate change) × 2 (offense component: high vs. low) × 2 (retributive efficacy component: high vs. low) design. After participants provided informed consent, the survey randomly assigned them to one of the two contexts. Participants began the study by reporting their attitudes toward industry regulation then read the offense component of the message. Immediately following this message, participants self-reported their emotional reactions to the message and their anger appraisals.

Next, participants read the retributive efficacy component, after which they reported on perceived retributive efficacy for each of the solutions mentioned in the efficacy messages. They also reported on perceived solution efficacy of the four solutions at addressing childhood obesity/climate change. I also included relevant efficacy variables that should not be influenced

by the retributive efficacy manipulation (self-efficacy, external political efficacy) as well as cognitive processing variables that ideally should be similar across conditions (counterarguing, perceived argument strength). The survey concluded by measuring demographics and relevant covariates.

Message stimuli. The revised messages from Study 3 served as the "high" versions of the offense and efficacy components in Study 4. From these, I created "low" versions of both components (Tables 5.3 and 5.5). For the offense component, the gist of the message stayed the same, but the low versions did not provide information about the harm done by the industry, the intentionality of their actions, or their awareness of the harm being done. This manipulation was informed by H2 and H3 (the effects of offense messages on appraisals and anger, respectively) and was supported by Study 2 results showing relationships between these appraisals and anger toward the industry. Because removing this content reduced the length of the low offense message considerably, I added filler content to the low versions to replace the high versions' details about the harms done. This filler content highlighted the marketing/public relations techniques that soda/fossil fuel companies use to reach consumers (based on language I found on the websites for Coca-Cola and ExxonMobil). In addition, the low offense versions cast doubt on whether soda/fossil fuel companies were aware of the negative consequences of their actions. This was followed by filler content about their corporate social responsibility efforts (also based on language I found on Coca-Cola's and ExxonMobil's websites).

To create low versions of the retributive efficacy messages, I removed the content that argued the four solutions would have an impact on the soda/fossil fuel industry. Thus, the low retributive efficacy messages just focused on the efficacy of the solutions at addressing childhood obesity/climate change—not that the solutions would punish corporations.

Table 5.6 *Sample characteristics (Studies 4 and 5)*

	Study 4		Study 5	
	Childhood obesity (N = 348)	Climate change (N = 352)	Childhood obesity (N = 273)	Climate change (N = 286)
Age	M = 39.80 (SD = 12.77)	M = 38.79 (SD = 12.20)	M = 39.41 (SD = 11.72)	M = 38.89 (SD = 11.34)
Gender				
Male	177 (50.8%)	181 (51.7%)	146 (53.5%)	121 (42.3%)
Female	170 (48.9%)	170 (48.3%)	127 (46.5%)	165 (57.7%)
Genderqueer/gender non-conforming/non-binary	1 (0.3%)	1 (0.3%)	1 (0.4%)	0 (0%)
Different identity	0 (0%)	1 (0.3%)	0 (0%)	0 (0%)
Hispanic/Latinx	28 (8.0%)	27 (7.7%)	15 (5.5%)	21 (7.3%)
Race				
White	288 (82.8%)	301 (85.5%)	235 (86.1%)	243 (85.0%)
Black	37 (10.6%)	34 (9.7%)	23 (8.4%)	20 (7.0%)
Other non-White, non-Black race	39 (11.2%)	29 (8.2%)	23 (8.4%)	32 (11.2%)
College degree or higher	203 (58.3%)	200 (56.8%)	157 (57.5%)	163 (57.0%)
Income				
<$25,000	58 (16.7%)	68 (19.3%)	45 (16.5%)	52 (18.2%)
$25,000 - $49,999	113 (32.5%)	107 (30.5%)	80 (29.3%)	81 (28.3%)
$50,000 - $74,999	90 (25.9%)	82 (23.4%)	69 (25.3%)	79 (27.6%)
≥$75,000	87 (25.0%)	94 (26.8%)	79 (28.9%)	74 (25.9%)
Political party affiliation				
Republican	82 (23.6%)	75 (21.3%)	62 (22.7%)	60 (21.0%)
Democrat	167 (48.0%)	164 (46.6%)	115 (42.1%)	134 (46.9%)
Independent	87 (25.0%)	93 (26.4%)	77 (28.2%)	82 (28.8%)
Another party	3 (0.9%)	5 (1.4%)	6 (2.2%)	3 (1.0%)
No preference	9 (2.6%)	15 (4.3%)	13 (4.8%)	7 (2.4%)
Political conservatism (1-7 scale)	M = 3.38 (SD = 1.73)	M = 3.45 (SD = 1.69)	M = 3.40 (SD = 1.63)	M = 3.30 (SD = 1.74)
Trait anger (1-7 scale)	M = 2.28 (SD = 1.41)	M = 2.21 (SD = 1.30)	M = 2.19 (SD = 1.32)	M = 2.18 (SD = 1.40)
Context-specific covariates				
SSB consumption (1-4 scale)	M = 1.50 (SD = .47)	--	M = 1.43 (SD = .42)	--
Parent/guardian	23 (6.6%)	--	21 (7.7%)	--
Climate change is happening	--	297 (84.4%)	--	259 (90.6%)
Climate change is human-caused	--	194 (56.9%)	--	181 (64.9%)

Note. SSB = sugar-sweetened beverage.

Measures. Study 4 used the same measures as Study 2 with a few modifications and additions. See Table 5.7 for means, standard deviations, and reliabilities split by context.

Because this was a pilot test, Study 4 did not measure persuasion outcomes (policy support, intentions).

Emotions. Although Study 4 used the same emotion items as Study 2, I modified the instructions to read *While reading the message, how much did you feel each of these emotions regarding the [soda/fossil fuel] industry?* I made this change because Study 4 examined emotional reactions to persuasive messages.

Counterarguing. Participants indicated their agreement (*strongly disagree* [1] to *strongly agree* [7]) with three items used to measure counterarguing (Niederdeppe, Heley, & Barry, 2015): *I did not accept the points made in the messages*, *I found myself disagreeing with the messages' points*, and *I thought of a lot of arguments against what the messages were saying*.

Perceived argument strength. Participants reported their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with three statements that I adapted from Nabi, Moyer-Gusé, and Byrne (2007): *The points made in the messages were believable*, *The messages made some good points*, and *The arguments made in the messages were convincing*.

Results

Analytic approach. Though I did not have a priori plans for data exclusions based on total survey duration, I first examined the amount of time participants spent on pages with messages to ensure sufficient exposure to the manipulations. I then collapsed data for both contexts to assess whether demographics and covariates were randomly distributed about the experimental conditions. Next, I ran independent-sample t-tests to assess the anger and retributive efficacy inductions. I opted for this method (rather than analyzing the data separately for each context) as it allowed for greater statistical power.

Table 5.7 *Scale reliabilities, means, and standard deviations (Studies 4 and 5)*

Variable	No. of items	Study 4				Study 5			
		Childhood obesity (N = 348)		Climate change (N = 352)		Childhood obesity (N = 273)		Climate change (N = 286)	
		α/*r*	*M* (*SD*)	α/*r*	*M* (*SD*)	α/*r*	*M* (*SD*)	α/*r*	*M* (*SD*)
Attitude toward regulation	4	.98	4.22 (2.07)	.98	5.42 (1.81)	.98	4.27 (2.08)	.98	5.62 (1.60)
Anger	3	.94	2.97 (1.77)	.95	3.62 (1.93)	.94	2.93 (1.83)	.95	3.96 (1.91)
Appraisals									
Harm	2	.41	3.88 (1.59)	.69	5.09 (1.58)	.62	3.91 (1.71)	.75	5.39 (1.48)
Responsibility (specific)	1	--	5.78 (1.40)	--	5.55 (1.60)	--	5.59 (1.64)	--	5.75 (1.50)
Responsibility (general)	1	--	4.45 (1.68)	--	5.35 (1.64)	--	4.36 (1.80)	--	5.60 (1.41)
Intentionality	1	--	5.69 (1.24)	--	5.34 (1.53)	--	5.60 (1.24)	--	5.53 (1.42)
Awareness	1	--	5.77 (1.38)	--	5.66 (1.38)	--	5.59 (1.45)	--	5.61 (1.51)
Illegitimacy	1	--	5.08 (1.63)	--	5.83 (1.44)	--	4.97 (1.71)	--	5.91 (1.44)
Control	1	--	5.99 (1.13)	--	5.77 (1.37)	--	5.89 (1.20)	--	5.91 (1.20)
Moral violation	3	.95	5.06 (1.55)	.94	6.04 (1.08)	.97	4.99 (1.66)	.93	6.25 (.96)
Counterarguing	3	--	--	--	--	.86	3.45 (1.55)	.86	3.23 (1.57)
Perceived strength	3	--	--	--	--	.91	5.21 (1.28)	.94	5.05 (1.53)
Efficacy variables									
Retributive efficacy	20 (5/ solution)	.89	4.36 (.95)	.93	4.25 (1.11)	.90	4.17 (.98)	.92	4.27 (1.05)
Solution efficacy	12 (3/ solution)	.92	4.20 (1.24)	.95	4.55 (1.35)	.92	4.07 (1.24)	.92	4.67 (1.13)
Self-efficacy	3	.85	4.97 (1.25)	.85	4.92 (1.28)	.80	4.88 (1.25)	.81	5.01 (1.17)
External efficacy	3	.87	3.57 (1.49)	.86	3.29 (1.37)	.85	3.52 (1.36)	.84	3.31 (1.33)
Counterarguing	3	.82	3.72 (1.49)	.86	3.32 (1.57)	.83	3.64 (1.42)	.83	3.38 (1.40)
Perceived strength	3	.88	5.08 (1.27)	.93	5.20 (1.46)	.93	4.91 (1.28)	.93	5.10 (1.33)

Note. Cronbach's α was computed for scales with three or more items. Pearson's *r* was computed for scales with two items. In Study 4, only one counterarguing and one perceived strength measure were used. In Study 5, two versions were created for each measure: one for the offense component and one for the efficacy component.

Message page durations. Participants spent comparable amounts of time on the high offense messages ($Mdn_{\text{childhood obesity}} = 50$ s, $Mdn_{\text{climate change}}$ 57 s) and low offense messages ($Mdn_{\text{childhood obesity}} = 50$ s, $Mdn_{\text{climate change}} = 65$ s), though duration times trended higher for the climate change messages. Duration times were similar between the high retributive efficacy messages ($Mdn_{\text{childhood obesity}} = 59$ s, $Mdn_{\text{climate change}} = 56$ s) and between the low retributive efficacy messages ($Mdn_{\text{childhood obesity}} = 44$ s, $Mdn_{\text{climate change}} = 44$ s). It should be noted that median durations were longer for the high retributive efficacy messages, which is expected given that the high retributive efficacy messages were longer than the low retributive efficacy messages. Together, these descriptive statistics suggest that participants spent roughly equal amounts of time reading the messages across contexts.

Balance checks. Chi-square analyses for independence (for categorical variables) and one-way ANOVAs (for continuous variables) were non-significant ($ps > .05$), indicating that random assignment was successful.

Induction results. Table 5.8 presents means, standard deviations, test results, p values, and effect sizes (when p value approached significance) for all t-tests.

Anger induction. In support of H3, participants exposed to the high offense components reported greater levels of anger than participants exposed to the low offense components. Similarly, relative to the low offense components, the high versions produced significantly greater perceptions of harm, intentionality, and awareness. These results supported H2. Turning to the other appraisals, perceptions of specific responsibility and control were marginally higher in the high offense component conditions, but perceived general responsibility, illegitimacy, and moral violation did not differ across the conditions. Furthermore, counterarguing and perceived argument strength were statistically similar between the conditions.

Table 5.8 *Induction check results (Studies 4 and 5)*

		Study 4					Study 5				
Message manipulation	Dependent variable	Low condition *M* (*SD*)	High condition *M* (*SD*)	*t*	*p*	Cohen's *d*	Low condition *M* (*SD*)	High condition *M* (*SD*)	*t*	*p*	Cohen's *d*
Offense	Anger	**3.03 (1.80)**	**3.57 (1.92)**	**-3.84**	**<.001**	**0.29**	**3.02 (1.91)**	**3.76 (1.97)**	**-4.48**	**<.001**	**0.38**
	Appraisals										
	Harm	**4.34 (1.70)**	**4.64 (1.69)**	**-2.37**	**.018**	**0.18**	**4.37 (1.77)**	**4.90 (1.80)**	**-3.52**	**<.001**	**0.30**
	Responsibility (specific)	5.57 (1.46)	5.77 (1.55)	-1.79	.074	0.13	**5.57 (1.57)**	**5.90 (1.53)**	**-2.48**	**.013**	**0.21**
	Responsibility (general)	4.89 (1.72)	4.92 (1.73)	-.21	.83	--	4.88 (1.74)	5.03 (1.78)	-1.05	.29	--
	Intentionality	**5.26 (1.46)**	**5.78 (1.29)**	**-4.94**	**<.001**	**0.38**	**5.38 (1.34)**	**5.91 (1.18)**	**-4.93**	**<.001**	**0.42**
	Awareness	**5.39 (1.47)**	**6.06 (1.18)**	**-6.62**	**<.001**	**0.50**	**5.50 (1.47)**	**5.96 (1.25)**	**-4.01**	**<.001**	**0.34**
	Illegitimacy	5.37 (1.60)	5.55 (1.55)	-1.55	.12	--	5.61 (1.49)	5.62 (1.59)	-.07	.94	--
	Control	5.79 (1.24)	5.97 (1.27)	-1.94	.053	0.14	**5.87 (1.14)**	**6.17 (1.06)**	**-3.27**	**.001**	**0.27**
	Moral violation	5.49 (1.48)	5.63 (1.36)	-1.32	.19	--	5.63 (1.46)	5.75 (1.54)	-.96	.34	--
	Counterarguing	3.59 (1.53)	3.44 (1.55)	1.31	.19	--	**3.50 (1.58)**	**3.00 (1.53)**	**3.78**	**<.001**	**-0.32**
	Perceived strength	5.09 (1.33)	5.20 (1.41)	-1.07	.29	--	**5.00 (1.47)**	**5.37 (1.35)**	**-3.10**	**.002**	**0.26**
Efficacy	Efficacy variables										
	Retributive eff.	**4.20 (1.06)**	**4.41 (1.00)**	**-2.62**	**.009**	**0.20**	**3.93 (.99)**	**4.55 (1.01)**	**-7.30**	**<.001**	**0.62**
	Solution efficacy	4.35 (1.30)	4.40 (1.31)	-.55	.58	--	**4.17 (1.17)**	**4.52 (4.52)**	**-3.45**	**.001**	**0.28**
	Self-efficacy	4.99 (1.30)	4.91 (1.23)	.87	.38	--	4.96 (1.27)	4.97 (1.19)	-.12	.90	--
	External efficacy	3.37 (1.44)	3.49 (1.42)	-1.11	.27	--	3.40 (1.33)	3.42 (1.37)	-.13	.90	--
	Counterarguing	3.43 (1.50)	3.61 (1.59)	-1.52	.13	--	**3.58 (1.36)**	**3.33 (1.54)**	**2.05**	**.041**	**-0.17**
	Perceived strength	5.22 (1.31)	5.06 (1.42)	1.53	.13	--	**4.92 (1.25)**	**5.17 (1.41)**	**-2.27**	**.024**	**0.19**

Note. Bolded values are statistically significant at $p \leq .05$. $df_{Study\ 4} = 698$. $df_{Study\ 5} = 557$.

*Efficacy induction***.** Participants in the high efficacy conditions reported greater perceptions of retributive efficacy than participants in the low efficacy conditions. The efficacy manipulation did not influence solution efficacy, self-efficacy, external efficacy, counterarguing, or perceived argument strength.

Did initial attitudes moderate the anger induction? H6 predicted that pro-attitudinal individuals would experience greater industry anger than counter-attitudinal individuals in response to an offense message. I tested this hypothesis with a hierarchical regression model that specified an interaction term between offense component condition and initial attitudes. In addition to a main effect of initial attitudes on industry anger (unstandardized b = .46, $p < .001$) in the first block, the interaction term in the second block was marginally significant (b = .11, $p = .064$). I used the Johnson-Neyman technique to probe this interaction (Hayes, 2013), which indicated that the offense manipulation did not affect industry anger for counter-attitudinal participants (initial attitudes <2.53 on a 7-point scale) but promoted industry anger for neutral and pro-attitudinal participants (≥2.53). These marginal findings partially supported H6.

Post hoc analyses

Did the two manipulations interact? One might wonder whether the offense manipulation and efficacy manipulation might interact to affect the outcomes measured. To ensure that this was not the case, I ran additional post hoc ANOVAs. One interaction term between the manipulations (retributive efficacy as the dependent variable) approached significance, $F(1, 696) = 3.67$, $p = .056$, $\eta^2 = .005$. Among those in the low offense conditions, the retributive efficacy induction was successful ($M_{high} = 4.47$, $SD_{high} = 1.03$ vs. $M_{low} = 4.12$, $SD_{low} = 1.06$), $t(355) = -3.15$, $p = .002$, $d = 0.33$. However, among participants in the high offense conditions, the retributive efficacy manipulation had no effect on retributive efficacy perceptions ($M_{high} = 4.35$,

SD_{high} = .98 vs. M_{low} = 4.30, SD_{low} = 1.05), $t(341) = -.47$, $p = .64$, $d = 0.05$. This finding calls into question the success of the retributive efficacy induction, so I return to this issue in the discussion section.

There was also a marginal interaction effect between the manipulations on counterarguing, $F(1, 692) = 2.84$, $p = .093$, $\eta^2 = .004$. That is, participants in the low offense conditions exhibited comparable levels of counterarguing in response to the high and low retributive efficacy messages (M_{high} = 3.60, SD_{high} = 1.60 vs. M_{low} = 3.59, SD_{low} = 1.47), $t(355) = -.04$, $p = .97$, but participants in the high offense conditions counterargued the high retributive efficacy messages more than they counterargued the low retributive efficacy messages, (M_{high} = 3.62, SD_{high} = 1.57 vs. M_{low} = 3.25, SD_{low} = 1.52), $t(341) = -2.19$, $p = .029$, $d = 0.24$.

Did the effects differ across contexts? This study tested its predictions across two social issue contexts, so it is important to verify that the results did not differ meaningfully across contexts. Post hoc ANOVAs generally indicated no interactions between the conditions and context (*p*s for interactions > .05). The exceptions were self-efficacy (context × efficacy condition, $p = .050$) and external political efficacy (context × efficacy condition, $p = .036$). In the childhood obesity conditions, the efficacy messages did not influence self-efficacy (M_{high} = 5.03, SD_{high} = 1.16 vs. M_{low} = 4.92, SD_{low} = 1.33), $t(346) = -.82$, $p = .41$, but did influence external efficacy (M_{high} = 3.75, SD_{high} = 1.47 vs. M_{low} = 3.40, SD_{low} = 1.48), $t(346) = -2.28$, $p = .023$, d = 0.24. In the climate change conditions, the efficacy manipulation affected self-efficacy (M_{high} = 4.79, SD_{high} = 1.28 vs. M_{low} = 5.06, SD_{low} = 1.27), $t(350) = 2.01$, $p = .045$, $d = -0.21$, but not external efficacy (M_{high} = 3.23, SD_{high} = 1.32 vs. M_{low} = 3.34, SD_{low} = 1.41), $t(350) = .73$, $p = .46$. Because these post hoc analyses provide no evidence for heterogeneous effects on the induction

variables (anger and retributive efficacy), I interpreted these interactions between the efficacy manipulation and efficacy variables as collateral effects.

Study 4 discussion. At first glance, this experimental pilot study indicated successful inductions. As hypothesized, the offense manipulation influenced industry anger (and related anger appraisals), and the retributive efficacy manipulation influenced perceptions of retributive efficacy (but not other efficacy perceptions). Moreover, the high and low versions of each manipulation generated similar levels of counterarguments, and participants perceived the message variations to be of similar argument strength. Although some of the effects of the retributive efficacy appeal differed between the contexts, these outcomes (self- and external efficacy) were not addressed in the messages, which suggests they are collateral effects of manipulating retributive efficacy beliefs.

An important caveat is that the main effect of the retributive efficacy induction was driven by the low offense conditions. That is, the efficacy manipulation significantly influenced perceptions of retributive efficacy but only in the low offense conditions. It appears that angry individuals' punitive judgments were immune to retribution cues provided in the message, perhaps because counterarguing interfered with their receptiveness to the efficacy messages' arguments. This interaction pattern echoes the interaction for punitive policy support that emerged in Study 2, in which retributive efficacy compensated for low levels of anger. The interactions that emerged in Studies 2 and 4 were for different outcome variables (punitive policy support and retributive efficacy, respectively), but the parallel patterns may shed light on the mechanisms underlying the moderating role of retributive efficacy. That is, angry people may not be effortfully considering whether a particular course of action would effectively punish the

wrongdoer, instead relying on their gut reactions (Carlsmith & Darley, 2008; Haidt, 2003; Wenzel & Okimoto, 2016).

If this is the case, it may be challenging for persuasive messages to strengthen angry recipients' beliefs about the effectiveness of punishing a wrongdoer. Less angry individuals, by contrast, may be weighing the retributive efficacy arguments more deliberately than angry participants, making them more receptive to those persuasive claims. Though unplanned, this interaction effect on retributive efficacy perceptions could prove theoretically interesting should it be a robust finding that emerges again in the next few studies. Moreover, it is hard to ignore that Studies 2 and 4 seem to tell a similar story about the relationship between anger and retributive efficacy—a story that runs counter to this dissertation's a priori predictions.

Because the retributive efficacy induction was not successful for those in the high anger conditions, I opted to re-run this pilot study with a new set of strengthened retributive efficacy messages.

Study 5 (MTurk Pilot Test 2)

Method

Recruitment and sample. Study 5 employed the same recruitment strategy as Study 4. Sample characteristics (Table 5.6) were similar to sample characteristics of Study 4. MTurk workers who completed Studies 2 or 4 were not allowed to participate in Study 5.

Procedure. The procedure was the same as Study 4.

***Messages*.** Study 5 used the same offense messages as Study 4 but used a new series of retributive efficacy messages (see Table 5.9). In an effort to maximize effects of the high and low retributive efficacy appeals on perceptions of retributive efficacy, I added content to the low retributive efficacy appeals that emphasized how critics question whether passing the proposed

policies would have any impact on the soda/fossil fuel companies (e.g., "But critics say that making fossil fuel companies pay for their emissions would not impact the companies at all because reduced sales of fossil fuels will only make a small dent in their profit margin"). Although the high efficacy versions largely stayed the same, I attempted to mirror the language of "critics say" in the low versions by couching the retributive efficacy claims in the high versions in terms of what "advocates say" (e.g. "In addition, advocates say that making these companies pay for their carbon emissions will impact fossil fuel companies by cutting into the companies' profits").

Measures. With the exception of two measures, Study 5 used the same measures as Study 4 (see Table 5.7 for reliabilities, means, and standard deviations). One of the limitations of the previous pilot test was that the survey asked participants to report on counterarguing and argument strength in response to *both* the offense message and retributive efficacy message. Consequently, it is unclear whether Study 4 participants aggregated their responses to the two messages, reported their impressions of the efficacy component (a recency effect) or reported their impressions of the offense component (a primacy effect). To address this limitation, Study 5 used two measures of counterarguing and two measures of perceived argument strength —one for each of the message components.

Table 5.9 *Retributive efficacy messages (Study 5)*

Childhood obesity		Climate change	
High retributive efficacy (305 words)	Low retributive efficacy (309 words)	High retributive efficacy (302 words)	Low retributive efficacy (306 words)
There is no simple solution for addressing childhood obesity. Along with parents carefully watching their kids' diet, it's important to consider other solutions that will address childhood obesity. More importantly, health advocates say these solutions will punish the soda industry for their actions. For example, health advocates say that passing policies that reduce (or eliminate) the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. When kids nag their parents less for sugary drinks, parents will be less likely to purchase them. In addition, advocates say that parents spending less money on sugary drinks will impact soda companies by cutting into the companies' profits. Another solution that advocates say will teach soda companies a lesson is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. Advocates say this strategy will level the playing field by reducing kids' requests for sugary drinks. And when parents buy fewer sugary drinks for their kids, this	There is no simple solution for addressing childhood obesity. Along with parents carefully watching their kids' diet, it's important to consider other solutions that will address childhood obesity. However, critics wonder: Will these solutions have any effect on the soda industry? For example, health advocates say that passing policies that reduce (or eliminate) the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. When kids nag their parents less for sugary drinks, parents will be less likely to purchase them. But critics say that this would not impact soda companies at all because companies will find other ways to drive consumer demand for sugary drinks. Another solution that advocates have proposed is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. Advocates say this strategy will level the playing field by reducing kids' requests for sugary drinks, which will result in parents buying fewer sugary drinks for their kids. However, critics say that soda	There is no simple solution for addressing climate change. Along with consumers carefully watching their carbon emissions, it's important to consider other solutions that will address climate change. More importantly, environmental advocates say these solutions will punish the fossil fuel industry for their actions. For example, environmental advocates say that passing policies that increase taxes for burning fossil fuels will motivate fossil fuel companies to use cleaner forms of energy. Switching to clean energy will ultimately reduce the companies' carbon emissions. In addition, advocates say that making these companies pay for their carbon emissions will impact fossil fuel companies by cutting into the companies' profits. Another solution that advocates say will teach fossil fuel companies a lesson is to establish federal tax subsidies for consumers who use wind, solar, and other forms of renewable energy. Advocates say this strategy will level the playing field by encouraging consumers to invest their money in renewable energy instead of traditional forms of energy. And when	There is no simple solution for addressing climate change. Along with consumers carefully watching their carbon emissions, it's important to consider other solutions that will address climate change. However, critics wonder: Will these solutions have any effect on the fossil fuel industry? For example, environmental advocates say that passing policies that increase taxes for burning fossil fuels will motivate fossil fuel companies to use cleaner forms of energy. Switching to clean energy will ultimately reduce their carbon emissions. But critics say that making these companies pay for their emissions would not impact the companies at all because reduced sales of fossil fuels will only make a small dent in their profit margin. Another solution that advocates have proposed is to establish federal tax subsidies for consumers who use wind, solar, and other forms of clean energy. Advocates say this strategy will level the playing field by encouraging consumers to invest their money in renewable energy instead of investing in traditional forms of energy. However, critics say that

will negatively affect soda companies by keeping money out of the companies' pockets. Another solution that advocates say will make soda companies think twice is closing the loophole in the tax code that allows soda companies to deduct advertising expenses for marketing sugary drinks. Not only will closing the loophole help reduce childhood obesity, advocates say it will also get back at soda companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors make a difference, advocates say personal actions like boycotting sugary drinks and switching to healthier options can help reduce weight gain. Importantly, advocates say that these actions will send a clear message to soda companies that consumers will not tolerate the companies' actions.	companies probably won't be affected by these changes in consumer behavior because reduced sales will only make a small dent in their profit margin. Another solution that advocates say will be effective at addressing childhood obesity is closing the loophole in the tax code that allows soda companies to deduct advertising expenses for marketing sugary drinks. However, because companies will continue to market their drinks, critics doubt whether closing the loophole will influence soda companies at all. Lastly, you can do your part by changing personal behaviors (such as cutting back on sugary drinks). Although it may not seem that individual behaviors make a difference, advocates say personal actions like avoiding sugary drinks and switching to healthier options can reduce weight gain. But critics question whether these actions send a message to soda companies.	consumers avoid using fossil fuels, this will negatively affect fossil fuel companies by keeping money out of the companies' pockets. Another solution that advocates say will make fossil fuel companies think twice is eliminating subsidies to fossil fuel companies that make it cheaper to make fossil fuels. Not only will getting rid of these subsidies help reduce carbon emissions, advocates say it will also get back at fossil fuel companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors make a difference, advocates say personal actions like boycotting fossil fuels and switching to clean energy can help reduce carbon emissions. Importantly, advocates say that these actions will send a clear message to fossil fuel companies that consumers will not tolerate the companies' actions.	fossil fuel companies probably won't be affected by these changes in consumer behavior because the companies will find other ways to drive demand for fossil fuels. Another solution that advocates say will be effective at addressing climate change is eliminating subsidies to fossil fuel companies that make it cheaper to make fossil fuels. However, because companies will continue to make fossil fuels, critics doubt whether getting rid of these subsidies will influence fossil fuel companies at all. Lastly, you can do your part by changing personal behaviors (such as switching to renewable energies like wind or solar). Although it may not seem that individual behaviors make a difference, advocates say personal actions like avoiding fossil fuels and switching to clean energy can reduce carbon emissions. But critics question whether these actions send a message to fossil fuel companies.

Note. Underlining was used to emphasize retributive efficacy manipulations to participants.

Results

Message page durations. Regarding the high offense messages, participants spent less time on the childhood obesity version (*Mdn* = 50 s) than the climate change version (*Mdn* = 61 s), but duration times were similar for the low offense messages ($Mdn_{\text{childhood obesity}}$ = 49 s, $Mdn_{\text{climate change}}$ = 50 s). Duration times were comparable between the high retributive efficacy messages ($Mdn_{\text{childhood obesity}}$ = 56 s, $Mdn_{\text{climate change}}$ = 57 s) and between the low retributive efficacy messages ($Mdn_{\text{childhood obesity}}$ = 67 s, $Mdn_{\text{climate change}}$ = 62 s).

Most duration distributions were bimodal with notable clusters of participants spending 20 seconds or less on each of the eight messages. This is in contrast to Study 4, in which distributions were almost uniformly normal. Because median time spent on the messages was between 50 and 60 seconds (described above), I decided to exclude data from participants who spent 20 seconds or less on any of their assigned messages (20.1% of the sample) under the assumption that they were not sufficiently exposed to the manipulations. This left *N* = 559 cases for analysis.

Balance checks. Chi-square analyses for independence and one-way ANOVAs were all non-significant (*p*s > .05).

Induction results. Table 5.8 presents means, standard deviations, test results, *p* values, and effect sizes (when *p* value approached significance) for all t-tests alongside the same results for Study 4.

Anger induction. Compared to participants exposed to the low offense messages, participants in the high offense conditions reported greater anger intensity as well as greater perceptions of harm, responsibility (specific), intentionality, awareness, and control. These data support H2 and H3. However, there were also significant differences between the high and low

offense messages on counterarguing and perceived argument strength. The high offense appeals generated less counterarguing and received higher ratings of argument strength relative to the low offense appeals.

Efficacy induction. As expected, the high retributive efficacy appeal produced greater perceptions of retributive efficacy than the low retributive efficacy appeal. However, it also produced greater perceptions of solution efficacy. Additionally, there were differences in counterarguing and perceived argument strength with participants counterarguing the high retributive efficacy appeals less and perceiving that the high retributive efficacy appeals presented stronger arguments.

Did initial attitudes moderate the anger induction? In contrast to the previous pilot study, which found that initial attitudes moderated the effect of the offense appeals on anger, there was no evidence that prior attitudes interacted with the offense manipulation to influence anger toward the industry ($b_{attitudes \times offense} = .07$, $p = .31$). This means H6 did not receive support. However, as one would expect, initial attitudes positively predicted industry anger ($b = .51$, $p < .001$).

Post hoc analyses

Did the two manipulations interact? None of the two-way interactions between the anger and efficacy conditions were statistically significant (ps > .05).

Did the effects differ across contexts? Though the efficacy manipulation did not interact with context (all ps > .05), several interactions between context and the offense manipulation were significant or approached significance. Namely, context moderated the effects of the offense manipulation on anger, $F(1, 551) = 4.93$, $p = .027$, $\eta^2 = .008$; responsibility (specific), $F(1, 551) = 3.80$, $p = .052$, $\eta^2 = .007$; intentionality, $F(1, 551) = 3.35$, $p = .068$, $\eta^2 = .006$;

counterarguing, $F(1, 551) = 5.27$, $p = .022$, $\eta^2 = .01$; and perceived argument strength, $F(1, 551) = 11.36$, $p = .001$, $\eta^2 = .02$.

In all of these cases, the difference in means between the high and low offense messages was greater for climate change than childhood obesity. For anger intensity, the anger induction was significant for the childhood obesity data ($M_{high} = 3.05$, $SD_{high} = 1.83$ vs. $M_{low} = 2.60$, $SD_{low} = 1.86$), $t(271) = -2.01$, $p = .046$, $d = 0.24$, but was stronger for the climate change data ($M_{high} = 4.49$, $SD_{high} = 1.84$ vs. $M_{low} = 3.39$, $SD_{low} = 1.88$), $t(284) = -5.00$, $p < .001$, $d = 0.59$. Similarly, for intentionality, the effect of the offense manipulation was significant for both contexts but was weaker for childhood obesity ($M_{high} = 5.85$, $SD_{high} = 1.06$ vs. $M_{low} = 5.50$, $SD_{low} = 1.21$), $t(271) = -2.52$, $p = .012$, $d = 0.31$, than for climate change ($M_{high} = 5.96$, $SD_{high} = 1.30$ vs. $M_{low} = 5.27$, $SD_{low} = 1.45$), $t(284) = -4.27$, $p < .001$, $d = 0.50$. For responsibility (specific), counterarguing, and perceived argument strength, means were not significantly different for childhood obesity (ps $> .05$), but they were all significantly different for climate change (ps $\leq .001$).

General Discussion of Studies 3-5

The overarching purpose of Studies 3-5 was to develop a series of messages that could (a) make individuals experience varying levels of anger toward soda/fossil fuel companies and (b) instill varying beliefs that taking action will punish those companies. The focus group data gathered in Study 3 indicate that readers did not enjoy the messages (given their aggressive, punishment-oriented tone), but the closed-ended data from Studies 4 and 5 suggest that these messages do have the hypothesized effects on anger, anger appraisals, and retributive efficacy. The challenge moving forward is that these messages had residual effects on other message processing outcomes that could predict persuasion outcomes. Indeed, there were a number of

novel findings for each of the inductions in Study 5 that merit discussion before moving on to the final experiment in this dissertation.

The offense/anger induction. Studies 4 and 5 used the exact same offense messages, yet there were several unexpected findings that emerged in Study 5. First, the messages differed significantly on counterarguing and perceived argument strength. That is, the high offense messages generated less counterarguing and presented stronger arguments than the low offense message. This new finding likely resulted from using measures that were particular to the offense component of the message, whereas Study 4 used single measures to capture responses to both message components. These findings are analogous to those of a recent study of counterindustry/anger appeals (Skurka, 2018) in which a high anger appeal generated lower levels of counterarguing than a low anger appeal.

Perhaps people find anger-inducing arguments to be more compelling than arguments that do not induce anger. Correlations were consistent with this explanation but are not large ($r_{\text{anger-counterarguing}} = -.43$, $p < .01$; $r_{\text{anger-argument strength}} = .35$, $p < .01$), leaving open the door to other plausible explanations. Looking at the offense messages themselves, the low versions of the offense components introduce the idea that [soda/fossil fuel] companies may be responsible for contributing to [childhood obesity/climate change] but then follow these claims with filler content that may have struck participants as unrelated or superfluous (e.g., "For years, the public has been exposed to conflicting information about whether burning fossil fuels causes climate change. The fossil fuel industry communicates with the public using a variety of social media platforms"). Another explanation is that the low offense versions made an attempt to refute the claim that companies were aware of their actions (e.g., "According to industry documents, these companies recognize that climate change is real and that burning fossil fuels causes climate

change. However, these companies have been proactive about addressing climate change by helping consumers control their carbon emissions through the responsible use of fossil fuels"). Though this kind of red herring argument is by no means a strong argument, it is possible that participants reading the low offense versions cognitively echoed such refutations, leading to higher reports of counterarguing.

The significant differences in counterarguing and argument strength were driven by the climate change data (where differences were significant) and not the childhood obesity data (where differences were not significant). Thus, a second set of unexpected findings in Study 5 were the interaction effects that emerged between the offense manipulation and context. In all of these cases, experimental effects were greater in magnitude for the climate change offense appeals compared to the childhood obesity offense appeals. Because the offense messages were unchanged between the studies, it is not clear why context moderated the offense manipulation in Study 5 but not Study 4. Recent work in psychology reminds us that even when a study uses the same stimuli, measures, and population to replicate an effect, effects are heterogeneous—perhaps due to hidden moderators (Kenny & Judd, 2019).

Regardless of the explanation for this unexpected finding, the focus group data do support the notion that it is easier to arouse anger (and relevant appraisals such as awareness and intentionality) toward fossil fuel companies than soda companies. Although it would have been ideal for the offense messages to exert equivalent effects on anger intensity and its corresponding appraisals irrespective of the topic, this heterogeneity underscores the importance of testing persuasive messages (in this case, counterindustry/anger appeals) across multiple domains. Not only does this technique help to mitigate case-category confound in message effects research (Brashers & Jackson, 1999), it also provides insight into how communicators can apply

persuasion theory to public messaging about social issues. Health communication and environmental communication are often in conversation, utilizing similar frameworks of behavior change and persuasion, but rarely do scholars working in this theoretical space test theoretical mechanisms across these two domains in a single study. The present findings indicate that it is easier to generate anger toward fossil fuel companies for contributing to climate change than it is to generate anger toward soda companies for contributing to childhood obesity.

The efficacy induction. The retributive efficacy induction was noticeably stronger in Study 5 (Cohen's $d = 0.62$) than in the previous pilot ($d = 0.20$), which bodes well for testing (potentially small) interaction effects in the final experiment. However, unlike the previous MTurk pilot, the high and low retributive efficacy messages differed on almost all of the relevant efficacy outcomes (solution efficacy, counterarguing, and perceived argument strength). In hindsight, it is not surprising that the high and low retributive efficacy messages differed on solution efficacy because the latest versions of the low retributive efficacy messages explicitly cast doubt on the retributive efficacy of the proposed solutions, which likely bled into judgments about the overall effectiveness of the solutions at addressing childhood obesity/climate change. As with the earlier studies in this dissertation, retributive efficacy and solution efficacy were highly correlated in Study 5 ($r = .62$, $p < .01$), which suggests it may be difficult to experimentally move people on perceptions of retributive efficacy without also moving them on perceptions of overall solution efficacy. However, the efficacy messages in Study 4 successfully manipulated retributive efficacy beliefs without influencing solution efficacy, providing evidence that it is possible to isolate persuasive effects on retributive efficacy.

Time and budget constraints prevented me from running another pilot study, so the pilot data from Studies 4 and 5 present a dilemma for selecting efficacy messages for the final

experiment. One option would be to use Study 5's efficacy messages, which would likely result in a statistically large effect on the target outcome (retributive efficacy) and maximize power for the predicted interaction effects. The drawback is that this option would introduce a confound in terms of also influencing solution efficacy. Another option would be to use Study 4's efficacy messages, which would be unlikely to impact perceptions of solution efficacy but would have a small effect on retributive efficacy, making it challenging to detect small interaction effects.

Here, it is instructive to return to the theoretical contribution of this dissertation. One of the overarching goals is to test whether tailoring efficacy cues to convey punishment enhances the persuasiveness of a counterindustry/anger appeal. The Anger Activism Model (Turner, 2007) suggests that response efficacy is essential to the success of an anger appeal, but the model does not state that efficacy appeals should communicate retribution. Theoretically, then, it is important that the efficacy messages in this dissertation influence perceptions of retributive efficacy without influencing general perceptions of effectiveness in order to show that instilling retributive efficacy matters—above and beyond general perceptions of response efficacy. I have therefore decided to privilege theoretical purity over statistical maximization and use the efficacy messages from Study 4 in the final experiment of this dissertation.

CHAPTER 6: A FINAL EXPERIMENT (STUDY 6)

Study 6 built on the findings from Studies 1-5 to examine the effects of counterindustry/anger appeals on persuasion outcomes, using pilot-tested messages and a validated measure of retributive efficacy. In doing so, it tested several hypotheses and research questions related to the effects of an offense message (H2, H3), the moderating effects of retributive efficacy messaging (H5), and the moderating effects of prior attitudes (RQ1, H6). Study 6 also answered questions about the emotional flow of anger (RQ2, RQ3) by measuring anger toward the industry pre-, mid-, and post-message exposure.

Further, this study addressed limitations of the methodologies used in the previous pilot studies. Study 6 included control groups to assess baseline levels of policy support and intentions in response to control messages unrelated to childhood obesity or climate change as a standard of comparison for the theory-informed intervention messages. In addition, participants in Study 6 reported their initial attitudes two weeks before message exposure, thereby minimizing priming effects that may have been at play in the one-shot study designs of Studies 4 and 5.

Methods

Recruitment and sample. I used Qualtrics Panels to recruit participants for Study 6. Qualtrics partners with various panel providers who maintain a series of market research panels. Qualtrics randomly selects respondents to invite to particular studies (taking into account factors such as number of surveys recently completed, participation frequency, etc.). Qualtrics employs several screening checks to prevent duplicates. Respondents on Qualtrics may be less susceptible to study fatigue than MTurk workers because they complete fewer studies than do MTurk users (Kees, Berry, Burton, & Sheehan, 2017). Qualtrics participants also tend to spend more time

completing studies than MTurkers (Kees et al., 2017), which makes them a desirable participant pool for message effects research.

I used the same sample size computations as the MTurk pilot tests (~88/cell). However, Study 6 added two offset control groups (one per context), which amounted to $N = 880$ for a 10-cell design (Figure 6.1). Based on a quote from a Qualtrics representative, I expected a 50% attrition rate between the two waves of data collection, which suggested an initial recruitment effort of $N = 1{,}760$ for the first wave. Unlike the previous pilot studies, I strategically recruited an even distribution of political partisans under the assumption that political affiliation would serve as a proxy for attitudes toward industry regulation (see, e.g., J. E. Cohen et al., 2000; Walters, 1977; Watson, 2012).

Figure 6.1 *Schematic of random assignment with estimated cell sizes (Study 6)*

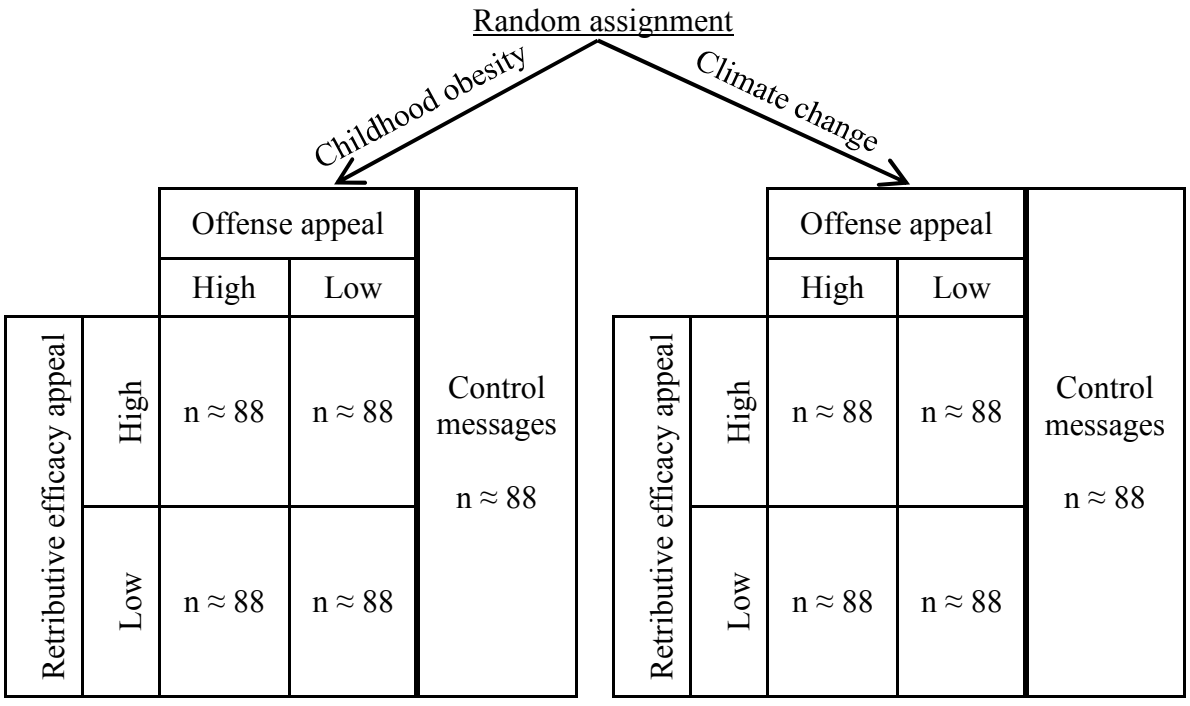


Table 6.1 presents the demographics for Study 6. At Wave 1, participants' mean age was $M = 39.4$ ($SD = 13.5$), and most participants identified as female (60.0%), non-Hispanic (91.4%), and White (83.4%). The modal income category was ≥$75,000 (34.0%), and half of Wave 1 participants had a college degree or higher (51.6%). Relative to population estimates from the 2016 American Community Survey, this sample over-represents individuals who are female (51% of the population), are non-Hispanic (83% of the population), are White (76% of the population), are college-educated (28% of the population), and have lower income (35% of the population earns $100K or more). As expected, there were roughly equal percentages of participants identifying as Republican (34.1%), Democrat (33.7%), and Independent (32.3%), and the average participant was in the middle of the conservatism scale ($M = 4.07$, $SD = 1.66$, on a scale of *extremely liberal* [1] to *extremely conservative* [7]). Participants were infrequent consumers of sugary drinks ($M = 1.71$, $SD = .64$, on a 4-point scale). More than two-thirds believed that climate change is happening (69.2%), but fewer than half believed that climate change is anthropogenic (41.9%).

Procedure

Wave 1. Participants provided baseline measures of attitudes toward industry regulation and emotions toward the industry. This initial measure of emotions (including anger) served as time 1 (T1) data for emotional flow analyses. Because self-efficacy and external political efficacy were unaffected by the efficacy manipulations in Studies 4 or 5, I assumed that the current study would have similar non-effects and that there would be no need to measure changes in these outcomes during Wave 2. Thus, participants reported on these measures at Wave 1 only to reduce participant fatigue at Wave 2. Participants completed all these Wave 1 measures for both contexts. Finally, participants reported their demographics and covariates.

Table 6.1 *Sample characteristics (Study 6)*

	Wave 1	Wave 2	
	(*N* = 1760)	Childhood obesity (*N* = 374)	Climate change (*N* = 343)
Age	*M* = 39.39 (*SD* = 13.49)	*M* = 40.82 (*SD* = 13.27)	*M* = 41.23 (*SD* = 12.64)
Gender			
Male	703 (39.9%)	153 (40.9%)	135 (39.4%)
Female	1056 (60.0%)	220 (58.8%)	208 (60.6%)
Non-binary	6 (0.3%)	1 (0.3%)	0 (0%)
Different identity	1 (0.1%)	0 (0%)	0 (0%)
Hispanic/Latinx	152 (8.6%)	28 (7.5%)	22 (6.4%)
Race			
White	1469 (83.4%)	326 (87.2%)	311 (90.7%)
Black	142 (8.1%)	31 (8.3%)	14 (4.1%)
Other non-White, non-Black race	202 (11.5%)	32 (8.6%)	22 (6.4%)
College degree or higher	908 (51.6%)	199 (53.2%)	186 (54.2%)
Income			
<$25,000	309 (17.5%)	57 (15.3%)	50 (14.6%)
$25,000 - $49,999	436 (24.8%)	84 (22.5%)	90 (26.2%)
$50,000 - $74,999	416 (23.6%)	87 (23.3%)	86 (25.1%)
≥$75,000	598 (34.0%)	145 (38.9%)	117 (34.1%)
Political party affiliation			
Republican	600 (34.1%)	125 (33.4%)	127 (37.0%)
Democrat	593 (33.7%)	128 (34.2%)	100 (29.2%)
Independent	568 (32.3%)	121 (32.4%)	116 (33.8%)
Political conservatism (1-7 scale)	*M* = 4.07 (*SD* = 1.66)	*M* = 4.08 (*SD* = 1.77)	*M* = 4.17 (*SD* = 1.64)
Trait anger (1-7 scale)	*M* = 2.87 (*SD* = 1.51)	*M* = 2.67 (*SD* = 1.47)	*M* = 2.71 (*SD* = 1.46)
Previous activism	*M* = 1.62 (*SD* = .72)	*M* = 1.57 (*SD* = .66)	*M* = 1.54 (*SD* = .67)
Context-specific covariates			
SSB consumption (1-4 scale)	*M* = 1.71 (*SD* = .64)	*M* = 1.68 (*SD* = .63)	--
Parent/guardian	673 (38.2%)	137 (36.7%)	--
Climate change is happening	1218 (69.2%)	--	255 (74.3%)
Climate change is human-caused	737 (41.9%)	--	149 (43.4%)

Note. SSB = sugar-sweetened beverage. Wave 2 characteristics are shown only for participants whose data were included for final analyses.

Wave 2. About two weeks later, participants received an invite to complete the second wave of the study. The Wave 2 survey (which contained two different measurements of emotions, as noted below) randomly assigned participants to one of the two contexts, and within each context, the experiment followed a 2 (offense component: high vs. low) × 2 (retributive efficacy component: high vs. low) + 1 (offset control) between-subject design. Figure 6.1 visualizes the design scheme of Study 6. After reading the offense component, participants reported their emotions, appraisals, counterarguing, perceived argument strength, and psychological reactance. This time point of anger served as the anger induction check variable and as T2 anger for emotional flow analyses.

Next, participants read the efficacy component. They then reported on activism intentions, emotions (including time 3 [T3] anger), retributive efficacy for each of the four solutions mentioned in the efficacy appeal, solution efficacy, support for the three policies described in the retributive efficacy messages, and personal behavior intentions. As with Study 5, participants also completed measures of counterarguing, perceived argument strength, and psychological reactance that were particular to the efficacy message.

In the control group, participants read two messages unrelated to childhood obesity or climate change (described below). Half of the control group completed measures in the context of childhood obesity, and the other half completed measures in the context of climate change. The control group did not complete measures of counterarguing, perceived argument strength, or reactance.

Messages. The offense messages were the same as those used in Studies 4 and 5 with one minor change. I reasoned that the final sentences (e.g., "So what can be done to address childhood obesity and stop the soda industry from knowingly manipulating American

children?") may have primed participants in the pilot studies to expect information related to retribution. If so, should the predicted interaction emerge between the offense and retributive efficacy components, this interaction could be due to the fact that the offense component prompted angry participants to expect retribution information rather than anger organically motivating preferences for retribution information. I therefore removed these final sentences from the offense components.

The efficacy messages were largely similar to those used in Study 4. Recall that I opted to use the efficacy messages from Study 4 not Study 5 because Study 4 was able to manipulate retributive efficacy beliefs without influencing solution efficacy beliefs. However, the Study 6 efficacy messages did include a few additions to emphasize that engaging in the proposed solutions would have "major consequences" for the [soda/fossil fuel] industries (Table 6.2). In the control group, participants read two messages about a migratory bird called the shoebird (Table 6.3). Part 1 of the control messages (which was the control conditions' substitute for the offense message) was of comparable length to the offense messages (243 words), and part 2 of the control messages (the control conditions' substitute for the efficacy message) was similar in length to the efficacy messages (272 words).

Table 6.2 *Retributive efficacy messages (Study 6)*

Childhood obesity		Climate change	
High retributive efficacy (288 words)	Low retributive efficacy (203 words)	High retributive efficacy (286 words)	Low retributive efficacy (201 words)
There is no simple solution for addressing childhood obesity. Along with parents carefully watching their kids' diet, it's important to consider other solutions that will address childhood obesity. More importantly, these solutions will have major consequences for the soda industry, punishing the industry for their actions. For example, passing policies that reduce (or eliminate) the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. When kids nag their parents less for sugary drinks, parents will be less likely to purchase them. In addition, parents spending less money on sugary drinks will impact soda companies by cutting into the companies' profits. Another solution that will teach soda companies a lesson is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. This strategy will level the playing field by reducing kids' requests for sugary drinks. And when parents buy fewer sugary drinks for their kids, this will negatively	There is no simple solution for addressing childhood obesity. Along with parents carefully watching their kids' diet, it's important to consider other solutions that will address childhood obesity. For example, passing policies that reduce (or eliminate) the advertising of sugary drinks to kids will help reduce kids' demands for these beverages. When kids nag their parents less for sugary drinks, parents will be less likely to purchase them. Another solution that has been proposed is to require children's media stations to provide free airtime for healthy-product advertising in proportion to the amount of airtime for advertising for unhealthy products. This strategy will level the playing field by reducing kids' requests for sugary drinks, which means parents will buy fewer sugary drinks for their kids. Another solution that will be effective at addressing childhood obesity is closing the loophole in the tax code that allows soda companies to deduct advertising expenses for marketing sugary drinks. Closing the loophole will reduce childhood obesity.	There is no simple solution for addressing climate change. Along with consumers carefully watching their carbon emissions, it's important to consider other solutions that will address climate change. More importantly, these solutions will have major consequences for the fossil fuel industry, punishing the industry for their actions. For example, passing policies that increase taxes for burning fossil fuels will motivate fossil fuel companies to use cleaner forms of energy. Switching to cleaner types of energy will ultimately reduce the companies' carbon emissions. In addition, making them pay for their carbon emissions will impact fossil fuel companies by cutting into the companies' profits. Another solution that will teach fossil fuel companies a lesson is to establish federal tax subsidies for consumers who use wind, solar, and other forms of renewable energy. This strategy will level the playing field by encouraging consumers to invest their money in renewable forms of energy instead of traditional forms of energy. And when consumers avoid using fossil fuels, this will negatively affect fossil fuel companies by keeping	There is no simple solution for addressing climate change. Along with consumers carefully watching their carbon emissions, it's important to consider other solutions that will address climate change. For example, passing policies that increase taxes for burning fossil fuels will motivate fossil fuel companies to use cleaner forms of energy. Switching to cleaner types of energy will ultimately reduce the companies' carbon emissions. Another solution that has been proposed is to establish federal tax subsidies for consumers who use wind, solar, and other forms of clean energy. This strategy will level the playing field by encouraging consumers to invest their money in renewable forms of energy instead of investing in traditional forms of energy. Another solution that will be effective at addressing climate change is eliminating subsidies to fossil fuel companies that make it cheaper to make fossil fuels. Getting rid of these subsidies will reduce carbon emissions by encouraging companies to emit less carbon.

affect soda companies by keeping money out of the companies' pockets. Another solution that will make soda companies think twice is closing the loophole in the tax code that allows soda companies to deduct advertising expenses for marketing sugary drinks. Not only will closing the loophole help reduce childhood obesity, it will also get back at soda companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors make a difference, personal actions like boycotting sugary drinks and switching to healthier options can help reduce weight gain. Importantly, these actions will send a clear message to soda companies that consumers will not tolerate the companies' actions.	Lastly, you can do your part by changing personal behaviors (such as cutting back on sugary drinks). Although it may not seem that individual behaviors make a difference, personal actions like avoiding sugary drinks and switching to healthy options can reduce obesity.	money out of the companies' pockets. Another solution that will make fossil fuel companies think twice is eliminating subsidies to fossil fuel companies that make it cheaper to make fossil fuels. Not only will getting rid of these subsidies help reduce carbon emissions, it will also get back at fossil fuel companies by striking a blow to their bottom line. Lastly, you can do your part by changing personal behaviors. Although it may not seem that individual behaviors make a difference, personal actions like boycotting fossil fuels and switching to clean energy can help reduce carbon emissions. Importantly, these actions will send a clear message to fossil fuel companies that consumers will not tolerate the companies' actions.	Lastly, you can do your part by changing personal behaviors (such as switching to renewable energies like wind or solar). Although it may not seem that individual behaviors make a difference, personal actions like avoiding fossil fuels and switching to clean energy can reduce carbon emissions.

Note. Underlining was used to emphasize retributive efficacy content to participants.

Measures. Most survey measures were the same as those used in Studies 2, 4, and 5. Table 6.4 shows scale descriptives and reliabilities broken down by context and treatment or control. As with the previous studies, scale reliabilities were generally acceptable.

Activism intention. The survey asked participants a *yes*/*no* question: *After finishing this survey, would you like to visit [a soda corporation's/an oil and gas corporation's] website to send them a message about the actions of the [soda/fossil fuel] companies?* Modeled after Feldman and Hart (2016), this item was meant to more closely approximate behavior than traditional self-reports of intention. Unfortunately, it was not possible to actually provide participants with such a link because doing so was considered by Qualtrics Panels to reflect a sales activity and is thus prohibited by their terms of service—particularly if participants provided personal information that could be collected by the company for sales and marketing purposes. For this reason, instead of providing a link, an end-of-survey message appeared to participants who selected *yes*, indicating that they were welcome to visit a corporation's website on their own.

Psychological reactance. I assessed psychological reactance in Study 6 in order to have an additional measure of participants' defensive processing of the message. Research has consistently shown that three variables are required to properly model the psychological reactance process—perceived threat to freedom, negative cognitions, and anger at the source (Quick et al., 2013) —all of which I measured in the Study 6 survey.

Table 6.3 *Control messages (Study 6)*

Part 1 (243 words)	Part 2 (272 words)
Shorebirds are the undisputed marathon champions among migratory birds. About 20 species of shorebirds have been recorded making nonstop flights longer than 5,000 kilometers, or 3,100 miles—about the distance from Boston to San Francisco. No other species of migratory bird has been recorded completing a nonstop flight longer than 4,000 km. The longest known shorebird flights—about 12,000 kilometers and nine days in length—belong to the Bar-tailed Godwit during its migration from Alaska to New Zealand. But even small shorebird species make epic flights. The Semipalmated Sandpiper, which at about 22 grams weighs less than an apple, makes nonstop flights of 5,300 kilometers from Canada to South America. That's the aerial equivalent of completing 126 consecutive marathons. To accomplish these incredible migratory feats, shorebirds are legendary gorgers. Red Knots stopped over in the Delaware Bay on migration feast on horseshoe crab eggs and more than double their body mass in just three weeks. Not all of that food goes toward fuel. Research on Whimbrels stopped over in Chesapeake Bay showed that the protein from a feast of crab eggs went directly into producing eggs when the Whimbrels arrived on their breeding grounds in Churchill, Manitoba, just days later. Scientists are still just beginning to understand the incredible athletic feats of shorebirds, only recently discovering that some shorebirds migrate at the altitudes of jet-liners, while others fly their entire migrations at speeds approaching 100 kilometers per hour (or more than 60 mph).	Future research will continue to show what makes it possible for shorebirds to push the boundaries of what humans think is possible. At present, here's what we know about how they do it. They have the right shape. Long pointed wings allow shorebirds to efficiently carry heavy loads, while a long, sleekly shaped body helps them minimize drag while in the air. This aerodynamic design allows shorebirds to fly at high speeds while migrating, enabling them to travel long distances while maintaining their heading in the face of crosswinds that threaten to blow them off course. Shorebirds' body shapes may also enable them to climb to high altitudes more easily, where they can avoid high air temperatures and find favorable tailwinds. They can fly while they fast. Bar-tailed Godwits burn about a calorie over every 3 km of flight, but they don't add back any calories over their 12,000-km flights—fasting for the entire two weeks of their fall migration. Upon arrival in New Zealand, the Bar-tailed Godwits weigh about half of what they did when they departed Alaska, as they have burned through nearly all of their fat. They're incredible body-builders. Because they grow so heavy for their migrations, shorebirds also need to bulk up their flight and respiratory muscles to help carry all that weight and pump blood to supply all of the extra tissue. Bar-tailed Godwits nearly double the size of their pectoralis (breast) muscles, as well as the size of their heart and lungs. To accommodate their musclebound migratory physique, shorebirds shrink the organs they don't need, reducing the size of their stomach and gizzard prior to departure.

Note. I adapted these messages from https://www.allaboutbirds.org/fantastic-journeys-shorebirds-are-next-level-athletes/

Table 6.4 *Scale reliabilities, means, and standard deviations (Study 6)*

Variable	No. of items	Childhood obesity				Climate change			
		Treatment conditions (N = 265)		Control condition (N = 109)		Treatment conditions (N = 238)		Control condition (N = 105)	
		α/r	M (SD)	α/r	M (SD)	α/r	M (SD)	α/r	M (SD)
Attitude toward regulation*	4	.97	4.26 (1.92)	.97	4.04 (2.09)	.97	4.86 (1.88)	.95	5.03 (1.54)
Anger at industry									
T1	3	.95	3.43 (1.90)	.93	3.44 (1.84)	.95	3.82 (1.91)	.93	3.77 (1.84)
T2	3	.95	3.41 (1.90)	.96	3.04 (1.78)	.95	3.91 (1.99)	.96	3.88 (1.95)
T3	3	.95	2.73 (1.78)	.93	2.80 (1.82)	.95	2.99 (1.80)	.97	3.46 (1.90)
Appraisals									
Harm	2	r = .62	3.98 (1.65)	r = .64	3.80 (1.84)	r = .73	5.06 (1.58)	r = .83	4.56 (1.71)
Responsibility	2	r = .69	4.70 (1.52)	r = .68	4.40 (1.66)	r = .81	5.13 (1.51)	r = .74	4.92 (1.49)
Intentionality	1	--	5.25 (1.55)	--	4.81 (1.69)	--	4.89 (1.68)	--	4.79 (1.36)
Awareness	1	--	5.64 (1.44)	--	4.83 (1.73)	--	5.39 (1.54)	--	4.92 (1.50)
Illegitimacy	1	--	5.13 (1.56)	--	4.52 (1.72)	--	5.59 (1.55)	--	5.14 (1.68)
Control	1	--	5.47 (1.52)	--	5.09 (1.67)	--	5.32 (1.59)	--	4.90 (1.66)
Moral violation	3	.94	5.11 (1.51)	.91	4.74 (1.56)	.87	6.05 (1.02)	.94	5.44 (1.38)
Processing variables (offense component)									
Counterarguing	3	.80	3.59 (1.44)	--	--	.82	3.47 (1.48)	--	--
Perceived argument strength	3	.90	5.06 (1.36)	--	--	.90	4.96 (1.45)	--	--
Perceived freedom threat	3	.86	3.81 (1.50)	--	--	.88	3.77 (1.55)	--	--
Anger at source	3	.90	3.07 (1.76)	--	--	.92	3.19 (1.89)	--	--
Efficacy variables									
Retributive efficacy	20	.90	4.09 (.97)	.90	3.89 (1.06)	.93	4.23 (1.11)	.84	3.95 (.75)
Solution efficacy	12	.93	4.04 (1.30)	.92	4.00 (1.27)	.96	4.34 (1.38)	.92	4.28 (1.06)
Self-efficacy*	3	.81	4.65 (1.40)	.86	4.53 (1.57)	.86	4.56 (1.36)	.81	4.42 (1.15)
External efficacy*	3	.68	3.45 (1.38)	.71	3.45 (1.63)	.76	3.42 (1.49)	.54	3.48 (1.38)
Collective efficacy	1	--	2.90 (.66)	--	2.77 (.74)	--	2.80 (.76)	--	2.71 (.82)
Processing variables (efficacy component)									
Counterarguing	3	.78	3.73 (1.48)	--	--	.74	3.60 (1.40)	--	--
Perceived argument strength	3	.91	4.61 (1.49)	--	--	.92	4.89 (1.44)	--	--
Perceived freedom threat	3	.94	3.77 (1.70)	--	--	.92	3.68 (1.57)	--	--
Anger at source	3	.91	2.87 (1.77)	--	--	.93	2.89 (1.76)	--	--
Persuasion outcomes									
Policy support	3	.87	4.57 (1.60)	.80	4.35 (1.44)	.85	4.84 (1.48)	.81	4.70 (1.33)
Activism intention	1	--	n = 50 (18.9%)	--	n = 23 (21.1%)	--	n = 63 (26.5%)	--	n = 29 (27.6%)
Personal behavior intentions	5	.92	2.91 (2.17)	.93	3.28 (2.14)	.79	3.97 (1.39)	.81	4.16 (1.34)

Note. Cronbach's α was computed for scales with three or more items. Pearson's *r* was computed for scales with two items. These descriptive statistics are only shown for participants who completed both waves of Study 6 and whose data were included for final analyses. Variables with an asterisk were measured at Wave 1.

Perceived freedom threat. As a measure of perceived freedom threat, participants indicated their agreement (*strongly disagree* [1] to *strongly agree* [7]) with three statements taken from Dillard and Shen (2005): *The message tried to manipulate me*, *The message tried to make a decision for me*, and *The message tried to pressure me*. I took the average of these three items to form a perceived freedom threat scale.

Negative cognitions. I used the same three-item measure of counterarguing as Studies 4 and 5 to capture negative cognitions toward the message (*I did not accept the points made in the message*, *I found myself disagreeing with the message's points*, and *I thought of a lot of arguments against what the message were saying*).

Anger at the source. For anger at the source, I included a similar matrix of emotion terms but changed the stem to read, *While reading the message, how much did you feel each of these emotions regarding the people who wrote this message?* Response options were *angry*, *annoyed*, *irritated*, *admiration*, *inspired*, *respect*. I averaged responses to the first three emotion words to create a scale of anger toward the source.

Collective efficacy. The earlier studies in this dissertation have measured several efficacy variables but not *collective efficacy*—the extent to which one believes the group can work together to reach a common goal (Bandura, 2000). Aside from collective efficacy being an important predictor of activism (Van Zomeren et al., 2008; Van Zomeren et al., 2004), it is possible that angry individuals may be willing to take steps to punish soda/fossil fuel companies but only insofar as collective efficacy is high. Thus, as a potential covariate, I measured perceptions of collective efficacy at the end of the Wave 2 survey. Participants selected the statement that best indicated their opinion on whether people (working collectively) can reduce [childhood obesity/climate change]: 4 = *People can reduce [childhood obesity/climate change]*

and are going to do so successfully, 3 = *People could reduce [childhood obesity/climate change], but it's unclear whether we will do what's needed*, 2 = *People could reduce [childhood obesity/climate change], but people aren't willing to change their behavior, so we're not going to*, and 1 = *People can't reduce [childhood obesity/climate change even if it is happening]* (Roser-Renouf et al., 2016). I also included a fifth response option for participants in the climate change condition (*Climate change isn't happening*). For participants who selected this option (n = 18, 1.2%), I re-coded their data to be missing for this variable under the assumption that efficacy beliefs are a moot point for individuals who do not believe climate change is happening.

Results

Message page durations. Message page durations were similar for the high offense messages ($Mdn_{\text{childhood obesity}}$ = 25 s, $Mdn_{\text{climate change}}$ = 30 s) and for the low offense messages ($Mdn_{\text{childhood obesity}}$ = 28 s, $Mdn_{\text{climate change}}$ = 31 s). Participants also spent similar time on pages with the low retributive efficacy messages ($Mdn_{\text{childhood obesity}}$ = 33 s, $Mdn_{\text{climate change}}$ = 32 s) and the high retributive efficacy messages ($Mdn_{\text{childhood obesity}}$ = 43 s, $Mdn_{\text{climate change}}$ = 33 s).

Pre-registered plans for this study indicated that I would exclude data from participants who spent less than 20 seconds on either of their message pages—at least for participants in the treatment groups—because 20 seconds appeared to be an appropriate threshold for exclusion based on pilot testing. However, adhering to this threshold would have excluded nearly two-fifths of participants in the current study (36.8%), so I instead lowered the threshold to exclude participants who spent less than 10 seconds on their message pages (27.8%), leaving N = 717 complete cases for inferential analyses.

It is worth pointing out that relative to participants in the pilot studies (where median durations ranged from 44-67 s), participants in this study spent noticeably less time on the

message pages. This suggests that participants in the current study may have paid less attention to the messages than MTurkers in the pilot studies and, as a result, may have had less exposure to the manipulations. I return to the implications of this observation in the discussion section.

Attrition and balance checks. I ran a binary logistic regression to assess whether certain individuals were more likely to drop out from Wave 1 to Wave 2. Two predictors (age and trait anger) were significant. Participants were less likely to complete Wave 2 if they were younger (OR = .98, 95% CI = [.98, .998], p = .022) and if they scored higher on the trait anger scale (OR = 1.09, 95% CI = [1.01, 1.17], p = .026).

I also conducted balance checks to assess whether assignment to conditions was successful. Educational attainment differed across the conditions, $\chi^2(df = 4) = 9.61$, p = .048, with a lower proportion of college-educated participants in the low offense/low efficacy conditions (48.0%) than the low offense/high efficacy conditions (65.9%), p = .005. Additionally, there were a greater number of Black participants in the childhood obesity context (8.3%) than the climate change context (4.1%), $\chi^2(df = 1) = 5.38$, p = .020. Controlling for these variables did not substantively change the results for the inferential analyses that I present below.

Main effects of the message manipulations. Table 6.5 shows the main effects for the two message manipulations on anger (H3), appraisals (H2), other processing variables, and persuasion variables.

Offense manipulation. The offense manipulation affected T2 anger toward the industry (H3), harm appraisals (H2a), responsibility appraisals (p = .052, H2b), and intentionality appraisals (H2c) but not awareness appraisals (H3d). These findings supported H3 (which predicted the effects of a high offense message on anger) and partially supported H2 (which

Table 6.5 *Main effects of message manipulations (Study 6)*

Message Manipulation	Variable	Low condition *M* (*SD*)	High condition *M* (*SD*)	*t*	*p*	Cohen's *d*
Offense manipulation	**Anger at industry**					
	T2	**3.42 (1.96)**	**3.87 (1.93)**	**-2.42**	**.016**	**0.22**
	T3	2.78 (1.80)	2.93 (1.79)	-.90	.37	--
	Appraisals					
	Harm	**4.30 (1.70)**	**4.68 (1.70)**	**-2.49**	**.013**	**0.22**
	Responsibility	4.77 (1.53)	5.03 (1.52)	-1.95	.052	0.17
	Intentionality	**4.88 (1.64)**	**5.28 (1.58)**	**-2.81**	**.005**	**0.25**
	Awareness	5.42 (1.54)	5.62 (1.44)	-1.54	.13	--
	Illegitimacy	5.23 (1.62)	5.46 (1.52)	-1.63	.10	--
	Control	5.38 (1.55)	5.42 (1.56)	-.29	.77	--
	Moral violation	5.52 (1.37)	5.59 (1.40)	-.54	.59	--
	Processing variables					
	Counterarguing	3.63 (1.40)	3.44 (1.50)	1.53	.13	--
	Perceived strength	**4.84 (1.40)**	**5.17 (1.39)**	**-2.66**	**.008**	**0.24**
	Freedom threat	3.81 (1.51)	3.77 (1.54)	.27	.79	--
	Anger at source	3.01 (1.81)	3.23 (1.82)	-1.38	.17	--
	Persuasion outcomes					
	Policy support	4.60 (1.56)	4.80 (1.54)	-1.39	.16	--
	Activism intention*	49 (19.8%)	64 (25.1%)	2.06	.15	--
	Personal behavior	3.43 (1.84)	3.39 (1.99)	.22	.83	--
Retributive efficacy manipulation	**Efficacy variables**					
	Retributive efficacy	4.10 (1.02)	4.22 (1.05)	-1.31	.19	--
	Solution efficacy	4.20 (1.28)	4.16 (1.42)	.33	.74	--
	Collective efficacy	2.88 (.74)	2.82 (.66)	.89	.37	--
	Processing variables					
	Counterarguing	**3.50 (1.40)**	**3.84 (1.47)**	**-2.67**	**.008**	**0.24**
	Perceived strength	**4.92 (1.32)**	**4.55 (1.59)**	**2.89**	**.004**	**-0.25**
	Freedom threat	**3.43 (1.50)**	**4.04 (1.73)**	**-4.28**	**.001**	**0.38**
	Anger at source	**2.58 (1.60)**	**3.19 (1.87)**	**-3.91**	**.001**	**0.35**
	Persuasion outcomes					
	Policy support	4.81 (1.50)	4.59 (1.60)	1.62	.11	--
	Activism intention*	55 (21.3%)	58 (23.7%)	.40	.53	--
	Personal behavior	3.51 (1.88)	3.31 (1.95)	1.16	.25	--

Note. Bolded values are statistically significant at $p \leq .05$. df = 501. *Activism intention rows show counts, percentages, chi-square test statistics, and *p* values from chi-square tests.

predicted the effects of a high offense message on anger appraisals). Though not hypothesized, there was also an effect of the offense manipulation on perceived argument strength, such that participants rated the high offense messages as stronger than the low offense messages.

This dissertation did not hypothesize main effects of the message manipulations on persuasion outcomes, but it is worth noting that there were no effects of the high vs. low offense messages on policy support, intent to visit a company website, or personal behavior intentions—though trends for the first two variables were in the desired direction.

Efficacy manipulation. Though trends were in the expected direction, the retributive efficacy manipulation did not significantly influence retributive efficacy perceptions, nor did it influence general perceptions of solution efficacy or collective efficacy. However, there were differences across the efficacy conditions on perceived argument strength with participants rating the high versions as weaker than the low versions. There were also significant differences in defensive processing. That is, the high retributive efficacy messages produced more counterarguing, greater perceptions of freedom threat, and more anger toward the source. Together, these results indicated a failed induction for retributive efficacy.

Regarding main effects on persuasion, the high and low retributive efficacy messages did not differ significantly on policy support, activism intention, or personal behavior intentions.

The moderating role of retributive efficacy. Because the retributive efficacy induction was not successful, I was not able to test H5 (that there would be an interaction effect between an offense message and a retributive efficacy message on persuasion) with experimental conditions as the independent variables. I therefore used the same analyses as Study 2 in which I used observed anger toward the industry (T2) and observed retributive efficacy as predictors in hierarchical regression models. I discuss the results for each outcome one by one.

Table 6.6 *Regressions predicting policy support (linear), activism intention (binary), and personal behavior intentions (binary) (Study 6)*

	Policy support		Activism intention		Personal behavior intentions	
	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2
Demographics/covariates	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)	(not shown)
Context (ref = childhood	.03	.01	1.37	4.18	.85***	.71
obesity)	(.08)	(.68)	[.91, 2.07]	[.13, 138.6]	(.12)	(.77)
Anger at industry (T2)	.15***	.17	1.27***	1.19	.22***	.28#
	(.02)	(.11)	[1.13, 1.42]	[.67, 2.12]	(.03)	(.14)
Retributive efficacy	.61***	.74***	1.55***	1.49	.23***	.23#
	(.04)	(.12)	[1.30, 1.85]	[.83, 2.76]	(.05)	(.14)
Anger × retributive	--	-.01	--	1.03	--	-.01
efficacy		(.03)		[.91, 1.17]		(.03)
Context × anger	--	.21	--	.91	--	-.06
		(.16)		[.43, 1.93]		(.19)
Context × retributive	--	-.03	--	.88	--	.04
efficacy		(.17)		[.38, 2.01]		(.20)
Context × anger ×	--	-04	--	.99	--	.01
retributive efficacy		(.04)		[.84, 1.17]		(.05)
Adjusted R^2	.51	.52	--	--	.31	.31
AIC	--	--	668.7	673.4	--	--
N	715	715	715	715	715	715

Note. # $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. For policy support and personal behavior intentions, values are unstandardized beta coefficients with standard errors in parentheses. For activism intention, values are odds ratios with 95% confidence intervals in brackets. Models adjusted for age, gender identity, race, ethnicity, educational attainment, income, political party affiliation, political ideology, trait anger, previous activism, and attitudes toward industry regulation.

Policy support. Block 1 (Table 6.6) indicated that both anger toward the industry (b = .15, $p < .001$) and retributive efficacy (b = .61, $p < .001$) positively predicted policy support. However, their interaction term in Block 2 was not statistically significant (b = -.01, $p = .73$) nor were any interactions with context (interaction ps > .05). These results do not support H5a, which predicted a moderating role for retributive efficacy on policy support.

Activism intention. With activism intention as the outcome variable (Table 6.6), anger toward the industry (OR = 1.27, 95% CI = [1.13, 1.42], $p < .001$) and behavioral retributive efficacy perceptions (OR = 1.55, 95% CI = [1.30, 1.85], $p < .001$) were both significant predictors of activism intention in Block 1. Failing to support H5b, the anger × behavioral retributive efficacy interaction was not significant in Block 2 (OR = 1.03, 95% CI = [.91, 1.17], $p = .63$), and none of the interaction terms with context were significant (ps > .05).

Personal behavior intentions. In Block 1 of the models predicting personal behavior intentions (Table 6.6), both industry anger (b = .22, $p < .001$) and behavioral retributive efficacy (b = .23, $p < .001$) predicted intentions, but their interaction term was not significant in Block 2 (b = -.01, $p = .69$), which did not support H5c. Further, none of the interactions with context were statistically significant (interaction ps > .05).

The moderating role of initial attitudes. RQ1 asked whether attitudes would moderate the effect of the counterindustry messages on persuasion. I ran a hierarchical regression model with condition dummy variables and initial attitudes as predictors in the first block (excluding control), followed by condition × attitude interaction terms in the second block (not shown in tables). Although there were main effects in the first blocks of initial attitudes on policy support (b = .41, $p < .001$), activism intention (OR = 1.27, 95% CI = [1.12, 1.43], $p < .001$), and personal

behavior intentions (b = .30, $p < .001$), initial attitudes did not interact with the offense manipulation or the efficacy manipulation on any of these outcomes (interaction ps > .05).

H6 predicted that counter-attitudinal individuals would experience (a) greater reactive anger and (b) less anger at the industry than pro-attitudinal individuals when exposed to an offense message. Failing to support H6, there was no interaction between initial attitudes and the offense manipulation on anger toward the source (b = -.11, $p = .21$) or anger toward the industry (b = .09, $p = .32$).

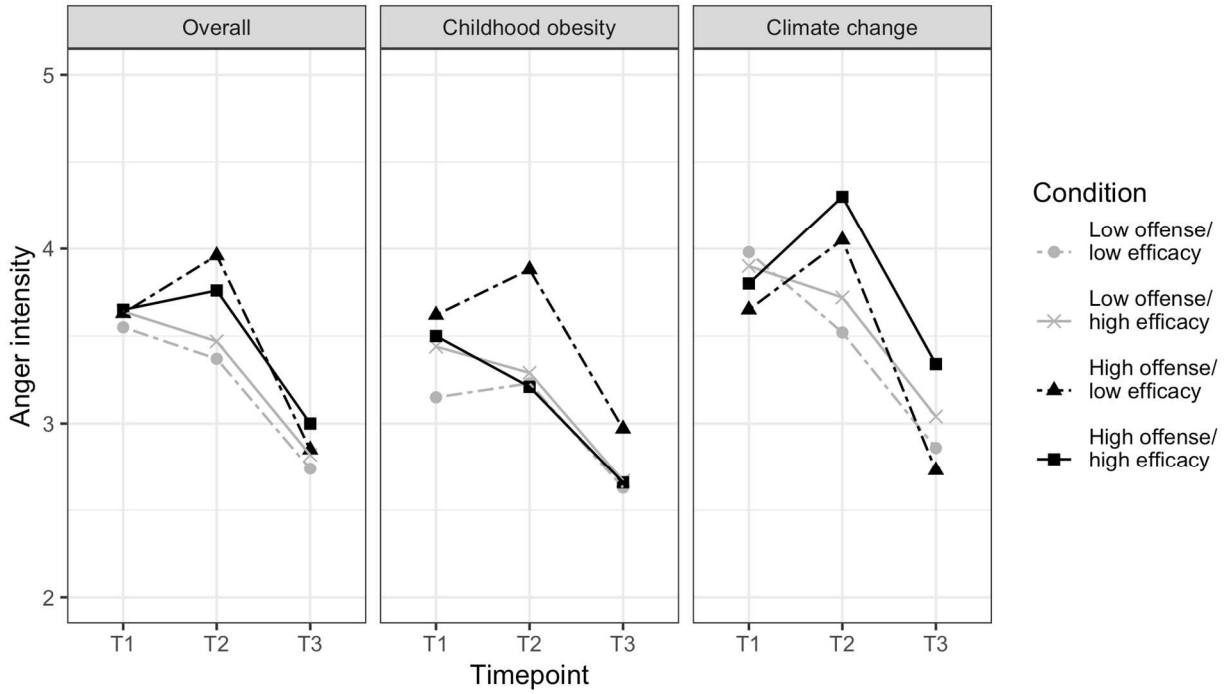
The emotional flow of anger

Describing the emotional flow pattern. RQ2 asked whether the emotional flow of industry anger (in response to a high offense/high retributive efficacy message) would exhibit a linear, curvilinear, or plateau trend. Recall that a linear trend would be one in which anger increases from T1 to T2 (pre-offense message to post-offense message) then continues to increase from T2 to T3 (post-offense message to post-efficacy message). A plateau trend would be one in which anger increases from T1 to T2 then remains stable from T2 to T3. A curvilinear trend would be one in which anger increases from T1 to T2 then decreases from T2 to T3. Figure 6.2 plots the means for industry anger at each time point across the four treatment conditions.

Visual inspection of means for the full dataset indicates that anger toward the industry roughly followed a curvilinear trend, increasing slightly upon exposure to the high offense component then decreasing markedly upon exposure to the high retributive efficacy component. This curvilinear trajectory was especially pronounced in the climate change data. In the childhood obesity data, however, anger among participants exposed to the high offense/high retributive efficacy messages appeared to have dropped between T1 and T2. The heterogeneity in T2 anger for the high offense childhood obesity messages likely suggests it may be more

difficult to arouse anger toward soda companies for contributing to childhood obesity that it would be to arouse anger toward fossil fuel companies for contributing to global warming.

Figure 6.2 *Emotional flow of anger for treatment messages (Study 6)*



Note. The full 7-point y-axis is not shown to maximize visual clarity. Confidence intervals are not shown to reduce visual clutter.

Emotional flow predicting persuasion. RQ3 asked which growth trend (linear, plateau, or curvilinear) would predict persuasion. To answer questions of this nature, researchers have previously employed latent growth modeling—a technique that conducts multilevel modeling within a structural equation framework (Bollen & Curran, 2006; Hancock & Lawrence, 2006). However, properly modeling a quadratic function (i.e., a curvilinear trend) requires at least four repeated measures. This is because estimating any growth trend requires at least one more time point than the number of parameters tested, and a quadratic function has three parameters

(Kenny & Milan, 2012). I therefore addressed RQ3 by examining whether changes between each time point (change scores for T1-T2, T2-T3, T1-T3) would predict the three persuasion variables. I first computed change scores for each time point combination. A positive change score indicates an increase in anger between the two time points, a negative change score indicates a decrease, and a change score of zero indicates no change. Next, I regressed the three persuasion variables on the change scores along with T1 anger as a covariate. Taken together, using the change scores to predict the persuasion variables provides clues as to the most effective trajectory for anger's flow. For these analyses, I analyzed data from all treatment groups to maximize statistical power. Coefficients and standard deviations (or odds ratios and confidence intervals for activism intention) are shown in Table 6.7.

Table 6.7 *Regressions predicting persuasion variables from anger change scores (Study 6)*

Change score (anger at industry)	Persuasion variable		
	Policy support	Activism intention	Personal behavior intentions
T1 → T2	.27 (.04)***	1.34 [1.17, 1.54]***	.24 (.05)***
T2 → T3	-.17 (.04)***	1.03 [.90, 1.18]	-.10 (.05)$^{\#}$
T1 → T3	.09 (.04)*	1.30 [1.15, 1.48]***	.14 (.05)**

Notes. $^{\#}$ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Each coefficient and standard error (or odds ratio and confidence interval for activism intention) comes from a separate regression model (that is, this table shows results from nine models). Each model also controlled for T1 anger (not shown here).

Policy support. For policy support, a T1-T2 anger change positively predicted policy support (b = .27, $p < .001$), which means that a greater increase in anger upon exposure to the offense message was associated with greater levels of policy support. A T2-T3 change was negatively associated with policy support (b = -.17, $p < .001$), meaning that a decrease in anger upon exposure to the efficacy message was associated with an increase in policy support. Finally,

change from T1 to T3 anger was positively associated with policy support (b = .09, p = .010), meaning that an increase in anger from beginning to end of the whole message predicted greater policy support. Together, these results suggest that a counterindustry appeal can promote policy support by increasing anger with the offense message then decreasing anger with the efficacy message (a curvilinear trajectory). However, because T1-T3 change also predicted policy support, this means the efficacy message should not reduce anger to baseline levels.

Activism intention. For activism intention, T1-T2 change was positively associated with intent to visit a company website to send them a message (OR = 1.34, 95% CI = [1.17, 1.54], p < .001), meaning that a steeper increase in anger upon exposure to the offense appeal was associated with greater intention. A change in anger from T2 to T3 was not associated with activism intention (OR = 1.03, 95% CI = [.90, 1.18], p = .65), but an overall increase from T1 to T3 was associated with greater activism intention (OR = 1.30, 95% CI = [1.15, 1.48], p < .001). These estimates suggest that to promote activism intention, a counterindustry appeal should first increase anger with the offense component. Because (a) a change in anger from post-offense message to post-efficacy message was not associated with intention and (b) the T1-T2 and T1-T3 odds ratios were roughly equivalent, we can interpret these results to suggest that a plateau trend (with the efficacy message sustaining anger) would best predict activism intention.

Personal behavior intentions. For personal behavior intentions, an increase in anger from T1 to T2 was associated with greater intentions to engage in personal behaviors (b = .24, p < .001). A decrease in anger from T2 to T3 was marginally associated with greater intentions (b = -.10, p = .059). From T1 to T3, an increase in anger was associated with greater intentions (b = .14, p = .003). These results are similar to the results for policy support. That is, they imply that to promote personal behaviors, the message should increase anger with the offense component

then reduce it with the efficacy component (but not to initial levels of anger). Thus, an inverted U-curve would be most likely to motivate personal behavior intentions.[1]

Post hoc analyses

Did the two manipulations interact? I ran a series of ANOVAs to assess possible interactions between the two experimental manipulations. None of the two-way interaction terms were statistically significant (interaction *p*s > .05). Therefore, there was no evidence that the effects of the offense manipulation varied as a function of the retributive efficacy manipulation.

Did message effects differ across contexts? As with the pilot studies, I investigated whether the effects of the manipulations would be moderated by context. The effects of the offense manipulation generally did not differ by context (interaction *p*s > .05). The one exception was perceptions of company intentionality, $F(1, 499) = 3.79$, $p = .052$, $\eta^2 = .007$. In the childhood obesity context, perceived intentionality was statistically equivalent between the high ($M = 5.33$, $SD = 1.63$) and low offense conditions ($M = 5.18$, $SD = 1.47$), $t(263) = -.82$, $p = .41$, $d = 0.10$. In the climate change data, intentionality was significantly higher in the high offense conditions ($M = 5.23$, $SD = 1.54$) than the low offense conditions ($M = 4.52$, $SD = 1.76$), $t(236) = -3.33$, $p < .001$, $d = 0.43$. This suggests the main effect of the offense manipulation on perceived intentionality was driven by the climate change data.

The effects of the retributive efficacy manipulation were generally similar across the contexts (interaction *p*s > .05). However, the efficacy manipulation had differential effects on perceptions of collective efficacy, $F(1, 485) = 7.80$, $p = .005$, $\eta^2 = .016$. For participants reading the childhood obesity messages, the low retributive efficacy messages produced greater

[1] Post hoc analyses (not described here) indicated that emotional flow results did not differ by context (interaction *p*s > .05).

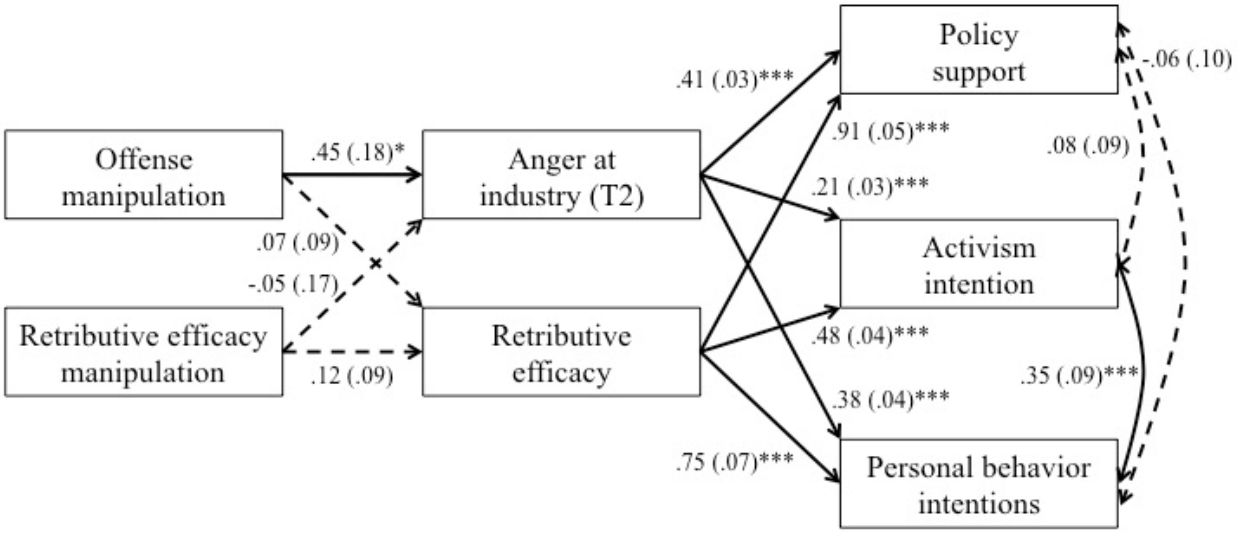
collective efficacy beliefs (M = 3.01, SD = 2.79) than the high retributive efficacy messages (M = 2.79, SD = .64), $t(263) = 2.77$, $p = .006$, $d =$ -0.34. For participants reading the climate change messages, the low retributive efficacy messages (M = 2.74, SD = .81) produced similar levels of collective efficacy as the high retributive efficacy messages (M = 2.87, SD = .69), $t(222) = -1.33$, $p = .19$, $d =$ 0.17. As with the results from the pilot studies, I considered this interaction to be a collateral effect of the efficacy manipulation that does not have any bearing on addressing the primary research questions driving this study.

Indirect effects of the offense manipulation. O'Keefe (2003) has argued that when studying the effects of messages designed to induce a particular psychological state (e.g., a particular emotion), it is important to conduct mediation analyses of the indirect effects of the message on downstream outcomes via the induced psychological state. To this end, I ran a single path model in the *lavaan* package in R with experimental conditions as exogenous variables, T2 anger toward the industry and retributive efficacy as mediators, and the three persuasion outcomes as dependent variables (allowed to covary). Because activism intention was dichotomous, I used diagonally weighted least squares for parameter estimation with scale-shifted test statistics (Beauducel & Herzberg, 2006; T. A. Brown, 2014).

Figure 6.3 shows the path model results, which confirm the induction check results and results from the hierarchical regressions. That is, the offense manipulation increased anger toward the industry (consistent with the induction check), and anger toward the industry was positively associated with all persuasion variables (consistent with the earlier regression results). Retributive efficacy was also positively associated with all persuasion variables. Formal mediation tests showed that anger mediated the positive indirect effect of the offense

manipulation on policy support (indirect effect [IE] = .19, *SE* = .07, *p* = .013), activism intention (IE = .17, *SE* = .07, *p* = .015), and personal behavior intentions (IE = .10, *SE* = .04, *p* = .016).

Figure 6.3 *Indirect effects of message manipulations (Study 6)*



Note. Solid paths are statistically significant (*p*s < .05), and dashed paths are not (*p*s > .05). *p < .05. ***p < .001. Values are unstandardized coefficients with standard errors in parentheses. This model also included direct paths from the manipulations to each dependent variable (not shown for simplicity). Of these direct paths, only the path from the efficacy manipulation to policy support was statistically significant (b = -.31, *SE* = .11, *p* = .006).

Did the messages influence persuasion outcomes relative to control? So far, the analyses have compared the effects of the high messages to the low messages, but it is worth testing whether exposure to the four treatment messages affected persuasion variables relative to the control messages. I investigated this possibility by running regression models with four condition dummy variables as predictors (one per treatment condition), thus setting the control group as the reference group. Then, in follow-up analyses, I collapsed the four treatment conditions to compare the effects of exposure to any treatment message vs. control. Table 6.8

displays means, standard deviations, and percentages for the three persuasion variables across the conditions.

Table 6.8 *Means and standard deviations (or percentages) for persuasion variables across conditions (Study 6)*

	Persuasion variable		
Condition	Policy support	Activism intention	Personal behavior intentions
Control	4.52 (1.40)[a]	24.3%	3.71 (1.84)[bc]
Low offense/low retributive efficacy	4.61 (1.58)	18.4%	3.65 (1.65)
Low offense/high retributive efficacy	4.60 (1.54)	21.1%	3.21 (2.00)[b]
High offense/low retributive efficacy	5.00 (1.41)[a]	24.1%	3.37 (2.08)
High offense/high retributive efficacy	4.58 (1.66)	26.2%	3.41 (1.91)
All treatment conditions	4.70 (1.55)	22.5%	3.41 (1.92)[c]

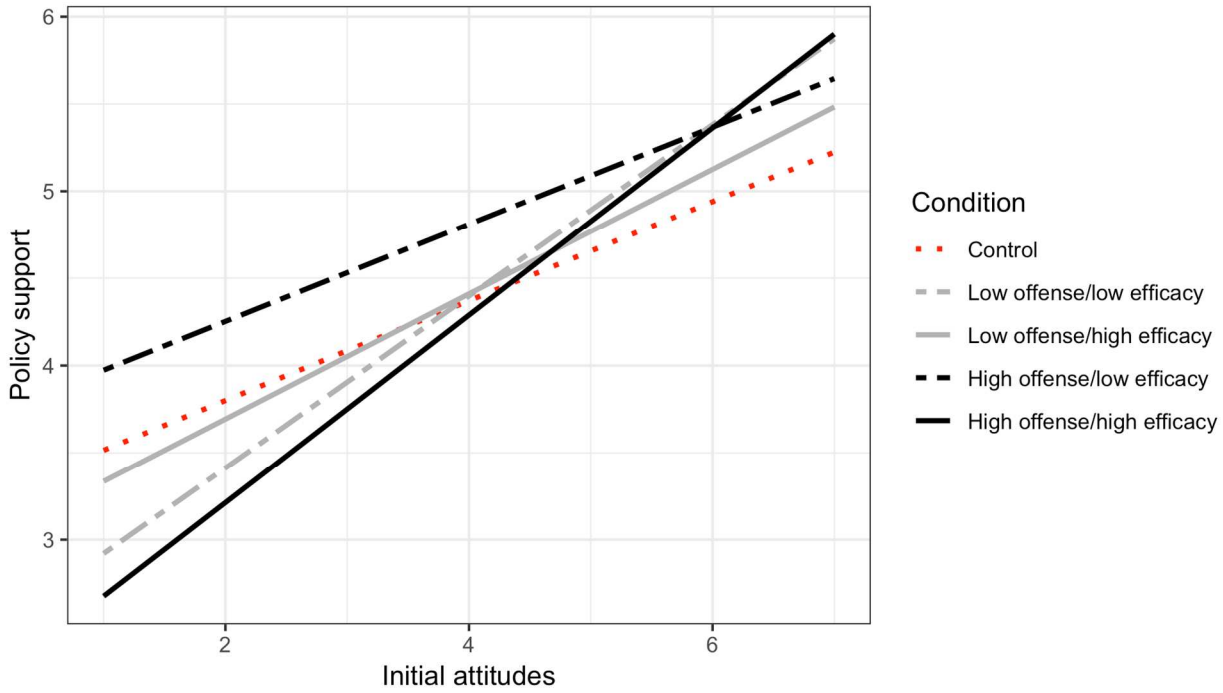
Note. Shared superscript denotes a significant difference at $p < .05$.

The high offense/low retributive efficacy message was the only message that influenced policy support in that it increased policy support relative to control (b = .48, $p = .004$). Though there were no effects of the treatment messages on activism intention compared to control (ps > .05), the low offense/high retributive efficacy message decreased personal behavior intentions relative to control (b = -.51, $p = .018$). Collapsing the treatment conditions indicated that exposure to any treatment message decreased personal behavior intentions compared to control (b = .30, $p = .051$) but had no effects on policy support or activism intention (ps > .05).

These results did not differ by context (interaction ps > .05), but there were interactions with initial attitudes on policy support relative to control. That is, attitudes moderated the effects of the low offense/low retributive efficacy message ($b_{interaction} = .21$, $p = .009$) and the high offense/high retributive efficacy message ($b_{interaction} = .25$, $p = .001$) on policy support. Figure 6.4 plots this interaction, which I probed using the Johnson-Neyman technique. These analyses

revealed that the low offense/low retributive efficacy message increased policy support but only for participants with attitudes at or above 5.41 on the 7-point scale ($p < .05$). Similarly, the high offense/high retributive efficacy message increased policy support relative to control among participants whose initial attitudes were 5.66 or higher ($p < .05$). This message also decreased policy support among participants whose initial attitudes were 2.74 or lower ($p < .05$).

Figure 6.4 *Plot for the interaction between attitudes and each treatment condition (vs. control) on (predicted) policy support (Study 6)*

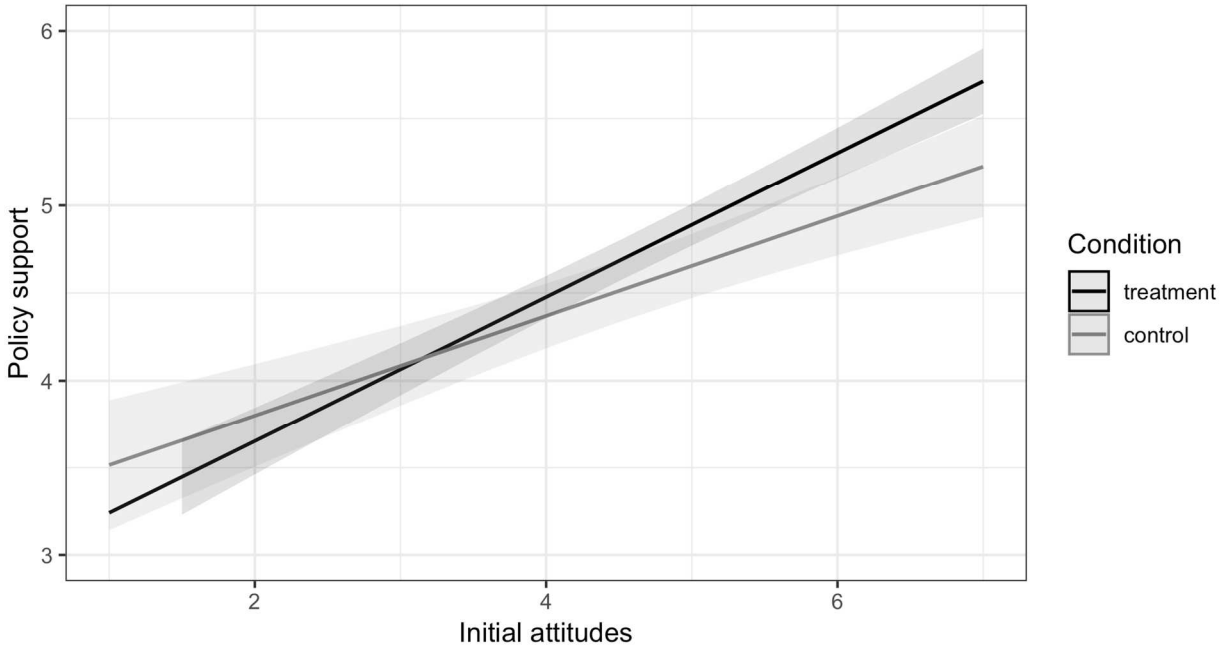


Note. All variables were measured on 7-point scales. Attitudes moderated the effects of the low offense/low retributive efficacy messages (dashed gray line) and high offense/high retributive efficacy messages (solid black line) relative to control (dotted red line). The full 7-point y-axis is not shown to maximize visual clarity of interactions. Confidence intervals are not shown to reduce visual clutter.

When collapsing the four treatment conditions, prior attitudes moderated the effect of exposure to any treatment message (vs. control) on policy support ($b_{interaction} = -.13$, $p = .025$),

which is plotted in Figure 6.5. The Johnson-Neyman analysis indicated that the treatment messages only increased policy support relative to the control group among participants scoring 4.85 or higher on the attitude scale ($p < .05$).

Figure 6.5 *Plot for the interaction between attitudes and any treatment condition (vs. control) on (predicted) policy support (Study 6)*



Note. All variables were measured on 7-point scales. The full 7-point y-axis is not shown to maximize visual clarity of interaction. Bands indicate 95% confidence intervals.

Study 6 Discussion

Rather than discussing results for Study 6 as I have done with the previous chapters, I discuss Study 6 findings alongside findings from the earlier studies in the next chapter.

CHAPTER 7: GENERAL DISCUSSION

Across six studies, this dissertation sought to understand how persuasive counterindustry/ anger appeals work. This included a focus on a variety of factors that may influence the persuasive influence of anger appeals—matters related to message design, persuadable audiences, and the evolution of emotional responses to persuasive content. Table 7.1 summarizes the results for each hypothesis and research question. This final chapter synthesizes findings across the six studies, connecting them to previous work in persuasion and emotion psychology and considering their implications for future research in this space. For the sake of clarity, I orient this discussion around the four key questions that this dissertation aimed to address.

Table 7.1 *Overview of support for hypotheses and research questions*

Theme	H/RQ	Summary	Study 2	4	5	6
Message design	H1	Anger (+) appraisals	✓	—	—	—
	H2	Offense component → appraisals	—	✓	✓	✓-
	H3	Offense component → anger	—	✓	✓	✓
Framing effects	H4	Anger (+) punitive policies (vs. non-punitive)	✓-	—	—	—
Tailoring efficacy	H5	Offense component × retributive efficacy component → persuasion	✓	—	—	✓
Initial attitudes	RQ1	Attitudes × counterindustry appeal → persuasion?	—	—	—	✓
	H6	Attitudes × offense component → industry anger, reactive anger	—	✓-	✓	✓
Measurement validation	H7	Retributive efficacy (+) solution efficacy, policy support, intentions	✓	—	—	—
	H8	Retributive efficacy (≠) external political efficacy, self-efficacy	✓-	—	—	—
Emotional flow	RQ2	Emotional flow pattern for anger?	—	—	—	Curve
	RQ3	Which emotional flow pattern → persuasion?	—	—	—	Depends

Note. (+) denotes a positive relationship and (≠) denotes a weak relationship. ✓ denotes support, ✓- denotes partial or mixed support, and ✗ denotes no support.

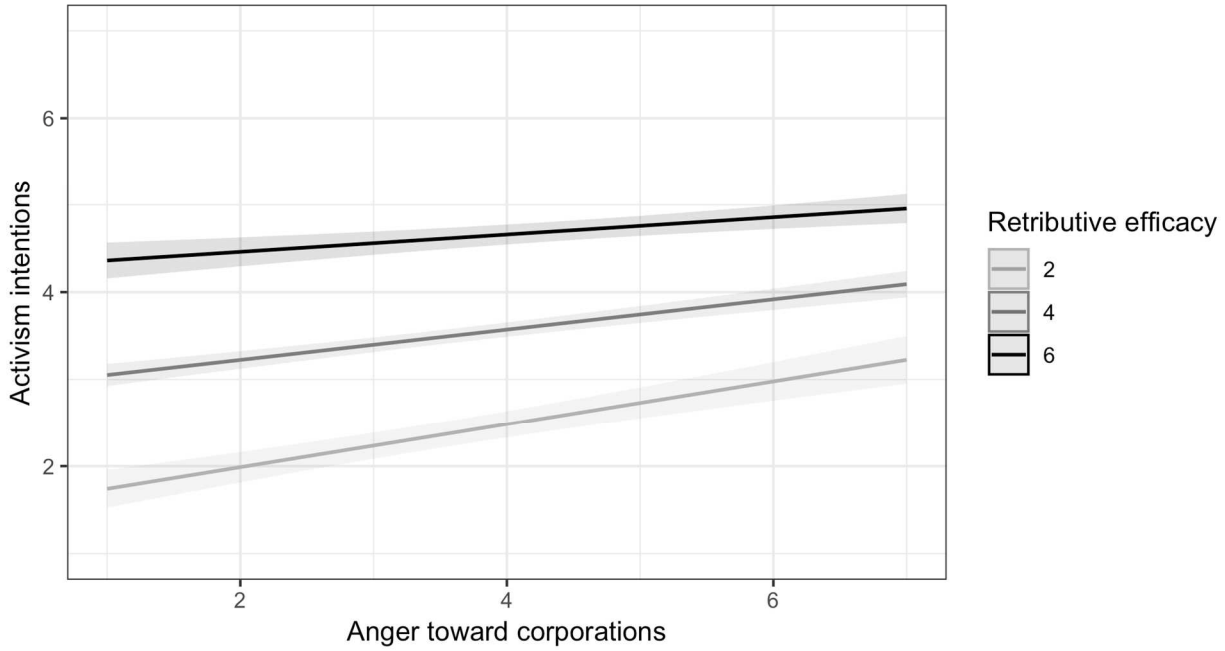
Does Communicating Retributive Efficacy Enhance Message Persuasiveness?

For decades, persuasive communicators have designed threat/fear appeals with efficacy cues that emphasize how message recipients can protect themselves from the depicted threat. This strategy follows naturally from emotion theory, given that fear motivates cognitive and behavioral outcomes related to protection (Lazarus, 1991; Shaver et al., 1987). Although some studies cast doubt on the effectiveness of pairing threat appeals with efficacy appeals (Popova, 2009), meta-analytic evidence points to the utility of this strategy (Tannenbaum, 2015). Until now, communicators have ignored whether appeals to other emotions might benefit from tailoring efficacy cues to match the motivational goal for those emotions (Dillard & Nabi, 2006). This dissertation marks an important step forward in this regard, empirically testing whether appealing to beliefs about the punitive efficacy of a recommended response (termed *retributive efficacy*) would enhance the persuasiveness of a counterindustry/anger appeal.

Regrettably, this dissertation was unable to successfully manipulate retributive efficacy to examine its independent and synergistic effects on persuasive outcomes, so I cannot comment on the moderating effects of retributive efficacy messages—at least, not retributive efficacy messages that actually inculcate retributive efficacy beliefs. Nonetheless, cross-sectional data do suggest retributive efficacy perceptions moderate the link between anger toward corporations and support for regulatory policies. In Study 2, retributive efficacy was less likely to factor into support for punitive policies among angrier rather than less angry individuals. In a similar fashion, general policy effectiveness beliefs compensated for low anger toward the industry on policy support. This interaction pattern contradicts my a priori expectation that retributive efficacy would matter most at higher levels of anger intensity—a prediction predicated on

emotion research showing anger's emotivational tendency is to punish (Lazarus, 1991; Shaver et al., 1987).

Figure 7.1 *Plot for the interaction between anger toward corporations and retributive efficacy on (predicted) activism intentions (Skurka, Niederdeppe, & Nabi, 2019)*



Note. All variables were measured on 7-point scales. Bands indicate 95% confidence intervals.

It is not immediately clear why this compensatory interaction pattern was significant in Study 2 but not Study 6. However, there is reason to believe that this pattern is not a chance finding. In a study examining the effects of late-night talk show host Jimmy Kimmel discussing political polarization around climate change, Skurka, Niederdeppe, and Nabi (2019) measured retributive efficacy (using the original five items in Study 1 before they had been validated) to explore whether retributive efficacy would moderate the relationship between anger toward companies that have contributed to climate change and intentions to participate in climate activism. Skurka et al. observed a compensation interaction (unpublished) analogous to the one

found in Study 2, whereby retributive efficacy evidenced a stronger relationship with intentions at lower levels of anger toward companies (Figure 7.1). They also found this pattern with solution efficacy (believing that taking action would address climate change) as a moderator, and the interaction also emerged with personal mitigation intentions as the outcome and self-efficacy as the moderator.

Skurka and colleagues' (2019) findings, considered alongside the current data, tell a consistent story about how angry individuals make decisions. When experiencing state anger, people support public policies—especially punitive policies—and express intentions almost regardless of their retributive efficacy and general response efficacy beliefs. Earlier, I made sense of this finding by drawing on literature from moral psychology and the psychology of retributive justice. This body of work suggests that (a) people tend to base moral judgments on their gut-level reactions to moral wrongness (Haidt, 2001; Haidt & Joseph, 2004) and (b) when assigning punishment for an intentional wrongdoing, people tend to punish the culprit to fit the severity of the offense (Carlsmith & Darley, 2008; Wenzel & Okimoto, 2016). Another way to interpret this interaction finding—particularly when the outcome is punitive—is through the lens of framing or spotlight effects of emotion (Nabi, 2003; Peters et al., 2006). Consistent with the framing effect argument that anger primes thoughts about and preferences for punitive information, angry individuals endorsed punitive solutions even if they did not report believing that the solution would be effective at teaching the culprit a lesson (retributive efficacy) and even if they did not report believing that the solution would be effective at addressing the larger issue (solution efficacy). This could mean that angry individuals are not analytically considering their efficacy beliefs when deciding whether to support a given solution. This comports well with Lerner and Tiedens's (2006) review on anger and information processing, which concluded that

people tend to be heuristic information processors when mad. If it is the case that angry individuals punish based on intuitive responses rather than deliberate beliefs about effectiveness, it may be difficult for persuasive messages to meaningfully shift angry individuals' beliefs about retributive efficacy, as shown in the first pilot test of this dissertation (Study 4). Furthermore, the present findings suggest that providing efficacy cues about retribution in a counterindustry/anger appeal may not necessarily boost its persuasiveness because angry individuals may be unlikely to take the retribution arguments presented into account.

It also appears that providing retributive efficacy information may provoke defensive responses. The high retributive efficacy messages in Study 6 were more likely to be counterargued, were perceived as making weaker arguments, and produced greater levels of anger toward the message source than the low retributive efficacy messages. The implicit assumption of this dissertation has been that if (angry) audiences are presented with a retribution appeal that they will open to considering arguments in the appeal. Looking at the results for defensive processing outcomes, however, it seems that message recipients reject punishment-focused messaging. Focus group findings (Study 3) corroborate this interpretation. Participants in the focus groups felt the messages were too aggressive, stating the messages would be more effective if the language were less pointed. These qualitative and quantitative findings together lead to the conclusion that retributive efficacy messaging may fail not because angry audiences are not consciously weighing efficacy beliefs but because audiences find the messaging abrasive.

Granted, these results could be an artifact of the specific retributive efficacy messages used in this dissertation and that better-crafted retribution messages would not produce as much defensive processing (Brashers & Jackson, 1999; Jackson, 1992). Focus group participants in Study 3 were quick to note that the retributive efficacy did not make the most compelling

arguments as to how the proposed solutions—that is, passing various policies, people taking action—would negatively impact corporations. Because the efficacy messages promoted multiple solutions, I aimed to keep the messages somewhat brief so that participants would not be tempted to skip reading. As a consequence, I was not able to flesh out the retributive efficacy arguments, and focus group participants recognized and commented on this shortcoming. Even though the messages underwent several pilot tests, future work should test the effects of other (stronger or longer) retributive efficacy messages to see if defensive reactions would still occur.

Because virtually no studies (aside from those on threat/fear appeals) have tailored efficacy cues to match the goal of the emotion evoked, there is little relevant research to compare the present findings. The most relevant finding comes from the guilt appeal literature. In a meta-analysis of guilt and social influence, O'Keefe (2000) found that people who commit an interpersonal transgression (which presumably generates guilt) are more likely to comply with a recommended action than people not committing a transgression (r = .28, k = 31). Importantly for the current discussion, the transgression-compliance relationship was not significantly stronger when the victim would benefit from compliance (r = .31, k = 11) than when the victim would not benefit (r = .26, k = 20). These studies did not measure perceptions of whether compliance would effectively benefit the victim, but one plausible interpretation for this null interaction is that guilt motivates action regardless of whether one believes the action will repair the damage done by the transgression. If so, this would be in accordance with the current findings about anger predicting persuasion outcomes regardless of retributive efficacy beliefs.

Retributive efficacy matters aside, the current findings suggest that strategically evoking anger with persuasive social issue messaging can promote persuasive outcomes. Cross-sectional data from Study 2 indicate that angrier individuals are more likely to support public policies and

intend to engage in personal and activist behaviors. Study 6 found that a high offense message describing the harmful, intentional actions of corporate wrongdoers indirectly persuaded message recipients (relative to a low offense message) by generating anger toward corporations. This comports well with literature showing that counterindustry messages are effective at changing attitudes and behaviors, in part, because they cultivate anger (Skurka, 2018) and negative beliefs about the industry (Hersey et al., 2005). Importantly, the findings in this dissertation were generally consistent across the two contexts studied, so findings may generalize to strategic communication efforts about other social and political topics.

Who Do Counterindustry/Anger Appeals Persuade?

One critique of emotional appeal frameworks (especially threat/fear appeal models) is that they do not account for moderating factors that could explain heterogeneous effects (Mongeau, 2013), so the Anger Activism Model (AAM, Turner, 2007) is unique in that it accords a moderating variable (initial attitudes) a central role. The authors of the recent meta-analysis of anger and persuasion (Walter et al., 2018) noted that few studies have examined whether the effectiveness of an appeal to anger depends on the audience's prior attitudes, as theory (Turner, 2007) would lead one to expect. Two studies that did measure initial attitudes provided no evidence that initial attitudes moderate the persuasiveness of anger-arousing messages (Ness et al., 2017; Skurka, 2018). This investigation is therefore one of the first (to my knowledge) to show counterindustry/anger appeals have differential effects among pro- and counter-attitudinal groups—at least, compared to an unrelated control message.

In Study 6, exposure to any message about corporate wrongdoing increased policy support (relative to control) among individuals with favorable attitudes toward industry regulation (4.85 or higher on a 7-point scale). This suggests that strategic messaging (not

necessarily anger-inducing) can persuade audiences who are already favorable toward the topic. A more nuanced picture emerges when looking at the conditional effects of the four specific counterindustry messages tested in Study 6. The high offense/high retributive efficacy version proved particularly polarizing. Relative to control, this kind of message increased policy support among individuals with the most positive attitudes (5.66 or greater) but reduced policy support among those with the most negative attitudes (2.74 or less).

This finding provides some support for the AAM's claim that prior attitudes determine whether an anger appeal will succeed or fail. It also suggests that retributive efficacy cues may enhance the effectiveness of a high offense appeal but only for individuals holding the most favorable prior attitudes. Prior attitudes have been shown to moderate the effects of threat/fear appeals (Jäger & Eisend, 2013), guilt appeals (Lwin & Phau, 2014), and humor appeals (Chattopadhyay & Basu, 1990; Jäger & Eisend, 2013), so by extension, it would seem counterintuitive to think that the effects of counterindustry/anger appeals would *not* be a function of prior attitudes. Perhaps previous anger appeal studies have not observed a moderating role for initial attitudes because they did not examine conditional effects of anger-inducing messages relative to a control message unrelated to the advocated issue. For instance, Skurka (2018) examined whether initial attitudes would moderate the effect of high vs. low counterindustry messages. Ness and colleagues (2017) compared the conditional effects of an anger-arousing anti-immigration website to an emotionally neutral anti-immigration website.

It should be pointed out that initial attitudes did not moderate the effects of both high offense messages on policy support. Remarkably, as shown in Figure 6.7, the high offense/low retributive efficacy message uniformly increased policy support irrespective of prior attitudes. This finding suggests that an anger-inducing counterindustry appeal can persuade counter-

attitudinal groups so long as it provides general response efficacy cues instead of retribution-focused efficacy cues, which (as discussed previously) may rub audiences the wrong way. Such a conclusion runs against the AAM's argument that messages aiming to evoke anger cannot persuade counter-attitudinal individuals. However, it does align with Walter and colleagues' (2018) meta-analytic finding that anger-arousing messages can be persuasive if they include response efficacy cues.

Clear message recommendations can be offered from these findings. If the communicator's goal is to rally support for public policies regardless of pre-existing attitudes toward the issue, a message should first highlight the intentional, harmful acts of a wrongdoer (offense component, inducing anger toward the wrongdoer) then provide solution/response efficacy information describing how the proposed solution will tackle the issue at hand (response efficacy component). An interesting question for future work is whether efficacy cues are necessary at all. The experimental design used in this dissertation always paired an offense component with an efficacy component (2 × 2 factorial with an offset control), which cannot tell us whether an offense message by itself can persuade or if the offense message must be paired with (response) efficacy content to persuade. Meta-analytic evidence would support the latter prediction (Walter et al., 2018), but one could envision a factorial design with a no-efficacy condition (e.g., 2 [offense message: high vs. low] × 3 [efficacy message: high vs. low vs. none]) to experimentally answer this question. At the very least, audiences seem to prefer a message that recommends efficacious solutions to remedy the problem (as demonstrated in the focus groups of Study 3).

What Message Ingredients Go into an Offense/Anger Appeal?

Classic theories of threat/fear appeals provide guidance on designing messages to evoke fear (Hovland et al., 1953; Rogers, 1975; Witte, 1992). The overarching recommendation is to communicate threat. More specifically, the message should emphasize that the threat is severe and that the individual is susceptible to the threat (Mongeau, 2013). In this way, to strategically generate other emotions, messages should include content that targets the cognitive appraisals underlying those emotions (Dillard & Nabi, 2006). For anger, Nabi's (1999) Cognitive-Functional Model recommends communicating a barrier or affront. This advice seems straightforward at first glance, but what exactly constitutes a barrier or affront? This dissertation explored this matter to identify specific appraisals linked to anger, the goal of which was to offer communicators specific recommendations on message subcomponents within the larger offense component that will increase the chances of eliciting anger.

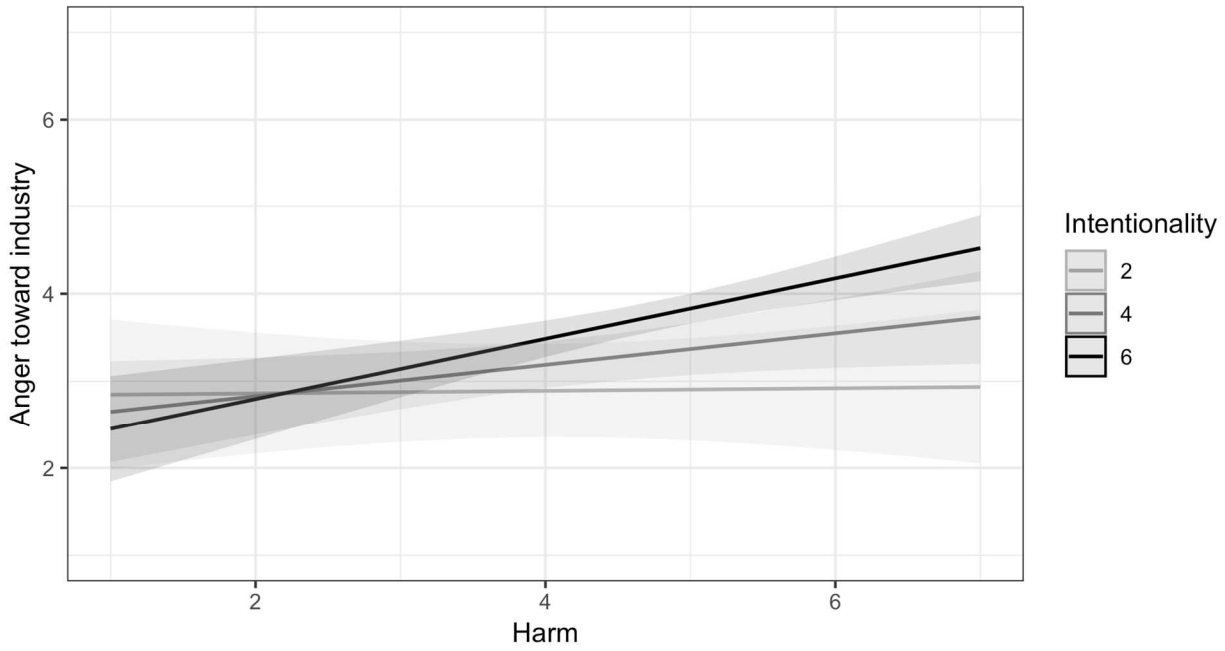
Study 2 demonstrated that a range of expected appraisals correlate with anger, such as perceived harm, responsibility, intentionality, awareness, responsibility, illegitimacy, control. Three of these appraisals (harm, intentionality, and moral violation) had especially robust relationships with anger when comparing the influence of all appraisals together. These findings align with previous work in emotion psychology demonstrating that anger is linked to appraisals that harm has been done (Giner-Sorolla et al., 2012; P. S. Russell & Giner-Sorolla, 2011), that the culprit's actions were done intentionally (Petersen, 2010; P. S. Russell & Giner-Sorolla, 2011), and that the culprit's actions violate one's moral principles (Mullen & Skitka, 2006; Rozin et al., 1999; Tangney et al., 2007; Tong et al., 2007). Studies 4-6 took these appraisal findings a step further by showing that an offense message that included a harm subcomponent, an intentionality subcomponent, and an awareness subcomponent produced greater levels of

anger than an equivalent message that did not emphasize these factors. Additionally, this high offense message promoted the corresponding appraisals for each of these message subcomponents (though it should be noted that the offense manipulation did not have a significant effect on awareness in Study 6). These findings speak to the utility of including message features that target specific appraisals believed to underlie the target emotion (Dillard & Nabi, 2006; Nabi, 1999). An important step for future studies of persuasion and anger is to experimentally manipulate each of these subcomponents in a persuasive appeal to isolate their independent and/or synergistic effects on anger arousal, as Chadwick (2015) has done with hope appeals. Although psychological studies indicate no single appraisal is necessary or sufficient for anger (Kuppens et al., 2003), it is worth exploring combinations of offense message subcomponents, which would lead to more fine-grained message design recommendations about potent combinations of message subcomponents.

On this note, this dissertation examined the independent relationship each appraisal had with anger intensity, but most appraisal theories of emotion maintain that it is *configurations* (combinations) of appraisals that give rise to particular emotions (Ellsworth & Scherer, 2003; Scherer, 2009). I ran a post hoc analysis with Study 2 data to test this prediction. Rather than run all possible pairwise interactions between appraisals, as an illustrative example, I investigated whether perceived harm's relationship with anger would depend on the strength of the other appraisals measured. I ran separate regression models for each interaction including all appraisals as covariates in each model. Harm's relationship with anger was moderated by appraisals of general responsibility ($b_{\text{harm} \times \text{responsibility}} = .08$, $p < .001$), intentionality ($b_{\text{harm} \times \text{intentionality}} = .08$, $p = .003$), and moral violation ($b_{\text{harm} \times \text{moral violation}} = .09$, $p = .001$). The interaction pattern was the same in all cases. That is, the relationship between harm and anger was greater at

higher levels of perceived responsibility, intentionality, or moral violation. This means, for example, that individuals who believed the industry caused harm but did not do so intentionally were unlikely to report feeling very angry toward the industry (Figure 7.2).

Figure 7.2 *Plot for the interaction between perceived harm and perceived intentionality on (predicted) anger toward the industry (Study 2)*



Note. All variables were measured on 7-point scales. Bands indicate 95% confidence intervals.

These post hoc findings demonstrate that cognitive appraisals interact to predict anger above and beyond individual appraisals, which aligns with what appraisal theories predict and what previous research has shown empirically (e.g., Meuleman et al., 2019; Tong et al., 2005; Tong et al., 2007). Importantly, for communication practitioners and theorists, these findings underscore the need for offense messages to target multiple appraisals to enhance the likelihood of eliciting anger. Simply emphasizing harm done by someone else's actions may not necessarily

generate anger (it could conceivably evoke sadness, for example) unless the message also conveys the wrongdoer's responsibility, the wrongdoer's intentionality, or that the wrongdoer's actions violated a significant moral standard. That said, readers should bear in mind that just because certain appraisals did not predict anger when adjusting for the influence of all appraisals at once (e.g., perceived control, perceived illegitimacy) does not mean that these appraisals cannot predict anger or, by extension, that a message subcomponent that targets such an appraisal could not generate anger. The current appraisal findings may very well be specific to the counterindustry topics examined.

Throughout this dissertation, I have adopted the term *counterindustry/anger appeal* to refer to a two-part, anger-inducing message. I chose this label because the focus of this dissertation was directing anger toward corporate industries to motivate social issue activism. However, I wish to reiterate that not all persuasive appeals to anger are counterindustry messages. For example, Nabi (2002a) tested the effects of news stories about domestic terrorists avoiding capture, Kühne and Schemer (2015) used a passage about a careless driver hitting a child then driving off, and Turner and colleagues (2007) used messages about university administrators restricting students' rights to celebrate athletic victories. This begs the question of the best name for persuasive messages strategically designed to induce anger. A promising candidate is *attack appeal*—a term used to describe political campaign advertisements that attack an opposing candidate (Crigler, Just, & Belt, 2006), which have been shown to elicit negative emotions (J. Cho, 2013, 2015). Future studies of anger and persuasion ought to test messages identifying different types of culprits and different types of harmful actions in order to assess the boundary conditions of the present findings. Researchers should also conduct this work in non-US contexts given that anger's appraisals may differ across cultures (Haidt & Keltner, 1999).

How Does Anger Flow During a Counterindustry/Anger Appeal?

In their seminal publication on threat/fear appeals, Hovland et al. (1953) alluded to the possibility that the persuasive success of a threat appeal may depend on its ability to evoke fear then alleviate it. A valid test of this prediction requires a within-subjects study design that assesses emotional reactions at multiple time points, yet virtually all research on emotional appeals since then has taken a between-subjects approach. Rossiter and colleagues conducted the first descriptive work that used a within-subjects methodology (Algie & Rossiter, 2010; Rossiter & Thornton, 2004). Dillard, Shen, and colleagues took this research a step further by linking emotion trajectories to persuasion outcomes (Dillard, Li, Meczkowski, et al., 2017; Dillard & Shen, 2018; Meczkowski et al., 2016; Shen, 2017; Shen & Coles, 2015; Shen & Dillard, 2014). Other work has examined dynamic physiological responses to media messages (e.g., Keene & Lang, 2016). We might categorize all of this research as falling within the domain of *emotional flow* (Nabi, 2015; Nabi & Green, 2015)—defined as the temporal evolution of emotion while audiences process media content. This dissertation builds on the burgeoning literature on emotional flow by first describing the emotional flow of anger during a counterindustry/anger appeal. Second, this dissertation examined the relationship between anger flow and persuasion.

Descriptively speaking, the emotional flow of anger in response to a high offense/high retributive efficacy message was roughly curvilinear. There was an uptick in anger intensity from pre-offense (T1) to post-offense message (T2)—particularly when the message was about climate change—and this was followed by a decline in anger from post-offense message (T2) to post-efficacy message (T3). An important caveat to this curvilinear finding is that the high retributive efficacy messages did not instill stronger beliefs about retributive efficacy than the low retributive efficacy messages. As such, one could reasonably argue that these data cannot

legitimately address the question of how anger evolves in response to a high offense/high retributive efficacy message. In Study 6, retributive efficacy was moderately correlated with T2 anger toward the industry ($r = .41$, $p < .001$), and this was relationship was especially strong when looking only at participants in the treatment conditions ($r = .48$, $p < .001$). This suggests that if a message were to effectively inculcate retributive efficacy beliefs, it could also bring about heightened feelings of anger toward the culprit. By extension, anger flow in response to a "true" high offense/high retributive efficacy message might resemble an increase-then-plateau trend rather than the inverted-U that emerged in the current investigation. These ideas are speculative, so it remains to be seen what the trajectory of anger would look like with a successful retributive efficacy induction.

This dissertation also investigated how the emotional flow of anger would relate to persuasive outcomes. In the literature review, I advanced two competing predictions. The AAM (Turner, 2007) argues that too much anger can be "destructive," which implies that to be effective, a counterindustry/anger appeal must increase anger with the offense component then decrease it to "utilitarian" levels with the efficacy component. An opposing prediction derives from emotion theory: Because anger energizes and mobilizes approach-oriented behavior (Carver & Harmon-Jones, 2009; Harmon-Jones & Allen, 1998; Harmon-Jones & Harmon-Jones, 2016), the message must generate and sustain (or even increase) anger toward the culprit. According to this perspective, if the message allows anger to drop, so too might the message recipient's motivation to take action.

Analyses of anger's change scores as they relate to persuasion outcomes implied that, depending on the outcome, different emotional flow patterns would be most effective. For policy support and personal behavior intentions, an inverted U-curve would be most likely to persuade.

This conclusion follows from the fact that policy support and personal behavior intentions were predicted by (a) an increase in anger from pre-offense to post-offense message, (b) a decline in anger from post-offense to post-efficacy message, and (c) an increase from pre-offense to post-efficacy message. This third relationship is especially important. Because message recipients should "leave" the message angrier toward the industry than when they "entered," the efficacy component of the message should not completely alleviate the recipient of all anger induced by the offense component of the message.

These findings for policy support and personal intentions offer qualified support for the AAM's implicit prediction about the necessary trajectory of anger. I say "qualified" support because the AAM states that too much anger can be destructive, yet in Study 6, peak anger experienced immediately after exposure to the offense message (T2 anger) was positively associated with all persuasion outcomes, as demonstrated in the mediation analyses (see the right side of Figure 6.6). As a counterpoint, one could argue that the current data cannot speak to the "destructiveness" of high anger intensity because peak anger at T2 was not extreme. This is a fair critique. Even the condition with the highest mean for T2 anger (high offense/high retributive efficacy in the climate change context, see Figure 6.2) did not come close to the highest points of the anger scale. To test the notion that peak anger might be associated with diminishing returns, I ran three post hoc regressions (one per persuasion variable) with T2 anger and its squared term (T2 anger × T2 anger) as predictors (along with T1 anger as a covariate). The quadratic term was not significant in any of these models ($ps > .05$), suggesting that "too much" peak anger may not necessarily translate to a reduction in persuasion.

Interestingly, analyses pointed to a different emotional flow pattern that would be ideal for encouraging activism (measured in Study 6 as intent to visit a [soda/fossil fuel] company's

website to send them a message about their actions). Although an increase in industry anger from pre-offense to post-offense message was associated with greater activism intention (as was the case for policy support and personal behavior intentions), a change in anger from post-offense to post-efficacy message was not related to activism intention. Because an overall increase in anger from beginning to end of the whole message positively predicted greater intention and because the effect of this change was similar in magnitude to the effect of the initial rise in anger upon exposure to the offense message, we can infer that a plateau trend would be most persuasive when advocating activism behaviors. In other words, communicators should try to boost anger with the offense component of the message then sustain the emotion with the second-part of the message. This is compatible with theorizing and evidence from emotion psychology that anger mobilizes and maintains approach-oriented action (Carver & Harmon-Jones, 2009; Nabi, 2002b).

How might one reconcile the seemingly divergent findings for policy support/personal behavior intentions on one hand and activism intention on the other? Perhaps the "ideal" emotional trajectory depends on the nature of the outcome advocated. Persuasion scholars often treat attitudes, intentions, and behavior as functionally equivalent (O'Keefe, 2013, 2015). This assumption is theoretically justifiable when the attitudinal object and the intended action pertain to the same behavior (Fishbein & Ajzen, 2010), but this assumption may not hold for the outcomes studied here.[2] Activism behaviors, by definition, are active. "Activist-oriented groups engage in *direct action*, challenge current…paradigms, and pursue democratic participation…by *working largely outside the system*" (P. Brown et al., 2004, pp. 53, emphasis added). In this way, activism behaviors are exactly the kinds of high-commitment behaviors that anger (as an

[2] For a related discussion about the differential effects of emotion on attitudes vs. behavior, see Nabi and Myrick (2018).

approach emotion) is likely to motivate (Turner, 2007)—that is, if it is evoked and sustained by a counterindustry/anger appeal. By contrast, personal behaviors (cutting back on sugary drinks, engaging in environmentally sustainable behaviors) are less likely to require the individual to go outside their comfort zone, and policy support is more or less an attitude—not a behavior. Because these outcomes are self-contained in nature, to promote them, persuasive messages may be most influential when they evoke anger toward the wrongdoer then allow the anger to abate by providing efficacy cues. Perhaps this is because a reduction in anger allows the individual to more deliberately weigh the efficaciousness of the recommended response (public policies, personal behaviors).

Regardless of the explanation, emotions are dynamic experiences (Scherer, 2009). Humans are continuously appraising and re-appraising their environment relative to their goals, needs, and desires (Ellsworth & Scherer, 2003; Lazarus, 1991). Communication researchers would be wise to embrace the dynamic nature of emotion and further explore the flow of emotional responses to media content (persuasive or otherwise). Important tasks for future work are to validate alternative techniques for measuring flow (e.g., retrospective emotion reporting, real-time dial measures) and identify alternative methods for analyzing the effects of flow on persuasion (e.g., trajectory analysis, which involves clustering individuals based on statistically similar trajectories and comparing those clusters on the outcome of interest).

Limitations

Aside from the limitations mentioned in the previous chapters, additional limitations merit discussion. First, this dissertation did not independently manipulate each subcomponent of an offense message (e.g., harm, intentionality, awareness) to isolate whether one or more are necessary to elicit anger. Second, this dissertation did not experimentally manipulate self-

efficacy messaging, which the AAM (and emotional appeal theories more broadly) suggest is another important message component. This dissertation focused primarily on response efficacy, which meta-analytic evidence suggests by itself can enhance the persuasiveness of an appeal to anger (Walter et al., 2018). Third, when it comes to measuring emotional flow, the Study 6 survey "paused" the experimental messages to measure emotional reactions to the offense component. Because the survey asked participants to report on a number of variables at this time point between the offense and efficacy messages, this added time likely depleted anger intensity, whereas back-to-back exposure between the message components would have likely produced higher estimates of T3 anger.

Fourth, emotional appeals can elicit a range of emotions other than the one(s) targeted (Dillard & Peck, 2000; Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996), which could have affected the results presented in this dissertation. For example, an offense message could conceivably provoke sadness or surprise, and a retributive efficacy message could provoke hope (Nabi, Gustafson, & Jensen, 2018; Nabi & Myrick, 2018) or relief (Nabi, 2015). Although Studies 2 and 4-6 measured several emotions, I opted to focus only on anger data in this dissertation for the sake of simplicity.

Fifth, following the AAM's propositions (Turner, 2007), this dissertation measured attitude extremity (one's evaluation of the attitude object) as a moderator. However, it could be the case that attitude extremity matters less to the processing of counterindustry/anger appeals than attitude certainty (one's conviction of one's evaluation of the attitude object; Gross, Holtz, & Miller, 1995; Tormala & Rucker, 2007) or attitude accessibility (the likelihood that one's existing attitudes will be activated upon exposure to the attitude object; Fabrigar, Priester, Petty, & Wegener, 1998)—or some combination thereof.

Finally, this dissertation had methodological limitations common in much media effects research. For example, this dissertation involved one-time message exposure, forced exposure to messages, limited time spent on the messages, one mode of message presentation (print messages), immediate measurement of persuasion outcomes, and the use of online convenience samples (recruited through MTurk and Qualtrics Panels).

Conclusion

All told, this dissertation paints a complex portrait of how counterindustry/anger appeals operate. Findings suggest that an offense message describing the harmful effects of an industry's intentional actions can indirectly persuade audiences by inducing anger toward the industry. Contrary to expectations, communicating retributive efficacy may not necessarily enhance the effectiveness of a counterindustry/anger appeal because angry individuals may be disinclined to take efficacy beliefs into consideration (or because retributive efficacy messages prompt defensive processing). If anything, retributive efficacy messaging cues may polarize audiences who hold the most extreme initial attitudes toward the advocated issue. By contrast, a high offense message that included more general cues about the proposed solutions' effectiveness promoted support for public policies regardless of initial attitudes. The appraisal findings suggest that to strategically generate anger, the offense component of a counterindustry/anger appeal should include multiple subcomponents that target appraisals of the harm that was done, the culprit's responsibility, and the culprit's intentionality. With regard to emotional flow, findings suggest that counterindustry/anger appeals may need to generate different emotional flow experiences depending on the outcome advocated. Although these findings provide considerable theoretical and practical insight into an under-studied topic, much work remains to further specify the conditions under which counterindustry/anger appeals can persuade.

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