

**Facing Anger Versus Fear:  
How Individuals Regulate Level of Control in Risk Communication**

**Abstract**

Grounded in the motivational aspect of emotions, the current study proposes the underlying mechanism to explain how people in different levels of control (i.e., anger versus fear) are motivated to regulate their emotions. To further test this mechanism, this study utilizes various emotional appeals to examine different routes that individuals take to restore or maintain their level of control in the context of anti-terrorism communication. Angry people report greater feeling of control and more favorable ad attitude when exposed to a positive and high-dominance message as well as a negative and low-dominance message. In contrast, fearful people report similar results when exposed to four different emotional messages. In addition, the significant findings on ad attitude and behavioral intention is more prominent among angry people who have a higher need for control.

**Keywords:** Anger, Fear, Dominance, Emotion Regulation, Risk communication, Anti-terrorism Communication

In the 21<sup>st</sup> century, terrorist attacks on the United States intensely affected many individuals and institutions, well beyond those directly harmed. Financial markets dropped, consumer spending declined, air travel plummeted, and public opinion toward government shifted. The question of what has been studied in the field of terrorism studies from a risk communication point of view—asserted recently to be an under-researched topic (Schmid, 2011)—is timely. More importantly, how to communicate effectively with the general public has become a significant challenge for government and communication professionals, particularly when the situation is threatening and publicly uncertain (Reynolds and Seeger, 2005).

Terrorism is a form of “psychological warfare,” in which individuals or groups (whether by intimidation, torture, and/or mass attacks) seek to “invoke pervasive fear in a civilian population by personalizing the threat so that everyone feels vulnerable” (Tucker, 2003, p. 9), with the goal of influencing or controlling individuals’ day-to-day functioning and broadly impacting the target community. According to the Code of Federal Regulations, a key goal of terrorism is to “... intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives” (28 C.F.R. Section 0.85). Terrorism events can be experienced directly or indirectly (e.g., via the media; Schuster et al., 2001). Terrorism is effective at the societal level because of lingering anxiety and periodic acute fear, which arguably serve to inflate probability estimates of the threat of personal exposure to a future terrorist act. Psychological reactions to terrorism play a pivotal role in understanding public support for government antiterrorist messages and policies. Fear can lead to maladaptive or unnecessary coping strategies and avoidant behaviors (e.g., avoidance of certain modes of transportation, leaving the house less frequently). These behavioral changes may significantly alter various cultural and societal functions (e.g., the economy), and reinforce feelings of fear,

helplessness, and insecurity among citizens. Besides generating fear, the attacks—and prospect of sustained conflict with a diffuse, unfamiliar enemy—had a strong impact on individuals' feeling of control, and created the emotions of anger as well (Lerner, Gonzalez, Small & Fischhoff, 2003). In summary, emotions are important determinants in communicating risks of terrorism.

Laboratory studies and field experiments have found that anger, associated with appraisals of certainty and individual control, evokes more optimistic risk estimates and risk-seeking behaviors. Fear, arising from appraisals of uncertainty and situational control, does the opposite, evoking pessimistic estimates and risk-averse choices (Lerner & Keltner, 2000, 2001; Lerner et al., 2003). Even though prior research demonstrates how appraisal of certainty and control influences risk perceptions, it mainly focuses on the informational function of control whereas the motivational function of control remains largely unexplored. In other words, the literature on feeling of control discussed how the emotions of anger versus fear conveyed distinctive appraisals and information about high versus low level of control, which resulted in different behavioral tendency. However, prior research failed to answer whether the emotions of anger versus fear motivated individuals to attenuate or maintain their current emotional states and how such affect regulations happened.

Grounded in emotion regulation hypothesis, the current study proposed the underlying mechanisms to explain how people in different levels of control (i.e., anger versus fear) are motivated to regulate their emotions. To further test this mechanism, this study utilized various emotional appeals to examine different routes that individuals take to restore or maintain their level of control. Particularly, as the focal construct of this research, feeling of control is conceptualized as the driver of the underlying process that distinguishes the different motivations

triggered by anger and fear. The purpose of this study is to emphasize the significance and necessity of studying the construct of control. It suggests that feeling of control and the motivations triggered by it might be the missing link in effective communication about terrorism. By providing theoretical foundations about the importance of feeling of control in risk perception and decision making, this study lends additional strength to the findings of empirical risk communication scholars.

## LITERATURE REVIEW

### Anger and Fear

Over 50 years ago, three researchers, looking to explain and measure ‘meaning,’ found that emotional response is the key determinant of meaning and that these responses were organized in three distinct dimensions (Osgood, Suci, & Tannenbaum, 1957), originally labeled as *Evaluation, Activation, and Locus of Control*. Later, the dimensions were renamed *Pleasure, Arousal* and *Dominance* (PAD), and composited as the three-factor theory of emotions (Russell & Mehrabian, 1977). Pleasure is the measure of positive or negative reaction such that it constitutes extreme happiness to extreme unhappiness. For instance, feeling of happiness indicates positive pleasure whereas feeling of sadness indicates negative pleasure. Arousal determines the level of stimulation and involvement, which ranges on a physiological continuum indicating some level of physical activity, mental alertness, or frenzied excitement at the arousal end of the continuum, with inactivity, mental dullness, or sleep at the other end. Dominance is a sense of control after being exposed to a stimulus, and it refers to the feeling of control of influence one experiences versus the feeling of a lack of control or being unable to influence a situation (Mehrabian & de Wetter, 1987; Morris et al., 2002).

Based on the three-factor theory of emotions, anger and fear both are negative and highly arousing emotions but vary in dominance dimension. Anger elicits higher dominance whereas fear elicits lower dominance. Similarly, the appraisal-tendency framework indicates that fear and anger, although both negative, differ in terms of the certainty and control dimensions (i.e., dominance dimension). Whereas a sense of a lack of situational control and uncertainty defines fear, a sense of individual control and certainty defines anger. Moreover, the emotions of anger versus fear function differently on individual risk perceptions and behavioral outcomes through the levels of dominance (feeling in control) (Lerner & Keltner, 2000, 2001; Lerner et al., 2003). Particularly, fearful people feel low feeling of control, express pessimistic risk estimates, and make risk-averse choices, whereas angry people feel high feeling of control, express optimistic risk estimates, and make risk-seeking choices (Lerner & Keltner, 2001).

### **Emotion Regulation**

Emotion regulation is a person's spontaneous attempt to intensify, attenuate, or maintain a given emotional state (Cohen et al., 2008). The most commonly regulated states are negative (Lazarus, 1991; Morris and Reilly 1987), as people strive to achieve positive emotional states. Thus, when faced with a negative emotional experience, consumers seek ways to cope with the negative feelings, whereas individuals intend to remain in a positive state when experiencing positive emotions. To some extent, the emotion regulation literature mainly compares the distinctive motivations underlying the Pleasure dimension; that is, prior studies on emotion regulation emphasizes positive versus negative aspects of affective states. The current study adopts the bidirectional theoretical arguments in affect regulation literature and extends to articulate the motivational aspects of different levels of control (i.e., the Dominance dimension). This study intends to construct two different motivations triggered by high versus low level of

control. Specifically, under lower level of control, individuals are likely to move toward the goal of gaining more control, whereas, under higher level of control, individuals try to protect and maintain the current state.

Just as feeling good is a preferable state compared to feeling bad, feeling control over one's life is also desirable. Believing that one is in control of his/her outcomes in life is considered by many to be a basic human need and a primary driver of behavior (e.g., Heider 1958; Kelley 1971). Decades of research suggest that feeling control over one's life is associated with many positive outcomes, including greater psychological well-being (e.g., Lazarus and Averill 1972; Thompson 1981), physical health (e.g., Karasek 1990), and financial health (e.g., Perry and Morris 2005). Similarly, when originally proposed the three-factor theory of emotions, suggested that high dominance should be a preferred state and people tend to approach dominance eliciting situations (Russell and Mehrabian 1977). Given the benefits of high control and the stress associated with low control, people naturally have a strong desire to restore control when it is threatened. For example, they more closely monitor situations (e.g., Fiske et al. 1996) or attempt to gain "secondary control" by adjusting themselves to fit in with the existing reality and the entities deemed to be in control (e.g., Heckhausen and Schulz 1995; Rothbaum, Weisz, and Snyder 1982). This study suggests that exposure to an emotional message may afford individuals feeling of control and therefore result in more effective persuasion outcomes.

### **Fear: Restoring Feeling of Control**

The desire to restore control is consistent with research on motivation. A vast body of literature on self-regulation and goal pursuit suggests that when individuals perceive a discrepancy between their desired state and their current state, they are motivated to reduce the discrepancy (e.g., Carver and Scheier 2001; Duval and Wicklund 1972; Locke and Latham 2002)

and continuously assess their progress toward this end state until they either arrive at the end state or abandon these goals (e.g., Huang, Zhang, and Broniarczyk 2012). Thus, when individuals' feeling of control is low, they desire to reduce the discrepancy between their current and desired levels of control.

The current study suggests that there are two different routes to regain control: increase the level of dominance (from low to high dominance) or increase the level of pleasure (from negative to positive). First, to increase the level of dominance, individuals who suffer with lack of control restore the feeling of control through experiencing higher dominance. For instance, if the message switches people's attention from the probability of severe harm and danger (i.e., fear) to the unwarranted obstruction of goal (i.e., anger), such move might grant them stronger feeling of control. Second, increasing the level of pleasure also boosts the feeling of control. This is because, based on the mood management literature, the positive emotion signals a benign and safe environment where individuals may feel more in control (Schwarz and Clore 1983; Friedman and Förster 2002). For instance, if the message induces hope by showing the likelihood of goal achievement and distracting people away from their current fearful state, this change might also afford them the sense of control. Moreover, these hypothesized effects should be observed when the messages induce either higher dominance or more positive pleasure compared to individuals' current affective state. Therefore, fearful people with negative pleasure and low dominance will report more positive message evaluation when exposed to the message that induces negative and high-dominance emotion or positive and low-dominance emotion.

However, low control (fear) is often not associated with high persistence and determination, which is usually demonstrated in positive pleasure and high dominance emotion (Huang and Zhang 2011; Liberman and Förster 2008). Therefore, the message inducing positive

and high dominance may not effectively increase feeling of control among fearful people; instead, individuals may assess that the state of positive pleasure and high dominance is too far to achieve and therefore stop trying to increase feeling of control. In summary, the following hypothesis is proposed:

**H1:** Fearful individuals will report (a) greater feeling of control, (b) more positive message evaluation, and (c) greater intention to donate their money for anti-terrorism activity when exposed to messages that induce either negative and high-dominance emotion or positive and low-dominance emotion compared to that induce either negative and low-dominance emotion or positive and high-dominance emotion.

### **Anger: Maintaining Feeling of Control**

As indicated by the emotion regulation studies, if individuals are satisfied with their current affective states (e.g., in a positive state), they have a tendency to protect themselves from any threat that might cause them away from their current state (Clark & Isen, 1982; Forgas, Johnson, & Ciarrochi, 1998; Isen, 1984; Zillmann, 1988). In other words, the goal of individuals at a preferable affective state is to maintain the current state or even move along to the higher end of such state. For example, people in a positive state tend to maintain such positive feeling and avoid any negative information (Clark & Isen, 1982; Isen, 1984). In the same vein, people in anger, with higher level of control compared to those in fear, are motivated to maintain the current level of high control and monitor any threat of uncertainty.

High dominance is a desirable state (Russell & Mehrabian, 1977); however, according to the affect-as-information hypothesis (Isen, Daubman, and Nowicki 1987) and cognitive tuning theory (Friedman and Forster 2002), negative emotion informs individuals that the environment is problematic and less desirable. This negative emotion often leads individuals to emotion

regulation. Therefore, when angry people want to regulate their current affective state without losing the desirable level of control, they can only demonstrate strong feeling of control when exposed to the message induces positive and high-dominance emotion. This study proposes:

**H2:** Angry individuals will report (a) higher feeling of control, (b) more positive message evaluation, and (c) greater intention to donate their money for anti-terrorism activity when exposed to message that induce positive and high dominance emotion, compared to other emotional messages.

### **Need for Control**

At the core of emotion regulation principle is the implication that emotion regulation is contingent on one's strong motivation to change the properties of the current affective states to a more desirable state. Thus, for emotion regulation to fully operate, one must possess the desire to change and regulate. If that desire is not present, the effect disappears (Tice, Bratslavsky, & Baumeister, 2001). As White (1959) has pointed out in his seminal paper on human motivation, the need to control the environment is most central to the human species. However, individuals differ according to the extent they like to exercise control over their environment (see also Parkes, 1989). Burger and Cooper (1979) introduced the notion of need for control, a stable personality trait reflecting the extent to which individuals generally are motivated to control the events in their lives. Persons high in need for control are said to prefer making their own decisions, taking action to avoid a potential loss of control, and assuming leadership roles in group settings. Persons low in need for control are motivated to avoid extra responsibilities and may prefer that someone else make decisions for them (Burger & Cooper, 1979). This study also predicts that the personal difference in need for control will moderate the effects of fear and anger on subsequent information processing.

**H3:** Need for control moderates the interactions between anger versus fear and message-induced emotions on feeling of control such that:

**H3a:** in the high need for control condition, fearful individuals will report (a) higher feeling of control, (b) more positive message evaluation, and (c) greater intention to donate their money for anti-terrorism activity when exposed to messages that induce either negative and high dominance emotion or positive and low dominance emotion.

**H3b:** angry individuals will (a) higher feeling of control, (b) more positive message evaluation, and (c) greater intention to donate their money for anti-terrorism activity when exposed to message that induces positive and high dominance emotion.

**H3c:** in the low need for control condition, fearful individuals will report lower feeling of control and angry individuals will report higher feeling of control regardless of the message-induced emotion.

## METHOD

The design of this experiment is 2 (level of control: fear vs. anger) x 2 (message-induced pleasure: positive vs. negative) x 2 (message-induced dominance: high vs. low). Four hundred and one participants were randomly assigned to one of the eight experiment treatment groups.

### Participants

Four hundred and one individuals (193 males and 208 females) throughout the United States were recruited from Qualtrics online panel to take part in the experiment. The demographic characteristics of participants in this study reflected a national sample. The mean age of participants was 45.46 (SD = 16.41). As for race, 84% ( $N_{\text{white}} = 337$ ) were White, 7.7% ( $N_{\text{African American}} = 31$ ) were African American, 4.7% ( $N_{\text{Asian}} = 19$ ) were Asian, and 3.5% ( $N_{\text{multiracial}} = 14$ ) are multiracial. As for education, 12.5% ( $N_{\text{Not Completed High School}} = 50$ ) did not

complete high school, 29.9% ( $N_{\text{High School}} = 120$ ) were high school graduates, 28.9% ( $N_{\text{Some College}} = 116$ ) attended some college, 20.2% ( $N_{\text{Bachelor}} = 81$ ) had bachelor's degree, and 8.5% ( $N_{\text{Graduate}} = 34$ ) had graduate degree. In addition, the mean of annual household income was \$50,463.86.

## Experiment Procedure

Participants were first randomly assigned to one of the two emotion induction conditions. After inducing individual emotional states, participants were exposed to one of the four message-induced emotions. Upon viewing the message, participants answered a series of questions pertaining to attitude and behavior. At the end of the questionnaire, participants evaluated their need for control on self-report scales. Demographic information was also collected.

## Independent Measures

### AdSAM (Pleasure-Arousal-Dominance)

AdSAM<sup>®</sup> is based on the Self-Assessment Manikin (SAM; Lang, 1980) and was developed to measure emotional response to advertising and marketing communications stimuli (See Figure 1). AdSAM<sup>®</sup> captures the three dimensions of emotional response respectively—pleasure, arousal, and dominance (Jang et al., 2014; Morris, 1995). The major benefit of AdSAM<sup>®</sup> in this case lies in its ability to avoid engaging participants into cognitively thinking about their feelings and therefore generate more robust and genuine results of emotional response.

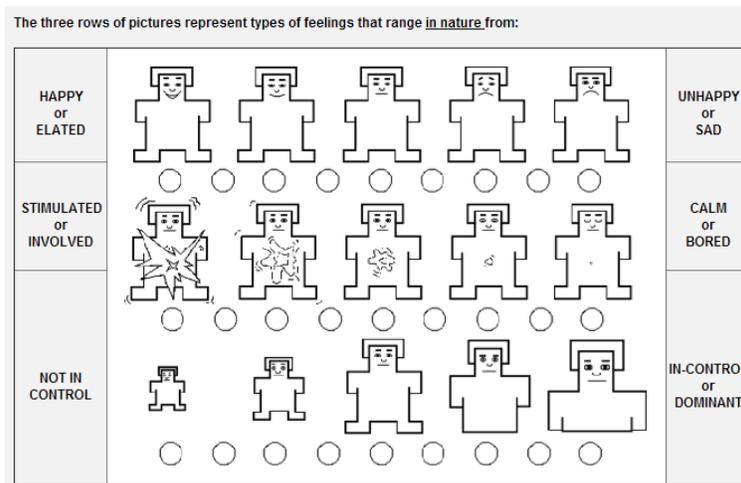


Figure 1. Attitude Self-Assessment Manikin (AdSAM<sup>®</sup>).

## **Pretest 1: Emotion Inductions**

Because labeling state emotions reduces their impact on judgment (Keltner, Locke and Audrain 1993), participants will not report their emotions in a manipulation check in the main study. Instead, a pretest followed Small, Lerner and Fischhoff (2006) was conducted to assess the effectiveness of the inductions. In the pretest, participants were randomly assigned to either a fear or an anger condition. Then participants were instructed to answer two open-ended questions to describe and explain what aspects of terrorist attacks that make them the most *angry (afraid)*. Immediately after the induction, participants evaluated their feelings on 16 separate emotion terms (Lerner et al., 1998). To obtain a composite measure of fear, the researcher averaged responses for the fearful, anxious, and nervous items (scale  $\alpha = .88$ ). The researcher also averaged the angry and mad items to form a composite anger measure ( $\alpha = .93$ ).

Independent sample *t* tests on sixty-one participants from an online panel confirmed that the manipulation was effective. Participants in the fear condition ( $M = 5.88$ ,  $SD = 2.34$ ) reported experiencing significantly more state fear than those in the anger condition ( $M = 4.06$ ,  $SD = 1.89$ ),  $t(59) = 3.477$ ,  $p < .001$ ,  $r_p = .412$ . Participants in the anger condition ( $M = 6.85$ ,  $SD = 1.63$ ) reported experiencing significantly more state anger than those in the fear condition ( $M = 4.61$ ,  $SD = 2.08$ ),  $t(59) = -3.314$ ,  $p < .01$ ,  $r_p = -.396$ . No other significant emotion differences emerged between the fear and anger conditions, suggesting that the manipulation was sufficiently focused. Therefore, the same emotion-induction procedures were applied in the main test.

## **Stimuli Development**

Based on the design of 2 (message-induced pleasure: positive vs. negative) by 2 (message-induced dominance: high vs. low), four different messages were developed for this study (i.e., negative pleasure/low dominance, negative pleasure/high dominance, positive

pleasure/low dominance, and positive pleasure/high dominance). The copy and content of these four different messages were developed through two pretests.

### ***Pretest 2: Qualitative Analysis of Message Themes***

In the second pretest, participants (n = 101) from an online panel were randomly assigned to one of the four conditions and were instructed to write an essay on the key words, sentences, and situations pertaining to antiterrorism, which made them feel positive/high control, positive/low control, negative/high control or negative/low control. For instance, for the condition of negative and low control, participants were asked to write down the circumstance related to a potential anti-terrorism activity that made them the most positive and not in control, and then explained why that made them so positive and not in control. The researcher conducted a qualitative content analysis on all the answers and identified the major themes in each condition. To ensure reliability, two other researchers confirmed the final themes for accuracy and trustworthiness.

### ***Pretest 3: Checking Manipulation of Message-Induced Emotions***

The researcher employed the major themes derived from the qualitative analysis (i.e., pretest 2) in the four messages respectively to induce four different emotional states. A relevant but neutral picture was used across four types of messages, and only the text was changed to induce different emotional states (see Appendix).

The third pretest was a within-subject experiment to check the manipulation of the four messages. A total of eighty participants from an online panel received all four different messages in a random manner. After exposed to each message, participants evaluated their emotional feelings using AdSAM (Russell and Mehrabian 1977). The results of ANOVA indicated that there were significant differences in the Pleasure ( $F(3,319) = 24.553, p < .001$ ) and Dominance

( $F(3,319) = 17.555, p < .001$ ) dimension in AdSAM. The respective means and standard deviations of each message on these two dimensions were reported in Table 1. In addition, the four messages were not significantly different in either the arousal dimension in the AdSAM ( $F(3,319) = 1.382, p > .05$ ). Therefore, the manipulation of message-induced emotions was suggested to be successful.

Table 1. Means and standard deviations of four message groups.

	<b>Negative and high control message</b>	<b>Negative and low control message</b>	<b>Positive and high control message</b>	<b>Positive and low control message</b>
<b>Pleasure (AdSAM)</b>	4.09* (1.60)	3.86* (1.71)	5.98* (1.80)	5.64* (1.83)
<b>Dominance (AdSAM)</b>	5.58 <sup>+</sup> (2.14)	3.75 <sup>+</sup> (1.92)	5.79 <sup>+</sup> (1.48)	3.83 <sup>+</sup> (1.70)

\* indicated that the difference between the means was significant at the level of .001.

+ indicated that the difference between the means was significant at the level of .01.

Note: Standard deviations were listed in parentheses.

## Dependent Measures

*Feeling of Control.* Individuals assess their feeling of control using a four-item nine-point semantic differential scale from previous research (Bailey & Pearson, 1983). Item anchors are high/low, sufficient/insufficient, precise/vague, and strong/weak ( $\alpha = .95$ ).

*Message Evaluation.* Message evaluation was measured with semantic differential scale items adapted from previous research (MacKenzie & Lutz, 1989). Examples of items were good/bad, likeable/dislikeable, and favorable/unfavorable ( $\alpha = .92$ ).

*Intention to Give Help.* In order to stimulate and measure real-life reaction of antiterrorism, this study adopted the existing organization, the National Terrorism Advisory System (NTAS), whose mission is to reduce terrorist attacks in the United States. Participants were notified that the NTAS now decides to encourage local community engagement on anti-terrorism activities, and were asked to enter answer for the intention questions followed

immediately: “How much money would you like to donate to the NTAS (in dollars)? Please enter ‘0’ if you wish not to donate” (Liu and Aaker 2008).

### **Moderator Measure**

*Need for Control.* Adapted from Burger and Cooper (1979), the scale for measuring need for control is a 20-item inventory that asks subjects to indicate the extent to which they agree or disagree with statements concerned with issues of control. Examples of items are “I prefer a job where I have a lot of control over what I do and when I do it” ( $\alpha = .90$ ).

## **RESULTS**

### **Three-way Interaction on Feeling of Control**

Feeling of control was regressed onto emotion conditions (coded fear = -1, anger = 1), message-induced pleasure (coded negative = -1, positive = 1), and message-induced dominance (coded low control = -1, high control = 1), and all linear higher-order interactions involving these independent variables. There was a significant three-way interaction on feeling of control (see Figure 2). In the anger condition, message-induced pleasure x message-induced dominance was significant,  $B = .555$ ,  $t(393) = 3.728$ ,  $p < .001$ ,  $r_p = .185$ . Particularly, people in the anger group reported higher level of feeling of control when exposed to the positive and high control message than the negative and high control message,  $B = .725$ ,  $t(393) = 3.443$ ,  $p = .001$ ,  $r_p = .171$ , whereas they reported marginally higher level of feeling of control when exposed to the negative and low control message than the positive and low control message,  $B = -.385$ ,  $t(393) = -1.828$ ,  $p = .068$ ,  $r_p = -.092$ . In the fear condition, the two-way interaction between message-induced pleasure and message-induced dominance was not statistically significant,  $B = .074$ ,  $t(393) = .499$ ,  $p > .05$ ,  $r_p = .025$ . Therefore, H1a is not supported whereas H2a is partially supported.

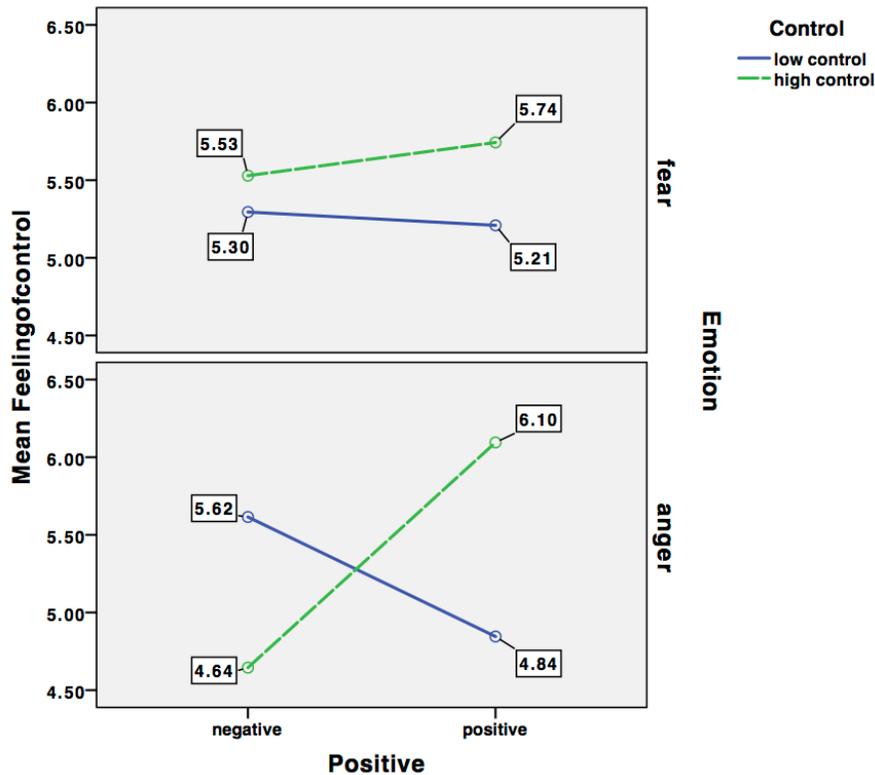


Figure 2. The interaction between emotion, message-induced pleasure, and message-induced dominance on feeling of control.

### Three-way Interaction on Ad Attitude

Ad attitude was regressed onto emotion conditions, message-induced pleasure, and message-induced dominance, and all linear higher-order interactions involving these independent variables. There was a significant three-way interaction on ad attitude (see Figure 3).

In the anger condition, message-induced pleasure x message-induced dominance was significant,  $B = .471$ ,  $t(393) = 3.925$ ,  $p < .001$ ,  $r_p = .194$ . Particularly, people in the anger group evaluated the positive and high control message more favorably than the negative and high control message,  $B = .349$ ,  $t(393) = 2.904$ ,  $p = .004$ ,  $r_p = .143$ , whereas they evaluated the negative and low control message marginally more positively than the positive and low control message,  $B = -.208$ ,  $t(393) = -1.726$ ,  $p = .085$ ,  $r_p = -.087$ .

In the fear condition, the two-way interaction between message-induced pleasure and message-induced dominance was not statistically significant,  $B = .087$ ,  $t(393) = .730$ ,  $p > .05$ ,  $r_p = .037$ . Therefore, H1b is not supported whereas H2b is partially supported.

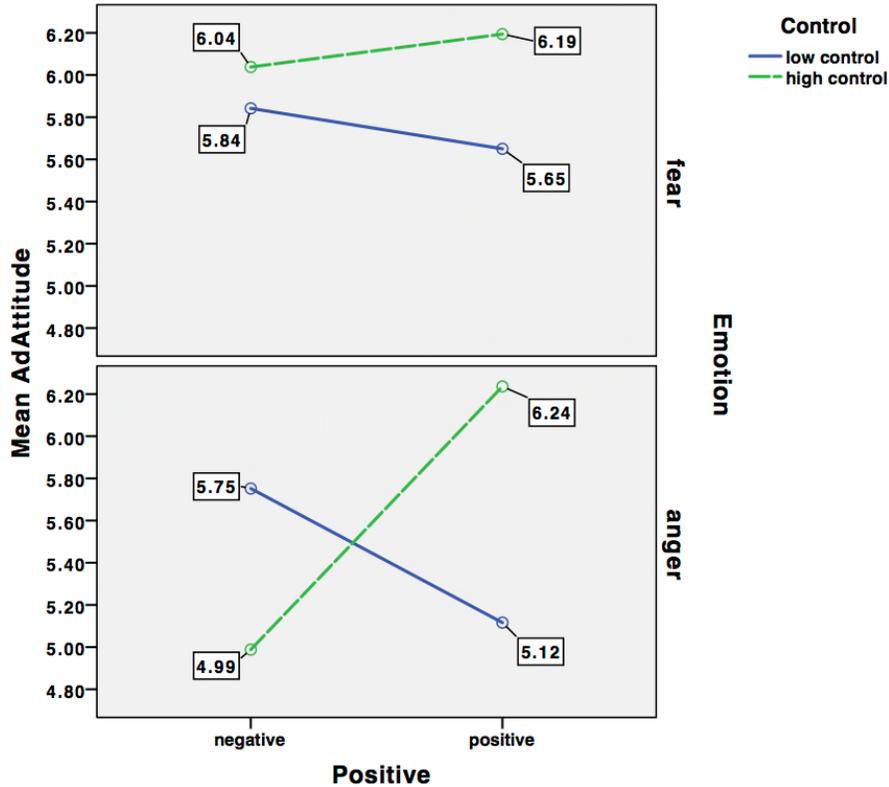


Figure 3. The interaction between emotions, message-induced pleasure, and message-induced dominance on ad attitude.

### Three-way Interaction on Intention to Donate

The three-way interaction between emotion condition, message-induced pleasure and message-induced dominance was not statistically significant,  $B = -.007$ ,  $t(384) = -.146$ ,  $p > .05$ ,  $r_p = -.007$ . Therefore, H1c and H2c are not supported.

### Four-way Interaction on Feeling of Control

The four-way interaction between emotion condition, message-induced pleasure, message-induced dominance and need for control on feeling of control was not statistically significant,  $B = .033$ ,  $t(385) = .450$ ,  $p > .05$ ,  $r_p = .023$ . Therefore, H3a is not supported and H3e is supported.

### Four-way Interaction on Ad Attitude

Ad attitude was regressed onto emotion condition (coded anger = 1, fear = -1), message-induced pleasure (coded positive = 1, negative = -1), message-induced dominance (coded high control = 1, low control = -1), and need for control (mean-centered), and all linear higher-order interactions involving these independent variables. There was a significant four-way interaction on ad attitude (see Figure 4).

Among people with higher level of need for control (i.e., 1 SD above the mean NFC score), the three-way interaction between emotion condition, message-induced pleasure and message-induced dominance was statistically significant,  $B = .394$ ,  $t(385) = 3.242$ ,  $p = .001$ ,  $r_p = .163$ . To further analyze, in the anger condition, the effects of message-induced pleasure interacted with that of message-induced dominance,  $B = .740$ ,  $t(385) = 4.243$ ,  $p < .001$ ,  $r_p = .211$ . Furthermore, simple effects revealed that, people responded more favorably toward the positive and high control message than the negative and high control message,  $B = .791$ ,  $t(385) = 3.126$ ,  $p = .002$ ,  $r_p = .157$ . In contrast, people responded more favorably toward the negative and low control message than the positive and low control message,  $B = -.690$ ,  $t(385) = -2.869$ ,  $p = .004$ ,  $r_p = -.145$ . However, the interaction between message-induced pleasure and message-induced dominance was not significant in the fear condition,  $B = -.047$ ,  $t(385) = -.278$ ,  $p > .05$ ,  $r_p = -.014$ .

Among people with lower level of need for control (i.e., 1 SD below the mean NFC score), the three-way interaction between emotion condition, message-induced pleasure and message-induced dominance was not statistically significant,  $B = -.003$ ,  $t(385) = -.027$ ,  $p > .05$ ,  $r_p = -.001$ . Therefore, H3b is partially supported.

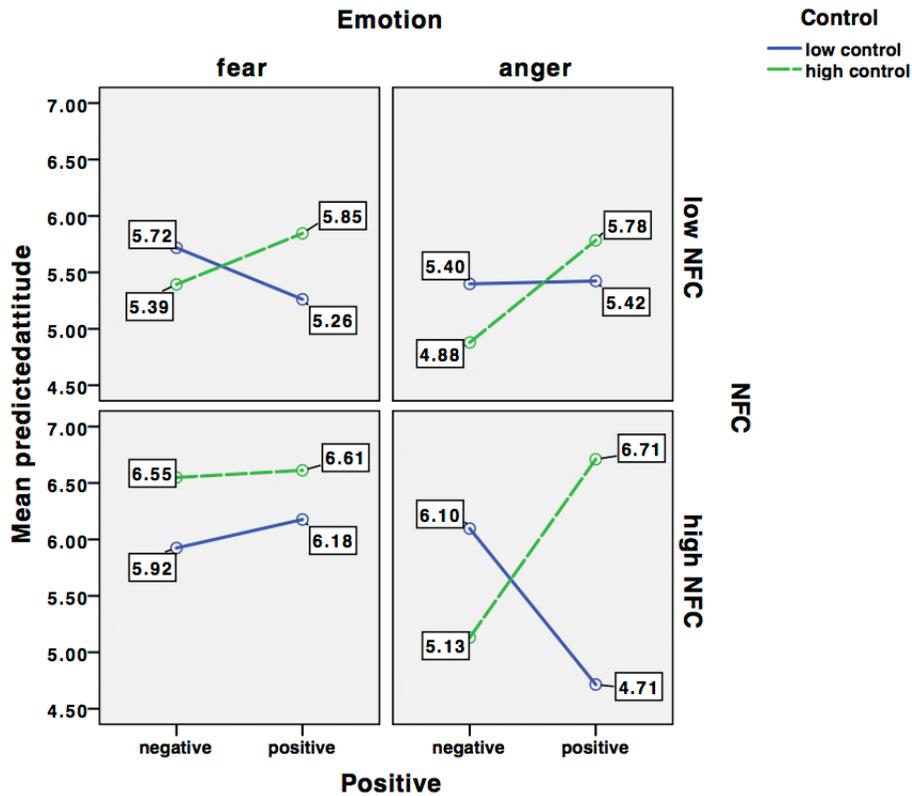


Figure 4. The interaction between emotions, message-induced pleasure, message-induced dominance, and need for control on ad attitude.

#### Four-way interaction on Intention to Donate

Intention to donate was regressed onto emotion condition, message-induced pleasure, message-induced dominance, and need for control, and all linear higher-order interactions involving these independent variables. Particularly, there was one missing case in the variable of intention to donate. Therefore, there were a total of four hundred cases in intention to donate. There was a significant four-way interaction on intention to donate (see Figure 5).

Among people with higher level of need for control (i.e., 1 SD above the mean NFC score), the three-way interaction between emotion condition, message-induced pleasure and message-induced dominance was marginally significant,  $B = .149$ ,  $t(384) = 2.166$ ,  $p = .030$ ,  $r_p = .110$ . To further analyze, in the anger condition, the interaction between message-induced pleasure and message-induced dominance was statistically significant,  $B = .274$ ,  $t(384) = 2.564$ ,  $p = .010$ ,

$r_p = .130$ . Further, simple effects revealed that, people with higher level of need for control and in the anger condition, responded slightly more favorably toward the positive and high control message than the negative and high control message,  $B = .319$ ,  $t(384) = 1.852$ ,  $p = .064$ ,  $r_p = .094$ . In contrast, people responded more favorably toward the negative and low control message than the positive and low control message,  $B = -.228$ ,  $t(384) = -1.812$ ,  $p = .070$ ,  $r_p = -.092$ . In addition, the interaction between message-induced pleasure and message-induced dominance was not significant in the fear condition,  $B = -.025$ ,  $t(384) = -.282$ ,  $p > .10$ ,  $r_p = -.014$ .

Among people with lower level of need for control (i.e., 1 SD below the mean NFC score), the three-way interaction between emotion condition, message-induced pleasure and message-induced dominance was not statistically significant,  $B = -.095$ ,  $t(384) = -1.243$ ,  $p > .10$ ,  $r_p = -.063$ . Therefore, H3c is partially supported.

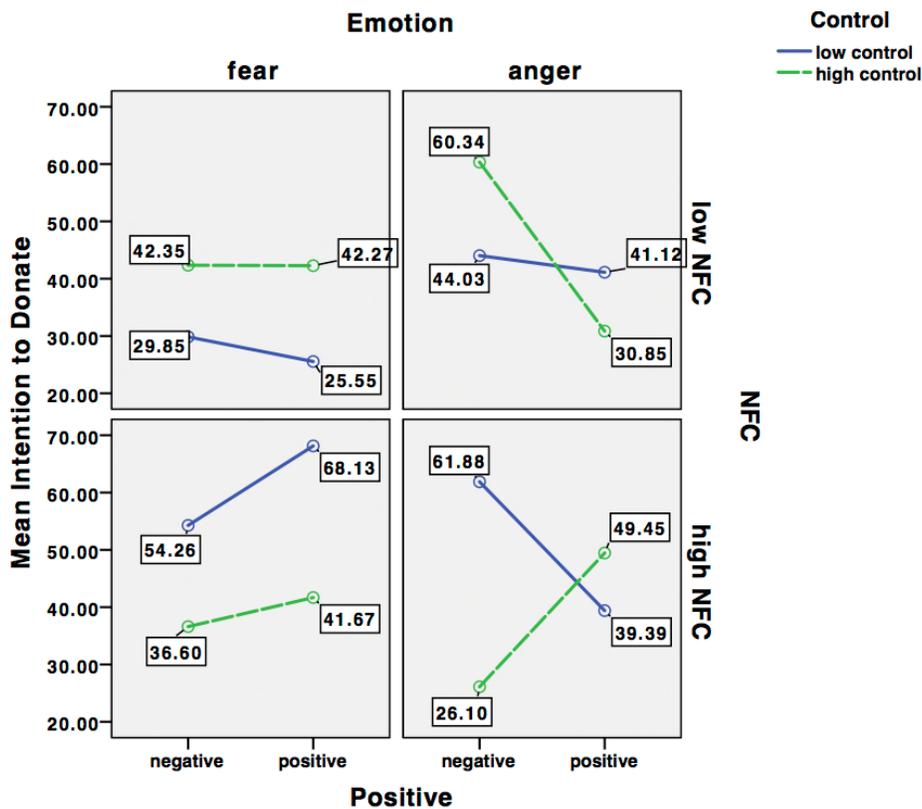


Figure 5. The interaction between emotions, message-induced pleasure, message-induced dominance, and need for control on intention to donate.

## DISCUSSION

This study demonstrates that the situational emotions (fear vs. anger) interact with message-induced emotions (pleasure and dominance) to influence feeling of control, attitude and behavior. Angry people report greater feeling of control, more favorable ad attitude and greater behavioral intention when exposed to a positive and high-dominance message as well as a negative and low-dominance message. In contrast, fearful people report similar results when exposed to four different emotional messages. In addition, the significant findings in the anger condition is more prominent among people with higher need for control.

This study contributes to the current literature in several ways. First, it confirms the distinction between anger and fear by adopting the three-factor theory of emotions and the appraisal tendency theory to examine the effects of negative-valence emotions. Besides investigating the global negative and positive affect, more research should be dedicated to the influences of specific emotional states. Specifically, this study suggests that the emotions of anger and fear exert different impacts on individuals' attitudinal and behavioral responses. In particular, under the emotion of anger, individuals possess higher level of control and intend to maintain such strong control. However, under the emotion of anger, individuals feel lacking in control and therefore want to increase the level of control.

Second, such distinctive effects of anger versus fear are further demonstrated through individuals' responses to different emotional messages. Even though the patterns of results are not exactly identical to the proposed hypothesis, some interesting aspects are revealed. Specifically, in the anger condition, individuals report higher level of feeling of control and more positive attitude toward both the positive and high-dominance message and the negative and low-dominance message. People in the emotion of anger have a negative but high dominance

feeling, and their goal is to maintain such high control. The positive and high-dominance message moves individuals from negative valence to positive valence while keeps them at the high level of control. Therefore, the positive and high-dominance message is able to trigger stronger feeling of control, matches the goal of people in anger, and results in more positive message evaluation. Interestingly, the negative and low-dominance message seems to exert the similar influence to people in anger. Even though such message induces negative feeling and low dominance, it might pose threats to people in anger on their currently high level of control and therefore might be likely to trigger their motivation in protecting the high control level. The findings substantiate the proposition that people in anger are motivated to maintain their high level of control by showing preferences to the messages that match with the goal of control maintenance. In particular, the positive and high-dominance message might make people in anger feel confident about their contribution to anti-terrorism activities and therefore maintain the high level of control, while the negative and low-dominance message might pose threats on the feeling of control and therefore also motivate people in anger to remain in control. Overall, this study identifies two different routes for individuals in anger to maintain control and demonstrates the effectiveness of message-induced emotions in fulfilling such goal.

Third, unlike the proposed hypothesis, people in fear do not exhibit significant difference in their responses to different emotional messages. However, the researcher believes that this could still explain the motivation of regulating low level of control among people in fear. That is, it seems like that any type of anti-terrorism message could serve as a source of empowerment to people in fear. Empowerment involves the processes by which individuals gain perceived autonomy and confidence to achieve control over issues of concern to them (Bergsma 2004; Rappaport 1987). For instance, in the health care domain, powerlessness has been associated

with low health literacy and/or lack of information, whereas empowerment is considered as a determinant of improved health literacy and knowledge (Camerini and Schulz 2012). Research has demonstrated that public service announcements (PSAs) are considered as an effective empowering tool for health literacy (Aldoory et al. 2015). In the case of terrorist attacks, individuals in fear have a feeling of not in control, and therefore, any extra information, such as a PSA, would empower them to possess more information and knowledge regarding the attacks regardless of the specific content of the message. In other words, people in fear might be assured by any information released by a credible source like the NTAS. Therefore, even though this study fails to identify a specific type of emotional message to target people in fear, the results show that individuals in fear seem to be able to regulate their low level of control by exposing to any credible information.

More importantly, while the three-way interaction between emotion priming and message-induced emotions (pleasure and dominance) is not significant on any behavior-related variable, the four-way interaction on the attitudinal and behavioral variables is significant after including a personality factor—need for control. Especially, the patterns of four-way interaction on ad attitude and intention to donate are consistent with the three-way interaction but only appear among people with higher need for control. This is congruent with the proposed hypothesis that individuals' difference in need for control would moderate the three-way interaction. Since the proposed three-way interaction suggests that individuals are motivated to maintain (regulate) their level of control under the emotions of anger (fear), the activation of such motivation might be highly contingent on individual personality, especially their desire to have control over their own life (Tice, Bratslavsky, & Baumeister, 2001). In other words, if

individuals prefer to having someone else make decision for them instead of remaining control over their life, they might not motivate to manage their feeling of control.

### **Practical Implications**

This study also provides useful practical implications. For one, organizations and advertisers need to pay sufficient attention to the consistency between individuals' emotional state and message features. In some situations, anti-terrorism messages need to maintain individuals' high level of control to be more effective. For example, people might be very angry about the innocent lives killed by terrorists and be compelling to fight back. In this case, an anti-terrorism message that induces positive and high-dominance feeling or negative and low-dominance feeling might be more persuasive, since these two messages assist the public to remain in control. Moreover, personality variable should be another important factor that requires extra attention. If the main purpose of the campaign is to call for actual action against terrorist attacks, such as donating for the related government organization, the organization should be attentive to individuals who want more control over their own life. Such individuals might have a higher tendency to perform the recommended behavior in the message since they are motivated to manage their control level.

### **Limitations and Future Studies**

Though this study offers novel and interesting insights about emotions, message strategies and personality, there are a few limitations that could serve as premises for future research. First, the findings of current research solely rely on self-report, and might miss the underlying psychological processes during the exposure to the message before evaluating the ad verbally. Future research could use physiological measures, such as facial expression and eye tracking, to capture spontaneous emotional response and visual attention to the ad. Second, the

use of only one issue (anti-terrorism) in PSAs does not lend to a broader generalization of the findings in this study. The major reason of selecting such issue is to stimulate the vicarious emotional experience as strong as possible in the real-life setting so that the researcher is able to examine the proposed relationships. This study suggests that maintaining or regaining control is key to people during risky situations, such as earthquakes, tornados, hurricanes. Future studies could focus on multiple social and health issues to allow for stronger statements about potential findings. Lastly, future research might wish to consider other potential moderating variables that might enhance, weaken, or change the direction of the relationships between emotion types and message features. Other ad-recipient characteristics, such as the behavioral inhibition system (BIS) and behavioral activation system (BAS), may interact with anger and fear to influence the responses to message-induced pleasure and dominance.

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## APPENDIX

The following is an example of the anti-terrorism message used in the current study (i.e., the negative and low-dominance condition). The layout and the image remain the same across four messages, while only the text is manipulated to induce different emotions. Specific details of the text manipulation are listed below.

### Example of negative and low-dominance message:



[WWW.DHS.gov/alerts](http://WWW.DHS.gov/alerts)

### Negative and high-dominance message:

ALWAYS BE ALERT.

Public transportation can be a target of TERRORISTS.

Avoid crowded areas and potential targeted locations.

YOU HAVE CONTROL over your own movements.

Be assertive and speak up.

### Positive and low-dominance message:

TERRORISM CAN BE STOPPED.

Your safety is OUR PRIORITY.

Our security guards are constantly patrolling the area.

PUT YOUR TRUST IN US.

Let us protect you and your family.

### Positive and high-dominance message:

AMERICAN KEEP AMERICA SAFE.

Thousands of terrorist attacks HAVE BEEN STOPPED by ordinary people like you.

You can stop a threat and PROTECT OTHERS.

Help keep our community SAFE.