

COMPASSION AND ANGER AS EMOTIONAL FRAMES, DYNAMIC
PROCESSES, AND INCIDENTAL CUES IN PROSOCIAL COMMUNICATION

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COMPASSION AND ANGER AS EMOTIONAL FRAMES, DYNAMIC
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This dissertation examines the role of compassion and anger in communicating the human health impacts of environmental pollution and how the two emotions contribute to increasing prosocial behavioral intentions. Drawing on literature on discrete emotions, mixed emotions, prosocial behaviors, order effects, and emotional flow, this dissertation investigates the role of compassion and anger in prosocial communication from three different angles. Chapter 2 presents two experiments that study compassion and anger as appeals that augment the persuasiveness of messages. Chapter 3 documents an experiment that examines compassion and anger as a dynamic process that develops and evolves during audience's message exposure. Chapter 4 reports on an experiment that investigates compassion and anger as incidental cues to and products of messages and examines whether the two functions of emotions work jointly.

Overall, this dissertation contributes to the literature in a number of ways. In Chapter 2, it connects victim portrayals with collective action, expands the array of

emotions in predicting collective action, and furthers the investigation of collective action in third-party contexts. In Chapter 3, it integrates classic research on order effects with the emerging emotional flow perspective, explores an understudied emotional experience, empathic anger, and provides new insights on the role of emotional intensity in influencing persuasion. In Chapter 4, it explores how incidental and message-induced emotions may or may not interact to influence persuasion and complements existing research on the moderating effect of political ideology regarding environment-related messaging. Practically speaking, this dissertation research offers useful guidance to help researchers and practitioners design more effective messages and communication tools to encourage prosocial behaviors.

BIOGRAPHICAL SKETCH

Hang Lu was born in Yibin, Sichuan, China. He completed an undergraduate degree in Journalism (2011) at Central South University in Changsha, Hunan, China.

Immediately after that, he went to Marquette University, where he worked as a graduate research assistant and developed a keen interest in risk communication, to study for his master's degree in communication. This interest led him to Cornell University, where he studied risk communication under the guidance and mentorship of Professor Katherine McComas.

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I would like to end this special section by quoting my favorite writer, Vladimir Nabokov, who happened to teach at Cornell decades ago. “Our existence is but a brief crack of light between two eternities of darkness.” I genuinely hope that by completing this dissertation and eventually becoming a Ph.D., this light will shine a bit brighter.

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CHAPTER 1: INTRODUCTION

From heartrending mass shootings to infuriating racial discrimination, global terrorist attacks to local oil pipeline protests, society seems to be faced with increasingly more conflict situations. As third parties to the action, individuals often learn about these situations involving tragedy and injustice from news media, which can leave them feeling a wide range of emotions, including compassion, anger and distress, which are commonly experienced in response to the descriptions of victims and perpetrators. More often than not, solving these issues requires not only the efforts of those deeply involved, but also broader societal support, such as prosocial behaviors, defined as actions that are beneficial to other people (Schroeder & Graziano, 2015).

Abundant research has demonstrated that emotions can play an essential role in encouraging such prosocial behaviors. While anger and compassion have received a lot of research attention respectively as prosocial emotions, how they can jointly influence prosocial outcomes remains an underexplored area. A related concept is empathic anger, an emotion that arises when a person that we care about is harmed by another (Hoffman, 1990). In this dissertation, I regard empathic anger as a mixed emotion of compassion and anger and deem that its action tendency should be a combination of that of compassion and anger (Vitaglione & Barnett, 2003). In addition, empathic anger may be more appropriately considered as a sequential mixed emotion that goes from compassion to anger, but not from anger to compassion (Batson et al., 2007; Hoffman, 1987). Because empathic anger has been rarely studied

in the literature, this dissertation research investigates how it may affect prosocial outcomes through the use of messages.

In relation to communication research, studies on emotional appeals have focused primarily on the effects of one message-relevant emotion, rather than multiple emotions. From the examples introduced at the beginning, it is clear that messages about complex issues can elicit multiple emotions at the same time. It may, therefore, prove more ecologically valid to study how message-relevant mixed emotions, such as empathic anger, can influence the immediate and long-term persuasive outcomes. In addition, recent research has started to look at emotional flow, which refers to the evolution of the emotional experience during message exposure and how the shifts between emotions may influence persuasive outcomes (Nabi, 2015). In relation to empathic anger-inducing messages, the particular sequence of message elements that induce compassion and anger may produce differential effects on persuasive outcomes. Moreover, although many scholars have examined the independent effects of incidental and integral emotions, limited research has investigated how they may interact to influence persuasive outcomes. Individuals are rarely in a completely emotionally neutral state, and information about social conflicts is more or less emotion-laden. Thus, it would be theoretically interesting and ecologically valid to examine the emotional flow from not just one integral emotion to another but also one *incidental* emotion to one *integral* emotion.

Thus, drawing on literature on discrete emotions, mixed emotions, prosocial behaviors, persuasion, and communication, this dissertation research examines the role of compassion and anger in communicating the human health impacts of

environmental pollution and how the two emotions contributed to increasing prosocial behavioral intentions. This dissertation research provides a deeper look into empathic anger, a rarely studied emotional experience, and contributes to a better understanding of how compassion and anger may work jointly or disjointly to influence prosocial outcomes. In addition, this dissertation research sheds light on the effects of mixed emotional appeals, emotional flow, and incidental and integral emotions on persuasive outcomes. Practically speaking, this dissertation research offers useful guidance to help researchers and policy makers design more effective messages and communication tools to encourage prosocial behaviors.

In light of these objectives, this first chapter provides an overview of this dissertation research, including its theoretical foundations, methodological concerns and contextual background.

Literature Review

Emotions and Prosocial Behaviors

Prosocial behaviors can be broadly defined as a wide range of actions that are beneficial to another (Schroeder & Graziano, 2015). Such behaviors include helping, comforting, sharing, and cooperating (Batson & Powell, 2003). Scholars also consider pro-environmental behaviors as a type of prosocial behavior (Nolan & Schultz, 2015). Fostering prosocial behaviors in individuals, groups, communities, and countries promotes coexistence, well-being and healthier social and environmental contexts (Cuadrado, Taberero, & Steinel, 2015; Weinstein & Ryan, 2010).

Over the past few decades, the study of prosocial behaviors has been

burgeoning in a variety of disciplines, such as psychology, sociology, behavioral economics and evolutionary biology (Penner, Dovidio, Piliavin, & Schroeder, 2005; Simpson & Willer, 2015). A focus of this line of research investigates different factors contributing to prosocial behaviors. In social psychology, three types of underlying mechanisms have been proposed as relevant for explaining prosocial behaviors: (a) learning, (b) social and personal standards, and (c) arousal and affect (Penner et al., 2005). This dissertation research corresponds to the arousal and affect explanation, which emphasizes the importance of emotions in stimulating prosocial actions. Egoistic motivations to improve one's own situation by reducing distress felt for others (Cialdini, Darby, & Vincent, 1973; Piliavin, Dovidio, Gaertner, & Clark, 1981) and altruistic motivations to improve the welfare of others due to feelings of other-oriented caring emotions (Batson, 1987, 1991) have both been highlighted in this line of work.

In this dissertation research, I view emotions as valenced reactions to events, agents, or objects, with their intrinsic characteristics generated from how the situation in which an emotion is elicited is construed (Ortony, Clore, & Collins, 1990). Emotions are largely transient, intense, and aimed at certain external stimuli (Clore, Schwarz, & Conway, 1994). I adopt the discrete emotion approach in this dissertation research, which regards emotions as a system of discrete categories (Frijda, 1986; Lazarus, 2001). This dissertation research starts with the concept of empathy (Batson, Lishner, & Stocks, 2015), one of the most prominent motivators for prosocial behaviors, which is discussed in greater details in the following section.

Empathy and Compassion

Often considered as a multidimensional psychological concept, empathy is defined in a myriad of ways, all involving an individual's responses to the experience of another (see Davis, 2015 for a discussion). For instance, empathy can be conceived as perspective taking, a process in which an individual views a situation from another's point of view (Stotland, 1969), or as emotional matching, a process whereby an individual simulates another's feelings (Eisenberg & Strayer, 1987). In this dissertation research, I focus on one specific definition put forward by Batson (1998): Empathy is an other-oriented emotional response that is elicited by and congruent with the perceived welfare of another in need. Unlike some other definitions of empathy, this particular definition accentuates the affective state of empathy, which involves one's feeling for another. Batson et al. (2015) also employs the term empathic concern to distinguish this definition from other definitions of empathy. Empathic concern is conceptually similar to another frequently used emotion term, compassion, which is an emotion generated from witnessing another's suffering that subsequently creates a desire within the perceiver to help alleviate that suffering (DeSteno, 2015; Goetz, Keltner, & Simon-Thomas, 2010; Valdesolo & DeSteno, 2011). In this chapter, I use empathic concern and compassion interchangeably when making references to research generated from different traditions.

The strength of empathic concern depends on two major factors: the magnitude of the perceived need from the victim and the extent to which the helper values the victim's welfare (Batson et al., 2015). It should be noted that Batson (1987) proposed the empathy-altruism hypothesis, which states that empathic concern felt for another in need stimulates altruistic motivation to reduce that need. Since then, the debate over

whether empathic concern produces true altruistic motivation has been going for over two decades (Davis, 2015). Because the examination of the empathy-altruism hypothesis is not a focus of this dissertation research, I take the stance that empathic concern can generate genuine altruistic motivation for prosocial behaviors, but egoistic goals, such as reducing aversive arousal, avoiding punishments, and gaining rewards, are also likely to be activated in the process (Batson et al., 2015).

Empirical evidence supporting the motivational role played by empathic concern and compassion in encouraging prosocial actions has been strong. Research has shown that increased empathic concern and compassion lead to more helping behaviors, increase cooperative actions and care in conflicts situations, improve attitudes toward stigmatized groups, produce greater forgiveness in relationships, strengthen social connections, and reduce punitive actions against others (for reviews see Batson et al., 2015; Davis, 2015; DeSteno, 2015; Goetz et al., 2010).

Anger

Anger is an emotion elicited because of “a demeaning offense against me and mine” (Lazarus, 1991, p. 222). Anger is presumed to be generated by a judgment that others are responsible for a transgression (Weiner, 2014). The action tendency of anger is to condemn and punish perceived perpetrators of negative events (Lazarus, 1991). Indeed, anger has been found to motivate antagonistic behaviors, such as condemnation, punishment, exclusion, overt aggression, harsh judgments, and denial of rewards to others (e.g., Berkowitz, 1990; Lemay, Overall, & Clark, 2012; Pillutla & Murnighan, 1996; Rozin, Lowery, Imada, & Haidt, 1999; Small & Lerner, 2008).

Because of the situations that elicit anger, the feelings associated with anger, and the behavioral consequences of anger are mostly negative, anger is often considered as a negative emotion. However, evidence abounds that anger can lead to positive, prosocial behavioral consequences as well, which is why anger is sometimes recognized as a moral emotion (Haidt, 2003; Thomas, McGarty, & Mavor, 2009; van Doorn, Zeelenberg, & Breugelmans, 2014). It should be noted that studies focusing on the negative consequences of anger are usually based on dyadic situations, where the individual feeling angry is also the victim of the perpetrator's actions. In contrast, when anger generates prosocial consequences, it often occurs in triadic (three-party) contexts, where anger arises from witnessing the welfare of a victim being harmed by a perpetrator. Two major types of prosocial actions have been identified as linked to anger in these triadic situations: punishing the perpetrator and compensating the victim (Lotz, Okimoto, Schlösser, & Fetchenhauer, 2011; Van de Vyver & Abrams, 2015). Scholars have also investigated how anger can motivate collective prosocial actions (Shi, Hao, Saeri, & Cui, 2015; van Zomeren, Spears, Fischer, & Leach, 2004).

Different terms, such as anger (Haidt, 2003), righteous anger (Leach, Iyer, & Pedersen, 2006), empathic anger (Vitaglione & Barnett, 2003), and moral outrage (Van de Vyver & Abrams, 2015) have been used to describe the type of anger that leads to prosocial behaviors. However, there are also differences among these terms and scholars differ in their views on these terms (Batson et al., 2007; Van de Vyver & Abrams, 2015). For instance, while moral outrage is considered by many as the emotion resulting from witnessing a moral standard being violated (Rothschild, Landau, Molina, Branscombe, & Sullivan, 2013; Thomas et al., 2009), others question

the existence of authentic moral outrage (Batson, Chao, & Givens, 2009; Batson et al., 2007; O'Mara, Jackson, Batson, & Gaertner, 2011). In this dissertation research, I focus on one particular type of anger (i.e., empathic anger) that has received arguably the least amount of attention in the literature. Although, like the other terms used for prosocial anger, empathic anger has the ability to promote prosocial behaviors, I believe that empathic anger is different from other types of anger because of its association with empathic concern. Before going into details about empathic anger, I would like to first provide a review of literature on mixed emotions, which will help inform the understanding of empathic anger.

Mixed Emotions

There has been a growing interest in the exploration of mixed emotions in recent years (Berrios, Totterdell, & Kellett, 2015; Larsen & McGraw, 2014). Mixed emotions are defined broadly as the co-occurrence of two or more same-valence or opposite-valence emotions, for instance, feeling happy and sad (Larsen & McGraw, 2011, 2014). Historically, there are two contrasting views regarding the existence of mixed emotions. One perspective suggests that because positive and negative emotions are located at the opposite ends of a bipolar continuum, it is not possible for individuals to experience positive and negative emotions at the same time (Barrett & Bliss-Moreau, 2009; Green, Goldman, & Salovey, 1993; Russell & Carroll, 1999). The other perspective, however, regards positive and negative valence as independent dimensions and argues that people can feel both positive and negative emotions simultaneously (Cacioppo, Gardner, & Berntson, 1999; Diener & Irannejad, 1986). Accumulating evidence, including a recent meta-analysis investigating the robustness

with which mixed emotions have been elicited experimentally, has shown that “mixed emotions are a robust, measurable and non-artifactual experience” (p. 13, Berrios et al., 2015).

One particular line of research on mixed emotions has been working on theorizing and empirically testing the nature of mixed emotions. Views differ on whether a mixed emotion should be considered as an integral distinctive experience that is qualitatively different from the simple sum up of the individual emotions comprising the mixed emotion. The additive account would predict that emotions with compatible appraisals enhance each other, leading to stronger experience of the overall emotional response, whereas emotions with incompatible appraisals cancel each other out, resulting in the weakening of the stronger emotional response (Kreibig, Samson, & Gross, 2015; Pe & Kuppens, 2012). This is based on the appraisal tendency framework, which assumes that appraisal tendencies from prior emotions can carry over to influence subsequent appraisals eliciting another emotion (Lerner & Keltner, 2000; Winterich, Han, & Lerner, 2010). Therefore, the additive account would predict that a mixed emotion only differs in intensity from at least one of its constituent emotions. In contrast, the emergent account considers each mixed emotion as a unique, distinct emotion that is more than the sum of the emotions involved (Kreibig et al., 2015; Larsen & McGraw, 2014). This is partly based on Scherer’s (1984) component process model of emotion, which assumes that different combinations of appraisal dimensions comprise distinct emotions and mixed emotions are the result of combinations of appraisal dimensions underlying their constituent emotions. Therefore, the emergent account would predict that a mixed emotion differs in pattern

from its constituent emotions. Kreibig et al.'s (2015) study on the psychophysiology of a mixed emotional state (i.e., amusement and disgust) provided support for the emergent account.

In a different vein, Oceja and Carrera (2009) identified four patterns of mixed emotions: sequential, prevalence, inverse and highly simultaneous. The sequential pattern refers to the experience when one emotion emerges first and then is replaced by another emotion. The prevalence pattern takes place when two emotions are being felt simultaneously over the course of an emotional episode with one emotion exhibiting high intensity and the other showing low intensity. The inverse pattern occurs when the intensity of two emotions evolves in an inverse fashion throughout an emotional episode. In other words, the intensity of one emotion gradually decreases and the other gradually increases over time. The highly simultaneous pattern emerges when two emotions not only run through a simultaneous course but also have moderate or high intensity. Oceja and Carrera's (2009) research illustrates that simply debating over the existence of mixed emotions may not be sufficient and that attention should also be directed toward the different subjective experiences of mixed emotions.

Some other scholars have also examined the effects of the sequence of sequential mixed emotions. Particularly, sequential mixed emotions can be further divided into two categories: improving vs. declining (Labroo & Ramanathan, 2007). Improving mixed emotions are those transitioning from negative to positive emotions, whereas declining mixed emotions represent those shifting from positive to negative emotions. This line of research has been mainly conducted in marketing and advertising contexts and shown that the persuasiveness of improving vs. declining

mixed emotions depends on individual characteristics and evaluation targets (Labroo & Ramanathan, 2007; Loewenstein & Prelec, 1993; Sanaktekin, 2007).

A major challenge of studying mixed emotion relates to the measurement issue (Schneider & Stone, 2015). A wide, disparate array of measures has been employed to assess mixed emotions, including four major approaches (Hershfield & Larsen, 2012): direct measures of mixed emotions (e.g., Larsen, McGraw, & Cacioppo, 2001; Williams & Aaker, 2002), the coactivation of positive and negative affect (e.g., Adler & Hershfield, 2012; Scherer & Ceschi, 1997), external correlates of positive and negative affect (e.g., Brehm, Brummett, & Harvey, 1999), and correlations between positive and negative affect (e.g., Bagozzi, Wong, & Yi, 1999; Shiota, Campos, Gonzaga, Keltner, & Peng, 2010). These different approaches can sometimes generate different results regarding the effects of mixed emotions. After a detailed review and comparison of each approach, Hershfield and Larsen (2012) recommend using measures (e.g., MIN, SIM, GTM, etc.) based on the coactivation of positive and negative affect (e.g., Fong & Tiedens, 2002; Podoynitsyna, Van der Bij, & Song, 2012; Schimmack, 2001).

It should be pointed out that the study of mixed emotion is important because not only do mixed emotions have a wide range of behavioral implications (Cavazza & Butera, 2008; Fong, 2006; Williams & Aaker, 2002) but also examining mixed emotions may be more likely to reveal authentic relationships between emotions and action orientations (Fernando, Kashima, & Laham, 2014). Investigation of the emotion-action relationship usually adopts a variable-centered approach which, by controlling for the effects of many concurrently experienced emotions, focuses on

which emotion(s) can best explain a particular action (Fernando et al., 2014).

However, because it is unlikely a person will only experience one emotion at a time, taking a person-centered approach, which considers how a particular combination of emotions felt by an individual, or an individual's emotion profile, influences actions, may be more fruitful. Indeed, Fernando et al. (2014) found that while compassion was a significant predictor of a series of prosocial actions, individuals who felt only high levels of compassion but low levels of other emotions (e.g., anger, shame, etc.) did not show higher tendency to adopt these prosocial actions than people who felt low levels of all measured emotions. On the contrary, individuals feeling high levels of compassion, anger and shame, but low levels of pride exhibited the strongest intentions to act prosocially. Fernando et al.'s (2014) study further highlights the need to consider multiple or mixed emotions that individuals may feel in a situation in order to better predict prosocial behaviors.

Empathic Anger

Empathic anger arises when a person or an object that we care about is harmed by another (Batson et al., 2007; Hoffman, 1990). As a result, empathic anger is expected to evoke action tendencies that direct actions toward punishing the harm-doer and/or promoting the welfare of the cared-for other (Batson et al., 2007; Vitaglione & Barnett, 2003). The research on empathic anger is thin. As of May 18, 2018, a search for the exact term, "empathic anger," in Google Scholar yielded only 417 results. In contrast, a search for "anger" generated over 2 million results, "empathy" over 1 million, "compassion" over 1 million and "empathic concern" over 10 thousand. However, it should be noted that in triadic situations where a victim and

a perpetrator are present, the perceiver is likely to feel compassionate toward the victim and angry at the perpetrator at the same time. In such situations, examining the role of either anger or compassion in influencing the perceiver's subsequent prosocial behaviors may not be sufficient to capture the broad range of relevant emotions. As two of the most prototypical moral emotions, anger and compassion are anticipated to be the most intrinsically associated with the welfare of others and the most effective in generating selfless prosocial outcomes (Haidt, 2003). While I do not argue in this dissertation research that empathic anger is necessarily more effective than anger or compassion alone in inducing prosocial behaviors in triadic situations, I take the stance that the simultaneous consideration of both compassion and anger may reveal a more comprehensive process underlying the elicitation of prosocial behaviors.

Before heading into a deeper discussion on empathic anger, a difference should be made from Weiner's (2000) attributional model of interpersonal motivation, which includes both anger and sympathy. Although the term sympathy that Weiner (2000) uses is similar to the idea of compassion referred to in this dissertation research, his adoption of anger is different from what is described here. Specifically, Weiner (2000) assumes that when a negative outcome influencing an individual is perceived as controllable or an act leading to a negative outcome influencing an individual is perceived as intentional by that individual, the perceiver will feel angry at the individual (i.e., the victim), which differs from the anger felt at the perpetrator discussed in this dissertation.

Apart from the definition of empathic anger, other aspects of this emotion have not been thoroughly investigated in the current literature. It may even be

presumptuous to label empathic anger as one particular discrete emotion because the current literature is not clear on whether empathic anger should be treated as one emotion or a combination of multiple emotions. Generally speaking, there are two related yet somewhat dissimilar views on the nature of empathic anger. The first regards empathic anger as a particular form of empathy. Early works conceptualized empathy or empathic concern as predominantly related to sadness because of the origin of this emotion (Fabes, Eisenberg, & Eisenbud, 1993; Mehrabian & Epstein, 1972; Vitaglione & Barnett, 2003). However, sadness may not be the only relevant emotion with regard to the generation of empathic concern (Hoffman, 1990). Some scholars differentiate two types of empathic emotions: reactive vs. parallel empathic emotions (Davis, 1994; Duan & Hill, 1996; Finlay & Stephan, 2000). Reactive empathic emotions are emotions in response to other people's plight, for instance, empathic concern or compassion. In comparison, parallel empathic emotions are emotions that match those felt by other people, including guilt, anger and happiness. According to Hoffman (1987, 1989), there is a sequence for how empathic anger occurs. Upon witnessing another's plight, the perceiver will first experience empathic distress, which is "a more or less exact replication of the victim's presumed feeling of distress" (p. 71, Hoffman, 1989). Then the empathic distress will likely transform into other empathic emotions depending on the type of causal attributions the perceiver makes of the situation. Relevant to this research, if the cause of the victim's distress is perceived to be beyond the victim's control, then empathic distress will transform at least partially into compassion, or sympathetic distress in Hoffman's (1989) words. In addition, if someone else is perceived as the cause of the victim's distress, anger is

likely to emerge. Depending on the particular situation, the perceiver's emotion may alternate between compassion and anger, or anger may crowd out compassion entirely (Hoffman, 1989). Put differently, Hoffman (1989) presumes that, in terms of empathic anger, compassion occurs before anger, and compassion can still exist simultaneously with anger or cease to exist after anger is elicited. The second view thinks of empathic anger as one type of anger. While adopting a similar definition of empathic anger as Hoffman (1987, 1989), Batson et al. (2007) lays an emphasis on the anger part of empathic anger and differentiates three different forms of anger: personal anger, empathic anger, and moral outrage. Batson et al. (2007) also assumes there is a sequential path underlying empathic anger. More specifically, empathic anger is considered to be elicited when compassion for the victim is induced first and then anger at the perpetrator occurs.

From both views on empathic anger, it appears that empathic anger may be better recognized as a mixed emotion. While the current literature does not provide guidance on whether the additive or emergent account of mixed emotions may be more applicable to empathic anger, the four patterns of mixed emotions identified by Oceja and Carrera (2009) may all be reasonably observed from the elicitation of empathic anger. In particular, the sequential pattern and the inverse pattern are most likely to occur for empathic anger. This is because based on the definition of empathic anger, compassion is expected to emerge first and then anger, and whether compassion will be completely replaced by anger will depend on different situations.

Understanding the exact pattern of empathic anger is important for research because the effect of this mixed emotion on subsequent attitudes and behaviors may vary based

on its pattern. An empirical question remains if a mixed emotion can still be considered empathic anger, when anger toward the perpetrator is elicited before compassion for the victim. Another question that needs further examination is whether the effects of sequentially patterned empathic anger differ from inversely patterned empathic anger on action orientations. For instance, it is likely that the effect of sequentially patterned empathic anger will resemble that of anger whereas the effect of inversely patterned empathic anger will be similar to that of a combination of anger and compassion.

So far, only a very limited number of studies have empirically explored empathic anger. Vitaglione and Barnett (2003) in their Study 4 had participants listen to an audiotape describing a victim of drunk driving. Participants' emotional responses, including compassion, distress and empathic anger, to the scenario, and desire to punish the drunk driver and help the victim were assessed. Vitaglione and Barnett (2003) found that both compassion and empathic anger increased helping intentions, and empathic anger also increased punishing intentions. However, compassion decreased punishing intentions. Batson et al. (2007) attempted to empirically distinguish three forms of anger: personal anger, empathic anger, and moral outrage. Four experimental conditions (low-compassion other treated unfairly vs. high-compassion other-treated unfairly vs. self-treated unfairly vs. other-treated fairly) involving a resource distribution game were employed. Compassion for a third person was manipulated by using perspective taking instructions. Batson et al. (2007) predicted that if there was more anger in the self-treated unfairly condition than the other-treated fairly condition, that would be the evidence of personal anger. In

addition, if there was more anger in the high-compassion other-treated unfairly condition than the low compassion other-treated unfairly condition, then empathic anger existed. If there was more anger in each of the three unfair conditions than the one fair condition, then that showed that moral outrage was real. Evidence for personal anger and empathic anger was found but not for moral outrage. Although they did not use the term, empathic anger, Finlay and Stephan (2000) examined reactive empathy (i.e., compassion) and parallel empathy (e.g., anger) among Anglo Americans in response to descriptions about discrimination against African Americans. While the use of perspective-taking instructions did not result in different levels of compassion, taking the more empathic perspective did increase parallel empathy toward participants' own ingroup (i.e., Anglo Americans). Furthermore, increased parallel empathy led to more positive attitudes toward the outgroup, African Americans, and less positive attitudes toward the ingroup.

There are several major limitations of the aforementioned research on empathic anger. First, Vitaglione and Barnett (2003) and Finlay and Stephan (2000) did not manipulate or effectively manipulate empathic anger in their studies; thus, it was difficult to establish causal inferences. Second, although Batson et al. (2007) manipulated empathic anger more effectively, they did not include any attitudinal or behavioral variables. Thus, it was not possible to observe the effects of empathic anger on those more downstream outcome variables. Third, as with the measurement issue regarding mixed emotion, the aforementioned research on empathic anger has not offered a reliable way of assessing empathic anger. Vitaglione and Barnett (2003) used regular anger items such as angry, irritated, and aggravated, and called them empathic

anger. Finlay and Stephan (2000) included the item, anger, as part of their parallel-empathy measure. Batson et al. (2007) also used similar anger items to assess empathic anger, but they further explained in their results that increased anger reported in the high-compassion other-treated unfairly condition was empathic anger because compassion was positively correlated with anger. If empathic anger were considered a mixed emotion consisting of both compassion and anger, then the measures including only anger-related items apparently did not take compassion into consideration. Measures recommended from the mixed emotions literature have not been used in research on empathic anger.

In sum, in this section, I have reviewed literature on the core psychological constructs relevant to this dissertation research. In the following section, I will review literature mostly from communication on how emotions can be communicated through messages to help promote prosocial behaviors.

Emotions and Communication

Emotions-as-Frame Perspective

There are various theories regarding how emotions influence attitudes and behaviors. In relation to communication research and emotional appeals, the Cognitive Functional Model (CFM; Nabi, 1999), which draws on appraisal theories of emotions (e.g., Frijda, 1986; Izard, 1977; Lazarus, 1991) and dual-processing cognitive response theories (e.g., Chaiken, 1987; Petty & Cacioppo, 1986), account for how message-relevant negative discrete emotions influence the direction and stability of persuasive outcomes. The CFM specifies that a message evokes a certain message-relevant

emotion when its content corresponds to the core relational theme of that emotion and when the recipient is aware of the theme and its personal relevance (Nabi, 2007). Then the message-relevant emotion triggers simultaneous motivations for selective information accessibility, attention/exposure, processing and perception. Finally, emotion-congruent information processing and perceptions lead to emotion-congruent judgments and decision making.

In a similar vein, Nabi (2003) brought up the emotion-as-frame perspective based on the idea that “discrete, context-relevant emotions selectively affect information processing, recall, and judgment” (p. 228). Potentially serving a framing function, certain emotions combined with specific ideas or events are likely to mold how an individual makes sense of and reacts to those events (Nabi, 2003). To demonstrate the emotion-as-frame perspective, Nabi (2003) argues that two conditions must be met. First, it must be shown that message-relevant emotions are elicited because not just topic-relevant but also emotion-relevant information is made accessible. Second, it must be shown that the resulting selective information processing and decision making are led by the emotion’s action tendency (Nabi, 2003). Research adopting the notion of emotion-as-frame perspective has been gaining prominence in the past decade and examined discrete emotions such as anger, fear and sadness (e.g., H. J. Kim & Cameron, 2011; S. J. Kim & Niederdeppe, 2014; Kühne & Schemer, 2013; Nabi, 2003). However, this line of research has not considered how mixed emotions may also serve as frames. This gap in the literature cannot simply be ignored because research has demonstrated that a single message can induce multiple emotions at the same time (e.g., Leshner, Vultee, Bolls, & Moore, 2010; Myrick &

Oliver, 2015) and a message intended to elicit one particular emotion may also accidentally activate other emotions (e.g., Bennett, 1998; Dillard, Kinney, & Cruz, 1996; Pinto & Priest, 1991). Incorporating message-relevant mixed emotions into the emotion-as-frame perspective and considering how exposure to these messages can shape judgment and decision making may be especially useful when the events or situations depicted in the message are complex and when cognitive appraisals underlying multiple emotions can be activated simultaneously. For instance, for a message to elicit empathic anger, the message should at least explicitly or implicitly convey information about a victim and a perpetrator. An empathic anger-framed message may lead to increased punitive and protective action tendencies as compared to a message that does not elicit empathic anger.

As stated in an earlier section, the additive account of mixed emotions suggests that emotions with incompatible appraisals will likely weaken the magnitude of each other (Kreibig et al., 2015; Pe & Kuppens, 2012). Empirical research has shown that because sadness and anger have contrasting agency appraisals, the feeling of sadness and anger respectively can carry over to blunt the subsequent experience of each other (Winterich et al., 2010). Relatedly, accumulating evidence has shown that the feeling of compassion is either unrelated to or capable of reducing punishment-related actions that mirror the action tendencies of anger (Condon & DeSteno, 2011; Vitaglione & Barnett, 2003; Weng, Fox, Hessenthaler, Stodola, & Davidson, 2015). Whereas the current literature lacks evidence as to whether the feeling of anger will reduce compassion-related action tendencies, it may be interesting to examine whether an empathic anger-framed message will result in weaker protective tendencies than a

compassion-framed message and whether an empathic anger-framed message will lead to weaker punitive tendencies than an anger-framed message.

Emotions as Process in Communication

The literature on the persuasive influence of discrete emotions usually employs a single, static, post-exposure rating of message-relevant emotions. This type of measurement is retrospective in that individuals have to think back to remember what they felt (Hazlett & Hazlett, 1999). It is still unclear what this measurement is able to capture from the emotional process, with some suggesting it has good correspondence with the peak point of an emotion (Rossiter & Thornton, 2004) and others indicating poor correspondence with either peak or end point of an emotion (Dillard et al., 2016). Apparently, measuring emotions in such a post-exposure manner has the tendency to treat emotions merely as an outcome influenced by communication effects, which fails to regard the evolution of emotions in communication as a process.

How discrete emotions evolve and develop during exposure to a message has received little attention in this area. Recently, Nabi (2015) put forward the idea of emotional flow, which refers to the evolution of the emotional experience during message exposure, marked by one or more emotional shifts. Nabi (2015) pointed out that when exposed to an emotional appeal, people seldom experience the same emotion from the start to the end. Instead, people actually go through a number of shifts in their emotions. For instance, fear appeals, consisting of threat and efficacy information (Witte, 1992), may actually be fear-relief or fear-hope appeals because after feeling afraid of the threat introduced in the message, people can experience

relief or hope later when the efficacy information appears. Particularly, four recent studies (Dillard, Li, & Huang, 2017; Dillard, Li, Meczkowski, Yang, & Shen, 2017; Meczkowski, Dillard, & Shen, 2016; Shen, 2017) revisited the fear drive model (Hovland, Janis, & Kelley, 1953), which describes an over-time process of fear such that a fear appeal will be effective for persuasion to the extent that it produces a fear response that rises and then falls. Using self-reported measurements, these studies assessed individuals' fear responses to text or image-based fear appeals multiple times (e.g., before exposure, after the threat information, and after the efficacy information). Supporting the fear drive model, these studies consistently found that an inverted-U fear curve was a better predictor of persuasion outcomes than a straight line. These emerging findings suggest that the post-exposure-only measure used in a large body of persuasion literature may not be optimal to examine the persuasive power of fear or other discrete emotions and that how emotions evolve during exposure to message content may represent a unique yet underexplored domain for predicting subsequent attitudes and behaviors.

To a large extent, the idea of emotional flow may be similar to the sequential pattern associated with mixed emotions (Oceja & Carrera, 2009). As suggested by the literature on mixed emotions, the sequence of the constituent emotions comprising mixed emotions can have differential effects on persuasive outcomes (Labroo & Ramanathan, 2007). When it comes to empathic anger, compassion needs to occur before anger for empathic anger to emerge based on the definition used in this proposal. Questions remain whether a mixed emotion with a sequential pattern that shifts from anger to compassion can still be considered empathic anger and whether this reversed

pattern will produce similar effects as empathic anger.

How to effectively induce and measure empathic anger following a particular sequence remains unexplored. As noted by Nabi (2015), any message including information that cues different emotional experiences as the audience processes it can be used to elicit emotional flow, and providing multiple pieces of information in a particular sequence has the potential to induce the intended emotions consistent with that sequence. In addition, Nabi (2015) recommended two ways of using self-report measurements to assess emotional flow during message exposure: by asking participants to recall and describe the emotional response patterns as they processed the message or asking for participants' predominant emotions at multiple time points during message exposure. In relation to empathic anger, for compassion to occur before anger, specific information about the victim should be presented to the audience prior to information about the perpetrator.

Specifically, several competing hypotheses may be proposed. First, it is likely that when making their judgments and decisions after exposure to an empathic anger-inducing message, people rely mostly on their overall emotional experiences, which means that the particular sequence of the induced emotion matters less than the total amount of each specific emotion they experience during the message exposure. This may be particularly true when people process the message more heuristically.

Second, according to the primacy effect, which proposes that information presented earliest has a disproportionate influence on judgments than information presented later (Lund, 1925), the presentation order of compassion- and anger-inducing information may also exhibit such an effect on persuasive outcomes such that

the influence of felt compassion may be more impactful for the compassion → anger message whereas the effect of felt anger may be more prominent for the anger → compassion message.

Third, according to the recency effect, which claims that information presented the latest is more influential on judgments than information presented earlier (Cromwell, 1950), it is likely that such recency effect may occur for the compassion → anger message and the anger → compassion message such that the influence of felt anger may be more impactful for the compassion → anger message whereas the effect of felt compassion may be more prominent for the anger → compassion message.

Emotions as Incidental Cues in Communication

Incidental emotions are generated by everyday events and can influence thoughts and behaviors that are unrelated to the stimulus that elicits the emotions (Lerner & Keltner, 2000). In recent years, a growing body of literature has examined the effects of incidental discrete emotions on subsequent judgments and decision making such as risk seeking, information processing, choice and financial transactions (e.g., DeSteno, Li, Dickens, & Lerner, 2014; Small & Lerner, 2008; Winterich et al., 2010). Lerner and Keltner (2000, 2001) proposed the Appraisal-Tendency Framework (ATF), which assumes that cognitive appraisals not only elicit a particular emotion but also shape perceptions of subsequent, irrelevant events and guide ensuing behaviors. The ATF refers the latter process to “appraisal tendencies,” which, once a specific emotion is elicited, induce an implicit cognitive predisposition to appraise future situations in a manner that is congruent with the cognitive appraisals underlying this emotion (Han, Lerner, & Keltner, 2007). For instance, sadness, which co-occurs with

appraisals of situational control, triggers appraisal tendencies to perceive situational control in subsequent decisions whereas anger, which is elicited because of appraisals of individual control, activates appraisal tendencies to perceive individual control in subsequent situations (Han et al., 2007). Therefore, feeling sad makes people more likely to attribute blame to situational factors while feeling angry increases the tendency to assign blame to other individuals in the environment.

Compared with message-induced emotions, which are generated by messages and relevant to the judgement and decision making at hand, incidental emotions can provide different, potentially misleading information value for the judgment at hand (Schwarz, 2012). In addition, the information value provided by incidental and message-induced emotions is weighed differently in the process of making judgments and decisions. When a message is expected to elicit no to little emotion, incidental emotions are likely to play a more vital role in influencing information processing (e.g., Graton, Ric, & Gonzalez, 2016). In contrast, when a message is anticipated to induce a certain level of emotion, possible interactions are likely to occur between incidental and integral emotions (Agrawal & Duhachek, 2010; DeSteno, Petty, Rucker, Wegener, & Braverman, 2004). Such interaction effects have received limited attention in the examination of the role of emotions in communication. However, individuals are seldom in an emotionally neutral state prior to their encounter with messages in the media. Thus, it is important to study whether, how, and why incidental and message-induced emotions may interact with each other to influence the effects of mediated messages. In addition, the transition from incidental to message-induced emotions can also be seen as a type of emotional flow, which has been

discussed scarcely in the literature. One potential research question for exploration is whether there is any difference between the shift from one incidental emotion to one integral emotion and the shift from one integral emotion to another integral emotion. Because of their contrasting action tendencies mentioned above, compassion and anger can be good candidates for the investigation of the interaction between incidental and message-induced emotions.

Research Context

The context used to study the above concepts and the focus of the experimental messages is the human health impacts of pollution in the United States. Decades of research has shown that various kinds of pollution adversely affect public health in the United States, leading to increased morbidity and mortality, and that pollution is particularly detrimental to the health of vulnerable populations, for instance, children (Akinbami, Lynch, Parker, & Woodruff, 2010; Correia et al., 2013; Pope III, Ezzati, & Dockery, 2009). In addition, the idea of environmental inequality, which refers to the concept that exposure to environmental hazards is unevenly distributed in society (Hester, 1987), is also introduced as background information in the messages.

Accumulating evidence has demonstrated that individuals who have low socioeconomic status or who belong to racial minority groups are burdened with a disproportionate share of environmental hazards in the United States (e.g., Ard, 2015; Campbell, Peck, & Tschudi, 2010; Downey & Hawkins, 2008; Sicotte, 2010). While there are many appropriate triadic situations for testing research questions and hypotheses proposed in this dissertation research, I focus on this particular domain for two reasons: One, it is an ideal context for the examination of empathic anger (e.g.,

potentials to induce compassion and anger because of victims and perpetrators involved, third-party's actions being able to make some real difference by adopting helping, punishing or protesting behaviors, sufficient complexity to consider relevant moderators such as group membership and political ideology, etc.). Two, environmental inequality is still an issue in dire need of help from effective communication to raise awareness and win support from the public before any substantial movement toward equality can take place. Research has also shown that policy interventions and regulatory actions are effective methods of reducing pollution and improving population health in the United States (see Bell, Morgenstern, & Harrington, 2011 for a review).

Outline of Following Chapters

Chapters 2, 3, and 4 present four experiments investigating the role of compassion and anger in communication about negative human health impacts of pollution and how the two emotions influence prosocial outcomes, such as collective action and policy support aimed at reducing pollution and helping victims of pollution. Each of these three chapters is written as a stand-alone paper, which is intended for submission to peer-reviewed journals. Consequently, some of the literature review contains overlapping content across the three chapters.

Chapter 2, titled “Exposure to victim portrayals: How multiple emotions and victim perceptions influence collective action tendencies,” focuses on collective action as one way to help victims of pollution. Through two experiments, Chapter 2 examines one possible way to get the public involved with collective action, that is,

via the portrayals of victims and the emotions and perceptions the portrayals convey. The first experiment (N=954) adopted a 2 (compassion: high vs. low) x 2 (moral outrage: high vs. low) between-subjects factorial design. The second experiment (N=990) utilized perspective taking instructions (empathic vs. objective) for manipulation. Together, the findings from the two experiments show that emotions, such as compassion, anger, and distress, and cognitive factors, such as the perceived victim's suffering and identification with the victim, mediated the effects of victim portrayals on collective action intentions. These findings contribute to the literature by connecting victim portrayals with collective action, expanding the array of emotions in predicting collective action, and furthering the investigation of collective action in third-party contexts.

Chapter 3, titled "Emotional flow of anger and compassion: Order effects of emotional appeals and moderating effects of perceived interest," represents an exploratory step to empirically test emotional flow of multiple discrete emotions. Specifically, this chapter investigates whether the order of information inducing anger vs. compassion influences persuasion, the conditions under which the order is more impactful, and the underlying mechanisms. The results of a one-factor (compassion → anger vs. anger → compassion) between-subjects experiment show that among those highly interested in a message topic, there is a primacy effect of the anger → compassion (vs. compassion → anger) on punitive policy support. Further analyses suggest that the anger elicited by the first message and the emotional intensity aroused by the last message explain this primacy effect. These findings contribute to the literature by integrating classic research on order effects with the emerging emotional

flow perspective, exploring an understudied emotional experience, empathic anger, and providing new insights on the role of emotional intensity in influencing persuasion.

Chapter 4, titled “Exploring the role of incidental and message-induced compassion and anger in health communication about pollution,” examines both the main and interaction effects of incidental and message-induced compassion and anger on support for pollution-mitigation policies. The results of a 2 (incidental: compassion vs. anger) x 2 (message-induced: compassion vs. anger) between-subjects factorial experiment found a main effect of incidental compassion (vs. anger) condition on protective policy support, which was mediated by self-reported compassion. In addition, this main effect was moderated by political ideology such that the effect was found among moderates and conservatives, but not liberals. No interaction effects were found. These findings contribute to the literature by exploring how incidental and message-induced emotions may or may not interact to influence persuasion and complementing existing research on the moderating effect of political ideology regarding environment-related messaging.

Since Chapters 2, 3, and 4 were written as separate papers, Chapter 5 provides an integrative reflection on the findings from the four experiments presented in the three preceding chapters and discusses implications for future research on the promises and perils of eliciting compassion and anger in communication to promote prosocial behaviors.

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CHAPTER 2: EXPOSURE TO VICTIM PORTRAYALS: HOW MULTIPLE
EMOTIONS AND VICTIM PERCEPTIONS INFLUENCE COLLECTIVE ACTION
TENDENCIES

Introduction

Individuals often learn about social conflicts involving tragedy and injustice from the news media, which can leave them feeling a wide range of emotions, including compassion, anger and distress, which are commonly experienced in response to the descriptions of victims and perpetrators. More often than not, solving these issues requires not only the efforts of those deeply involved, but also broader societal support. Collective action, broadly defined as any action performed with others aimed at reaching a goal or a desired outcome (Zak & Barraza, 2013), may represent one possible method for third-party outsiders to extend help to victims and potentially punish perpetrators involved in conflict situations. Yet, what motivates collective action? This question has attracted scholarly attention for decades (Blumer, 1939; Klandermans, 1997; van Zomeren, Postmes, & Spears, 2008). One line of research has reliably demonstrated that the feeling of anger over unfairness to one's in-group is an important driver of collective action (Shi, Hao, Saeri, & Cui, 2015; van Zomeren, Spears, Fischer, & Leach, 2004).

In comparison, the literature on victim portrayals suggests that individuals experience a number of emotions, such as compassion, distress and sadness, when they are exposed to mediated descriptions of victims (Batson, Sager, et al., 1997; Fultz, Schaller, & Cialdini, 1988; Kogut & Ritov, 2005). The portrayals of victims and

the emotions elicited thereafter often lead to helping behaviors aimed at relieving the suffering of the victims, such as volunteering and making donations (Batson, Sager, et al., 1997; Slovic, 2007). What has been studied less is how the portrayals of victims can motivate *collective action* and whether discrete emotions other than anger can also encourage collective action, especially in third-party contexts. These are important research questions to investigate because they may result in answers that help communication scholars integrate research on victim portrayals, emotions, and collective action, and provide communication practitioners with theoretically driven and empirically relevant means to create communication tools that stimulate collective action. Therefore, to achieve these goals, the current study presents two experiments to examine how different portrayals of victims can influence collective action and the underlying mechanisms explaining the impacts of these portrayals on collective action, including the potential role played by multiple emotions.

Literature Review

Collective Action and Emotion-Focused Coping Pathway

Research on collective action has drawn long-lasting attention from a variety of disciplines, including psychology, sociology, political science, economics, and anthropology (DeMarrais & Earle, 2017; Gurr, 1968; Heckathorn, 1996; Klandermans, 1997; Olson, 1968). Many present-day theories and studies of collective action concentrate primarily on the socio-psychological determinants of collective action (van Zomeren et al., 2008). Three potential antecedents of collective action, namely, perceived injustice and its accompanying anger, efficacy perceptions, and identity

motives, have been gaining prominence in the literature (van Zomeren et al., 2008). Relevant to the current study are the perception of injustice and the subsequent anger elicited from it. Integrating Relative Deprivation Theory (RDT; Crosby, 1976; Folger, 1986; Runciman, 1966; Walker & Smith, 2002) and Intergroup Emotion Theory (IET; Mackie, Devos, & Smith, 2000; Smith, 1993), van Zomeren et al. (2004) proposed a dual pathway model to account for two important factors, namely, group-based anger and group efficacy, explaining collective action tendencies. According to van Zomeren et al. (2004), group-based anger is elicited when people perceive their in-group to be unfairly deprived by an outgroup and group-based anger represents a form of emotion-focused coping with collective disadvantage that drives collective action. Studies conducted across multiple contexts have provided evidence supporting this dual pathway model (e.g., Shi et al., 2015; Tausch et al., 2011; van Zomeren, Postmes, Spears, & Bettache, 2011).

There are many different classifications of collective action. One way to categorize it is by determining the status of the group taking collective action. Plentiful research on collective action has focused on the *disadvantaged* groups taking collective action on their own behalf, which is in line with the theorization of the dual pathway model (see van Zomeren et al., 2008 for a review). This is perhaps not surprising considering that one of the classical definitions of collective action puts an emphasis on acting on behalf of one's in-group (Wright, Taylor, & Moghaddam, 1990). However, scholars have advocated for a broader view on those participating in collective action, noting that apart from disadvantaged groups, advantaged groups and third parties are also important performers of collective action (van Zomeren & Iyer,

2009). As a result, more attention has been devoted to collective action taken by advantaged group members on behalf of disadvantage groups (e.g., Selvanathan, Techakesari, Tropp, & Barlow, 2017; van Zomeren et al., 2011). Yet, the literature still remains limited when it comes to investigating predictors of collective action taken by third-party or bystander groups, who are neither the direct perpetrators of perceived injustice, nor the direct targets (Saab, Tausch, Spears, & Cheung, 2015). While van Zomeren et al.'s (2004) dual pathway model can provide some guidance, the model's exclusive focus on anger over injustice to one's in-group may be inadequate in explaining third-party groups' emotional motives for taking collective action on behalf of disadvantaged groups. Several studies have suggested that other discrete emotions, such as guilt, fear, and contempt, may also be associated with collective action (e.g., Mallett, Huntsinger, Sinclair, & Swim, 2008; Miller, Cronin, Garcia, & Branscombe, 2009; Tausch et al., 2011). Although many of these studies did not investigate third-party groups' collective action, they were instrumental in demonstrating the value of expanding the array of discrete emotions relevant to collective action.

The current research focuses primarily on two prosocial emotions, namely, compassion and moral outrage, paralleling growing interest in the theorization of the role of prosocial emotions in collective action and intergroup helping (Thomas, McGarty, & Mavor, 2009). The fundamental reason for the particular concentration on these two emotions is because of their pertinence to the third-party contexts, especially in relation to the portrayals of victims and perpetrators. The next section will first go over literature on victim portrayals and then move on to a more detailed review of

compassion and moral outrage in third-party contexts.

Victim Portrayals and Prosocial Emotions

According to Dussich, Underwood, and Peterson (2003), individuals become victims when they are impacted by people or events that result in a violation of rights or significant disruption of well-being. A long line of research indicates that there are a variety of motivations, such as egoism, altruism, collectivism and principlism, for individuals to help others, including suffering victims (Batson, 2011). In addition, research examining what influences individuals' perceptions of victims and how to portray victims in ways that increase willingness to help them has been accumulating over the years. For instance, individuals are more willing to help the victim when the severity of the harm is high (Simon, 1997; West & Brown, 1975), the victim's need for help is strong (Zagefka, Noor, Brown, Hothrow, & Moura, 2012), the victim is not to blame for his or her own plight (Correia, Vala, & Aguiar, 2007; Zagefka, Noor, Brown, de Moura, & Hothrow, 2011), the victim is similar to the helper (Gordijn, Yzerbyt, Wigboldus, & Dumont, 2006), a cute picture of the victim is displayed (Perrine & Heather, 2000), or the perpetrator intentionally harms the victim (Umphress, Simmons, Folger, Ren, & Bobocel, 2013). In addition, the "identifiable victim effect" suggests that individuals are more likely to help when the victim is a single, identifiable person rather than large numbers of people (Kogut & Ritov, 2005; Small & Loewenstein, 2003). A recurring theme from these findings is that how the portrayals of the victims make helpers feel (e.g., compassionate, distressed, outraged, etc.) matters for how the helpers will respond (Zagefka & James, 2015). Compassion and moral outrage, two of the most prototypical moral emotions (Haidt, 2003), are the

primary focus of the current research.

Compassion is an emotion generated from seeing another's suffering that consequently produces a desire within the perceiver to help assuage that suffering (DeSteno, 2015; Goetz, Keltner, & Simon-Thomas, 2010; Valdesolo & DeSteno, 2011). In the literature, other terms have also been used to describe similar emotional experiences, including empathy, empathic concern, and sympathy (Goetz et al., 2010). Compassion is used in this paper to be consistent with the literature on discrete emotions and moral emotions (Haidt, 2003; Lazarus, 1991). Empirical evidence supporting the motivational role played by compassion in encouraging prosocial actions has been strong. Research has shown that increased compassion can lead to more helping behaviors, increase cooperative actions and care in conflict situations, improve attitudes toward stigmatized groups, produce greater forgiveness in relationships, strengthen social connections, and reduce punitive actions against others (for reviews see Batson, Lishner, & Stocks, 2015; Davis, 2015; DeSteno, 2015; Goetz et al., 2010). In relation to victim portrayals, compassion elicited by exposure to mediated descriptions of victims has been found to be a prominent predictor of willingness to help victims (Batson, 2011; Batson et al., 2015). A related emotional experience in response to victim portrayals that often accompanies the feeling of compassion is distress (Batson et al., 1991; Batson, Early, & Salvarani, 1997). Batson, Early, et al. (1997) distinguished two types of distress, namely, personal distress, which is a self-oriented, aversive emotional reaction such as anxiety or discomfort, and other-oriented distress, which is the discomfort felt in response to another's suffering. Both types of distress have been found to lead to helping behaviors toward

victims, though it is argued that helping driven by personal distress is motivated by egoism and helping driven by other-oriented distress is associated with altruism (Batson, Early, et al., 1997; Davis, 2015; Schroeder & Graziano, 2015).

Moral outrage is considered by many as the type of anger resulting from witnessing injustice caused by third-party perpetrators to an outgroup (Leach, Snider, & Iyer, 2002; Montada & Schneider, 1989; Thomas et al., 2009). While there is a debate over the existence of authentic moral outrage (Batson, Chao, & Givens, 2009; Batson et al., 2007; O'Mara, Jackson, Batson, & Gaertner, 2011), the term, moral outrage, is used in this paper to distinguish it from the type of anger, that is, anger at injustice done to oneself or one's own group, proposed in the dual pathway model (van Zomeren et al., 2004). Evidence abounds that moral outrage can lead to prosocial behavioral consequences (van Doorn, Zeelenberg, & Breugelmans, 2014). In relation to victim portrayals, research has also shown that moral outrage can increase willingness to help the victims (Lotz, Okimoto, Schlösser, & Fetchenhauer, 2011).

Although literature on the prosocial role of compassion and moral outrage is copious, research on how these two discrete emotions elicited by *victim portrayals* can jointly or independently influence collective action tendencies is limited. In a related vein, some studies have looked at the independent role played by either compassion or moral outrage in influencing collective action, though the emotions under investigation were not induced by victim portrayals (Fattori, Pozzi, Marzana, & Mannarini, 2015; Thomas et al., 2009; Zak & Barraza, 2013). Several other studies, rather than focusing solely on one of the two emotions, have examined compassion and moral outrage simultaneously in relation to their role in stimulating collective

action (e.g., Montada & Schneider, 1989; Saab et al., 2015). However, these studies were correlational in nature and could not provide strong evidence showing causality between compassion and moral outrage and collective action.

Victim portrayals, collective action, compassion and moral outrage are inherently connected because, in a third-party collective action context, the group that experiences injustice can be described as victims, and whenever victims are involved, compassion and moral outrage from bystanders are among the most relevant emotions. Therefore, investigating how different descriptions of victims arouse compassion and moral outrage has the potential to become an effective approach to impact collective action intentions in third-party contexts. Moreover, attempts to investigate the effects of compassion and moral outrage simultaneously on collective action tendencies are important because they appear more ecologically valid. It is often the case that a single message can induce multiple emotions at the same time (Leshner, Vultee, Bolls, & Moore, 2010; Myrick & Oliver, 2015) and that portrayals about victims can make the audience think about the perpetrators as well, which will likely induce both compassion and moral outrage. In addition, research has also shown that individuals feeling only high levels of compassion rather than a combination of both compassion and some other prosocial emotions (e.g., moral outrage, shame, etc.) are not very motivated to take collective action, further pointing out the importance of studying the effects of multiple emotions at the same time (Fernando, Kashima, & Laham, 2014).

Emotions-as-Frame Perspective

There are various theories regarding how emotions influence attitudes and

behaviors. In relation to communication research and emotional appeals, the Cognitive Functional Model (CFM; Nabi, 1999) accounts for how message-relevant discrete emotions influence the direction and stability of persuasive outcomes. The CFM specifies that a message evokes a certain message-relevant emotion when its content corresponds to the core relational theme of that emotion, and when the recipient is aware of the theme and its personal relevance (Nabi, 2007). In a similar vein, Nabi (2003) brought up the emotion-as-frame perspective based on the idea that “discrete, context-relevant emotions selectively affect information processing, recall, and judgment” (p. 228). Potentially serving a framing function, certain emotions combined with specific ideas or events are likely to mold how an individual makes sense of and reacts to those events (Nabi, 2003). Research adopting the notion of emotion-as-frame perspective has been gaining prominence in the past decade and examined discrete emotions such as anger, fear and sadness (H. J. Kim & Cameron, 2011; S. J. Kim & Niederdeppe, 2014; Kühne & Schemer, 2013). However, this line of research has not considered how multiple emotions may also serve as frames. Incorporating message-relevant multiple emotions into the emotion-as-frame perspective and considering how exposure to these messages can shape attitudes and behaviors may be especially useful when the events or situations depicted in the message are complex and cognitive appraisals underlying multiple emotions can be activated simultaneously. For instance, in order for a message to elicit both compassion and moral outrage, the message should at least explicitly or implicitly convey information about a victim and a perpetrator. In particular, the suffering of the victim should be mentioned to correspond to the core relational theme of compassion and the injustice that the

perpetrator has done should be described to echo the core relational theme of moral outrage (Lazarus, 1991).

Based on the aforementioned literature that indicates a potential role played by compassion and moral outrage in motivating collective action tendencies, the following two hypotheses are proposed:

H1: Victim portrayals that elicit a higher (vs. lower) level of compassion will lead to increased collective action tendencies.

H2: Victim portrayals that elicit a higher (vs. lower) level of moral outrage will lead to increased collective action tendencies.

In seeking to understand the underlying mechanisms explaining the potential effects of victim portrayals that elicit a higher level of either compassion or moral outrage, the two following research questions are raised:

RQ1: What are the mediators for the effects of victim portrayals that elicit a higher (vs. lower) level of compassion on collective action tendencies?

RQ2: What are the mediators for the effects of victim portrayals that elicit a higher (vs. lower) level of moral outrage on collective action tendencies?

Study 1

Method

Participants

One thousand and six U.S. adults, who received one dollar for participation in the study, were recruited via Amazon's Mechanical Turk on July 1st, 2017. Among

the participants, 52 identified themselves as having been a victim of environmental injustice. Because the current paper focuses on third-party collective action, these 52 participants were removed from the analysis, reducing the sample size to 954¹. Among the 954 participants, 47.3% were male and 52.7 % were female, with a mean age of 37.44 years ($SD = 12.18$). The median highest level of education was a bachelor's degree and median annual household income was between \$50,000-\$74,999. The distribution of racial background among participants was: White 73.5%, Black 8.9%, Asian 8.2%, Hispanic 4.3%, other 3.8%, and 1.3%, who preferred not to answer.

Procedure and Stimulus

Experiments were conducted to pretest the messages to be used in the main experiment. The context for the messages was environmental injustice in the United States. Modeling after similar online news stories, a fictitious news story was created featuring the San Joaquin Valley as a place experiencing environmental injustice. The factual content of the news story was based on research articles and reports published in this domain (Huang & London, 2012; Padula et al., 2013; Schwartz, von Glascoe, Torres, Ramos, & Soria-Delgado, 2015). The news story also mentioned an episode of a young boy's suffering from an acute respiratory disease and an appeal for solutions to environmental injustice. Based on previous research (Nabi, 2002), information related to each emotion's core relational theme was manipulated to elicit different levels of compassion and moral outrage. Compassion-related information primarily focused on the suffering of the boy, whereas moral outrage-related information

¹ The direction and significance of the results remained unchanged when the 52 participants were included in the analyses.

emphasized the actions and intentionality of perpetrators of environmental injustice. Four pretesting experiments with a similar 2 (compassion: high vs. low) x 2 (moral outrage: high vs. low) between-subjects factorial design among approximately 200 participants per pretest were carried out to ensure the accurate manipulation of different levels of each emotion. These experiments varied across a few aspects including the photo of the young boy, the intent of perpetrators of environmental injustice and the length of the news story.

The fourth and last pretesting experiment successfully produced the desirable messages. The results of two-way ANOVAs showed that there was a main effect of compassion conditions on self-reported compassion ($M_{HC} = 4.60$, $SE = .15$, $M_{LC} = 4.04$, $SE = .15$), $F(1, 198) = 7.06$, $p = .009$, $\eta_{partial}^2 = .034$. In addition, there was a main effect of moral outrage conditions on self-reported moral outrage ($M_{HM} = 4.50$, $SE = .18$, $M_{LM} = 3.82$, $SE = .17$), $F(1, 198) = 7.70$, $p = .006$, $\eta_{partial}^2 = .037$.

Importantly, the compassion conditions did not influence self-reported moral outrage or distress, and the moral outrage condition did not influence self-reported compassion or distress. The finalized news story manipulated compassion by showing the photo of the suffering boy and describing his illness as ongoing in the high compassion condition, and not showing the boy's photo and describing his condition as fully recovered in the low compassion condition. Moral outrage was manipulated by either explicitly mentioning in the high moral outrage condition that polluting industries intentionally target low-income and minority communities for their lack of resources and political capital to resist the establishment of environmental hazards in their communities or not providing this information in the low moral outrage condition.

The main experiment used the news articles (see Appendix 2) developed in the fourth pretesting experiment. Participants in the main experiment were randomly assigned to one of four experimental conditions as part of a 2 (compassion: high vs. low) x 2 (moral outrage: high vs. low) between-subjects factorial design. After reading the news article, participants proceeded to complete a survey including key measures described in the next section.

Key Measures

Emotions, including compassion (Batson, 1987), moral outrage (Vitaglione & Barnett, 2003), distress (Lupoli, Jampol, & Oveis, 2017), and positive affect, which was included to ensure the manipulation did not create differences in positive emotions, were measured. Factors related to the manipulation of cognitive appraisals that might explain the effects of the experimental conditions, including perceived suffering of the boy featured in the story, perceived intent of the polluting industries (Quigley & Tedeschi, 1996), identification with the boy (Shen, 2010; Tal-Or & Cohen, 2010), were also assessed. Pretested collective action intention items adapted from previous research (Shi et al., 2015) were used. Specific measures and descriptive data are shown in Table 2.1.

Table 2.1 Measures Used for Key Variables

Concept	Measure	Study 1 (S1)		Study 2 (S2)	
		M	SD	M	SD
Emotion	To what extent did you feel each of the following emotions while reading the news article?				
Compassion (S1: $\alpha = .89$, $M = 3.23$, $SD = 1.46$; S2:	Compassionate	3.69	1.67	3.86	1.73
	Sympathetic	3.98	1.61	4.04	1.67
	Moved	2.78	1.84	3.12	1.85
	Softhearted	3.09	1.79	3.26	1.84

$\alpha = .91, M = 3.43, SD = 1.53$)	Tender	2.62	1.85	2.86	1.88
Moral outrage (S1: $\alpha = .89, M = 3.19, SD = 1.68$; S2: $\alpha = .89, M = 3.20, SD = 1.73$)	Angry	3.41	1.75	3.21	1.91
	Outraged	3.30	1.86	3.33	1.92
	Irritated	3.10	1.87	3.05	1.91
Distress (S1: $\alpha = .87, M = 2.49, SD = 1.48$; S2: $\alpha = .88, M = 2.51, SD = 1.55$)	Afraid	1.79	1.74	1.86	1.85
	Anxious	1.99	1.70	1.98	1.83
	Distressed	2.77	1.79	2.78	1.82
	Upset	3.41	1.75	3.41	1.80
Positive affect (S1: $\alpha = .76, M = .61, SD = .88$; S2: $\alpha = .78, M = .68, SD = .95$)	Proud	.31	.85	.41	1.01
	Hopeful	1.20	1.54	1.28	1.57
	Happy	.32	.83	.37	.98
	Enthusiastic	.62	1.20	.65	1.22
Perceived suffering (S1: $r = .78, M = 4.45, SD = 1.19$; S2: $r = .80, M = 4.87, SD = 1.08$)	How would you rate the amount of ... the boy in the news article received?				
	suffering harm	4.49 4.42	1.24 1.29	4.87 4.88	1.12 1.15
Perceived intent	To what extent do you agree or disagree that the polluting industries wanted to locate the polluting facilities in low-income and minority communities?	4.07	1.71	4.36	1.64
Identification (S1: $\alpha = .93, M = 3.08, SD = 1.40$; S2: $\alpha = .92, M = 3.15, SD = 1.41$)	To what extent do you agree or disagree that...?				
	I think I understand the boy well.	3.18	1.57	3.33	1.61
	While reading, I felt like the boy felt.	2.86	1.68	2.92	1.74
	During reading, I could really "get inside" the boy's head.	2.74	1.64	2.92	1.68
	I can identify with the boy.	3.12	1.67	3.09	1.67
	I can relate to the boy.	3.18	1.63	3.13	1.69
Collective action intentions (S1: $\alpha = .97, M = 3.13, SD = 1.91$; S2: $\alpha = .96, M = 3.14, SD = 1.90$)	How likely are you to ... in the next three months?				
	Participate in some form of collective actions to stop environmental injustice	3.05	1.97	3.06	1.96
	Do something together with fellow Americans to stop environmental injustice	3.16	1.96	3.16	1.97
	Participate in raising the collective	3.17	2.00	3.21	1.98

Note: Items were measured using 7-point Likert-type scales from 0 to 6.

Attention checks. Three questions were included to assess if participants were able to notice key differences between messages. The first question asked if the boy had recovered from his respiratory disease. The second question asked if participants had seen any picture in the news article. Participants could choose from *yes*, *no* or *don't recall* for the first two questions. The last questions asked if the article had mentioned any particular reason why polluting industries are located near low-income and minority communities, and if the answer were yes, they could choose from “it is because of cheap land prices near these communities” or “it is because of little political and economic resistance from these communities.”

Results

Attention Checks

Chi-square tests were used to examine the three attention check questions. For the first question regarding whether the boy had recovered from his illness, there was a significant difference between the high- and low-compassion conditions, $\chi^2(2) = 693.10$, $p < .001$, $\phi = .85$. More participants in the high-compassion condition (86.08%) indicated that the boy had not recovered from his respiratory disease than those in the low-compassion condition (4.38%). For the second question concerning the use of a picture in the news article, there was also a significant difference between the high- and low-compassion conditions, $\chi^2(2) = 784.99$, $p < .001$, $\phi = .91$. More participants in the high-compassion condition (95.57%) reported having seen a picture

in the news article than those in the low-compassion condition (5%). For the last question regarding the inclusion of the particular reason for why polluting industries are located near low-income and minority communities, there was a significant difference between high- and low-moral-outrage conditions, $\chi^2(3) = 402.61, p < .001, \phi = .65$. The majority of participants in the high-moral-outrage condition (79.86%) chose “yes, it is because of little political and economic resistance from these communities,” whereas the majority of participants in the low-moral-outrage condition (60.91%) reported that no particular reason was mentioned. These results provided evidence that participants were able to notice the key differences across difference experimental conditions.

Effects of Experimental Conditions

A series of two-way ANOVAs was performed featuring terms for the compassion condition (high vs. low), moral outrage condition (high vs. low), and their interaction term as the independent variables, and compassion, moral outrage, distress, positive affect, perceived suffering, perceived intent, identification, and collective action intentions as the dependent variables, respectively. Only significant results are reported below.

Taking the emotion items first, there was a main effect of the compassion conditions on compassion such that the high-compassion condition ($M = 3.50, SE = .07$) led to more compassion than the low-compassion condition ($M = 2.97, SE = .07$), $F(1, 950) = 32.36, p < .001, \eta^2_{\text{partial}} = .03$. Similar main effects of the compassion conditions were also found on moral outrage ($M_{HC} = 3.39, SE = .08$ vs. $M_{LC} = 3.02, SE$

= .08), $F(1, 950) = 11.24, p = .001, \eta^2_{\text{partial}} = .01$, and distress ($M_{HC} = 2.70, SE = .07$ vs. $M_{LC} = 2.30, SE = .07$), $F(1, 950) = 18.06, p < .001, \eta^2_{\text{partial}} = .02$. In addition, there was also a main effect of the moral outrage conditions on moral outrage such that the high-moral-outrage condition ($M = 3.32, SE = .08$) led to more moral outrage than the low-moral outrage condition ($M = 3.08, SE = .07$), $F(1, 950) = 4.96, p = .026, \eta^2_{\text{partial}} = .01$. These results suggest that the manipulation of the moral outrage conditions was successful. However, unlike results from pretesting, the compassion conditions elicited different levels of compassion as well as moral outrage and distress.

With regard to the findings related to the cognitive aspects, there was a main effect of the compassion conditions on perceived suffering ($M_{HC} = 4.90, SE = .05$ vs. $M_{LC} = 4.02, SE = .05$), $F(1, 950) = 149.99, p < .001, \eta^2_{\text{partial}} = .14$. In addition, there was a main effect of the moral outrage conditions on perceived intent of the industry ($M_{HM} = 4.40, SE = .08$ vs. $M_{LM} = 3.81, SE = .07$), $F(1, 950) = 28.95, p < .001, \eta^2_{\text{partial}} = .03$.

To address the two hypotheses regarding victim portrayals and collective action tendencies, the results show that there was a main effect of the compassion conditions on collective action intentions, ($M_{HC} = 3.30, SE = .09$ vs. $M_{LC} = 2.97, SE = .09$), $F(1, 950) = 7.42, p = .007, \eta^2_{\text{partial}} = .01$. However, there was no significant main effect of the moral outrage condition or interaction effects between the compassion and moral outrage conditions on collective action intentions. Since the high-compassion condition elicited a higher level of both compassion and moral

outrage than the low-compassion condition, and the high-moral-outrage condition elicited a higher level of moral outrage than the low-moral-outrage condition, H1 was supported, and H2 received mixed support.

Mediation Analysis

To address the two research questions regarding the potential mediating factors explaining the effects of compassion- or moral-outrage-inducing victim portrayals on collective action tendencies, mediation analyses were conducted using the PROCESS macro for SPSS with 10,000 bootstrap resamples and 95% bias-corrected confidence interval (Hayes, 2013). Because there was a main effect of the compassion condition on collective action intentions as well as on compassion, moral outrage, distress, and perceived suffering, the analyses examined whether compassion, moral outrage, distress, and perceived suffering mediated the effects of the compassion condition on collective action intentions by controlling for the moral outrage condition and the two-way interaction between the compassion and moral outrage conditions. The results show that, in addition to serving as significant mediators separately, when compassion, moral outrage, distress, and perceived suffering were entered together into a parallel multiple mediator model, which controlled for the correlations between these four variables (Hayes, 2013), they significantly mediated the effects of the compassion condition on collective action intentions (Figure 2.1). In other words, the high- (vs. low-) compassion condition increased compassion ($B = .09$, $SE = .03$, $95\%CI = .04$ to $.18$), moral outrage ($B = .09$, $SE = .04$, $95\%CI = .01$ to $.19$), distress ($B = .04$, $SE = .03$, $95\%CI = .00$ to $.12$), and perceived suffering ($B = .16$, $SE = .05$, $95\%CI = .07$ to $.28$), which further increased collective action intentions.

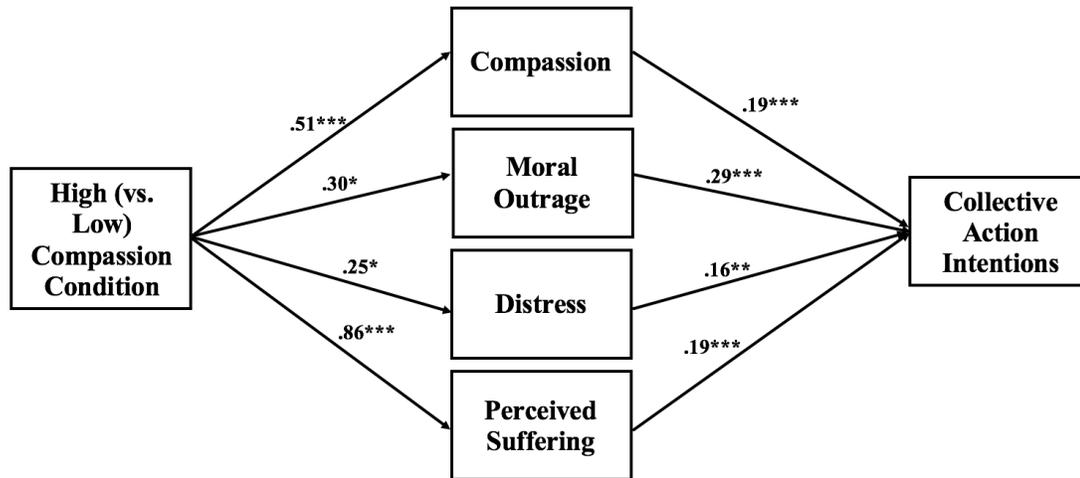


Figure 2.1 Mediation model showing the effects of compassion conditions on collective action intentions.

Note. Moral outrage condition and two-way interaction between the compassion and moral outrage conditions are not shown to reduce visual clutter. The statistics represent unstandardized regression coefficients. The indirect effect of the compassion condition via compassion = .09 ($B = .09$, $SE = .03$, 95%CI = .04 to .18), moral outrage = .09 ($B = .09$, $SE = .04$, 95%CI = .01 to .19), distress = .04 ($B = .04$, $SE = .03$, 95%CI = .00 to .12), and perceived suffering = .16 ($B = .16$, $SE = .05$, 95%CI = .07 to .28).

Discussion

These results altogether show that victim portrayals that elicited more compassion, moral outrage, distress, and perceived suffering of the victim led to increased collective action than those that elicited less of these emotional or cognitive reactions. Findings from this study provided some answers to the research questions and hypotheses proposed. Unexpectedly, distress was also positively associated with collective action intentions. To manipulate felt compassion and moral outrage, the experimental conditions differed in not just the content of the text but also the inclusion of the picture. These differences were necessary to produce the intended differences in the target emotions participants experienced. However, these differences in the message content might have also introduced confounding factors that might

explain the effects of the victim portrayals on collective action tendencies, even though some of these confounding factors were controlled for in the analyses, for instance, perceived suffering. To provide a cleaner test of the effects of emotion-inducing victim portrayals on collective action tendencies and examine whether the mediating effects of compassion, moral outrage and distress are replicable, a follow-up study was conducted that adopted a more conventional experimental manipulation that keeps the message constant but varies the emotions audience members experience in response to the message.

Study 2

Method

Participants

One thousand and forty-three U.S. adults receiving one dollar for participation were recruited via Amazon's Mechanical Turk July 4-5, 2017. Among the participants, 53 identified themselves as having been a victim of environmental injustice². Excluding these participants resulted in a sample size of 990. Among the 990 participants, 46.1% were male and 53.9 % were female, with a mean age of 37.62 years ($SD = 11.97$). The median highest level of education was a bachelor's degree and median annual household income between \$35,000-\$49,999. The distribution of racial background among participants was: White 76.5%, Black 9.0%, Asian 5.7%, Hispanic 4.6%, other 3.6%, and 0.6%, who preferred not to answer.

² The direction and significance of the results remained unchanged when the 53 participants were included in the analyses.

Procedure and Stimulus

In this study, perspective taking manipulations were used to control the emotions participants felt while keeping the news article they read the same. Participants were randomly assigned to one of two perspective taking conditions. In the empathic perspective taking condition, participants were instructed to read the news article in such a way that they would “try to imagine how the boy in the picture feels” and let themselves be guided by their feelings (cf. Batson, Chang, Orr, & Rowland, 2002). In contrast, in the objective perspective taking condition, participants were instructed to “try not to get caught up in how the boy in the picture feels” and “remain objective and detached.” The news story for Study 2 was the same as the one used in the high-compassion and high-moral-outrage condition in Study 1.

Key Measures

The same emotion, perceived suffering and intent, identification, and collective action items were used as Study 1. Specific measures and descriptive data are shown in Table 2.1.

Manipulation checks. Three items assessing perspective taking adapted from previous research (Davis, Conklin, Smith, & Luce, 1996) were used as a manipulation check ($\alpha = .78$; $M = 3.11$, $SD = 1.70$). Participants were asked to what extent (0 = *Not at all* to 6 = *Very much so*) they *tried to imagine how the boy in the news article was feeling* ($M = 3.79$, $SD = 2.10$) or *perceived what had happened to him* ($M = 3.65$, $SD = 2.08$), or *tried to read the news article in an objective and detached manner* (reversed; $M = 1.88$, $SD = 1.92$).

Results

Manipulation Checks

The results of a one-way ANOVA featuring the experimental conditions as the independent variable and the perspective taking scale as the dependent variable show that participants were significantly more likely to take the empathic perspective in the empathic perspective taking condition ($M = 4.23$, $SE = .06$) than those in the objective perspective taking condition ($M = 2.01$, $SE = .06$), $F(1, 988) = 740.91$, $p < .001$, $\eta^2_{\text{partial}} = .43$. This result indicates that the manipulation of perspective taking was successful.

Effects of Experimental Conditions

A series of one-way ANOVAs were performed featuring the experimental conditions as the independent variable, and compassion, moral outrage, distress, positive affect, perceived suffering, perceived intent, identification, and collective action intentions as the dependent variables, respectively. Only significant results are reported below.

Taking the emotion items first, there was a main effect of the experimental condition on compassion such that the empathic perspective taking condition ($M = 3.79$, $SE = .07$) led to more compassion than the objective perspective taking condition ($M = 3.08$, $SE = .07$), $F(1, 988) = 55.28$, $p < .001$, $\eta^2_{\text{partial}} = .05$. Similar main effects of the experimental condition were also found on moral outrage ($M_{EP} = 3.43$, $SE = .08$ vs. $M_{OP} = 2.97$, $SE = .08$), $F(1, 988) = 18.48$, $p < .001$, $\eta^2_{\text{partial}} = .02$, and distress

($M_{EP} = 2.71, SE = .07$ vs. $M_{OP} = 2.32, SE = .07$), $F(1, 988) = 16.07, p < .001, \eta_{partial}^2 = .02$.

With regard to the findings related to the cognitive aspects, there was a main effect of the experimental condition on perceived suffering ($M_{EP} = 5.07, SE = .05$ vs. $M_{OP} = 4.69, SE = .05$), $F(1, 988) = 32.34, p < .001, \eta_{partial}^2 = .03$, identification ($M_{EP} = 3.64, SE = .06$ vs. $M_{OP} = 2.68, SE = .06$), $F(1, 988) = 127.85, p < .001, \eta_{partial}^2 = .12$, and collective action intentions, ($M_{EP} = 3.27, SE = .09$ vs. $M_{OP} = 3.03, SE = .09$), $F(1, 988) = 3.90, p = .049, \eta_{partial}^2 = .004$.

Mediation Analysis

Similar mediation analyses to Experiment 1 were conducted, using the experimental conditions as the independent variable, collective action intentions as the dependent variable, and compassion, moral outrage, distress, perceived suffering, identification and perspective taking as the mediators. In addition to serving as significant mediators separately, when compassion, moral outrage, distress, perceived suffering, identification and perspective taking were entered simultaneously into a parallel multiple mediator model, moral outrage, distress, perceived suffering and identification significantly mediated the effects of the experimental conditions on collective action intentions (Figure 2.2). Compassion and perspective taking became non-significant mediators when placed into the model with other mediators. In other words, the empathic (vs. objective) perspective taking condition increased simultaneously moral outrage ($B = .10, SE = .03, 95\%CI = .04$ to $.18$), distress ($B = .11, SE = .04, 95\%CI = .05$ to $.19$), perceived suffering, ($B = .06, SE = .02, 95\%CI = .02$ to $.11$) and identifications ($B = .25,$

$SE = .05$, $95\%CI = .16$ to $.36$), which further increased collective action intentions.

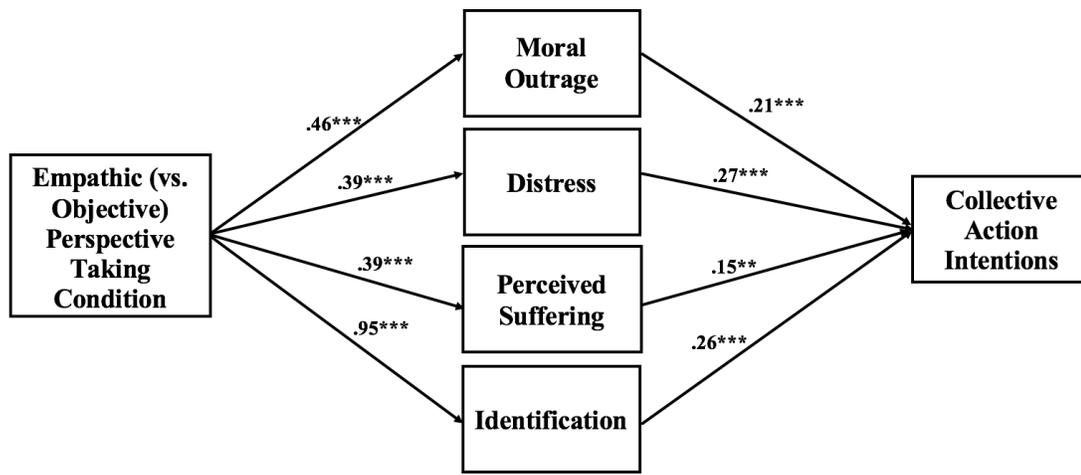


Figure 2.2 Mediation model showing the effects of perspective taking conditions on collective action intentions.

Note. Since perspective taking and compassion are not significant mediators in the parallel multiple mediator model, they are not shown to reduce visual clutter. The statistics represent unstandardized regression coefficients. The indirect effect of the empathic (vs. objective) perspective taking condition via moral outrage = $.10$ ($B = .10$, $SE = .03$, $95\%CI = .04$ to $.18$), distress = $.11$ ($B = .11$, $SE = .04$, $95\%CI = .05$ to $.19$), perceived suffering = $.06$ ($B = .06$, $SE = .02$, $95\%CI = .02$ to $.11$), and identification = $.25$ ($B = .25$, $SE = .05$, $95\%CI = .16$ to $.36$).

Discussion

The objective of Study 2 was to replicate the findings from Study 1 by using a more controlled experimental manipulation, considering some of the mediators (e.g., distress, etc.) found in Study 1 were not predicted initially. Moral outrage, distress, and compassion (to a lesser extent) served consistently as mediators for the effects of victim portrayals that also included some mention of perpetrators on collective action tendencies, providing evidence supporting the promising role played by these emotions, as they are elicited by victim portrayals, in driving collective action.

General Discussion

The current research started out with a broad research question, asking what

kind of victim portrayals can motivate collective action. To investigate this question, the current research focused specifically on the emotional pathway leading to collective action. By finding out the connections between emotions usually elicited by exposure to victim portrayals and emotions associated with collective action tendencies, this research further examined two moral emotions, compassion and moral outrage, that harbor the potential to bridge the literature on victim portrayals and collective action. The results of two experimental studies showed that discrete emotions (i.e., compassion, moral outrage, distress) and victim perceptions (i.e., perceived suffering, identification with the victim) impacted by portrayals of victims of environmental injustice served as motivational factors for strengthening collective action intentions.

The literature on victim portrayals often concentrates on their effects on behaviors, such as volunteering and donating, that can directly relieve victims' suffering (e.g., Batson, Sager, et al., 1997; Slovic, 2007). While these behaviors can indeed help the victims, they are constrained in terms of their usefulness in preventing future occurrences of similar tragedies (Lu & Schuldt, 2016). In comparison, collective action, as was operationalized in the current research, may produce more fruitful outcomes that help reduce more suffering experienced by the victims as well as the number of new victims. The way the portrayals of victims were manipulated in the first experiment matched the core relational themes proposed by appraisal theories of emotions (Lazarus, 1991) and was also consistent with literature showing the effectiveness of the use of identifiable victims and victims' pictures as well as explicit mention of perpetrators and their intent (Perrine & Heather, 2000; Small &

Loewenstein, 2003; Umphress et al., 2013). By making the suffering victim more salient in the message, a higher level of compassion was induced, whereas by emphasizing perpetrators' malicious intent, more moral outrage was felt. The former type of portrayal was found to be associated with collective action intentions.

A major contribution of the current research is its finding that moral outrage, compassion, and distress elicited by victim portrayals were important predictors of collective action tendencies, which expands the array of emotions usually considered to be linked with collective action. As predicted, victim portrayals that elicited more moral outrage and compassion led to more collective action intentions. The emotion-focused pathway is one of the primary mechanisms explaining collective action and the role that anger plays in driving collective action, as is exclusively highlighted in this pathway, has been well documented (van Zomeren et al., 2008; van Zomeren et al., 2004). Unlike research testing the dual pathway model of collective action which accentuates disadvantaged groups taking collective action on their own behalf (van Zomeren et al., 2004), the current research shifted the type of collective action under investigation to third-party individuals, who were neither the perpetrators nor the victims, being the performers of collective action. While the distinction between the terms may be arbitrary (Batson et al., 2009; Batson et al., 2007), the current research indicated that, similar to the group-based anger proposed in the dual pathway model, anger in the third-party context, as is referred to as moral outrage in the current research, is also a consistent stimulator of collective actions. Regardless of group-based anger and moral outrage being the same or different, the contribution of the current research lies in its expansion of the contexts (e.g., first party) in which the

theorization of collective action usually occurs.

Compassion, as a positive prosocial emotion, has been found to be associated with collective action in the literature (Saab et al., 2015; Zak & Barraza, 2013), though contradictory findings also exist that have shown little correlation between compassion and collective action (Montada & Schneider, 1989). The current research provides evidence showing not only that victim portrayal-induced compassion can lead to increased collective action, but also that compassion has its unique contribution to collective action beyond the effects of other emotions such as moral outrage and distress. However, it should be noted that, in Study 2, when compassion was entered into the parallel multiple mediator model, it was no longer a significant mediator. This was probably because compassion and identification with the victim were highly correlated in Study 2. Several items of the identification scale used in the current research were in fact measuring affective empathy (Shen, 2010), which could be an important antecedent of compassion. When identification was removed from the mediation model in Study 2, the indirect effects of the experimental conditions through compassion was comparable to both moral outrage and distress.

The role that distress played in kindling collective action intentions was least expected. This is because distress is usually not considered as a moral emotion and its association with prosocial behaviors can be described as mixed at best (Eisenberg, Eggum, & Di Giunta, 2010). Yet, through two experiments, distress consistently predicted collective action tendencies, even when controlling for other emotions. Although the operationalization of distress used in the current study was unable to distinguish the types of distress (self- vs. other-oriented) participants felt in the

experiments, some evidence exists that the distress felt by participants might be more other-oriented. First, compassion and distress were highly correlated. Second, similar to Batson, Early, et al.'s (1997) study, when the compassion and distress items were entered into a factor analysis, all of them loaded .60 or higher on the first component of a two-component solution, suggesting that at least some participants were distressed *for* the victim rather than distressed *by* the victim's plight. Feeling this other-oriented distress may explain why participants were willing to take collective action on behalf of someone they did not know personally.

Perhaps the most interesting finding was that moral outrage, compassion and distress worked both independently and jointly to influence collective action. The focus on multiple emotions echoed research calling for more attention to how the experience of multiple emotions might relate to prosocial behaviors (Fernando et al., 2014; Iyer & Ryan, 2009). As is often the case, when responding to mediated messages, the audience experience a variety of emotions at the same time. Allowing multiple emotions to develop during message exposure may be more ecologically valid and provide unique opportunities to study how these different emotions may interact with one another. It should be noted that, in Study 1, although the high- vs. low-moral-outrage conditions led to more moral outrage, these conditions did not differentially influence collective action intentions. This might be because the difference in moral outrage alone could not lead to a substantial change in more downstream variables like collective action intentions. Similarly, additional analyses show that, in Study 1, the high-compassion low-moral-outrage condition elicited significantly more compassion than either the low-compassion high-moral-outrage or

low-compassion low-moral outrage condition, but not more moral outrage or distress. This difference in compassion alone did not lead to a difference in collective action intentions between these conditions, providing evidence that while the definition of compassion incorporates the desire to help the victim, compassion and actual helping intentions are two related yet distinct constructs. Overall, these findings suggest that a change in collective action intentions may be more likely to happen when multiple relevant emotions are impacted.

When the attention is paid to moral outrage, compassion, and distress, a particular term, empathic anger, may be worthy of discussion. Empathic anger arises when a person or an object that we care about is harmed by another (Batson et al., 2007; Hoffman, 1990). According to Hoffman (1987, 1989), there is a sequence for how empathic anger occurs. Upon witnessing another's plight, the perceiver will first experience empathic distress, which is other-oriented, and then the empathic distress will likely transform into other empathic emotions depending on the type of causal attributions the perceiver makes of the situation (Hoffman, 1989). If the cause of the victim's distress is perceived to be beyond the victim's control, then empathic distress will transform at least partially into compassion (Hoffman, 1989). In addition, if someone else is perceived as the cause of the victim's distress, anger is likely to emerge (Hoffman, 1989). Depending on the particular situation, the perceiver's emotion may alternate between compassion and anger, or anger may crowd out compassion entirely (Hoffman, 1989). It is evident, from Hoffman's (1989) description of how empathic anger comes into being, that moral outrage, compassion, and distress all play some part in the process. Perhaps it is more accurate to label the

high-compassion condition in Study 1, relative to the low-compassion condition, and the empathic perspective taking condition in Study 2, relative to the objective perspective taking condition, as the empathic anger condition. Then it may be appropriate to rephrase the findings of the current research as victim portrayals that elicit empathic anger having the potential to increase collective action tendencies. How feasible and applicable this rarely studied emotional experience is in the context of collective action, and, more broadly, prosocial behavior, requires a more thorough and systematic investigation in future research.

To test whether the mediating effects of the three emotions found in Study 1 were replicable, Study 2 used an arguably cleaner way of manipulating the emotions participants felt during message exposure. The traditional empathic and objective perspective taking manipulation has been widely used as a reliable method of manipulating the levels of compassion individuals feel when responding to a suffering victim (Batson, 2009; Batson, Early, et al., 1997; Batson et al., 2015). How emotions other than compassion may be influenced by the perspective taking instructions has been studied less often. The current research shows that, in addition to compassion, emotions, such as moral outrage and distress can also be influenced by the perspective taking instructions. Batson et al. (1991) noted that the types of emotions individuals feel in response to others' suffering may depend on the specific contexts in which the suffering occurs. It is likely that compassion tends to be the predominant emotion felt in response to a story about a college senior struggling to take care of her younger brother and sister after their parents were killed in a car accident (Batson et al., 1991). In comparison, a story about environmental injustice that describes both the suffering

victim and the malicious perpetrators may elicit compassion, distress, and moral outrage simultaneously. Instructing the audience to take the empathic perspective is sufficient in making them feel all these emotions, while asking the audience to remain objective prevents them from experiencing these emotions. In addition, the differences created by the perspective taking instructions in perceived suffering and identification are also noteworthy. Prior research adopting the empathic and objective perspective taking instructions usually focuses on the emotional consequences these manipulations produce rather than their impact on the perceptions of the victim in need. It may come as little surprise that identification with the victim was stronger when the empathic (vs. objective) perspective was taken, considering the language used in the empathic perspective instruction which essentially required participants to connect with the victim. Yet, the finding is intriguing that being able to imagine and understand the emotional experiences of the victim in his suffering situation made the perspective takers think the victim's suffering was more severe. How perceived suffering in this case related to compassion is unclear. In other words, whether increased perception of suffering preceded, occurred alongside with, or followed the experience of compassion is unknown. More research is needed to figure out how the cognitive and emotional consequences of different perspective taking instructions interact with one another.

Because the primary focus of the current research is the role of *emotions* in motivating collective action tendencies, the analyses carefully controlled for the effects of potentially confounding cognitive factors that might influence collective action intentions in both experiments. In Study 1, the use of a suffering victim's

picture impacted perceived suffering but not identification. In Study 2, the use of perspective taking instructions produced differences in both perceived suffering and identification. Above and beyond the effects of these cognitive factors, at least two emotions, moral outrage and distress, remained significant mediators of the experimental conditions on collective action tendencies. As compared to compassion in Study 2, identification might play a more robust role in the parallel multiple mediator model. This finding may indicate the overlooked role played by cognitive factors in previous research on compassion using the perspective taking manipulation. It is possible that increased helping behaviors produced by empathic perspective taking could be merely a function of changes in cognitions such as identification rather than in emotions like compassion.

Alongside the contributions and strengths of the current research, several limitations should also be noted. First, in Study 1, the high- and low-compassion conditions were intended to produce some difference in compassion only. Despite successful pretesting of the news articles, these conditions also accidentally influenced moral outrage and distress. This might be because of the different sample size involved, with the main experiment recruiting a much bigger sample of participants. It could also be because it is just difficult to accurately control how individuals react emotionally to mediated messages. Although manipulation was used that matched the core relational themes of compassion and moral outrage in Study 1, the manipulation methods were tentative at best. More research is needed to shed light on more standard ways of manipulating these two emotions using a message-centered approach. Second, the current research investigated victim portrayals and collective action in the third-

party context and may not be applicable when the performers of collective action become part of the advantaged/perpetrator or disadvantaged/victim groups. When including the number of participants who indicated having been a victim of environmental injustice before, the results remained the same. However, since these participants represented only 5% of all the participants, it is still difficult to predict how participants would react emotionally to these victim portrayals when the majority of them have suffered from environmental injustice. Research has shown feelings of compassion and anger vary depending on the group membership of the victims and perpetrators (Gordijn et al., 2006; Stürmer, Snyder, Kropp, & Siem, 2006). When the dual pathway model of collective action was proposed and tested, the scenarios involved did not feature any particular victim (Shi et al., 2015; van Zomeren et al., 2004). It may be possible to create a scenario in which certain in-group members are featured as victims and examine if emotions other than anger could stimulate collective action. The further development of the dual pathway model will benefit from exploring this possibility.

Social conflict situations, such as environmental injustice, racial discrimination and gun violence, have been attracting increasing public attention. Individuals oftentimes encounter these emotionally charged issues through mediated presentations. To help resolve these conflicts, collective action from the general public, who may be considered “bystanders,” is needed. This current research examined one possible way to get the public engaged with collective action, that is, through the portrayals of victims, and the emotions and perceptions these portrayals convey. Depending on the particular context, communication practitioners may choose

to focus on one or several of these emotional and cognitive factors in order to influence collective action intentions and potentially reduce the occurrences of these social conflicts.

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CHAPTER 3: EMOTIONAL FLOW OF ANGER AND COMPASSION: ORDER
EFFECTS OF EMOTIONAL APPEALS AND MODERATING EFFECTS OF
PERCEIVED INTEREST

Introduction

Emotions are not just static states but dynamic processes that progress and develop over time (Sonnemans & Frijda, 1994). Emotional appeals are messages designed to arouse emotion-laden drives to achieve persuasion goals (Janis & Feshbach, 1953). The majority of research on emotional appeals in the past few decades, however, has rarely considered the dynamic, ever-changing nature of emotions, or, as Nabi (2015) refers to, emotional flow. For instance, the study of one of the most frequently investigated emotional appeals, fear, has predominantly focused on fear response as an unchanging state during message exposure (Dillard, Li, Mieczkowski, Yang, & Shen, 2017). Only until recently has evidence emerged showing that persuasion outcomes are better predicted when fear response is examined as a curvilinear line that first increases and then decreases during message exposure (Dillard et al., 2017; Mieczkowski, Dillard, & Shen, 2016; Shen, 2017). This omission may be detrimental to the study of emotional appeals because a crucial aspect of the emotional experience is not considered. In addition, going beyond the focus on single emotions elicited by emotional appeals, recent research has started to pay more attention to multiple emotions induced simultaneously by emotional appeals (e.g., Myrick & Oliver, 2015). This line of work has the potential to investigate the unintended effects and more complex experiences of emotional appeals (Dillard,

Kinney, & Cruz, 1996). One way emotional flow may manifest is via the change of experience from one emotion to another during message exposure (Nabi, 2015), which involves the feeling of multiple emotions.

For emotions to evolve in response to an emotional appeal, information concerning the cognitive appraisals leading to discrete emotions needs to vary, which requires a careful placement of information within the emotional appeal. A concept highly relevant to the placement of different pieces of information is called order effects or serial position effects (Ebbinghaus, 1964). However, research on order effects has rarely considered the emotions that may be induced by different pieces of information and their effects on persuasion. Naturally, emotional flow becomes possible when pieces of information are arranged in a particular order. With the potential to integrate the emerging literature on emotional flow and the classic literature on order effects, the current study presents a randomized experiment to examine the effects of emotional flow between anger and compassion on persuasion by adopting an attitude strength perspective and investigate potential underlying mechanisms, including emotions felt at different time points during message exposure, accounting for any observed effects.

Literature Review

Order Effects and Attitude Strength Perspective

It is well documented that the order in which individuals encounter information can impact persuasion (Haugtvedt & Wegener, 1994). When order effects occur, they usually manifest in two forms: primacy and recency effects. Primacy effects emerge

when the first piece of information in a sequence has the biggest impact on persuasion compared to information that comes later. In contrast, recency effects arise when the last piece of information in a sequence is more influential than preceding information in persuasion. Empirical work has provided evidence supporting both primacy and recency effects in a wide range of research contexts (e.g., Cromwell, 1950; Hovland & Mandell, 1957; Stone, 1969). However, disagreement exists over which of the two effects is more likely to appear (Hogarth & Einhorn, 1992).

Several theoretical accounts attempting to integrate different order effects that usually consider the diverse conditions under which primacy vs. recency effects are predominant have been provided (e.g., Haugtvedt & Wegener, 1994; Hogarth & Einhorn, 1992; Lana, 1964; Petty, Tormala, Hawkins, & Wegener, 2001). In particular, Haugtvedt and Wegener (1994) put forward an attitude strength explanation of primacy vs. recency effects. Drawing from the Elaboration Likelihood Model's (ELM; Petty & Cacioppo, 1986) emphasis on the role of elaboration in producing strong attitudes, Haugtvedt and Wegener (1994) suggested conceptualizing order effects as a test of attitude strength, that is, in this case, "the degree of attitude resistance in the face of attack" (p. 207). Specifically, if the initial information succeeds in changing an existing attitude or establishing a new attitude that does not previously exist, how much the subsequent information can change this attitude reflects attitude strength ensuing the initial information (Haugtvedt & Petty, 1992). Therefore, primacy effects may be considered as the initial information leading to high levels of attitude strength or strong resistance to change whereas recency effects may be thought of as the initial information leading to low levels of attitude strength or

weak resistance to change (Haugtvedt & Wegener, 1994). Importantly, factors that strengthen elaboration in the process of forming or changing an attitude are likely to increase attitude strength (Haugtvedt & Petty, 1992; Petty & Cacioppo, 1986). That means primacy effects are more likely to occur when motivation and ability to elaborate the initial information are high, which will more likely result in a relatively higher attitude of strength. In a similar vein, there is a higher chance of recency effects when motivation and ability to elaborate on the initial information are low. In the case of recency effects, memory and recall of the most recent information may be used as a basis for a final attitude, especially when elaboration is so low that no attitudes are fully formed until the attitudinal inquiry (Haugtvedt & Wegener, 1994).

Haugtvedt and Wegener (1994) conducted two experiments operationalizing motivation to elaborate as message relevance and found support for this attitude strength account. This attitude strength perspective has also been used to explain and integrate findings from other research on primacy and recency effects (Kassin, Reddy, & Tulloch, 1990; Lana, 1961, 1963a, 1963b; Petty et al., 2001). It should be noted that motivation or ability to elaborate was operationalized differently across studies. In addition to message relevance, variables, such as perceived interest in a topic, familiarity with a topic, controversiality of a topic, and need for cognition, were also considered as indexes of motivation for elaboration through the lens of the attitude strength angle (Haugtvedt & Wegener, 1994).

Research on order effects has primarily focused the effects on cognitive outcomes. Rarely has the investigation of order effects looked into the different emotions that may be induced by various pieces of information or how the varied

placement of different emotion-laden information may influence persuasion. This is an underexplored area that may help provide a more thorough understanding of how order effects function because emotions can contribute uniquely to persuasion above and beyond the influence of mere information or cognition (Nabi, 2007). Thus, the next section will provide a review on how order effects may be connected to literature on emotions and emotional appeals.

Appeals of Emotional Flow

Surprisingly, how emotions evolve and develop during a communication process has received little attention in the domain of persuasion and the study of emotional appeals (Nabi, 2015). The literature on the persuasive influence of emotions usually employs a single, static, post-exposure rating of message-relevant emotions. While many studies assess physiological indicators of emotions, such as skin conductance and heart rate, the subjective emotional experience individuals go through is often measured after message exposure (Potter & Bolls, 2012). This type of measurement is retrospective in that individuals have to think back to remember what they felt (Hazlett & Hazlett, 1999). It is still unclear what this measurement is able to capture from the emotional process, with some suggesting it has good correspondence with the peak point of an emotion (Rossiter & Thornton, 2004) and others indicating poor correspondence with either peak or end point of an emotion (Dillard et al., 2017). Apparently, measuring emotions in such a post-exposure manner has the tendency to treat emotions merely as an outcome influenced by communication effects, which fails to regard the evolution of emotions in communication as a process.

Recently, Nabi (2015) proposed the idea of emotional flow, which refers to the evolution of the emotional experience during message exposure, marked by one or more emotional shifts. Nabi (2015) pointed out that when exposed to an emotional appeal, people seldom experience the same emotion from the start to the end. Instead, people actually go through a number of shifts in their emotions. For instance, fear appeals, consisting of threat and efficacy information (Witte, 1992), may actually be fear-relief or fear-hope appeals because after feeling afraid of the threat introduced in the message, people can experience relief or hope later when the efficacy information appears (Nabi & Myrick, 2018). Importantly, recent studies (Dillard et al., 2017; Meczkowski et al., 2016; Shen, 2017) revisited the fear drive model (Hovland, Janis, & Kelley, 1953), which describes an over-time process of fear such that a fear appeal will be effective for persuasion to the extent that it produces a fear response that rises and then falls. Using self-reported measurements, these studies assessed individuals' fear responses to text or image-based fear appeals multiple times (e.g., before exposure, after the threat information, and after the efficacy information). Supporting the fear drive model, these studies consistently found that an inverted-U fear curve was a better predictor of persuasion outcomes than a linear arrangement. These emerging findings suggest that the post-exposure-only measures used in a large body of persuasion literature may not be optimal to examine the persuasive power of fear or other discrete emotions and that how emotions evolve during exposure to message content may represent a unique yet understudied domain for predicting subsequent attitudes and behaviors. In addition, some research suggests that messages with emotional flow can outperform emotional appeals of a single, unchanging emotion or

valence in accomplishing persuasive goals, providing another pragmatic reason to study emotional flow (Carrera, Muñoz, & Caballero, 2010).

A notion that is pertinent to emotional flow but yet has not received much discussion is the idea of mixed emotions, defined broadly as the co-occurrence of two or more same-valence or opposite-valence emotions, for instance, feeling happy and sad (Larsen & McGraw, 2014). Ocejja and Carrera (2009) identified four patterns of mixed emotions, two of which are most relevant to the idea of emotional flow: the sequential and the inverse. The sequential pattern refers to the experience when one emotion emerges and then is replaced by another emotion. The inverse pattern occurs when the intensity of one emotion gradually decreases and the other gradually increases over time. Both patterns align with Nabi's (2015) conceptualization of emotional flow. Relatedly, going beyond the exclusive focus on the flow of one emotion, Dillard and Shen (2018) investigated the flow of both fear and disgust, which could be considered as mixed emotions and found that the patterns of fear and disgust predicted persuasion differently.

The literature on how emotional flow occurs during message exposure is limited. A possible angle to examine this is through the potential link to research on order effects. Essentially, emotional flow takes place when information conveyed within a message changes, which also causes shifts in emotions. If a message inducing emotional flow is considered as consisting of several units eliciting different emotions, the message can be seen as having a fixed order arranging these units. These units may be considered as the necessary information provided by the message for changing cognitive appraisal of a situation that results in some change of emotions. For an

appeal with emotional flow, order effects can occur when certain units within the appeal produce a stronger impact than others on persuasion through the mediating role played by emotions elicited by these same units. A primacy effect may mean that the unit that appears initially in the appeal is most influential in influencing persuasion via the emotion induced by this initial unit, whereas a recency effect may mean that the unit that occurs most recently generates the greatest impact on persuasion through the emotion evoked by this last unit.

Anger and Compassion

The current study adopts the discrete emotion approach which views emotions as categorical emotional states, such as anger, fear, happiness and surprise. This approach assumes that the experience of a specific emotion is triggered after cognitive appraisal of an event or situation and that that particular emotion is associated with a distinct action tendency (Lazarus, 1991). The current study focuses on the flow of anger and compassion, two of the most prototypical moral emotions (Haidt, 2003). Anger is an emotion elicited because of “a demeaning offense against me and mine” (Lazarus, 1991, p. 222). The action tendency of anger is to condemn and punish perceived perpetrators of negative events (Lazarus, 1991). Compassion is a positive emotion felt when witnessing another's suffering and subsequently generating a desire to help ease that suffering (Goetz, Keltner, & Simon-Thomas, 2010). Abundant research has shown that both anger and compassion can lead to prosocial behaviors (Batson, Lishner, & Stocks, 2015; Goetz et al., 2010; van Doorn, Zeelenberg, & Breugelmans, 2014).

While there are many emotions that can serve as good candidates for the examination of emotional flow, the decision to focus anger and compassion is based primarily on two reasons. The first is largely pragmatic in that both anger and compassion can be simultaneously induced within the same message in contexts where victims and perpetrators are involved. As the audience usually feels compassionate toward victims and angry at perpetrators, the shift from one of the two emotions to the other should be relatively smooth providing that different pieces of information depicting victims and perpetrators are carefully arranged in a sequence.

The second is more theoretical in that there is an intriguing, yet underexplored term with the potential to capture the flow between anger and compassion in the literature. This term is called empathic anger, which is elicited when someone or something that the perceiver cares about is harmed by another (Batson et al., 2007; Hoffman, 1990). As a result, empathic anger is expected to evoke action tendencies that direct actions toward punishing the perpetrator and/or promoting the welfare of the victim (Batson et al., 2007; Vitaglione & Barnett, 2003). The research on empathic anger is thin. Apart from the definition of empathic anger, this emotion has not been thoroughly investigated in the current literature. It may even be presumptuous to label empathic anger as a discrete emotion because the current literature is not clear on whether empathic anger should be treated as one emotion or mixed emotions. According to Hoffman (1989), there is a sequence for how empathic anger occurs. Specifically, for empathic anger, compassion should occur before anger, and compassion can still exist simultaneously with anger or cease to exist after anger is elicited (Hoffman, 1989). This sequence closely aligns with the sequential and inverse

patterns proposed by Ocejja and Carrera (2009).

Yet, limited empirical work has examined the persuasiveness of emotional appeals eliciting empathic anger. In a study in which participants listened to an audiotape describing a victim of drunk driving, Vitaglione and Barnett (2003) found that empathic anger increased intentions to directly help the victim and punish the perpetrator. However, Vitaglione and Barnett's (2003) study did not operationalize empathic anger from an emotional flow perspective. From an emotional flow perspective, it is important to ask whether the order of induced compassion and anger matters for persuasion. That is, while the definition of empathic anger dictates that compassion should be elicited before anger, does this sequence differ in its persuasion from when anger is induced before compassion? To investigate this, this study asks:

RQ1: Does a “compassion → anger” message influence persuasion differently than an “anger → compassion” message?

Research on anger appeals has shown that feeling of anger is associated with punitive tendencies (Kühne & Schemer, 2013; Kühne, Weber, & Sommer, 2015). In comparison, beyond its association with increased helping tendencies, the feeling of compassion is either unrelated to or capable of reducing punishment-related actions that mirror the action tendencies of anger (Condon & DeSteno, 2011; Vitaglione & Barnett, 2003; Weng, Fox, Hessenthaler, Stodola, & Davidson, 2015). According to their action tendencies (Lazarus, 1991), anger and compassion may show differential effects on persuasion outcomes. Therefore, because of the current study's focus on policy support (described below), this study proposes the following hypotheses based

on predictions for primacy effects:

H1(a): A “compassion → anger” message will result in stronger support for protective policies than an “anger → compassion” message.

H1(b): An “anger → compassion” message will result in stronger support punitive policies than a “compassion → anger” message.

This study proposes the following hypotheses based on predictions for recency effects:

H2(a): A “compassion → anger” message will result in stronger support for punitive policies than an “anger → compassion” message.

H2(b): An “anger → compassion” message will result in stronger support for protective policies than a “compassion → anger” message.

When it comes to the flow between anger and compassion, emotional intensity may be worth considering. According to the additive account of mixed emotions, emotions with incompatible appraisals cancel each other out, leading to a weakened overall emotional response (Kreibig, Samson, & Gross, 2015; Pe & Kuppens, 2012). This is based on the appraisal tendency framework, which assumes that appraisal tendencies from prior emotions can carry over to influence subsequent appraisals eliciting another emotion (Lerner & Keltner, 2000). Empirical research has shown that because sadness and anger have contrasting agency appraisals, the feeling of sadness and anger respectively can carry over to blunt the subsequent experience of each other (Winterich, Han, & Lerner, 2010). According to Lazarus (1991), when blame is involved for a harmful action, anger is elicited, whereas when there is no blame,

compassion is induced. Because of the different appraisal dimensions of blame, this study proposes:

H3(a): A compassion-inducing message will elicit lower levels of compassion when this message is placed after (vs. before) an anger-inducing message.

H3(b): An anger-inducing message will elicit lower levels of anger when this message is placed after (vs. before) a compassion-inducing message.

Recall that from an attitude strength perspective, motivation to elaborate may moderate order effects. The current study operationalizes motivation to elaborate as perceived interest in a message topic. Therefore, it proposes the following research question and hypotheses:

RQ2: Does perceived interest in a message topic moderate the effects of a “compassion → anger” (vs. “anger → compassion”) message on policy support?

H4(a): For those with high perceived interest, an “anger → compassion” message will result in stronger support for punitive policies than a “compassion → anger” message, whereas for those with low perceived interest, an “anger → compassion” message will result in weaker support for punitive policies than a “compassion → anger” message.

H4(b): For those with high perceived interest, a “compassion → anger” message will result in stronger support for protective policies than an “anger → compassion” message, whereas for those with low perceived interest, a “compassion → anger” message will result in weaker support for protective policies than an “anger → compassion” message.

Method

Participants

This study recruited 502 U.S. adults, who received 80 cents for participation in the study, via Amazon's Mechanical Turk on July 23rd, 2017. Among the participants, 42.6% were male and 57.4 % were female, with a mean age of 35.47 years ($SD = 11.57$). The median highest level of education was an associate degree and the median annual household income was between \$50,000-\$74,999. The distribution of racial background among participants was: White 75.1%, Black 7.8%, Asian 7.8%, Hispanic 5.0%, other 4.0%, and .4% prefer not to answer.

Procedure and Stimulus

Two experiments were used to pretest the messages for the main experiment. These short messages were modeled after similar online news stories and based on research articles examining this issue (e.g., Huang & London, 2012; Padula et al., 2013). The finalized messages included one compassion-inducing message and two anger-inducing messages¹ (see Appendix 3). In particular, the compassion-inducing message featured a young boy living in one of the most polluted regions in the United States and suffering from asthma. This message also contained a photo of the boy

¹ This study decided to use three messages because latent growth modeling might be needed in the data analyses (Dillard et al., 2017; Shen, 2017), requiring measuring emotions at four different time points at least (Hancock & Lawrence, 2006). Choosing to use two anger-inducing over two compassion-inducing messages was partly because of the concern over "compassion fade", referring to findings that emotional reactions to a suffering victim decrease as the number of victims increases (Vastfjall, Slovic, Mayorga, & Peters, 2014). This study used the "identifiable victim" paradigm (Small & Loewenstein, 2003) to induce compassion. If a second compassion-inducing message featuring a different victim were used, compassionate response would likely decrease.

wearing a face mask looking directly at the viewers. The two anger-inducing messages, which included photos of industrial air and water pollution respectively, briefly described the pollution produced by many industries and factories as well as their motivation for profit. The order of the two anger-inducing messages was fixed in the main experiment.

Participants in the main experiment were randomly assigned to one of two between-subjects factorially designed conditions: “compassion → anger” (CA) vs. “anger → compassion” (AC). After completing the informed consent, participants were told that they would read three short segments of an online news article on the following pages. In the CA condition, participants read the compassion-inducing message first and then the two anger-inducing messages. In the AC condition, participants read the anger-inducing messages first and then the compassion-inducing message. After that, participants in both conditions completed a questionnaire including key measures detailed in the next section.

Key Measures

Emotions. Participants’ emotions, specifically, compassion and anger, were measured multiple times during this study. Before participants received any message (time₀), they were asked to indicate to what extent they were feeling each of the listed emotions at the moment (0 = *Not at all* to 6 = *Extremely*). This question was placed alongside a few other demographic questions in order to disguise the real purpose of the study and reduce participants’ sensitivity to their emotions. After reading the first message (time₁), participants were asked to indicate to what extent they felt each of

the listed emotions while reading the information on the previous page. The same emotions were measured again after participants had read the second (time₂) and third (time₃) messages respectively. After reporting their support for policies (detailed below), participants also reflected on how the three messages overall made them feel (Dillard et al., 2017). Because participants needed to report their emotions five times, only two items for each emotion were used to reduce participants' fatigue.

Compassionate and *sympathetic* were used to measure compassion (Batson, 1987). *Angry* and *outraged* were used to measure anger (Vitaglione & Barnett, 2003). The descriptive statistics are shown in Table 3.1. The emotional intensity of compassion and anger at each time point was calculated by averaging the rating of compassion and anger at each time point (van Boven, Kane, McGraw, & Dale, 2010).

Table 3.1 Descriptive Statistics of Compassion and Anger for Experimental Conditions

		Time ₀	Time ₁	Time ₂	Time ₃	Overall
		<i>M</i> (<i>SD</i>)				
Compassion	AC	2.25 (1.59)	1.19 (1.43)	.89 (1.37)	4.00 (1.54)	3.11 (1.61)
	CA	2.25 (1.59)	4.48 (1.29)	1.00 (1.48)	.59 (1.23)	2.89 (1.57)
Anger	AC	.49 (.96)	2.75 (1.61)	3.47 (1.72)	3.28 (1.95)	3.74 (1.72)
	CA	.45 (.97)	1.80 (1.64)	3.67 (1.68)	4.28 (1.59)	3.83 (1.62)

Note: AC = “anger → compassion” condition; CA = “compassion → anger” condition; Overall = “Overall, how did the three news segments make you feel?”; items were measured on 0-6 scales.

Perceived interest. Participants indicated how much they agreed or disagreed (0 = *Strongly disagree* to 6 = *Strongly agree*) with the statement, “I am not interested in the topic of industrial pollution,” (reverse-coded; $M = 4.31$, $SD = 1.60$).

Policy support. Seven pretested items reflecting the goal of either punishing

the polluters or protecting the victims were used. In the pretesting, a total of 10 policy proposal items were included (Bonorris, 2010; Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Rosenthal, 2015; Nabi, 2003). Participants indicated which of the two goals they thought each proposal was associated with more. They could select from “Punishing the wrongdoers,” “Protecting the victims,” “Both,” or “Neither.” Items with more than 60% ($N = 150$) agreement on a particular goal were included in the main experiment. Four punitive policy items ($\alpha = .89$; $M = 4.68$, $SD = 1.31$) were included (e.g., “creating harsher penalties for those producing industrial pollution”). Three protective policy items ($\alpha = .86$; $M = 4.68$, $SD = 1.27$) were included (e.g., “increasing funding for improvements to local infrastructures to make them more resistant to pollution”).

Results

Effects of Experimental Conditions

To examine whether the manipulation of emotion flow worked and address the first research question and the first two sets of hypotheses, a series of one-way ANOVAs were conducted featuring the experimental conditions ($AC = 0$, $CA = 1$) as the independent variable, and compassion, anger, and emotional intensity at different time points, perceived interest, punitive and protective policy support as the dependent variables, respectively. Starting with emotions, compassion and anger did not differ across conditions at time₀ or time₂. Participants’ overall compassion and anger during message exposure did not differ across conditions, either. There were significant differences in compassion, $F(1, 500) = 721.61$, $p < .001$, $\eta^2_{partial} = .59$, and anger,

$F(1, 500) = 42.88, p < .001, \eta^2_{\text{partial}} = .08$, at time₁. In particular, participants experienced less compassion and more anger in the AC condition than those in the CA condition, $ps < .001$. There were also significant differences in compassion, $F(1, 500) = 735.18, p < .001, \eta^2_{\text{partial}} = .60$, and anger, $F(1, 500) = 38.39, p < .001, \eta^2_{\text{partial}} = .07$, at time₃. In particular, participants experienced more compassion and less anger in the AC condition than those in the CA condition, $ps < .001$. In addition, the results of paired-samples *t* test show that participants felt significantly more of either compassion or anger than the other at each time point, $ps < .001$. For those in the AC condition, they felt more compassion at time₀ and time₃ than anger, and more anger at time₁, time₂ and overall than compassion. For those in the CA condition, they felt more compassion at time₀ and time₁ than anger, and more anger at time₂, time₃ and overall than compassion. These results suggest that the manipulation of the emotions felt at each time point was successful. In terms of emotional intensity (i.e., average of compassion and anger), there were no significant differences at time₀, time₂, or in the holistic rating. However, significant differences in emotional intensity were found at time₁, $F(1, 500) = 123.50, p < .001, \eta^2_{\text{partial}} = .20$, and time₃, $F(1, 500) = 115.84, p < .001, \eta^2_{\text{partial}} = .19$. Specifically, emotional intensity was stronger in the CA condition than the AC condition at time₁ and the reverse was true for time₃. Finally, the experimental conditions did not significantly influence perceived interest, or punitive or protective policy support. In other words, neither primary nor recency effects of the experimental conditions were found for punitive or protective policy support. Therefore, H1(a)-(b) and H2(a)-(b) were rejected.

To address H3(a)-(b) regarding the blunting effects of either anger or compassion, one-way ANOVAs were conducted comparing compassion at time₁ in the CA condition and compassion at time₃ in the AC condition, and anger at time₂ in the CA condition and anger at time₁ in the AC condition. There were significant differences between compassion, $F(1, 500) = 13.99, p < .001, \eta^2_{\text{partial}} = .03$, and between anger, $F(1, 500) = 38.80, p < .001, \eta^2_{\text{partial}} = .07$, at these specified time points across the two conditions. Particularly, compassion at time₁ in the CA condition was stronger than compassion at time₃ in the AC condition, and anger at time₂ in the CA condition was also stronger than anger at time₁ in the AC condition. Therefore, H3(a) was supported, but H3(b) was rejected.

To address the second research question and H4(a)-(b) regarding the moderating effects of perceived interest, two-way ANOVAs were performed featuring the experimental conditions, perceived interest (centered), and their interaction as the independent variables, and punitive and protective policy support as the dependent variables, respectively. For punitive policies, there was a significant main effect of perceived interest such that the higher the perceived interest, the more support for punitive policies, $F(1, 498) = 81.01, p < .001, \eta^2_{\text{partial}} = .14$. Qualifying this main effect was a significant two-way interaction between experimental conditions and perceived interest, $F(1, 498) = 5.24, p = .022, \eta^2_{\text{partial}} = .01$. Specifically, for people with high ($M + 1SD$) perceived interest, the AC condition ($M = 5.35, SE = .10$) led to more punitive policy support than the CA condition ($M = 4.99, SE = .11$), $p = .018$. No differences between the two conditions were found among people with low ($M - 1SD$)

or moderate (M) perceived interest. For protective policies, there was also a significant main effect of perceived interest such that the higher the perceived interest, the more support for protective policies, $F(1, 498) = 88.05, p < .001, \eta^2_{\text{partial}} = .15$. However, no other main or interaction effects were found for protective policy support. Therefore, H4(a) was partially supported and H4(b) was rejected.

Moderated Mediation Analysis

Because of the significant two-way interaction effects of experimental conditions and perceived interest on punitive policy support, moderated mediation analysis was conducted using the PROCESS macro (Model 8) for SPSS with 10,000 bootstrap resamples and 95% bias-corrected confidence interval to explore whether any of the emotion measures, including compassion and anger at different time points and their overall rating as well as emotional intensity, could serve as mediators (Hayes, 2013). The results show that, in addition to serving as separate mediators, when entered into a parallel multiple mediator model, anger at time₁ ($B = -.04, SE = .02, 95\%CI = -.08 \text{ to } -.01$) and emotional intensity at time₃ ($B = -.05, SE = .02, 95\%CI = -.09 \text{ to } -.02$) served as significant mediators simultaneously. In other words, the indirect effects of experimental conditions moderated by perceived interest on punitive policy support was mediated by anger at time₁ and emotional intensity at time₃. Specifically, for people with high perceived interest, the AC (vs. CA) condition created more anger at time₁ ($B = -.17, SE = .07, 95\%CI = -.31 \text{ to } -.05$) and stronger emotional intensity at time₃ ($B = -.33, SE = .09, 95\%CI = -.52 \text{ to } -.16$), which further led to increased punitive policy support.

Since there was a natural sequence of when anger at time₁ and emotional intensity at time₃ were felt and measured, this study further conducted, as an exploratory step, a moderated serial multiple mediator analysis using a modified version of PROCESS Model 6 (Hayes, 2015). The results show that the indirect effects of experimental conditions moderated by perceived interest on punitive policy support was mediated by the path through anger at time₁ (95%CI = -.07 to -.01) directly and by the path through anger at time₁ and then through emotional intensity at time₃ (95%CI = -.05 to -.01), but not by the path through emotional intensity at time₃ (95%CI = -.05 to .00) directly (Figure 3.1). In other words, the AC (vs. CA) condition increased punitive policy support through two pathways: either increasing anger at time₁ alone to influence policy support or increasing anger at time₁, which in turn contributed to stronger emotional intensity at time₃ that further influenced policy support.

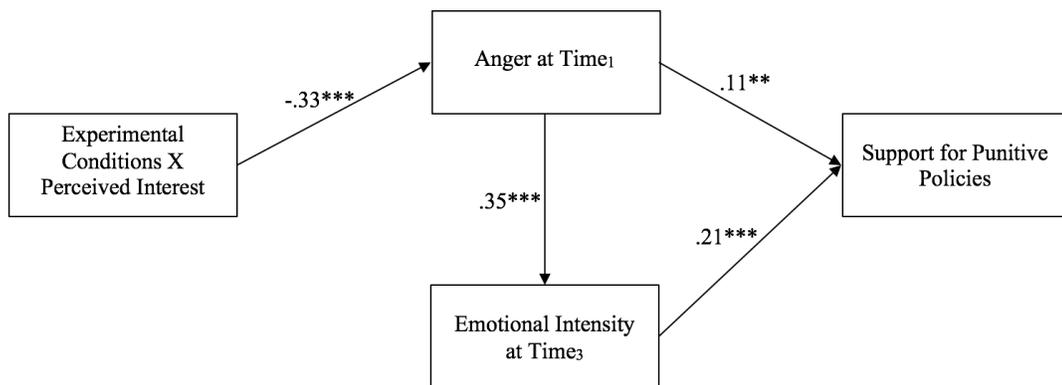


Figure 3.1 Moderated mediation model.

Note. Experimental conditions, perceived interest and non-significant pathways are not shown to reduce visual clutter. The statistics represent unstandardized regression coefficients.

Discussion

As one of the first studies to empirically test emotional flow of multiple

discrete emotions, the current study investigated whether the order of information inducing anger vs. compassion was an important factor influencing persuasion (i.e., policy support), the conditions under which the order was more impactful, and the underlying mechanisms (i.e., emotions at different time points) explaining observed effects. The emerging theorization of the emotional flow perspective, the potential link that integrates the literature on order effects and emotional flow, the refined self-reported measurements of discrete emotions at various time points, and the underexplored aspects of empathic anger as an emotional flow experience helped guide the conceptualization and operationalization of the current study. Theoretically and methodologically, the current study contributes to the literature in several ways.

To examine the emotional flow between anger and compassion, the current study used different pieces of information that could elicit either anger or compassion as the predominant emotion and carefully placed them in orders that successfully created shifts in the experience of anger and compassion. Recent research has examined the overtime change of fear alone or fear and disgust simultaneously elicited by threat and efficacy information (Dillard et al., 2017; Dillard & Shen, 2018). What distinguishes the current study from prior research is not only that the current study examined the shifts of more than a single emotion but also that it strategically manipulated the shifts so that when the shift occurred, the dominance of the two emotions switched as well. Nabi (2015) discussed a few types of emotional flow in her conceptualization of emotional flow. What the current study examined may represent one way to operationalize flow between *negative* and *positive* emotions.

Despite not being a major priority, the current study investigated the emotional

blunting account proposed by Winterich et al. (2010). Because anger and compassion differed in the appraisal dimension of blame (Lazarus, 1991), the current study expected that the levels of message-induced compassion or anger would be weakened if they were elicited right after (vs. before) the other. However, the results showed that this hypothesis was only applicable when compassion was induced after anger, not when anger was induced after compassion. Instead, anger became even stronger when it was induced after (vs. before) compassion. These findings are inconsistent with the additive account of mixed emotions which assumes that emotions with incongruent appraisals should cancel each other out (Kreibig et al., 2015; Pe & Kuppens, 2012); they are also contradictory to empirical findings showing that feeling anger or sadness inhibits the experience of the other because of their contradictory appraisal dimension of agency (Winterich et al., 2010). It is possible that anger and compassion's difference in the appraisal dimension of blame is not as incompatible as anger and sadness's difference in agency appraisal. Although feeling compassion after anger diluted the intensity of compassion, feeling anger after compassion amplified anger. One reason for this may be that the flow from compassion to anger may seem more logical, that is, after witnessing the victim, the perceiver is somehow motivated to find out who the perpetrator is. In contrast, the flow from anger to compassion may be less reasonable, that is, after knowing a certain wrongdoing of a perpetrator, the perceiver may not be as motivated to discover who the victim is. This is possible because, from an egoistic perspective, anger may seem more appealing than compassion as the perceiver only needs to condemn and direct their anger at the perpetrator whereas feeling compassion may require the perceiver to experience distress and other

unpleasant emotional states and even make personal sacrifices on behalf of the victim (Cialdini et al., 1987; Schroeder & Graziano, 2015). This is further supported by the results showing that in the CA condition, the feeling of compassion quickly dissipated once exposure to the anger-inducing information started.

Perhaps the biggest contribution of the current study is the attempt to connect classic order effects with emerging research on emotional flow. Ever since Lund (1925) discussed the law of primacy in persuasion, the study of order effects has received a large amount of attention. Surprisingly, not much research has been devoted to examining message-induced emotions as an underlying mechanism explaining order effects. This may be because the study of order effects has mostly confined itself to investigating the order of a list of items or arguments, which does not require the involvement of emotions (e.g., Asch, 1946; Petty et al., 2001). Yet, it is valuable to study what role emotions play when messages in a sequence are more complex and emotion-laden, which may shed new light on how order effects can be examined. Likewise, the literature on emotional flow can benefit from incorporating angles from order-effects research because much theorization is needed in this burgeoning area, and order effects research can represent one possible way to study emotional flow that taps into the weights of emotion-laden information.

Although the order of anger vs. compassion-inducing information was successfully manipulated as indicated by the different emotions measured at each time point, the current study did not find any main effect of the order on policy support. This finding may not be so unexpected because the overall information participants received was the same across the two conditions, and the order manipulation might be

too subtle to cause any significant differences. In addition, when participants were asked retrospectively how they felt overall as they went through the three short messages, their emotional responses also did not differ. Moreover, drawing on the attitude strength perspective which proposed motivation to elaborate as an important moderator for order effects (Haugtvedt & Wegener, 1994), the current study investigated whether perceived interest in the message topic, which served as a proxy of motivation to elaborate, could moderate the order effects of anger and compassion-inducing information. Anger-inducing information was predicted to have a stronger association with punitive policy support for anger's action tendency to punish the wrongdoers, whereas compassion was anticipated to show a stronger link with protective policy support for compassion's action tendency to help the victims (Lazarus, 1991). Consistent with the attitude strength perspective and a prior study looking at the role played by perceived interest in moderating order effects (Lana, 1963b), the results showed a primacy effect of anger-inducing information on punitive policy support for people with high interest in the topic. For people with low interest, no recency effect of anger-inducing information was not found, likely because the distribution of perceived interest was skewed toward high interest, leaving less variance at the other end of the scale. However, for protective policies, perceived interest did not moderate order effects. Neither primacy nor recency effects of compassion-inducing information were found as predicted. One reason why no effects were found for protective policy support may be that anger, as a moral emotion, has also been found to be associated with actions geared toward compensating the victims (Lotz, Okimoto, Schlösser, & Fetchenhauer, 2011; Van de Vyver & Abrams, 2015).

Therefore, it appears that both anger and compassion can lead to victim helping behaviors, which rendered the order effects less likely for protective policy support.

A more intriguing finding was the identification of one expected mediator, anger at time₁, and one unexpected mediator, emotional intensity at time₃. These two mediators helped not only explain the underlying mechanism from a dynamic, process-oriented perspective (Lang & Ewoldsen, 2010) but also strengthen the primacy effect account of anger-inducing information on punitive policy support among highly interested individuals. When the primacy effect of anger-inducing information on punitive policy support was found, the traditional self-reported measure of emotions usually implemented after the whole message exposure period was not able to explain the finding. Instead, measures that captured participants' emotional responses at different time points during their message exposure were able to better elucidate the effects. Specifically, the moderated mediation analysis indicated that one reason why highly interested people in the AC condition showed more support for punitive policies than those in the CA condition was because these people felt angrier when they were reading the first news segment, not because they felt less compassionate at time₁ or more compassionate at time₃, which corroborated the explanation for the primacy effect of anger-inducing information.

Perhaps the most interesting finding was that the emotional intensity at time₃ was also a mediator. Although anger at time₃ was significantly higher for those in the CA condition than the AC condition, the anger at time₃ in the AC condition sustained (or did not decrease substantially) from earlier elicitation of this emotion. This contributed to a more intense overall emotional experience at this particular time

point, which eventually transferred to a stronger support for punitive policies. As suggested by the serial moderated mediation model, one reason anger at time₁ in the AC condition sustained till time₃ was because a higher level of anger was felt at time₁, supporting previous research showing that the higher the intensity of an emotion at the onset, the longer the emotion lasts (Verduyn, Delvaux, Van Coillie, Tuerlinckx, & Van Mechelen, 2009). Another possible reason for the sustaining effect of anger was because two anger-inducing messages were used in the current study. In a pretest of the three emotion-inducing messages, the two anger-inducing messages, when examined in a between-subjects experiment, did not differ in the levels of anger they induced. However, in the current study, regardless of the conditions, the anger induced by the second anger-inducing message was always significantly higher than the anger induced by the first anger-inducing message, which provided some evidence suggesting that the second anger-inducing message somehow reinforced the anger elicited by the previous message. This additional strengthening of anger at time₂ in the AC condition might be another reason why anger at time₃ did not shrink considerably. This finding suggests that there may be value for research examining the influence of discrete emotions to also consider how the overall emotional intensity individuals feel can influence persuasion, a domain usually overlooked by communication scholars.

The current study used anger and compassion as exemplary emotions to study emotional flow. As a result, the underexplored term, empathic anger, which was coined decades ago was also investigated. Based on Hoffman's (1989) conceptualization, the CA condition in the current study resembled the evolving pattern of empathic anger, that is, from compassion to anger. Batson et al. (2007) also

empirically elicited empathic anger, but they did not use messages to do it. The current study showed that the AC or the CA condition did not differ in their impact on policy support and that the AC condition was more effective only under certain conditions than the CA condition. These findings may suggest that the effects of empathic anger may be inferior to the “anger → compassion” sequence under certain conditions. Since the primary objective of the current study was not to investigate the nature of empathic anger, more research is needed to untangle the complexity of empathic anger. In addition, drawing on the emotional flow perspective, a new line of research looking at the effects of mixed emotions, such as empathic guilt (Hoffman, 1989) and schadenfreude (Smith, Powell, Combs, & Schurtz, 2009), on persuasion may be possible.

Despite the contributions of the current study, there are a few limitations that should also be noted. First, the adoption of two anger-inducing messages in the experiment may confound the explanation of the results. As discussed earlier, the decision to use two anger-inducing messages was based on several considerations. Importantly, the second anger-inducing message was intended to extend the same level of anger elicited by the first anger-inducing message so that the structure of the emotional flow remained either “anger → compassion” or “compassion → anger.” However, in both conditions, the second anger-inducing message unexpectedly increased the level of anger as compared to the first anger-inducing message. Along with the initially high levels of anger, the strengthening of anger by the second anger-inducing message may explain why the levels of anger remained relatively high till the end of the third message exposure in the AC condition. On the one hand, it may be

cleaner for future research to use one anger-inducing and one compassion-inducing messages to test the flow between anger and compassion. On the other hand, the surprising yet enlightening results of the sustaining effects of anger may suggest an additional way to conceptualize emotional flow. That is, going beyond the shifts in intensity (e.g., from low fear to high fear) or categories (e.g., from guilt to hope) of emotions, researchers adopting the emotional flow perspective may also consider the shifts in duration (e.g., from a brief experience of anger to an extended episode of sadness) of emotions. Second, text-based messages or news articles may not be the optimal type of media for testing emotional flow because, realistically speaking, the audience members have the freedom to choose the order in which they would like to read a text-based message. Individuals do not have to follow the sequence of the text structured by the message creators. Therefore, audio and video-based media content may be a better choice, though the audience members can still choose to skip as well as replay certain content. Third, the repeated measurements of self-reported discrete emotions may sensitize participants to their own feelings and require an additional amount of elaboration, although prior research has indicated that threats to inference caused by such measurements appear negligible (Dillard et al., 2017). Other less obtrusive measures of discrete emotions, including the videotaping and coding of facial expressions (Ekman & Rosenberg, 1997), should be explored in the study of emotional flow.

Practically speaking, the current study casts light on how message creators may go about arranging different pieces of information to achieve a particular persuasion goal. News stories, especially those using some form of narratives (Nabi &

Green, 2015), may be particularly suitable for the implementation of emotional flow. Issues, such as gun violence, social justice and discrimination, that involve the descriptions of perpetrators and victims will likely induce both anger and compassion. Communication practitioners can think strategically about where the shifts should occur, which information they want to place at the front and at the end, and who the target audience will be. With an emotional flow state of mind, the flow produced by messages in emotional experiences may transition to desired shifts in attitudes and behaviors.

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CHAPTER 4: EXPLORING THE ROLE OF INCIDENTAL AND MESSAGE-INDUCED COMPASSION AND ANGER IN HEALTH COMMUNICATION ABOUT POLLUTION

Introduction

Emotions are a primary driver of various human actions (Niedenthal, Krauth-Gruber, & Ric, 2006). The study of emotions has been a major focus in health communication for over 60 years (Hovland, Janis, & Kelley, 1953). In contrast to the popular view that emotions usually tamper with rational decision-making, accumulating evidence has supported the critical role emotions play in improving attitudes, intentions and behaviors in health contexts (Ferrer, Klein, Lerner, Reyna, & Keltner, 2016; Tannenbaum et al., 2015). Generally speaking, how emotions influence health communication has been examined through two conceptually distinct pathways. The first is by way of investigating the influence of emotions that are induced by health message content, that is, integral or message-induced emotions. The second is via studying emotions, the origin of which is irrelevant to the health message content, namely, incidental emotions. Research has often explored in depth how either type of emotions independently influences health communication. However, limited attention has been devoted to examining how these two types of emotions may interact with each other to impact health-related attitudes, intentions and behaviors. This gap in the current literature cannot simply be ignored because individuals are rarely in a completely emotionally neutral state and information about the health is often emotion-laden. For example, a person feeling sad for financial loss may come across a

fear appeal about HPV vaccination on social media. Another person may encounter a guilt-eliciting anti-drunk driving meme after viewing a humorous pet video clip. In such situations, both the incidental and message-induced emotions are likely to influence judgments and decision making about the particular health issue communicated. However, how these emotions may function together in influencing health communication is not well understood.

The objective of this study is to examine how incidental and message-induced emotions may independently and interactively influence health-related policy support, using compassion and anger as exemplary emotions. The context under investigation is the human health impact of pollution in the United States. Decades of research has shown that various kinds of pollution adversely affect public health in the United States, leading to increased morbidity and mortality, and are particularly detrimental to the health of vulnerable populations, for instance, children (Akinbami, Lynch, Parker, & Woodruff, 2010; Correia et al., 2013; Pope III, Ezzati, & Dockery, 2009). Research has found that policy interventions and regulatory actions are effective methods of reducing pollution and improving population health in the United States (see Bell, Morgenstern, & Harrington, 2011 for a review), and, therefore, policy support is the main outcome variable examined in this study. In addition, this study also explores the potentially moderating role played by political ideology and the underlying mechanisms explaining observed effects.

Literature Review

Incidental and Integral Emotions

Incidental emotions are generated by everyday events and can influence thoughts and behaviors that are unrelated to the stimulus that elicits the emotions (Lerner & Keltner, 2000). In contrast, integral emotions are affective influences that are relevant to the judgments and decisions at hand (Loewenstein & Lerner, 2003). In this study, incidental emotions refer to emotions that exist prior to message processing whereas integral emotions denote message-induced emotions, that is, emotions elicited in direct response to a message (Dillard & Wilson, 1993).

This study follows the conceptualization which regards emotions as a system of discrete categories and assumes that a range of cognitive appraisal dimensions are associated with specific emotions that differentiate them (e.g., Lazarus, 2001; Roseman, Spindel, & Jose, 1990; Smith & Ellsworth, 1985). Based on this conceptualization, Lerner and Keltner (2000, 2001) proposed the Appraisal-Tendency Framework (ATF), which assumes that cognitive appraisals not only elicit a particular emotion but also shape perceptions of subsequent, irrelevant events and guide ensuing behaviors. The ATF refers the latter process to “appraisal tendencies,” which, once a specific emotion is elicited, induce an implicit cognitive predisposition to appraise future situations in a manner that is congruent with the cognitive appraisals underlying this emotion (Han, Lerner, & Keltner, 2007). For instance, sadness, which is induced as a result of appraisals of situational control, initiates appraisal tendencies to perceive situational control in subsequent decisions whereas anger, which co-occurs with appraisals of individual control, activates appraisal tendencies to perceive individual control in subsequent situations (Small & Lerner, 2008). Therefore, feeling sad renders people more likely to attribute responsibility to situational factors while

feeling angry increases the tendency to assign responsibility to individuals in the environment. Evidence supporting the ATF in the health domain has been strong (see Ferrer et al., 2016 for a review). Although the ATF was proposed for explaining how emotions influence judgments and decision making regardless of their origins, the majority of ATF research has focused on incidental emotions because these emotions can be manipulated in a more controlled way (Ferrer et al., 2016; Han et al., 2007).

The crucial role played by message-induced emotions in influencing health communication has been well recorded and can be traced back at least to the beginning of the study on fear appeals (Hovland et al., 1953). A theoretical model explaining specifically the influence of message-induced emotions is the Cognitive Functional Model (CFM; Nabi, 1999). The CFM, which draws on appraisal theories of emotions (e.g., Frijda, 1986; Izard, 1977; Lazarus, 1991) and dual-processing cognitive response theories (e.g., Chaiken, 1987; Petty & Cacioppo, 1986), specifies that a message evokes a certain emotion when its content matches the core relational theme of that emotion and when the audience member recognizes the theme and its personal relevance (Nabi, 2007). Then the message-induced emotion triggers simultaneous motivations for selective information accessibility, attention/exposure, processing and perception. Finally, emotion-congruent information processing and perceptions lead to emotion-congruent judgments and decision making. For example, sadness and anger induced by messages about traffic accidents are expected to influence preferences for traffic regulations differently because of their different agency appraisals (situational vs. individual control). One such difference would be that message-induced anger will be more likely to increase support for punitive

policies whereas message-induced sadness will probably lead to more support for remedial policies (Kühne & Schemer, 2013).

Compassion and Anger

This study uses compassion and anger as exemplar emotions to examine how their impacts may differ when the sources of these emotions differ. Compassion is considered a positive emotion elicited from observing another's suffering that consequently generates a desire to help the suffering other (DeSteno, 2015; Goetz, Keltner, & Simon-Thomas, 2010; Valdesolo & DeSteno, 2011). Evidence abounds that both incidental and message-induced compassion can encourage prosocial actions, such as motivate helping behaviors, increase cooperative actions and care in conflicts situations, and strengthen social connections (for reviews see Batson, Lishner, & Stocks, 2015; Davis, 2015; DeSteno, 2015; Goetz et al., 2010). Anger is elicited because of a demeaning offense against the perceiver and creates a desire to condemn and punish the offender (Lazarus, 1991). Anger has been found to motivate antagonistic behaviors, such as condemnation, punishment, exclusion, overt aggression, harsh judgments, and denial of rewards to others (e.g., Berkowitz, 1990; Lemay, Overall, & Clark, 2012; Pillutla & Murnighan, 1996; Rozin, Lowery, Imada, & Haidt, 1999; Small & Lerner, 2008). Because of the situations that elicit anger, the feelings associated with anger, and the behavioral consequences of anger are mostly negative, anger is often considered as a negative emotion. However, both incidental and message-induced anger have been found to lead to positive, prosocial behavioral consequences as well, which is why anger is sometimes recognized as a moral

emotion (Haidt, 2003; Thomas, McGarty, & Mavor, 2009; van Doorn, Zeelenberg, & Breugelmans, 2014). It should be noted that studies focusing on the negative consequences of anger are usually based on dyadic situations, where the individual feeling angry is also the victim of the perpetrator's actions. In contrast, when anger generates prosocial consequences, it often occurs in triadic (three-party) contexts, where anger arises from witnessing the welfare of a victim being harmed by a perpetrator.

Compassion and anger are chosen for this study for both theoretical and pragmatic reasons. Pragmatically speaking, unlike many other health problems that can be avoided by individuals' preventive actions, pollution, as an environmental health hazard, will likely be most effectively reduced or eliminated when there are policy-level interventions and/or regulations (Henneman, Liu, Mulholland, & Russell, 2017). Additionally, the distribution of pollution in the United States is uneven, with poor and racial minority populations bearing a disproportionate share (e.g., Ard, 2015; Campbell, Peck, & Tschudi, 2010; Downey & Hawkins, 2008; Sicotte, 2010). One way that messages can communicate the human health effects of pollution is through the depictions of negative impacts on vulnerable populations. In such cases, moral emotions are likely to be elicited and are suitable for stimulating intentions to increase support for policies that may or may not benefit the supporters directly. This is even more likely to happen for compassion and anger, two of the four most prototypical moral emotions (Haidt, 2003). Theoretically, compassion and anger are associated with different action tendencies (Lazarus, 1991). Compassion has been found to be associated with helping behaviors, but unrelated to punishment-related actions or even

able to decrease such actions (Condon & DeSteno, 2011; Vitaglione & Barnett, 2003; Weng, Fox, Hessenthaler, Stodola, & Davidson, 2015). In contrast, anger is linked with punitive tendencies (Kühne & Schemer, 2013; Kühne, Weber, & Sommer, 2015; Lerner, Gonzalez, Small, & Fischhoff, 2003). The contrasting action tendencies of compassion and anger make it more intriguing to study whether the two emotions can lead to preferences for different types of policies (punitive vs. protective).

Based on the ATF, the following hypotheses regarding incidental emotions are proposed:

H1(a): An incidental compassion condition will lead to more support for protective policies than an incidental anger condition.

H1(b): An incidental anger condition will lead to more support for punitive policies than an incidental compassion condition.

According to the CFM, the following hypotheses regarding message-induced emotions are put forward:

H2(a): A compassion-inducing message will lead to more support for protective policies than an anger-inducing message.

H2(b): An anger-inducing message will lead to more support for punitive policies than a compassion-inducing message.

Interaction Between Incidental and Message-Induced Emotions

While much has been learned about the independent effects of incidental and message-induced emotions on attitudes, intentions and behaviors, the understanding of

how the two types of emotions may interact to influence persuasion outcomes is limited. Some scholars point out that both theory and research have shown that incidental and integral emotions influence judgments and decision making in a similar fashion (Ferrer et al., 2016). However, this account does not explain or predict what will happen when incidental and integral emotions are present simultaneously. There are two major differences between incidental and integral emotions. The first is that incidental and integral emotions can provide different information value for the judgment at hand. While incidental emotions can provide potentially misleading information, integral emotions are able to offer valid information about the person's own response to the target (Schwarz, 2012). For instance, seeing an old friend may lead to increased happiness and making judgments about this old friend based (partly) on this feeling of happiness is useful. However, if the happy feeling comes from the sunny weather rather than seeing the old friend, any judgments about the friend based on the happy feeling can be deceiving. The second difference is that the information value incidental and integral emotions provide is weighed differently in the process of making judgments and decisions. Scholars have different opinions on whether incidental or integral emotions play a bigger role in influencing judgments and decisions at hand. For instance, Forgas (2002) argues that some incidental emotion research makes an explicit prediction about integral emotions not influencing judgments when incidental emotions are present. Others claim that because integral emotions are more relevant to the current task, when incidental and integral emotions are simultaneously present, integral emotions should dominate the overall response (Vastfjall et al., 2016).

Two competing perspectives (compatibility vs. incompatibility) exist regarding how incidental and message-induced emotions may interact with one another to influence persuasion. The compatibility perspective takes the view that persuasion efforts will be more successful when incidental and message-induced emotions are compatible rather than incompatible (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004). This is based on the assumption that prior emotions boost expectancies for subsequent messages to have emotional overtones that match prior emotions, which will likely increase personal relevance of the message given the resonance between incidental and message-induced emotions (DeSteno et al., 2004; Petty & Wegener, 1998). Supporting this perspective, DeSteno et al. (2004) found that the persuasiveness of a sadness-inducing message increased for people feeling incidental sadness and the persuasiveness of an anger-eliciting message was enhanced for people feeling incidental anger. The incompatibility perspective posits that when both incidental and message-induced emotions are negative emotions, incompatibility between incidental and message-induced will lead to more successful persuasion than compatibility (Agrawal & Duhachek, 2010). This is because people in a negative discrete emotional state are motivated to feel less of that same discrete emotion to avoid emotional overload (Agrawal, Menon, & Aaker, 2007). In support of the perspective, Agrawal and Duhachek's (2010) examination of incidental and message-induced guilt and shame showed that while emotional incompatibility did not improve persuasion as compared to control conditions, emotional compatibility worsened persuasion through motivating defensive processing.

Because of the two competing perspectives and because compassion is

considered a positive emotion, to which the incompatibility perspective may not be fully applicable, a research question, rather than specific hypotheses, are raised:

RQ1: Do incidental and message-induced compassion and anger conditions interact with each other to influence policy support?

Another objective of this study is to explore the underlying mechanism explaining either the main or interaction effects of incidental and message-induced compassion and anger. Based on the aforementioned literature review, three potential mediators are proposed: emotions; perceived relevance of the message topic, which explains the compatibility perspective; and defensive processing, which is operationalized as counterarguing in this study and addresses the incompatibility perspective. Therefore, the following research question is asked:

RQ2: Do emotions, perceived relevance of the message topic, and counterarguing play any mediating role?

Finally, since the context under investigation is pollution in the United States, the moderating role of political ideology is also taken into consideration. This is because extant research suggests that political ideology may play an important moderating role in influencing how individuals process environment-related messages in the United States where liberals show more concern about environmental issues than conservatives (Dunlap, McCright, & Yarosh, 2016; Feldman & Hart, 2016; Lu & Schuldt, 2016). Thus, the following research question is put forward:

RQ3: To what extent does political ideology moderate the effects of incidental and message-induced compassion and anger conditions on policy support?

Method

Participants

This study recruited 502 U.S. adults, who received 80 cents for participation in the study, via Amazon's Mechanical Turk on July 29-30th, 2017. Among the participants, 36.9% were male and 63.1 % were female, with a mean age of 36.48 years ($SD = 12.50$). The median highest level of education was a bachelor's degree and the median annual household income was \$35,000-\$49,999. The distribution of racial background among participants was: White 70.1%, Black 10.4%, Hispanic 8.6%, Asian 5.4%, other 5.0%, and .6% preferred not to answer. Participants' political ideology was lean liberal ($M = 2.58$, $SD = 1.66$; 0 = *Very liberal* to 6 = *Very conservative*).

Procedure and Stimulus

Pretested messages that could elicit the target emotions were used for the main experiment. These messages were modeled after similar online news stories and based on research articles examining this issue (e.g., Huang & London, 2012; Padula et al., 2013; Schwartz, von Glasco, Torres, Ramos, & Soria-Delgado, 2015). The finalized messages were one compassion-inducing message and one anger-inducing message (see Appendix 4 for the message content). In particular, the compassion-inducing message featured a young boy who is living in a highly polluted region in the United States and has been suffering from asthma for several years. This message also contained a photo of the boy wearing a face mask looking directly at the viewers. The anger-inducing message, which included a photo of industrial air pollution, described

the pollution produced by many industries and factories as well as their pursuit of maximizing their profits.

Participants in the main experiment were randomly assigned to a 2 (incidental emotion: compassion vs. anger) x 2 (integral emotion: compassion vs. anger) between-subjects factorially designed experiment. After giving informed consent, participants were told that they would participate in two short studies. Then they were randomly assigned to one of two incidental emotion conditions and were told that they were participating in the “first study,” which asked them to write about an emotional event in their life and provide enough detail so that a reader would fully understand it. Participants assigned to the incidental anger condition were told that this should be an event in which they felt very angry whereas participants assigned to the incidental compassion condition were told that this event should be one in which they felt very compassionate. After the writing task, participants reported their emotions (described below) at that moment and then moved on to the “second study,” which asked them to read a short segment of an article from a mainstream news website. Participants were randomly assigned to read one of two messages. Participants assigned to the integral anger condition read the anger-inducing message and participants assigned to the integral compassion condition read the compassion-inducing message, both of which were finalized in the pretest and described above. After reading the message, participants reported their emotions while reading the message. Then all participants completed a questionnaire including key measures detailed in the next section.

Key Measures

Emotions. Participants' emotions, specifically, compassion and anger, were measured right after the writing task (Time₁) and after they read the message (Time₂). They were asked to indicate to what extent they were feeling each of the listed emotions (0 = *Not at all* to 6 = *Extremely*): *Compassionate*, *Sympathetic*, *Angry*, and *Outraged* (Batson, 1987; Vitaglione & Barnett, 2003). The first two items were averaged to create a compassion scale ($M_{\text{incidental}} = 2.70$, $SD = 2.17$, $r = .89$; $M_{\text{integral}} = 2.78$, $SD = 2.32$, $r = .93$) and the last two items were averaged to generate an anger scale ($M_{\text{incidental}} = 2.18$, $SD = 2.19$, $r = .90$; $M_{\text{integral}} = 3.10$, $SD = 1.83$, $r = .84$).

Perceived relevance of the message topic. Participants indicated to what extent they agreed or disagreed with the statement (0 = *Strongly disagree* to 6 = *Strongly agree*), "the topic of pollution is relevant to me" ($M = 4.28$, $SD = 1.44$).

Counterarguing. Participants indicated to what extent they agreed or disagreed with three statements adapted from Silvia (2006) measuring counterarguing (0 = *Strongly disagree* to 6 = *Strongly agree*), for example, "I criticized the news segment while I was reading it" ($\alpha = .81$; $M = 1.64$, $SD = 1.37$).

Policy support. Seven pretested items reflecting the goal of either punishing the polluters or protecting the victims were used. In the pretesting, a total of 10 policy proposal items were included (Bonorris, 2010; Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Rosenthal, 2015; Nabi, 2003). Participants indicated which of the two goals they thought each proposal was associated with more. They could select from "Punishing the wrongdoers," "Protecting the victims," "Both," or "Neither." Items with more than 60% ($N = 150$) agreement on a particular goal were included in the

main experiment. In the main experiment, participants indicated how likely they were to support the listed policy proposals in the next three months (0 = *Extremely unlikely* to 6 = *Extremely likely*). Four punitive policy items ($\alpha = .89$; $M = 4.43$, $SD = 1.34$) were included (e.g., “Raising maximum fines for those producing industrial pollution”). Three protective policy items ($\alpha = .87$; $M = 4.60$, $SD = 1.30$) were included (e.g., “Offering funding and technology to pollution-affected communities to help reduce pollution”).

Results

Manipulation Checks

A series of two-way ANOVAs were performed to examine whether the experimental manipulation was successful in eliciting the targeted emotion. These analyses included the incidental emotion conditions (compassion = -.5, anger = .5), the integral emotion conditions (compassion = -.5, anger = .5), and their interaction as the independent variables, as well as self-reported compassion and anger at Time₁ and Time₂ as the dependent variables, respectively. There were main effects of the incidental emotion conditions on compassion, $F(1, 498) = 441.41$, $p < .001$, $\eta^2_{\text{partial}} = .47$, and anger at Time₁, $F(1, 498) = 163.65$, $p < .001$, $\eta^2_{\text{partial}} = .25$. Specifically, at Time₁, the incidental compassion condition ($M = 4.23$, $SD = 1.58$) led to more compassion than the incidental anger condition ($M = 1.25$, $SD = 1.57$), whereas the incidental anger condition ($M = 3.23$, $SD = 2.09$) led to more anger than the incidental compassion condition ($M = 1.05$, $SD = 1.67$). There were also main effects of the integral emotion conditions on integral compassion, $F(1, 498) = 1017.18$, $p < .001$,

$\eta_{partial}^2 = .67$, and anger at Time₂, $F(1, 498) = 38.03, p < .001, \eta_{partial}^2 = .07$.

Specifically, at Time₂, the integral compassion condition ($M = 4.66, SD = 1.30$) led to more compassion than the integral anger condition ($M = .86, SD = 1.36$), whereas the integral anger condition ($M = 3.59, SD = 1.69$) led to more anger than the integral compassion condition ($M = 2.63, SD = 1.84$). No other main or interaction effects were found. Therefore, these results indicate that the manipulation of incidental compassion and anger and integral compassion and anger was successful¹.

Effects of Experimental Conditions

To address the hypotheses and research questions regarding the main and interaction effects of the incidental emotion and integral emotion conditions on punitive and protective policy support, perceived relevance of the message topic, and counterarguing, two-way ANOVAs were conducted featuring the incidental emotion conditions, the integral emotion conditions, and their interaction as the independent variables, and punitive and protective policy support, perceived relevance, and counterarguing, as the dependent variables, respectively. There was a significant main effect of incidental emotions on protective policy support, $F(1, 498) = 3.93, p = .048, \eta_{partial}^2 = .01$, such that the incidental compassion condition ($M = 4.72, SD = 1.15$) led

¹ Additional analyses show that the emotional intensity of compassion felt in the incidental compassion condition was significantly stronger than that of anger felt in the incidental anger condition, $F(1, 498) = 36.37, p < .001, \eta_{partial}^2 = .07$. Also, the emotional intensity of compassion felt in the integral compassion condition was significantly stronger than that of anger felt in the integral anger condition, $F(1, 498) = 61.77, p < .001, \eta_{partial}^2 = .11$. In addition, additional analyses did not find that compassion felt in the integral compassion condition following the incidental compassion (vs. anger) condition was significantly stronger or that anger felt in the integral anger condition following the incidental anger (vs. compassion) condition was significantly stronger.

to more protective policy support than the incidental anger condition ($M = 4.48$, $SD = 1.42$). No other main or interaction effects were found for any of the dependent variables. Thus, H1(a) was supported, but H1(b), H2(a), and H2(b) were rejected.

Mediation, Moderation and Moderated Mediation

To address the second research question regarding the mediating role played by emotions, perceived message relevance and counterarguing, mediation analysis was conducted using the PROCESS macro (Models 4) for SPSS (Hayes, 2017) with 10,000 bootstrap resamples and 95% confidence interval to explore whether any of the emotions measured at Time₁ or Time₂, perceived relevance, and counterarguing could serve as mediators. The results show that only compassion at Time₁ was a significant mediator, $B = -.28$, $SE = .12$, $95\%CI = -.52$ to $-.05$. In other words, the indirect effect of incidental emotion conditions on protective policy support was mediated by compassion at Time₁.

To examine the potential moderating role played by political ideology as inquired by the third research question, ordinary least squares regressions were conducted featuring the incidental emotion conditions, the integral emotion conditions, political ideology (centered), and their two-way and three-way interactions as the independent variables, and punitive and protective policy support as the dependent variables, respectively. There was a significant two-way interaction between incidental emotion conditions and political ideology on protective policy support, $B = -.13$, $SE = .07$, $p = .046$. Simple slopes analyses show that the incidental compassion condition led to more protective policy support than incidental anger condition among political

moderates (M ; $M_{\text{compassion}} = 4.72$, $SE = .08$, $M_{\text{anger}} = 4.48$, $SE = .07$), $p = .036$, and conservatives ($M+1SD$; $M_{\text{compassion}} = 4.47$, $SD = .11$, $M_{\text{anger}} = 4.02$, $SD = .11$), $p = .004$. No other significant interaction effects involving political ideology were found for protective policy support. In addition, no moderating effects of political ideology were found for punitive policy support.

As an exploratory step, this study also examined the underlying mechanism explaining moderating effects of political ideology. Because of the significant two-way interaction effects of incidental emotion conditions and political ideology on protective policy support, moderated mediation analysis was conducted using the PROCESS macro (Models 8 and 15) for SPSS (Hayes, 2017) with 10,000 bootstrap resamples and 95% confidence interval to explore whether any of the emotions measured at Time₁ or Time₂, perceived relevance, and counterarguing could serve as mediators. The results show that only compassion at Time₁ was a significant mediator (Model 15), $B = -.14$, $SE = .06$, 95%CI = $-.26$ to $-.02$ (Figure 4.1). In other words, the indirect effect of incidental emotion conditions on protective policy support through compassion at Time₁ depended on participants' political ideology. Specifically, for political moderates ($B = -.31$, $SE = .11$, 95%CI = $-.52$ to $-.09$) and conservatives ($B = -.54$, $SE = .16$, 95%CI = $-.85$ to $-.22$), the incidental compassion (vs. anger) condition elicited more compassion at Time₁, which further led to increased protective policy support.

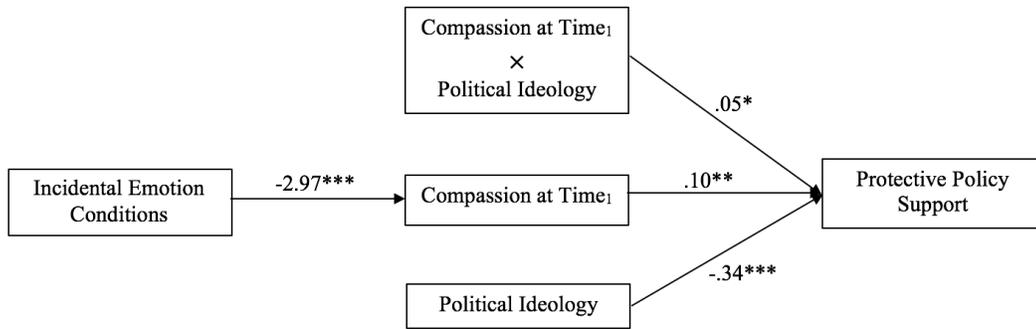


Figure 4.1 Second-stage moderated mediation model.

Note. Two-way interaction between incidental emotion conditions and political ideology, all controlled variables (i.e., integral emotion conditions, two-way interaction between incidental and integral emotion conditions, and between integral emotion conditions and political ideology, and three-way interaction between incidental emotion conditions, integral emotion conditions and political ideology), and non-significant pathways are not shown to reduce visual clutter. The statistics represent unstandardized regression coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

Building on well-established research on the effects of incidental and message-induced emotions, this study examined the role played by incidental and message-induced emotions in health communication about pollution. Importantly, this study not only focused on the independent effects of these two types of emotions but also their interaction effects. Compassion and anger were selected as the target emotions for their practical relevance to the pollution context and their theoretically differential action tendencies.

Because compassion's action tendency is to relieve the suffering of the victims and anger's action tendency is to punish the wrongdoers (Goetz et al., 2010; Lazarus, 1991), this study predicted that incidental and message-induced compassion (vs. anger) conditions would lead to higher support for protective policies, whereas incidental and message-induced anger (vs. compassion) conditions would general stronger support for punitive policies. Support for these action tendency-based

hypotheses were mixed. As predicted, this study found that the incidental compassion (vs. anger) condition resulted in higher support for protective policies. Lending further evidence backing up this result was the finding that the main effect of incidental compassion (vs. anger) condition was mediated by self-reported compassion at Time₁. In other words, the incidental compassion (vs. anger) condition generated more felt compassion, which further increased support for protective policies. It is interesting that although incidental compassion and anger conditions also differed in the levels of anger they elicited, self-reported anger at Time₁ were not found to be a significant mediator explaining the effects of incidental compassion (vs. anger) condition. Based on these results, it may be reasonable to think that an incidental anger condition as the comparison group may not be necessary and that a high (vs. low) incidental compassion condition would suffice to produce similar results.

In contrast, this study surprisingly did not find the incidental anger (vs. compassion) condition to create more support for punitive policies. Previous research showing the association between anger and punitive policy support has concentrated on integral or message-induced anger rather than incidental anger (e.g., Kühne & Schemer, 2013; Kühne et al., 2015; Lerner et al., 2003; Nabi, 2003). It is possible that the differences in felt incidental anger alone was not sufficient to produce a sizable difference in a more downstream outcome variable such as policy support. Since emotions are usually considered fleeting and short-lived (Forgas & Koch, 2013), their effects on individuals may quickly diminish as well. While the feeling of incidental anger and the measure of policy support occurred in one setting, participants received a context-relevant message after the incidental anger elicitation, which might have

diluted the impacts of incidental anger. In addition, research has also shown that the short-term effects of anger may differ from its long-term effects with the short-term tendency to attack and long-term tendency to reconcile (Fischer & Roseman, 2007), meaning that as time passes, the punitive tendencies of anger may change. In comparison, some research has found that the effect of compassion on prosocial outcomes may be more enduring because it can persist weeks or even months after the initial induction (Batson, Early, & Salvarani, 1997; Clore & Jeffery, 1972). The difference in how long a specific emotion can last may be an important factor to consider in future investigations where incidental and integral emotions are being examined simultaneously. Because the mean difference in compassion at Time₁ between the two incidental emotion conditions was larger than the mean difference in anger, another speculation is that the mean difference in anger created by the two incidental emotion conditions was not big enough to significantly influence a more downstream outcome variable like policy support. In other words, it may not be that the difference in incidental anger could not influence policy support, but that the difference in anger between the incidental emotion conditions created by the current manipulation method was not strong enough to effectively influence policy support. It is possible that when the difference in anger becomes larger between incidental emotion conditions, a significant difference in at least punitive policy support may emerge.

In terms of the message-induced compassion and anger conditions, while the two conditions differed in the levels of compassion and anger they elicited, no difference was found for either punitive or protective policy support. A potential

reason could be that although the punitive tendencies of anger have been well-established in the literature, more recent research has also shown that anger as a moral emotion is associated with victim compensation actions (Lotz, Okimoto, Schlösser, & Fetchenhauer, 2011; Van de Vyver & Abrams, 2015). This may mean that anger can lead to both punitive and protective policy support. Perhaps a more important and yet simpler reason for the no difference may be that since the messages in both conditions described the human health impacts of pollution, participants made their decisions about how much they wanted to support each policy based more on the information and their cognitions rather than their emotions. In contrast, the differences in emotions between the incidental emotion conditions mattered to some extent for policy support because the incidental emotion conditions did not provide information relevant to the context that might outweigh the influence of incidental emotions.

The most important research question this study tried to answer was whether the incidental and message-induced compassion and anger conditions would interact to influence policy support. Whereas several previous studies have shown different interaction patterns (Agrawal & Duhachek, 2010; DeSteno et al., 2004), this study did not find any interaction effects of the experimental conditions on policy support. When and how incidental and message-induced emotions might interact to influence persuasion are still open questions that require better theorization and further empirical investigation. Relatedly, Vastfjall et al. (2016) recently proposed a framework depicting the integration of incidental and integral affect and emphasized the important role played by the experiential salience and awareness of the source of incidental affect. Vastfjall et al.'s (2016) framework may provide some guidance on

how to theorize the interaction between incidental and message-induced emotions but the constraint is that the framework focuses on general affect and is most applicable to target evaluation rather than information processing and persuasion.

The moderating role played by political ideology is worth discussing. The incidental compassion (vs. anger) condition increased support for protective policies among moderates and conservatives, but not liberals. In the United States, attitudes toward environmental issues including pollution are deeply divided among people with different political ideologies (Pew Research Center, 2017). Liberals show higher support for policies that improve the environment than moderates and conservatives, which is why it is suggested that it may be more fruitful to focus on changing those less supportive groups because there is more room to move (Lu & Schuldt, 2016; McCright, 2011). What this study found is also consistent with previous work showing that situational cues such as weather and incidental emotions can influence strong partisans' (e.g., conservatives') environmental attitudes because these cues are arguably less defensible (Hamilton & Stampone, 2013; Lu & Schuldt, 2015; Schuldt & Roh, 2014).

Alongside the contributions of this study, there are also a few limitations that should be noted. First, following previous research (e.g., Agrawal & Duhachek, 2010; DeSteno et al., 2004), this study did not include any control conditions as comparison groups for either the incidental or message-induced condition. Although this study's primary objective was to investigate the differential effects of compassion and anger, it might also be important to know how compassion and anger conditions fare compared to an emotionally neutral condition. Including a control condition in the

operationalization of incidental emotion conditions would mean to have a condition that elicits little emotions of any kind. The current findings suggest that incidental emotion conditions inducing different levels of felt compassion could influence protective policy support differently. Thus, it is reasonable to expect that as compared to a control group, the incidental compassion condition would increase protective policy support as well. For the message-induced emotion conditions, a control condition would be a condition with a message conveying information about human health impacts of pollution without inducing strong emotional reactions. Since this study did not find different effects of message-induced compassion and anger conditions on policy support, it might be useful to examine whether these two conditions were better than an emotionally neutral message condition. It might also be interesting to study if the effects of incidental emotions might be more likely to carry over to influence policy support when followed by an emotionally neutral message. Second, the levels of compassion elicited by the two compassion conditions appeared to be stronger than the levels of anger elicited by the two anger conditions. This unexpected difference might have confounded the findings in certain aspects. In addition, the difference in anger between message-induced emotion conditions was much smaller than the difference in compassion between message-induced emotion conditions or in either compassion or anger between incidental emotion conditions. The incidental emotion manipulation used a conventional way of eliciting incidental emotions that required participants to write about their emotional experience, which has been an effective manipulation method (Lench, Flores, & Bench, 2011). The message-induced compassion condition used the “identifiable victim” paradigm to

elicit compassion, which was also effective (Small & Loewenstein, 2003). In contrast, the message-induced anger condition merely used an image and a short description of polluting industries for manipulation, which did not appear to elicit a sizable difference in anger as compared to the message-induced compassion condition. Future research may find ways to maintain a similar level of emotional intensity between compassion and anger and ensure that the differences created by the experimental conditions in emotions should be comparable across emotions. Third, while this study adopted the discrete emotion view, it measured only two discrete emotions, compassion and anger, to reduce participants' fatigue when responding to repeated measurements of emotions. It is possible that some other emotions may also be induced by the experimental conditions that have contributed to the findings. From the dimensional approach of emotion, it is also possible to consider how arousal may play a role in influencing the results. For example, the effect of the incidental compassion (vs. anger) condition on protective policy support may also be explained by the difference in arousal, not just in felt compassion. In addition, according to the excitation transfer theory (Zillmann, 1983), arousal from one stimulus may carry over to amplify the emotional response to a subsequent stimulus. In this study, arousal from the incidental emotion manipulation might linger on to influence how message-induced emotions are generated from the message-induced conditions, which might have eventually impacted policy support. Since this study was not intended for testing the influence of arousal and thus is not able to exclude this possibility, future research examining the transfer from incidental to message-induced emotions may take into consideration of the role played by not only discrete emotions but also arousal. Fourth,

this study used only one pair of messages for the experiment, which might limit the generalizability of the findings (O'Keefe, 2002). The finding that differences in message-induced compassion and anger did not lead to differences in policy support does not rule out the possibility that when a pair of messages that differ in content but elicit the same corresponding emotions is used, different results may emerge.

Practically speaking, since the findings of this study showcase the value of incidental compassion in boosting protective policy support, health communication practitioners may think strategically about what types of contexts they should place health messages. Researchers have used visuals depicting helplessness, vulnerability, and physical and emotional pain to elicit incidental compassion (Oveis, Horberg, & Keltner, 2010). Likewise, texts, audios and videos with similar content may induce incidental compassion. In addition, if the goal is to influence policy making, based on the moderating role played by political ideology, practitioners should focus more on targeting moderates and conservatives because they are more likely to be influenced in their policy support.

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CHAPTER 5: CONCLUSIONS

This chapter provides an integrative reflection on this dissertation project, including the conceptualization, operationalization, and findings of the four main experiments presented in Chapters 2, 3, and 4. It also discusses limitations of these experiments as well as implications for future research.

Origin

The idea for this dissertation project originated from Oveis and colleagues' (2010) paper on how compassion could increase perceived self-other similarity. I came across this paper in 2015, when the field of climate change communication started to question the value of negative emotions in promoting climate change mitigation behaviors and policies and argue for more frequent adoption of positive emotions in communicating climate change (Feinberg & Willer, 2011; Markowitz & Shariff, 2012). Because one of the barriers to climate change communication was psychological distance (Moser, 2010), compassion with its positive valence and ability to abridge social distance between the self and others, as manifested by the reduction in perceived similarity (Oveis et al., 2010), immediately caught my attention. As a result, I conducted two experiments examining the role of compassion in climate change communication. Although these studies did not find evidence supporting compassion's ability to decrease perceived similarity and thus shorten social distance, a beneficial role of compassion in increasing support for climate mitigation, especially among conservatives, emerged (Lu & Schuldt, 2016; Lu & Schuldt, 2017). Continuing to explore how compassion might be effectively employed for better climate change

communication, I delved into Batson's work on empathy and empathic concern (see Batson, 2015 for a review) and eventually encountered the term, empathic anger, which I believed (a) had received little scholarly attention, (b) was applicable to the environmental communication domain in which I have conducted most of my studies, (c) was sophisticated enough to examine from multiple angles, and (d) echoed the need from the general communication field to study the influence of multiple emotions and emotional flow. Writing my A-exam questions helped me think more deeply about empathic anger and its relation to communication, and eventually bred the experiments presented in the three preceding chapters.

While the original idea originated in the context of climate change communication, I decided to focus on communication about the human health impacts of pollution for a number of reasons. First, as compared to climate change, the current focus could depict more immediate and concrete impacts on human's health in the messages, which could potentially prevent audience from perceiving the issue discussed in the messages as being psychologically distant. Second, as compared to climate change, the current focus was arguably less divided along political partisan and ideological lines so that I could concentrate on examining the effects of experimental conditions. Third, the outcome measures used in this dissertation project were related to climate change mitigation, and a message about pollution rather than climate change has been found to perform better in helping climate change mitigation (Hart & Feldman, 2018). Fourth, since the current focus on human health impacts of pollution is related essentially to both the environment and human health (vs. climate change, which is still largely perceived as an environmental issue), findings from these

experiments could arguably resonate with a wider audience.

Empathic Anger

In this dissertation project, I regarded empathic anger as a combination of compassion and anger and examined these two discrete emotions from three different angles. In Chapter 2, following the traditional persuasion and marketing literature, I studied compassion and anger as appeals that augmented the persuasiveness of messages. In Chapter 3, drawing on emerging communication literature on emotional flow and classic cognitive psychology work on serial position effects, I studied compassion and anger as a dynamic process that developed and evolved during audience's message exposure. In Chapter 4, grounded in judgment and decision-making literature on mood and incidental emotions, I studied compassion and anger as situational cues to and products of messages and examined whether the two functions of emotions worked jointly. Obviously, what united these different chapters was the investigation of certain effects of compassion and anger. Yet, these chapters differed from each other in terms of the particular ways I studied compassion and anger.

While empathic anger was the term that inspired this dissertation project, my discussion on this term was very limited in the three individual chapters. This was primarily because the focus of my dissertation is on the role of emotions in communication, not the nature of this particular emotional experience. In addition, because empathic anger as an emotional experience has not been investigated thoroughly both theoretically and empirically, there is a limited understanding of this concept, which somewhat constrains the scope of investigation in this dissertation

project. As mentioned in the previous paragraph, I studied empathic anger as a mixed emotional experience combining compassion and anger. Additionally, in Chapter 2, I studied compassion and anger as emotions felt simultaneously. In Chapter 3, I examined the two emotions as felt in a particular order. And, in Chapter 4, I explored the two emotions not only in a particular order but also as different types of emotions (i.e., incidental vs. message-induced), which has not been previously conceptualized as empathic anger. However, these certainly are not the only ways to examine empathic anger.

Whereas Hoffman (1989) regarded empathic anger as changing from distress (as a parallel empathic emotion) to compassion to anger, Batson et al. (2007) thought of empathic anger as evolving from compassion to anger. In Chapter 2, although the messages did not produce a difference in the levels of felt distress in the pretesting phase, the main experiments did lead to a difference in this emotion and found distress was positively associated with collective action tendencies. On the one hand, because of the use of self-report measures, it might be difficult for participants to truly differentiate distress from compassion linguistically, which might explain the inconsistent findings regarding the role of distress in promoting prosocial behaviors in the literature (N. Eisenberg, Eggum, & Di Giunta, 2010). On the other hand, if distress and compassion are often elicited simultaneously by stimuli depicting the suffering of victims, it may be more ecologically valid to consider them both simultaneously rather than in isolation. The experiments presented in Chapters 3 and 4, however, did not measure distress because of the repeated measures of emotions which necessitated the need to reduce the items used. It is likely that compassion was felt together with

distress among participants in these experiments as well. Since the self-reporting measurements used in this dissertation project did not include the target of each felt emotion, for future directions, it would be interesting to measure emotions by specifying their targets. For instance, feeling distressed could mean feeling distressed *by, for, or as* the suffering victims. Each type of these distressing experiences could lead to drastically different prosocial outcomes. Such nuanced measurements may also help to better explain contradictory findings in the literature (N. Eisenberg et al., 2010).

It is also important to think about the value of using the concept, “empathic anger.” I do not think the use of this term is just a fad. While individuals could feel angry for other victims without experiencing compassion, empathic anger denotes a particular emotional experience that starts with feeling distressed or compassion for others, which then transitions into anger. When considering empathic anger with other empathy-related emotional experiences, such as empathic guilt, the volume of emotional experiences that have received limited attention becomes bigger. To think more broadly, these empathy or compassion-based, mixed emotional experiences may represent a unique group of emotional experiences that deserves more scholarly attention. Research has shown that messages eliciting negative emotions such as fear, anger, and guilt can sometimes backfire and work against communicators’ intentions (Cho & Salmon, 2007). Other work has found that empathy, operationalized as a combination of affective, cognitive and associative empathy, has an indirect effect on persuasion via mitigating psychological distance (Shen, 2010, 2011). It is possible that messages that elicit empathy or compassion as well as other negative emotions may

prove more effective than messages that elicit only those negative emotions. This is because feeling empathetic or compassionate toward the victim means that the audience accepts the message to some extent and show genuine concern for the well-being of the victim, which generates a desire to help the victim. In turn, this desire to help the victim makes the negative impacts of negative emotions, such as psychological reactance to the message, less likely to happen. Therefore, examining empathic anger and other similar empathy-related terms may be an important way to study how to increase persuasion by reducing psychological distance. This angle has not received much attention in the current dissertation research and has much potential as a viable future direction.

Another angle that was briefly discussed in Chapter 3 that also has potential for further investigation is how logical the flow from one emotion to another is. The current definition of empathic anger limits itself to one particular sequence, which is from compassion to anger. However, at least from the findings presented in Chapter 3 on emotional flow and order effects, the sequence of anger to compassion showed more promises in persuasion than the sequence of compassion to anger in certain situations. To avoid the logical issue, the operationalization of the messages in Chapter 3 deliberately showed participants three short messages rather than one long message, which evaded the trouble of using different conjunctions and transitional sentences across the two conditions. However, more realistically speaking, it will be more likely for individuals to encounter the message as a single piece in one setting rather than multiple pieces. Thus, taking this into consideration, researchers in the future need to think about how to design conditions that are reverse in the emotions

they elicit but comparable in terms of the transitions between emotions, and they should consider as a potentially confounding factor whether the transition from emotion A to emotion B is more logical and smooth than from emotion B to emotion A.

Reflections on Other Findings

This dissertation research focused on prosocial behavioral intentions as the main outcome variables. Collective action and policy support were measured in all the experiments. However, experimental effects were different on these two types of behavioral intention items across experiments. It is still not clear why the experiments conducted in Chapter 2 primarily influenced collective action whereas the experiments conducted in Chapters 3 and 4 mostly affected policy support. Some research suggests that changes in intended support for policies likely requires less effort and is thus more feasible than changes in personal behaviors (Lu & Schuldt, in press; Yang & Chu, 2016). However, strictly speaking, collective action may not be considered as personal behavior. A more plausible explanation may be that messages used in the experiments in Chapter 2 explicitly mentioned environmental injustice and used it as background information, whereas messages used in the experiments in Chapters 3 and 4 did not mention environmental injustice. It is possible that participants thought of collective action as a more effective or relevant method to stop environmental injustice than policy support, or the other way around, which resulted in the differential influence of experimental conditions on the different outcome variables across experiments.

Research examining the role of emotions in communication seems to have the

tendency to downplay or even ignore the role played by cognitive factors. The two experiments in Chapter 2 considered cognitive factors that might also explain the experimental effects, and they found that cognitive factors played an important role above and beyond the effects of emotions. However, because of the repeated measurements used in both Chapters 3 and 4, only emotions, not cognitive factors, were measured multiple times. It is possible that cognitive factors might also explain the experimental effects by serving as mediators in Chapters 3 and 4.

The initial conceptualization of this dissertation project also took into consideration the role of group membership in moderating potential experimental effects. This is because both anger and compassion can be perceived as group-based emotions. According to the intergroup emotion theory (IET), group-based emotions intensify to the extent that group members are identified more with their ingroup (Mackie, Devos, & Smith, 2000; Smith, 1993). Importantly, studies have shown that people exhibit stronger compassion toward the victim and anger at the perpetrator when the victim is an ingroup member than when the victim belongs to an outgroup (e.g., Gordijn, Yzerbyt, Wigboldus, & Dumont, 2006; Stürmer, Snyder, Kropp, & Siem, 2006). However, across four main experiments, group membership, as indicated by group identification and socioeconomic status, did not play a significant, moderating role. This may be because the messages used for the experiments did not activate any notion associated with group membership in the participants' mind.

Challenges and Limitations

It is always challenging to study the effects of message-induced emotions

because to create the appropriate stimuli that vary in only the levels of targeted emotions (e.g., high vs. low compassion), no other emotions, and also remain as similar as possible in other aspects is difficult. On top of that, the experiments in Chapter 2 required that two emotions were manipulated simultaneously. Thus, it took me four pretests to finalize the messages in Chapter 2. However, when the main experiment was conducted, the pretested messages did not work fully as expected, adding complication to the findings. It was easier to create the experimental stimuli for the experiments in Chapters 3 and 4 because these experiments required the messages to vary in the levels of different emotions (e.g., high compassion vs. low anger), not the same emotion. Furthermore, for emotions like compassion and anger, which are highly correlated when elicited in response to victim portrayals, the increase in the level of one emotion will likely increase that of the other emotion as well. This makes it even more difficult to generate the desired messages for experimental testing that attempts to manipulate the level of each emotion separately. Additionally, standard ways of eliciting message-induced compassion or anger which correspond to the core relational theme of these emotions need to be further developed so that different scholars may follow similar procedures to create stimuli that are comparable.

The current study adopted self-report measurements to assess participants' emotional responses. However, there are other ways of measuring emotions. With regard to measuring the evolvment of emotions during message exposure, self-reports may not be the most ideal approach. Nabi (2015) suggested the use of videotaping and coding facial expressions of emotion as another viable way to identify shifts from one specific emotion to another. By recording people's facial expressions during their

exposure to the empathic anger-inducing message, it will allow the capture of not only the peak and end points of compassion and anger but also, if at all, when both emotions shift. The tricky part is that the criteria for coding facial expressions showing compassion are not as developed or reliable as the criteria for coding other discrete emotions such as anger and fear (Nancy Eisenberg & Fabes, 1990; Ekman & Rosenberg, 1997; Goetz, Keltner, & Simon-Thomas, 2010).

A major limitation of this dissertation project is that while it claimed to study the influence of compassion and anger in communication on prosocial outcomes, it used only one set of message stimuli, which was situated in the context of pollution and environmental injustice. Whether the findings that emerged from this dissertation are applicable to other contexts or can be replicated when a different set of message stimuli is used is still unknown. The experiment in Chapter 4 found a moderating role played by political ideology, which was not found in the experiments in Chapters 2 and 3. It remains unknown when individual characteristics like political ideology would moderate experimental effects. For less politically divided issues, the moderating effects of political ideology would be less likely to occur. Additionally, it should be noted that the effect size regarding the outcome variables in this dissertation project was small, which was not unexpected since the manipulation was subtle and the outcome variables were more downstream variables like behavioral intentions and policy support. Future research needs to investigate the replicability of the observed effects in other contexts with other messages.

Finally, based on the current findings, there are a few research questions that are worthy of future investigations. Do message-induced compassion and anger have

different long-term effects on persuasion outcomes? When both compassion and anger are felt simultaneously in response to victim portrayals, when will protective vs. punitive actions be more likely to emerge? Does repeated elicitation of message-induced compassion and anger affect the persuasive effects of these emotions? What are the conditions when message-induced compassion and anger produce undesirable effects?

Practical Implications

Since all the experimental stimuli took the form of mediated text messages, the findings from this dissertation project can offer some practical implications to media professionals, environmental agencies and health professionals, who have the motive to reduce environmental pollution and improve public health. First, rather than relying exclusively on single emotional appeals, such as fear or guilt appeals, communicators should also consider using mixed emotional appeals. Second, when creating messages, communicators should pay attention to the order in which they arrange different pieces of emotion-eliciting information. Third, when delivering a message, communicators should always take into account potential influences of situational factors, such as incidental emotions, or even proactively make full use of situational factors to their advantage. Fourth, communicators should always have a good understanding of who their audience is and tailor the message to resonate with the particular audience's characteristics, such as their political ideology and interest in the message topic. Finally, more broadly speaking, when communicating about issues, such as environmental injustice and pollution, which the general public may feel detached to, communicators should try to make the audience feel emotionally engaged. Portraying

identifiable victims in the messages and guiding the audience to take more empathic perspective during message exposure are good ways of connecting with the audience emotionally.

Conclusion

The beginning of Chapter 1 depicts some conflict situations faced by society and describes how individuals learn about these issues from the media. This dissertation project shows that emotions, such as compassion and anger, can play an important role in influencing the communication about these conflict situations and individuals' subsequent prosocial tendencies to resolve these conflicts. The different angles from which this dissertation project investigates the role of compassion and anger in communication help to contribute to a more sophisticated understanding of the value of these two emotions in influencing prosocial tendencies through messaging. The lessons and implications generated from this dissertation project will hopefully enlighten future research and guide communication practice.

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APPENDICES

Appendix 1A. Initial IRB approval form



Cornell University
Office of
Research Integrity and Assurance

East Hill Office Building, Suite 320
395 Pine Tree Road
Ithaca, NY 14850
p. 607-254-5162
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www.irb.cornell.edu

Institutional Review Board for Human Participants

TRIENNIAL PROTOCOL APPROVAL- NO FEDERAL FUNDS

To: Hang Lu
From: Carol Devine, IRB Chairperson *Carol M. Devine*
Protocol ID#: 1404004613
Protocol Title: Emotional Policy: Can Anger and Guilt Influence Judgments About Climate Change?
Approval Date: June 27, 2014
Expiration Date: June 26, 2017

Cornell University's Institutional Review Board for Human Participants (IRB) has reviewed and approved the inclusion of human participants in the research activities described in the protocol referenced above.

Special Conditions for Triennial Approval of this Protocol: This protocol was granted approval for three years until **June 26, 2017** as it does not involve federal funding and is therefore eligible for Triennial review under the IRB policy #21 (www.irb.cornell.edu/policy). As Principal Investigator for this project, you are responsible for informing the IRB and seeking re-review if at any point during the course of this project, Federal funds may be used to support any part of it. Failure to seek timely review and approval could result in an inability to use research data for the purposes of the Federal grant. Please refer to IRB policy #21 (www.irb.cornell.edu/policy) for more information.

The following personnel are approved to perform research activities on this protocol:

- Hang Lu
- Jonathon Schuldt

This approval by the IRB means that human participants can be included in this research. However, there may be additional university and local policies that apply before research activities can begin under this protocol. It is the investigator's responsibility to ensure these requirements are also met.

Please note the following important conditions of approval for this study:

1. All consent forms, records of study participation, and other consent materials **must** be held by the investigator for **five years** after the close of the study.

2. Investigators must submit to the IRB any **proposed amendment** to the study protocol, consent forms, interviews, recruiting strategies, and other materials. Investigators may not use these materials with human participants until receipt of written IRB approval for the amendment. For information about study amendment procedures and access to the Amendments application form, please refer to the IRB website: <http://www.irb.cornell.edu/forms>.
3. Investigators must promptly report to the IRB any **unexpected events** involving human participants. The definition of prompt reporting depends upon the seriousness of the unexpected event. For guidance on recognizing, defining, and reporting unexpected events to the IRB, please refer to the IRB website: <http://www.irb.cornell.edu/policy>.

If the use of human participants is to continue beyond the assigned approval period, the protocol must be re-reviewed and receive continuing approval. As the Principal Investigator it is your responsibility to obtain review and continued approval before the expiration date. Applications for renewal of approval must be submitted sufficiently in advance of the expiration date to permit the IRB to conduct its review before the current approval expires. Please allow three weeks for the review.

Any research-related activities -- including recruitment and/or consent of participants, research-related interventions, data collection, and analysis of identifiable data -- conducted during a period of lapsed approval is unapproved research and can never be reported or published as research data. If research-related activities occur during a lapse in the protocol approval, the activities become a research compliance issue and must be reported to the IRB via an unexpected event form (www.irb.cornell.edu/forms).

****If you do not plan to renew your protocol approval in three years, please provide the IRB with a Project Closure form. A link to the Project Closure form can be found at <http://www.irb.cornell.edu/forms/>.**

For questions related to this application or for IRB review procedures, please contact the IRB office at irbhp@cornell.edu or 255-6182. Visit the IRB website at www.irb.cornell.edu for policies, procedures, FAQs, forms, and other helpful information about Cornell's Human Participant Research Program. Please download the latest forms from the IRB website www.irb.cornell.edu/forms/ for each submission.

Cc: Jonathon Schuldt

Appendix 1B. IRB renewal approval form



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Institutional Review Board for Human Participants

TRIENNIAL CONTINUATION APPROVAL- NO FEDERAL FUNDS

To: Hang Lu
From: Carol Devine, IRB Chairperson *Carol M. Devine*
Protocol ID#: 1404004613
Protocol Title: Emotions and Climate Change Communication
Approval Date: June 26, 2017
Expiration Date: June 25, 2020

Cornell University's Institutional Review Board for Human Participants (IRB) has reviewed and approved continuation of the research activities described in the protocol referenced above.

Please note the following:

- [Renewal to continue recruitment and data collection, with amendment to add new questions/measures and updated consent form.](#)

Special Conditions for Triennial Approval of this Protocol: This protocol was granted approval for three years until **June 25, 2020** as it does not involve federal funding and is therefore eligible for Triennial review under the IRB policy #21 (www.irb.cornell.edu/policy). As Principal Investigator for this project, you are responsible for informing the IRB and seeking re-review if at any point during the course of this project, Federal funds may be used to support any part of it. Failure to seek timely review and approval could result in an inability to use research data for the purposes of the Federal grant. Please refer to IRB policy #21 (www.irb.cornell.edu/policy) for more information.

The following personnel are approved to perform research activities on this protocol:

- Hang Lu
- Jonathon Schuldt

This approval by the IRB means that human participants can be included in this research. However, there may be additional university and local policies that apply before research activities can begin under this protocol. It is the investigator's responsibility to ensure these requirements are also met.

Please note the following important conditions of approval for this study:

1. All consent forms, records of study participation, and other consent materials **must** be held by the investigator for **five years** after the close of the study.
2. Investigators must submit to the IRB any **proposed amendment** to the study protocol, consent forms, interviews, recruiting strategies, and other materials. Investigators may not use these materials with human participants until receipt of written IRB approval for the amendment. For information about study amendment procedures and access to the Amendments application form, please refer to the IRB website: <http://www.irb.cornell.edu/forms>.
3. Investigators must promptly report to the IRB any **unexpected events** involving human participants. The definition of prompt reporting depends upon the seriousness of the unexpected event. For guidance on recognizing, defining, and reporting unexpected events to the IRB, please refer to the IRB website: <http://www.irb.cornell.edu/policy>.

If the use of human participants is to continue beyond the assigned approval period, the protocol must be re-reviewed and receive continuing approval. As the Principal Investigator it is your responsibility to obtain review and continued approval before the expiration date. Applications for renewal of approval must be submitted sufficiently in advance of the expiration date to permit the IRB to conduct its review before the current approval expires. Please allow three weeks for the review.

Any research-related activities -- including recruitment and/or consent of participants, research-related interventions, data collection, and analysis of identifiable data -- conducted during a period of lapsed approval is unapproved research and can never be reported or published as research data. If research-related activities occur during a lapse in the protocol approval, the activities become a research compliance issue and must be reported to the IRB via an unexpected event form (www.irb.cornell.edu/forms).

****If you do not plan to renew your protocol approval in three years, please provide the IRB with a Project Closure form. A link to the Project Closure form can be found at <http://www.irb.cornell.edu/forms/>.**

For questions related to this application or for IRB review procedures, please contact the IRB office at irbhp@cornell.edu or 255-6182. Visit the IRB website at www.irb.cornell.edu for policies, procedures, FAQs, forms, and other helpful information about Cornell's Human Participant Research Program. Please download the latest forms from the IRB website www.irb.cornell.edu/forms/ for each submission.

Cc: Jonathon Schuldt

Appendix 2A. Chapter 2 experimental stimuli (high-compassion, high-moral-outrage message)

News > Health & Environment

Illness from bad environmental conditions in California's San Joaquin Valley

BY Krista Lorenzen Tuesday 27 June 2017

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Jose Arviso, 7, still suffers from the respiratory disease.

On a sunny spring day, children laughed as they ran out onto the playground at the start of morning recess at a local preschool in Kern County, Calif. Within minutes, Jose Arviso, a 4-year-old boy, suddenly stopped, a terrified look on his face as he gasped desperately for air. An ambulance rushed Jose to the hospital, where he was diagnosed with an acute respiratory disease. After a week's treatment, Jose was released from the hospital but has not fully recovered from his illness. Now at the age of 7, Jose still suffers from the disease and has been sent to the emergency room more than a dozen times. He must take his nebulizer wherever he goes.

Kern County where Jose lives is a southern part of the San Joaquin Valley, one of the most polluted places in the United States. The San Joaquin Valley is home to a high percentage of minority populations and has some of the highest rates of poverty in the United States. Research has shown that these economically and socially disadvantaged populations are being excessively exposed to environmental toxins in the Valley. This uneven distribution of environmental hazards is found not only in the San Joaquin Valley but in similar locations across the United States, a pattern labeled as "environmental injustice."

There are many reasons why polluting industrial facilities are located near low-income and minority communities. Some experts point out that polluting industries deliberately choose to locate their facilities in low-income and minority communities. These industries purposely target these vulnerable populations because these populations lack resources and political capital to resist the establishment of environmental hazards in their communities. Environmental injustice is a complex issue that requires joint efforts of individuals, communities, advocacy groups, industries, and state and federal governments. Multiple solutions at all levels are needed to develop a comprehensive response to this issue.

Appendix 2B. Chapter 2 experimental stimuli (high-compassion, low-moral-outrage message)

News > Health & Environment

Illness from bad environmental conditions in California's San Joaquin Valley

BY Krista Lorenzen Tuesday 27 June 2017

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Jose Arviso, 7, still suffers from the respiratory disease.

On a sunny spring day, children laughed as they ran out onto the playground at the start of morning recess at a local preschool in Kern County, Calif. Within minutes, Jose Arviso, a 4-year-old boy, suddenly stopped, a terrified look on his face as he gasped desperately for air. An ambulance rushed Jose to the hospital, where he was diagnosed with an acute respiratory disease. After a week's treatment, Jose was released from the hospital but has not fully recovered from his illness. Now at the age of 7, Jose still suffers from the disease and has been sent to the emergency room more than a dozen times. He must take his nebulizer wherever he goes.

Kern County where Jose lives is a southern part of the San Joaquin Valley, one of the most polluted places in the United States. The San Joaquin Valley is home to a high percentage of minority populations and has some of the highest rates of poverty in the United States. Research has shown that these economically and socially disadvantaged populations are being excessively exposed to environmental toxins in the Valley. This uneven distribution of environmental hazards is found not only in the San Joaquin Valley but in similar locations across the United States, a pattern labeled as "environmental injustice."

There are many reasons why polluting industrial facilities are located near low-income and minority communities. Environmental injustice is a complex issue that requires joint efforts of individuals, communities, advocacy groups, industries, and state and federal governments. Multiple solutions at all levels are needed to develop a comprehensive response to this issue.

Appendix 2C. Chapter 2 experimental stimuli (low-compassion, high-moral-outrage message)

News > Health & Environment

Illness from bad environmental conditions in California's San Joaquin Valley

BY Krista Lorenzen Tuesday 27 June 2017

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On a sunny spring day, children laughed as they ran out onto the playground at the start of morning recess at a local preschool in Kern County, Calif. Within minutes, Jose Arviso, a 4-year-old boy, suddenly stopped, a terrified look on his face as he gasped desperately for air. An ambulance rushed Jose to the hospital, where he was diagnosed with an acute respiratory disease. After a week's treatment, Jose was released from the hospital and fully recovered from his illness. Now at the age of 7, Jose has never had a similar experience again.

Kern County where Jose lives is a southern part of the San Joaquin Valley, one of the most polluted places in the United States. The San Joaquin Valley is home to a high percentage of minority populations and has some of the highest rates of poverty in the United States. Research has shown that these economically and socially disadvantaged populations are being excessively exposed to environmental toxins in the Valley. This uneven distribution of environmental hazards is found not only in the San Joaquin Valley but in similar locations across the United States, a pattern labeled as "environmental injustice."

There are many reasons why polluting industrial facilities are located near low-income and minority communities. Some experts point out that polluting industries deliberately choose to locate their facilities in low-income and minority communities. These industries purposely target these vulnerable populations because these populations lack resources and political capital to resist the establishment of environmental hazards in their communities. Environmental injustice is a complex issue that requires joint efforts of individuals, communities, advocacy groups, industries, and state and federal governments. Multiple solutions at all levels are needed to develop a comprehensive response to this issue.

Appendix 2D. Chapter 2 experimental stimuli (low-compassion, low-moral-outrage message)

News > Health & Environment

Illness from bad environmental conditions in California's San Joaquin Valley

BY **Krista Lorenzen** Tuesday 27 June 2017

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On a sunny spring day, children laughed as they ran out onto the playground at the start of morning recess at a local preschool in Kern County, Calif. Within minutes, Jose Arviso, a 4-year-old boy, suddenly stopped, a terrified look on his face as he gasped desperately for air. An ambulance rushed Jose to the hospital, where he was diagnosed with an acute respiratory disease. After a week's treatment, Jose was released from the hospital and fully recovered from his illness. Now at the age of 7, Jose has never had a similar experience again.

Kern County where Jose lives is a southern part of the San Joaquin Valley, one of the most polluted places in the United States. The San Joaquin Valley is home to a high percentage of minority populations and has some of the highest rates of poverty in the United States. Research has shown that these economically and socially disadvantaged populations are being excessively exposed to environmental toxins in the Valley. This uneven distribution of environmental hazards is found not only in the San Joaquin Valley but in similar locations across the United States, a pattern labeled as "environmental injustice."

There are many reasons why polluting industrial facilities are located near low-income and minority communities. Environmental injustice is a complex issue that requires joint efforts of individuals, communities, advocacy groups, industries, and state and federal governments. Multiple solutions at all levels are needed to develop a comprehensive response to this issue.

Appendix 3A. Chapter 3 experimental stimuli (first anger-inducing message)



Many industries and factories give off intolerably dangerous amounts of toxic chemicals and pollutants, which causes damage to human health. Yet, many industries do not have proper waste management systems.

Appendix 3B. Chapter 3 experimental stimuli (second anger-inducing message)



Despite the alarming amount of pollutants they produce, many industries and factories are only concerned with maximizing their profits and therefore engage in various activities that only serve to increase their bottom line.

Appendix 3C. Chapter 3 experimental stimuli (compassion-inducing message)



Jose Arviso, a 7-year-old boy from San Joaquin Valley in California, was first hospitalized for asthma at 5. Since then, he has been rushed to the emergency room more than a dozen times. He must take his nebulizer wherever he goes. “It feels like my throat is closing in,” Jose said of his bad days. “My chest hurts, and then I become anxious and my body gets crazy and my asthma gets worse.”

Many other children in the same region, one of the most polluted places in the United States, have similar experiences of suffering from asthma.

Appendix 4A. Chapter 4 experimental stimuli (anger-inducing message)



Many industries and factories give off intolerably dangerous amounts of toxic chemicals and pollutants, which causes damage to human health. Yet, many industries do not have proper waste management systems.

Despite the alarming amount of pollutants they produce, many industries and factories are only concerned with maximizing their profits and therefore engage in various activities that only serve to increase their bottom line.

Appendix 4B. Chapter 4 experimental stimuli (compassion-inducing message)



Jose Arviso, a 7-year-old boy from San Joaquin Valley in California, was first hospitalized for asthma at 5. Since then, he has been rushed to the emergency room more than a dozen times. He must take his nebulizer wherever he goes. “It feels like my throat is closing in,” Jose said of his bad days. “My chest hurts, and then I become anxious and my body gets crazy and my asthma gets worse.”

Many other children in the same region, one of the most polluted places in the United States, have similar experiences of suffering from asthma. The cause of childhood asthma is likely linked to the pollution in the region.