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Do instructing and adjusting information make a difference in crisis responsibility attribution? Merging fear appeal studies with the defensive attribution hypothesis

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ABSTRACT

Guided by fear appeal effect theories and the defensive attribution hypothesis, the current study examined the influence of the threat and efficacy messages in instructing and adjusting information on crisis responsibility and organizational reputation. Study 1 adopted a 2 (high vs. low threat in instructing information) × 2 (high vs. low self efficacy for instructing information) × 2 (high vs. low proxy efficacy for adjusting information) experiment and revealed that the high threat message significantly increased the attribution of crisis responsibility and further harmed organizational reputation. The high proxy efficacy message in adjusting information helped protect the organizational reputation, however, the effect was not mediated by crisis responsibility. Study 2 replicated the first experiment using a different crisis and introduced fear to the research model. Conclusions in Study 1 were largely reinforced. Fear was observed to indirectly influence organizational reputation via crisis responsibility. The mixed results of threat and efficacy in instructing and adjusting information encouraged managerial considerations when organizations design initial crisis responses.

1. Introduction

Protecting an organization's reputation during a crisis is a paramount task of crisis communication. According to situational crisis communication theory (SCCT), how the public perceives organizational reputation essentially depends on the initial attribution of crisis responsibility, which is defined as "how much stakeholders believe organizational actions caused the crisis" (Coombs, 2006, p. 137). Therefore, determining crisis responsibility is a critical element in the initial evaluation of a crisis that further shapes the reputational threat of the organization.

Drawing on the attribution theory, SCCT categorizes crises into three clusters based on locality and controllability. However, the culpable party is usually unclear at the early stage of a product harm crisis (Laufer & Coombs, 2006). Siomkos and Malliaris (1992) suggested that product harm crises could have several causes, such as a manufacturer's negligence, product misuse, and sabotage, meaning that the company, consumers, and environmental factors could all be the potential cause. Over the years, there has been a plethora of research examining the affective and behavioral consequences of crisis responsibility (Coombs & Holladay, 2005; McDonald & Hartel, 2001). However, studies on the antecedents of stakeholders' attribution are scarce in product harm crises with ambiguous responsibility.

Crises create a need for information, therefore instructing and adjusting information should be provided immediately (Coombs, 2007). Instructing information tells stakeholders what to do to physically protect themselves and adjusting information provides information about corrective action and expresses concerns (Coombs, 2007; Sturges, 1994). Instructing and adjusting information together help stakeholders protect and reassure themselves (Sturges, 1994; Sellnow, Ulmer, & Snider, 1998). Both kinds of information deliver a sense of control over the crisis and, eventually, elicit positive feelings toward the organization (Gonzalez-Herrero & Pratt, 1995; Maynard, 1993

The current study inquired how instructing and adjusting information influence consumers' attribution of crisis responsibility to an organization. Originally developed to explain persuasion in health communication, fear appeal theories improved the general understanding of people's reactions toward threat messages (e.g., Goodall & Reed, 2013; Liu, Pennington-Gray, & Krieger, 2016). In the current study, fear appeal theories provide a useful framework to test the

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influence of threat, efficacy, and fear on crisis responsibility and organizational reputation. The hypotheses were proposed by merging the fear appeal effect theories with the defensive attribution hypothesis. By introducing a traditional health communication theory into the crisis communication context, the authors attempt to extend the theoretical discussion of crisis communication and provide practical advice to crisis managers.

2. Literature review

2.1. Instructing and adjusting information as an initial crisis response

Organizations should provide three types of information at different stages during a crisis. Instructing information should be provided immediately, informing stakeholders of the crisis and telling them how to protect themselves from physical or financial harm (Coombs, 2007; Sturges, 1994). Adjusting information should be provided at the same time, offering correction information and expressing sympathy and concern (Bergman, 1994; Coombs, 1999, 2007; Sturges, 1994). Lastly, internalizing information is employed to help the organization manage its reputation (Sturges, 1994). Instructing and adjusting information represents the initial crisis response, differing from internalizing information that aims to restore an image and protect reputation (Coombs, 2006).

Scholars argue that providing instructing and adjusting information is beneficial to both organizations and the public because it shows that organizations prioritize the public's interests over reputation, therefore, are more likely to be perceived favorable (Coombs, 1999; Kim & Liu, 2012; Kim, Avery, & Lariscy, 2011; Lee, 2009). Meanwhile, knowing what the threat is and how to cope with it increases the public's self efficacy (Frisby, Veil, & Sellnow, 2014), which is critical for self-protection, especially during health crises, product recalls, and natural disasters (Kim et al., 2011).

Using an experiment, Coombs (1999) examined 114 crisis managers' reactions to instructing information and the compassion message in response to an industrial accident. The results showed that managers believed the compassion information significantly protects organizational reputation, increases the honoring of the account, and forms supportive behaviors. However, managers did not see the value of increasing the amount (specificity) of instructing information. Kim and Sung (2014) demonstrated that instructing and adjusting information alone was more effective than other internalizing strategies on improving stakeholders' favorable attitudes toward the organization. Sellnow and Sellnow (2014) proposed the IDEA (internalization, distribution, explanation, action) model to guide the draft of instructional messages. Frisby et al. (2014) found that people reported better knowledge and efficacy after reading a specific instructing message than learning from news stories. Sellnow, Lane, Sellnow, and Littlefield (2017) tested the effect of a manipulated news story that includes risk proximity, personal relevance, and action steps and found it was more effective in generating protective behavioral intention than an actual news story that only contains the fact of an E. coli outbreak. However, compared to internalizing strategies, instructing and adjusting information is still understudied (Kim et al., 2011). It is yet to know how instructing and adjusting information influence organizational reputation through the mechanism of attribution.

2.2. Effect of threat and efficacy in fear appeal studies

In health communication, the fear appeal message, a description of the potential health risk followed by an advocated action to avoid the risk, is frequently created to promote self-protective action (Ruiter, Abraham, & Kok, 2001). Such a message arouses fear and motivates people to take health advice. As theories progress, it is now suggested that persuasion is driven by the cognitive evaluation of threat and efficacy messages as well as the emotional arousal of fear. For example, the drive-reduction model (Hovland, Janis, & Kelly, 1953; Janis, 1967; McGuire, 1968, 1969) views fear as a motivational drive for an attitudinal and behavioral change, whereas the parallel response model (PRM) (1971, Leventhal, 1970) and the protection motivation theory (PMT) (Maddux & Rogers, 1983; Rogers, 1985) focus more on the cognitive evaluation of threat and efficacy. When evaluating threats, people form perceptions based on the undesirability of consequences (severity) and the possibility of experiencing such consequences (susceptibility). When assessing efficacy, people consider the effectiveness of the advocated recommendation (response efficacy) and the likelihood they are able to execute the recommendations (self efficacy).

Witte's (1992) extended parallel process model (EPPM) later becomes the most popular fear appeal theory in health communication via introducing a staged process of fear appeal messages. In the first stage, individuals process the threat message. If they perceive themselves to be vulnerable to a severe threat and fear is aroused, they will be motivated to consider coping recommendations. In the second stage, if individuals perceive the recommended action to be effective (response efficacy) and easy to implement (self efficacy), a danger control process will be triggered and persuasion occurs. If the recommendations are perceived as ineffective or hard to follow, individuals will opt to deal with their fear by denying the threat (fear control). If individuals do not perceive the threat as severe or relevant in the first place, they will not be motivated to process the message any further.

Initially proposed to explain persuasion in health communication, fear appeal theories improved the general understanding of how people respond to different types of threat messages that elicit fear reactions (e.g., Goodall & Reed, 2013; Liu et al., 2016). Instructing and adjusting information explain a crisis and provide tips to protect stakeholders, therefore, have both the threat and efficacy components identified by fear appeal theories. How the public perceives a crisis affects responsibility attribution and post-crisis organizational reputation (Choi & Lin, 2009). Therefore, fear appeal theories provide a useful framework to test the influence of threat, efficacy, and fear on crisis responsibility and organizational reputation. To examine this issue, we merged the fear appeal effect theories with the defensive attribution hypothesis.

2.3. Defensive attribution of crisis responsibility

The defensive attribution hypothesis suggests that the severity of a negative incident is positively related to the blame attributed to a potentially at-fault party (Walster, 1966). Fiske and Taylor (1991) claimed that defensive attribution is motivated by the cognition of the severe outcomes and fear that the same thing might happen to oneself. People need to blame someone to make the incident more predictable and avoidable. Shaver (1970) posited that defensive attribution is driven by relevance rather than severity. Relevance occurs when similarity exists between the circumstances of the person involved and the observer (situational similarity), or when people feel identified with the person in terms of beliefs, values, and personal characteristics (personal similarity) (Shaver, 1970). Depending on where perceived similarity resides, blame could go to the potential perpetrator or victim. If people perceive themselves in a position more similar to that of the perpetrator, they will seek to avoid blame for their potential selves. If they find themselves more likely to be the potential victim, they would be motivated to avoid harm and blame the perpetrator (Shaver, 1970; Shaw & McMartin, 1977; Walster, 1966).

The defensive attribution hypothesis has been tested repeatedly in consumer behavior research and received substantial empirical support. Two meta-analyses have shown a significant influence of severity and relevance in predicting responsibility attribution (Burger, 1981; Robbennolt, 2000). Severity was operationalized as the degree of physical harm caused by an accident and tested in the context of product harm crises because product harm could result in severe injuries and even deaths (Laufer, Gillespie, McBride, & Gonzalez, 2005). The similarity was also examined as an antecedent of defensive attribution in product

harm crises and was linked to the concept of vulnerability. Laufer et al. (2005) argued that harm avoidance would be activated in product harm crises because consumers are more likely to view themselves as victims (other consumers) than the perpetrator (the company). Therefore, if an individual perceives that he/she is personally vulnerable to the product harm, he/she will be more likely to blame the company. For example, Laufer and Gillespie (2004) compared women's and men's responses to product harm crises and suggested women blame a company more than men because women feel more vulnerable to the negative consequences. Wan, Chan, and Su (2011) suggested that observing customers experiencing an undesirable incident who is personally similar to oneself increases the blame attributed to the company, especially when the observer is prevention-focused. Zhou and Ki (2018) showed that crisis severity is positively related to crisis responsibility in accidental crises but no such effect was observed in the victim and preventable crises. They argued that a crisis context with ambiguous crisis responsibility is more suitable for testing defensive attribution. This argument is consistent with Laufer et al. (2005), who found that the severity of product harm crises led to more blame to a company when crisis responsibility was ambiguous and suggested this relationship was moderated by consumers' tolerance of ambiguity.

Instructing information provides basics about a crisis and it contains a threat message that addresses both severity and susceptibility. These two dimensions of the threat message suggested by fear appeal theories correspond to the concepts of crisis severity and consumer vulnerability in product harm crises (e.g., Laufer & Gillespie, 2004; Laufer et al., 2005). Based on the proposition of the defensive attribution hypothesis, we propose:

H1. A high threat message in adjusting information elicits more crisis responsibility attributed to the organization than a low threat message.

The research on the efficacy message in instructing and adjusting information has not received much attention. The concept of efficacy in fear appeal theories consists of two dimensions: response efficacy, how likely the recommended health behaviors lead to desired outcomes, and self efficacy, how likely people feel they can successfully carry out the recommendation (Rogers, 1985). The two dimensions combined to influence individuals' confidence in their ability to take action to reduce the possibility of being affected by a threat. In crisis communication, the efficacy message can be seen in both instructing information and adjusting information. The efficacy message in instructing messages tells stakeholders how to protect themselves from physical or financial harm (Coombs, 2007; Sturges, 1994), while the efficacy message in adjusting messages offers corrective action taken by the company to protect the public. Both efficacy messages are comprised of self efficacy (to what degree individuals perceive themselves/the company can take the protective action) and response efficacy dimensions (to what degree individuals perceive the recommended actions are effective in providing protection). The current study examines the efficacy in instructing information as one variable and referred to it as "self efficacy" to differentiate it from the "proxy efficacy" message in adjusting information.

Self efficacy is observed to generate a strong sense of personal responsibility for one's health (Burke et al., 2009). When examining how the public responds to H1N1 influenza, Park and Lee (2016) found that the efficacy message provided by the government significantly improved the public's perceived personal control over a public health crisis and in turn lessened the attribution of responsibility to the government. However, a doctor's advice may lessen the public's sense of personal control, and in turn, increase the responsibility attributed to the government. The authors indicated that the efficacy message from the government empowered the public more than that from a doctor because people feel the government makes themselves control their behaviors. It is possible that providing an efficacy message would decrease the defensive attribution motivation because it increases the public's sense of control over the crisis.

Similarly, in another study examining national park visitors' perceived risk, Rickard (2014) demonstrated that the more control an individual had over the exposure to the risk, the less he/she would hold others or external conditions as the cause of the accident. This is because risk judged more controllable tends to be less "dreaded", and therefore reduces the motivation to blame others. As the efficacy message in instructing information helps improve a sense of personal control, such a message may reduce the public's initial judgment on the severity and personal susceptibility to the harm, and therefore feel less motivated to attribute the responsibility to an external party (the company). For example, when accidents occur involving tires on automobiles, it is unclear whether it is the fault of the tires, road conditions, or the drivers before any investigation. If consumers are made aware that practical measures exist to protect themselves (e.g. conduct an automobile check), they would be primed with a sense of personal control (Laufer, Gillespie, & Silvera, 2009). As consumers and companies may share the responsibility, blaming one party may result in less attribution of responsibility to the other party. Based on the above discussion, we proposed:

H2. A high self efficacy message in instructing information elicits less crisis responsibility attributed to the organization than a low efficacy message.

On the other hand, the efficacy message also appears in adjusting information that elaborates on the corrective action the organization takes to address the stakeholders' psychological concerns (Coombs, 2007). If the public trust the organization to take effective measures, chances are their sense of control over the crisis improves. Bandura (1997) conceptualized that an individual's belief in a third party's ability to assume its role on an individual's behalf to fulfill the goal as proxy efficacy. He posited that proxy efficacy can increase an individual's self efficacy, and together the two types of efficacy increase an individual's satisfaction and goal-oriented effort. In crisis communication, therefore, the corrective action message may serve to improve the public's proxy efficacy and reduce the defensive motivation of attributing crisis responsibility to the organization. In addition, an organization that takes suitable corrective action in response to a crisis is also perceived to be more socially responsible, hence is likely to be perceived positively by the public (Claeys & Coombs, 2019; Lee, 2009). Therefore, we proposed:

H3. A high proxy efficacy message in adjusting information elicits less crisis responsibility attributed to the organization than a low proxy efficacy message.

The ultimate goal of crisis communication is to protect organizational reputation. SCCT posited that how much responsibility stakeholders attribute to the organization determines their perceptions of reputation (Coombs, 2007). Therefore, it is likely that if the public attributes less responsibility to the organization, it will form a better evaluation of organizational reputation. Therefore, we proposed:

H4. Crisis responsibility is negatively related to organizational reputation.

H5. Crisis responsibility mediates the influence of threat on organizational reputation.

On the other hand, by providing the efficacy message in instructing and adjusting information, organizations meet their initial obligations in a crisis so that they can continue to protect reputational assets (Coombs, 2007). Therefore, it is likely that both self and proxy efficacy messages help enhance organizational reputation directly. On the other hand, if self and proxy efficacy messages manage to reduce the perceived crisis responsibility, it is also possible the efficacy message protects organizational reputation through a mediated effect of perceived crisis responsibility. Therefore, we asked:

RQ1: Does the self efficacy message in instructing information influence organizational reputation directly or indirectly through crisis responsibility?

RQ2: Does the proxy efficacy message in adjusting information influence organizational reputation directly or indirectly through crisis responsibility?

3. Experiment 1

3.1. Experiment design and stimuli

A 2 (high vs. low threat) × 2 (high vs. low self efficacy instructing information) × 2 (high vs. low proxy efficacy adjusting information) factorial experimental design was used to test the effect of instructing and adjusting information on participants' attribution of crisis responsibility and evaluation of organizational reputation. A fictitious prepackaged salad product was chosen due to the wide usage among consumers. A mock news article was created to report a recent listeria monocytogenes infection outbreak involving prepackaged salads from Walmart. The news story pointed out that various reasons could cause the outbreak including production, transportation, consumer inappropriate food preparation, and contamination in grocery stores, making it difficult to predict the culpable party. Then a statement from the fictitious company was followed, providing instructing and adjusting information. Threat was manipulated by varying the number of victims and the seriousness of symptoms. The self efficacy message in instructing information was manipulated by either providing or not providing information regarding easy-to-implement measures to prevent listeria infection and attributing the risk factors of listeria infection to elements either within the control or out of control of consumers. In adjusting information, the high proxy efficacy message specified the detailed action the company took to protect consumers and expressed confidence in containing the infection, while the low proxy efficacy message only made a brief statement on the company's corrective action and did not address the effectiveness of the action. A fictitious brand name, Suntrue, was used for the prepackaged salad to control the potential confounding influence of preexisting brand involvement and reputation.

Several rounds of pretests were conducted with participants from Amazon Mechanical Turk (MTurk). Stimuli were revised to exaggerate the difference between the high and low threat and efficacy conditions. The final version of the stimuli produced intended results as the high threat group ($M = 4.97$, $SD = .74$, $n = 27$) was significantly different from the low threat group ($M = 3.49$, $SD = 1.29$, $n = 27$), t (48) = −5.08, $p < .001$. The high self efficacy group ($M = 6.00$, $SD = .69$, $n = 31$) was significantly different from the low self efficacy group ($M = 3.92$, $SD = 1.52$, $n = 19$), t (48) = −6.63, $p < .001$. The high proxy efficacy group ($M = 5.50$, $SD = 1.02$, $n = 21$) was significantly different from the low proxy efficacy group ($M = 3.92$, $SD = 1.03$, $n = 21$), t (48) = −4.53, $p < .001$. Appendix A provides the stimuli.

3.2. Sampling and procedures

Participants in this experiment were adults recruited using Qualtrics' national market research panels from March 22 to April 2 of 2020. Participants were first presented with an informed consent form. Next, they were filtered by a question, "Would you purchase packaged salad from Walmart?" It aimed to exclude participants who were not involved with the product at all. If they indicated yes, they were directed to four questions measuring product involvement. Involvement was measured and controlled in the data analysis because this variable had been suggested to trigger negative emotions toward organizations (e.g., Choi & Lin, 2009; Kim & Jin, 2016) and increase crisis responsibility (McDonald & Hartel, 2001; Nekmat & Kong, 2019). Then, participants were randomly assigned to one of the eight conditions. To filter out inattentive participants, three attention check questions were inserted at different places in the questionnaire. Whoever failed to correctly answer the questions were excluded from the study. Each participant was paid four dollars for completing the survey.

A total of 442 participants passed the attention check questions and completed the questionnaire. Participants aged from 18 to 82 with an average of 47.26 ($SD = 16.79$). Two hundred and twenty nine participants reported being male (51.6 %) while 213 reported being female (48 %). One participant preferred not to report the gender information and one reported being transgender. More than half of the participants self-identified as Caucasian ($n = 233$, 52.5 %), followed by Hispanic ($n = 85$, 19.1 %), African American ($n = 57$, 12.8 %), and Asian ($n = 41$, 9.2 %). Twenty-six participants reported other ethnicities (5.9 %). Regarding the annual household income, the category of $100,000–$149.999 was selected by 89 participants (20 %), followed by $50,000–$74,999 ($n = 86$, 19.4 %), $25,001–$49,999 ($n = 86$, 19.4 %), less than $25,000 ($n = 72$, 16.2 %) and more than $150,000 ($n = 40$, 8.9 %).

3.3. Measurement

3.3.1. Perceived threat

The scale was adapted from Witte, Cameron, Mckeon, and Berkowitz (1996) 7-point Likert-type risk behavior diagnosis scale (RBD) ranging from 1 (strongly disagree) to 7 (strongly agree). The scale measured perceived susceptibility using two items "After reading the message, I feel (1) I am personally at risk for listeria infection, and (2) It is likely that I get listeria infection." The scale also measured perceived severity with two items "If I were to get listeria infection (1) I would experience serious negative consequences, and (2) It would have a severe negative impact on me." The means were taken for perceived threat with each experimental group and compared for manipulation check (Cronbach's $\alpha = .74$).

3.3.2. Perceived self and proxy efficacy

Perceived self and proxy efficacy were also measured using RBD (Witte et al., 1996). On a 7-point Likert scale, participants were asked to what extent they agree with the statements evaluating their ability to prevent the risk of listeria infection and the company's ability to protect consumers from getting listeria infection. Example items measuring perceived self and proxy efficacy were "Suntrue's statement provides useful tips that I(self efficacy)/the company (proxy efficacy) can follow to prevent listeria", and "I am (self efficacy)/the company (proxy efficacy) is able to follow Suntrue's recommendations to prevent against listeria." The means were taken for perceived efficacies and examined for manipulation check (Cronbach's $\alpha = .91$).

3.3.3. Product involvement

Product involvement was measured using Olsen's (2007) scale. Participants were asked to rate their agreement with the statements about the importance of prepackaged salad in their daily grocery shopping on a 7-point scale with 1 being "strongly disagree" and 7 being "strongly agree." The items were "prepackaged salad is an important part of my diet," "I am very concerned about having prepackaged salad for meals," "I am very motivated to have a prepackaged salad for meals," and "It is significant to me that I eat prepackaged salad" (Cronbach's $\alpha = .92$).

3.3.4. Crisis responsibility

Crisis responsibility indicates to what degree participants blame the organization for the crisis. Brown and Ki (2013) argued three aspects, intentionality, accountability, and locality, need to be considered to determine the level of crisis responsibility. Table 1 shows the scale. EFA was conducted and the results suggested the three factors were consistent with the three dimensions. The scale reached a sound overall internal consistency ($\alpha = .89$) and sound reliability for all three dimensions (intentionality $\alpha = .94$, controllability $\alpha = .85$ and accountability $\alpha = .87$).

Table 1
Crisis responsibility measurement items.

Intentionality	The cause of the crisis was an intentional act by someone in the organization Someone in the organization knowingly created the cause of the crisis A deliberate act by someone in the organization caused the crisis
Accountability	The organization had the capability to stop the crisis from occurring The crisis was preventable by the organization The organization has the resources to prevent the crisis from occurring The organization could have avoided the crisis The organization should be held accountable for the crisis The organization should be blamed for the crisis
Locality	The crisis was caused by a weakness in the organization Internal organizational issues contributed to the crisis The crisis was caused by a problem inside the organization

3.3.5. Organizational reputation

Organizational reputation was measured using a 7-point Likert scale from Coombs and Holladay's studies (2002, Coombs and Holladay, 2008, 2009). The scale had five items including "The organization is concerned with the well-being of its publics," "The organization is basically dishonest," "I do not trust the organization to tell the truth about the incident," "Under most circumstances, I would be likely to believe what the organization says," and "The organization is not concerned with the well-being of its publics." The negatively worded items were reverse coded. The scale was found to be a one-factor construct with EFA and was found internally consistent (α =.84).

3.4. Results

Data cleaning and preliminary analyses were conducted via SPSS 25. The effectiveness of the intended threat and efficacy inductions was assessed again using participants' ratings of perceived threat and efficacy. The *t* -test results showed a significant difference between the high threat group ($M = 4.51$, $SD = 1.05$, $n = 227$) and low threat group ($M = 3.54$, $SD = 1.05$, $n = 217$), $t\,(442) = -9.85$, $p < .001$, between the high self efficacy group ($M = 5.51$, $SD = .96$, $n = 228$) and low self efficacy group ($M = 4.12$, $SD = 1.21$, $n = 216$), $t\,(442) = -13.40$, $p < .001$, and the high proxy efficacy group ($M = 5.25$, $SD = .98$, $n = 227$) and low proxy efficacy group ($M = 3.77$, $SD = 1.01$, $n = 217$), $t\,(442) = -15.64$, $p < .001$. The manipulation of threat and two kinds of efficacy was effective.

The hypotheses were tested using Hayes (2018) PROCESS Macro mediation model 4. The PROCESS macro uses an ordinary least squares (OLS) regression-based path analysis to test indirect effects. Indirect effects are significant when the bootstrap analysis with 10,000 iterations and bias-corrected estimates generate 95 % upper or lower confidence intervals (CI), not including zero (Hayes, 2017). PROCESS generates unstandardized regression coefficients. Involvement was entered as a covariate to control the potential confounding effect.

H1 proposed that the high threat message elicits more crisis responsibility. As the crisis responsibility scale had three dimensions, the mediation model was applied treating each dimension as a mediator. As Table 2 suggested, threat significantly contributed to all three dimensions of crisis responsibility, including intentionality ($b = .34$, $SE = .14$, $p < .05$, CI [.07, .61]; $M_{high\ threat} = 2.82$, $SD = 1.53$, $n = 227$, $M_{low\ threat} = 2.49$, $SD = 1.36$, $n = 217$), controllability ($b = .32$, $SE = .10$, $p < .01$, CI [.13, .52]; $M_{high\ threat} = 4.70$, $SD = 1.10$, $n = 227$, $M_{low\ threat} = 4.39$, $SD = 1.05$, $n = 217$), and locality ($b = .41$, $SE = .11$, $p < .001$, CI [.19, .63]; $M_{high\ threat} = 4.51$, $SD = 1.23$, $n = 227$, $M_{low\ threat} = 4.11$, $SD = 1.16$, $n = 217$). Therefore, H1 was supported.

H2 suggested that the high self efficacy message produces less crisis responsibility. As suggested by Table 2, self efficacy in instructing information significantly influenced only one dimension of crisis responsibility: intentionality ($b = .46$, $SE = .14$, $p < .001$, CI [.19, .72]). Unexpectedly, participants in the high efficacy condition ($M = 2.86$, $SD = 0.09$, $n = 231$) reported a higher level of intentionality than those in the low efficacy condition ($M = 2.43$, $SD = 0.10$, $n = 217$). Therefore, H2 was not supported.

H3 proposed that the high proxy efficacy message in adjusting information elicits less crisis responsibility. The results in Table 2 suggested the proxy efficacy message significantly influenced accountability ($b = -.24$, $SE = .09$, $p < .05$, CI [-.44, -.05]; $M_{high\ efficacy} = 4.43$, $SD = 1.06$, $n = 227$, $M_{\text{low efficacy}} = 4.67$, $SD = 1.09$, $n = 217$) and locality ($b = -.28$, $SE = .09$, $p < .05$, CI [-.50, -.07]; $M_{high\ efficacy} = 4.17$, $SD = 1.19$, $n = 227$, $M_{low\ efficacy} = 4.46$, $SD = 1.22$, $n = 217$). Therefore, H3 was partially supported.

H4 proposed that crisis responsibility is negatively related to organizational reputation. The results indicated a significant negative effect of all three dimensions of responsibility on organizational reputation (Intentionality: $b = -.33$, $SE = .03$, $p < .001$; Accountibility: $b = -.37$, $SE = .04$, $p < .001$; Locality: $b = -.40$, $SE = .04$, $p < .001$). Therefore, H4 was supported.

H5 predicted perceived responsibility mediates the influence of threat on organizational reputation. An examination of indirect effect of threat suggested it had significant negative influence on organizational reputation through all three dimensions of crisis responsibility (Intentionality: $b = -.12$, $SE = .05$, CI [-.21, -.02]; Accountability: $b = -.11$, $SE = .04$, CI [-.19, -.04]; Locality: $b = -.15$, $SE = .05$, CI [-.25, -.07]). Thus, H5 was supported.

RQ1 and RQ2 inqured whether the two efficacy messages protect organizational reputation directly or indirectly through crisis responsibility. Our results suggested there was no direct effect of self efficacy in instructing information on organizational reputation. It had a significant indirect effect on organizational reputation via intentionality ($b = -.16$, $SE = .05$, CI [-.26,. −.07]). However, the direction of the effect contradicted the hypothesis. Meanwhile, the proxy efficacy message in adjusting information appeared to have a significant positive direct effect on organizational reputation ($b = .74$, SE = 08, $p < .001$, CI [.58, .90]; $M_{high\ efficacy} = 4.94$, $SD = .93$, $n = 227$, $M_{low\ efficacy} = 4.21$, $SD = 1.03$, $n = 217$). The mediation effects were significant with the

Table 2
Ordinary Least Squares (OLS) regression coefficients for the direct effect of threat, self efficacy (instructing information), and proxy efficacy (adjusting information) manipulation on three dimensions of crisis responsibility (Experiment 1., $N = 444$).

	b (SE)			*p*			95 % Boot CI		
	1	2	3	1	2	3	1	2	3
Constant	72 (.44)	3.41 (.33)	3.21(.36)	.11	<.001	<.001	[−.16, 1.59]	[2.78, 4.05]	[2.49, 3.92]
Involvement	.17(.06)	−.005(.04)	.21(.05)	.01	.90	<.001	[04, 28]	[−.08, .07]	[.11, .30]
Threat	.34 (.14)	.32 (.10)	.41(.11)	.01	.001	<.001	[.07, .61]	[.13, .52]	[.19, .63]
Self Efficacy	.46 (.14)	.17(.10)	.02(.11)	<.001	.08	.86	[.19, .72]	[−.02, .37]	[−.29, 24]
Proxy efficacy	.03(.14)	−.24(.09)	−.28(.11)	.11	.02	.01	[−.24, .30]	[−.44, −.05]	[−.50, −.07]

Note: 1 = Intentionality; 2 = Accountability; 3 = Locality.
Model summary:1: $R^2 = .05$, $F(4, 439) = 6.20$, $p < .001$;2: $R^2 = .07$, $F(4, 439) = 8.76$, $p < .001$; 3: $R^2 = .08$, $F(4, 439) = 9.41$, $p < .001$.

accountability ($b = .08$, $SE = .04$, CI [.02, .16]) and locality ($b = .11$, $SE = .04$, CI [.03, .19]) dimensions.

The first experiment highlighted the influence of threat on responsibility and the influence of the proxy efficacy message in adjusting information on organizational reputation. It is worth noting that the influence of threat on organizational reputation is entirely mediated by crisis responsibility, whereas the influence of proxy efficacy is only partially mediated by crisis responsibility. It suggests that, besides crisis responsibility, other potential reasons may explain the influence of proxy efficacy on organizational reputation. To replicate the findings, a second experiment was undertaken using a different crisis scenario. Drawing on the previous fear appeal studies, the second experiment included fear to test the influence of emotion on crisis attribution.

4. Experiment 2

4.1. The influence of fear on responsibility and organizational reputation

When investigating the fear appeal message, EPPM called for "putting the fear back to the fear appeal studies" and proposed an emotion-based fear control process rather than a cognition-dominant danger control process (Witte, 1994, p. 131). It was posited that people would switch to respond and cope with fear instead of danger when they realized that it was impossible to prevent a severe outcome. Fear control is driven by the defensive motivation that is triggered when threat is high and efficacy is low. It further leads to defensive avoidance or reactance to the persuasive message.

Crisis communication researchers also call for integrating emotions with crisis studies. The integrated crisis mapping (ICM) model suggests that different types of crises elicit different emotions, which further influence the public's coping strategy and acceptance of organizational responses (Jin, Pang, & Cameron, 2012). Viewing emotions as a result of the cognitive appraisal of the causal attribution of crises, Choi and Lin (2009) proposed attribution-independent emotions and attribution -dependent emotions, arguing that the public responds to a crisis with general attribution-independent emotions first and then experiences attribution-dependent emotions as a result of a search for the cause of negative outcomes. A content analysis of consumer responses to a product recall crisis indicated that crisis responsibility significantly predicted anger, fear, surprise, worry, contempt, and relief, whereas alert and confusion appeared to be independent of attribution (Choi & Lin, 2009). Jin, Liu, and Austin (2014) factor-analyzed nine negative emotions and further categorized attribution-dependent emotions into external-attribution-dependent emotions and internal-attribution-dependent emotions.

Although fear was initially regarded as an attribution-dependent emotion (Choi & Lin, 2009), increasing evidence demonstrated that it should be categorized as an attribution-independent emotion (e.g., Jin, 2009; Jin, 2010; Jin, Pang, & Cameron, 2010; Jin et al., 2014, McDonald, Sparks, & Glendon, 2010). Jin et al. (2014) suggested that increased expression of fear from the public indicated that crisis responsibility was unclear, hence provided opportunities for the organization to employ a more proactive approach to handle the crisis. However, this conclusion was based on the assumption that fear was an outcome of attribution. A possibility that fear could influence the attribution process has not been considered.

In the health communication literature, fear studies generated contradictory results (for a review, see Popova, 2012). As fear and fear control responses are reciprocal, meaning fear triggers fear control, and fear control in turn reduces fear, different findings emerged due to measurements and the timing of a response circle (Popova, 2012). Given the complexity of the fear control process and the mixed arguments for the role of fear in the attribution process in crisis communication, the current study inquired:

RQ3: How is fear associated with participants' (a) attribution of crisis responsibility, and (b) organizational reputation?

RQ4. Does crisis responsibility mediate the influence of fear on organizational reputation?

4.2. Experiment design and stimuli

The second experiment resembled the study design and stimuli development of the first experiment. A crisis scenario of car accidents associated with a potential tire problem from a fictitious company, Suntrue, was adopted. Threat, self efficacy in instructing information, and proxy efficacy in adjusting information were manipulated in a similar way. The revision of stimuli continued until the manipulation of threat ($Mhigh = 5.16$, $SD = .99$, $n = 29$; $Mlow = 4.50$, $SD = 1.10$, $n = 28$, t (55) = -1.81, $p < .05$), self efficacy in instructing information ($Mhigh = 5.55$, $SD = .87$, $n = 3$;5 $Mlow = 4.80$, $SD = 1.03$, $n = 22$, t (55) = -2.95, $p < .01$) and proxy efficacy in adjusting information were observed significant ($Mhigh = 5.30$, $SD = .82$, $n = 35$; $Mlow = 4.63$, $SD = .78$, $n = 22$, t (55) = -3.06, $p < .01$). The full stimuli were attached in Appendix A.

4.3. Sampling and procedures

Participants were recruited via MTurk from April 5 to May 22 of 2020. Participants were filtered by a question asking whether they would have the need to purchase tires and then were randomly assigned to one of the eight conditions. They were first asked to read a news article about recent car accidents associated with Suntrue tires. The news explicated that the cause could be attributed to several reasons (e.g., product quality, cold weather, drivers not checking the tread, drivers exceeding weight load, etc.). Next, participants read a statement from Suntrue and then filled out a questionnaire measuring variables of interests. Participants who failed the attention check questions were excluded from the study. Each participant was paid 0.5 dollars to complete the questionnaire.

A total number of 278 participants remained in the final dataset. Two hundred and seventy one participants provided the age information with an average of 37.52 ($SD = 12.23$). Male occupied 61.9 % of the participants ($n = 172$) and 37.8 % participants were female ($n = 105$) One participant reported being "others" for gender (.4%). Two hundred and nine participants self-identified as Caucasian (75.2 %), followed by African American ($n = 33$, 11.9 %), Hispanic ($n = 24$, 8.6 %), Asian ($n = 11$, 4%), and Pacific Islander ($n = 1$, .4%). In terms of the annual household income, the category of $25,000-$49,999 was selected most ($n = 82$, 29.5 %), followed by $50,000 - $ 74,999 ($n = 78$, 28.1 %), $75,000 – $99,999 ($n = 49$, 17.6 %), $100,000 - $ 149,999 ($n = 34$, 12.2 %), less than $25,000 ($n = 31$, 11.2 %), and above $150,000 ($n = 4$, 1.4 %).

4.4. Measurement

All variables and their corresponding scales in the first experiment were used in the second experiment. Factors and reliability were checked with all three dependent variables. Specifically, crisis responsibility (intentionality: $\alpha = .93$; accountability: $\alpha = .74$; locality: $\alpha = .74$) achieved overall reliability of .89. Organizational reputation was a one-factor construct. However, the item, "under most circumstances, I would be likely to believe what the organization says," was found to be negatively correlated with the other four items. Acceptable internal consistency was achieved ($\alpha = .74$) after deleting this item.

Fear was measured after participants read both the news article and crisis statement. It was entered into the analysis of variance model as a covariate in this study. Participants were asked to indicate how they felt after reading the message on a 7-point scale for six mood adjectives: afraid, scared, tense, anxious, worried, and nervous. The scale was

derived from earlier research on the fear appeal effect (e.g., Ruiter et al., 2001). The scale reached sound internal consistency ($\alpha = .94$).

4.5. Results

The manipulation of threat, self efficacy in instructing information, and proxy efficacy in adjusting information was checked again. Significant differences were observed between participants in the high threat group ($M = 5.03$, $SD = .99$, $n = 137$) and low threat group ($M = 4.72$, $SD = 1.17$, $n = 141$), t (276) = -2.41, $p < .05$; between the high self efficacy group ($M = 5.54$, $SD = .79$, $n = 146$) and low self efficacy ($M = 4.69$, $SD = 1.18$, $n = 132$), t (276) = - 6.94, $p < .001$; and between the high proxy efficacy group ($M = 5.47$, $SD = .86$, $n = 147$) and low proxy efficacy group ($M = 4.77$, $SD = 1.15$, $n = 131$), t (276) = -5.67, $p < .001$.

Hayes (2018) PROCES Macro mediation model 4 was applied to answer the two research questions. As Table 3 showed, threat was observed to have a sigificantly positive effect on accountability ($b = .28$, $SE = .11$, $p < .05$, CI [.07,.49]; $M_{high\ threat} = 5.11$, $SD = .88$, $n = 137$, $M_{low\ threat} = 4.85$, $SD = .91$, $n = 141$), and locality ($b = .29$, $SE = .12$, $p < .05$, CI [.06,.53]; $M_{high\ threat} = 5.11$, $SD = .88$, $n = 137$, $M_{low\ threat} = 4.85$, $SD = .91$, $n = 141$). No significant main effect was observed with the self efficacy message in instructing information nor with the proxy efficacy in adjusting information on crisis responsibility. Therefore, H1 was partially supported. H2 and H3 were not supported.

H4 examined the influence of crisis responsibility on organizational reputation. The results suggested that all three dimensions of crisis responsibility, namely, intentionality ($b = -.33$, $SE = .02$, $p < .001$), accountability ($b = -.37$, $SE = .05$, $p < .001$), and locality ($b = -.37$, $SE = .05$, $p < .001$) were negatively related with organizational reputation. H5 proposed crisis responsibility mediates the negative influence of threat on organization reputation. Threat was suggested to have a significant indirect negative effect on organizational reputation ($b = -.15$, $SE = .02$, CI [-.28, -.02]; $M_{low\ threat} = 4.18$, $SD = .66$, $n = 141$; $M_{high\ threat} = 4.03$, $SD = .62$, $n = 137$), which was mediated by accountability ($b = -.07$, $SE = .03$, CI [-.12, -.02]) and locality ($b = -.06$, $SE = .03$, CI [-.11, -.01]). Thus, H4 and H5 were supported.

RQ1 and RQ2 examined diself efficacy and proxy efficacy's effects on organizational reputation. The self efficacy message in instructing information was not observed to have a significant direct influence on organizational reputation. The proxy efficacy message in adjusting information had a positive direct influence on organizational reputation ($b = .33$, $SE = .07$, $p < .001$, CI [.20, .45]; $M_{high\ efficacy} = 4.25$, $SD = .66$, $n = 147$, $M_{low\ efficacy} = 3.94$, $SD = .59$, $n = 131$). However, no mediation was significant.

RQ3 and RQ4 inquired the role of fear in predicting responsibility and organizational reputation. The results suggested fear was significantly and positively associated with all three responsibility dimensions (intentionality: $b = .26$, $SE = .07$, $p < .001$, CI [.13, .39], accountability: $b = .12$, $SE = .04$, $p < .01$, CI [.05, .18] ; locality: $b = .14$, $SE = .04$, $p < .001$, CI [.06, .22]). Fear was also significantly and negatively related to organizational reputation ($b = -.12$, $SE = .02$, $p < .001$, CI [-.17, -.07]). The indirect effect of fear on organizational reputation was significantly mediated by intentionality ($b = -.04$, $SE = .01$, CI [-.07, -.02]), accountability ($b = -.24$, $SE = .01$, CI [-.04, -.01]) and locality ($b = -.03$, $SE = .01$, CI [-.04, -.01]).

The replication primarily reinforced that threat and self efficacy in instructing information predict crisis responsibility and organizational reputation. However, different from the conclusion in the first experiment, the proxy efficacy message in adjusting information appeared to not affect crisis responsibility. Meanwhile, fear was found to have a significant direct influence on both crisis responsibility and organizational reputation and indirect influence on organizational reputation through crisis responsibility.

5. General discussion

In health communication, the research on threat and efficacy of a health issue helps enable effective health interventions. The current study argues that understanding the public's reception of instructing and adjusting information is also a necessary first step in crisis management. The mixed results of the threat and efficacy messages encourage managerial considerations when organizations design initial crisis responses. Many interesting directions for future research are also revealed.

5.1. More evidence on threat and fear

There have been debates over whether crisis severity exerts influence on crisis management. Some studies revealed that crisis severity does not matter (Coombs, 1998; Lee, 2004) while others are in favor of considering severity in crisis management (Laufer et al., 2005; Zhou & Ki, 2018). The results of the current study reinforced the argument that crisis severity does increase crisis responsibility attributed to the organization in an accidental crisis when the responsible party is ambivalent (Laufer et al., 2005; Zhou & Ki, 2018), and suggested that threat can hurt organizational reputation through the increased level of crisis responsibility. As the current experiments manipulated both the severity and susceptibility dimensions of threat simultaneously, such results indicated that susceptibility added an explanation to crisis responsibility. However, the current study did not scrutinize severity and susceptibility respectively. Previous scholars have pointed out that the investigation of threat in an additive manner, testing severity and susceptibility, failed to differentiate the effect of two different constructs (Popova, 2012). Future studies should continue to examine how severity and susceptibility independently and interactively influence attribution.

Previous studies have generated mixed results between threat and organizational reputation. Some suggested as a crisis becomes more severe, organizational reputation suffers accordingly (Claeys, Cauberghe, & Vyncke, 2010; Isaacson, 2012). Others suggested no significant correlation between severity and reputation (Coombs, 1998; Lee, 2004). A significant indirect effect of threat on organizational reputation

Table 3
Experiment 2. Ordinary Least Squares (OLS) regression coefficients for the direct effect of threat, self efficacy (instructing information), and proxy efficacy (adjusting information) on three dimensions of crisis responsibility ($N = 278$).

	b (SE)			*p*			95 % Boot CI		
	1	2	3	1	2	3	1	2	3
Constant	3.58(.87)	2.95 (.45)	2.79 (.51)	<.001	<.001	<.001	[1.88, 5.29]	[2.08, 3.83]	[1.79, 3.79]
Involvement	−.20(.12)	.16 (.06)	.20(.07)	.11	.06	.005	[−.44, .04]	[.03, .28]	[.06, .34]
Fear	.26 (.07)	.12 (.04)	.14 (.04)	<.001	<.01	<.001	[.13, .39]	[.05, .18]	[.06, .22]
Threat	−.01(.21)	.28(.11)	.29(.12)	.96	.01	.01	[−.41, .41]	[.07, .49]	[.06, .53]
Self efficacy	.21(.21)	.04 (.11)	.02(.12)	.31	.72	.92	[−.20, .63]	[−.17, .25]	[−.23, .25]
Proxy efficacy	.06 (.21)	.14 (.11)	.02(.12)	.77	.20	.88	[−.35, .47]	[−.07, .35]	[−.22, .23]

Note: 1 = Intentionality; 2 = Accountability; 3 = Locality.
Model summary: 1: $R^2 = .06$, $F(5, 272) = 3.62$, $p < .05$; 2: $R^2 = .09$, $F(5, 272) = 5.35$, $p < .01$; 3: $R^2 = .09$, $F(5, 272) = 5.43$, $p < .001$.

was found in this study. The significant mediation effect of threat through crisis responsibility supports SCCT's proposition that though organizational reputation is threatened by crises, organizations can actively communicate to the public to protect the reputation during and after a crisis (Coombs, 2007).

In Experiment 2, the emotional response to the threat, fear, was detected to be positively associated with crisis responsibility and negatively related to reputation. Compared to threat, fear had a more immediate negative influence on organizational reputation. It supported the appraisal tendency theory's proposition that specific emotions may drive the content of thought (Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006). Fear appeal studies also recognized the influence of fear on activating defensive psychological mechanisms, including forming a negative perception of the source and perceived manipulation (Janis, 1967; Shen & Dillard, 2007). In the crisis communication literature, previous research suggested an association between fear and crisis responsibility (Choi & Lin, 2009; Jin, 2010; Jin et al., 2010; McDonald et al., 2010), indicating fear was not an attribution-independent emotion (Jin et al., 2010). On the other hand, researchers should notice that a cognitive appraisal of threat can arouse many other emotions other than fear, such as anger, surprise, puzzlement, sadness, and decreased happiness (Choi & Lin, 2009). It is difficult to isolate fear from other emotions when processing the threat message in instructing information. To scrutinize the role of fear as a discrete emotion, future research should continue to test the effect of the core appraisal theme of fear that is different than other emotions.

5.2. Efficacy messages in instructing and adjusting information

Coombs (2007, 2015) posited that instructing and adjusting information are not provided to shift the blame; instead, it originates from the ethical consideration and the sole purpose is to physically and psychologically protect stakeholders. In this study, the self efficacy message in instructing information was not observed to reduce attribution or help protect organizational reputation. This finding does not support our hypothesis that defensive attribution would be reduced by an increased level of perceived control. Perhaps, simply knowing what to do does not improve the sense of control. It reminds us that the original purpose of providing instructing information is to help stakeholders to protect themselves (Sellnow & Sellnow, 2014). The public's intention to follow the instruction would be a more immediate response to the efficacy message in instructing information.

On the other hand, the proxy efficacy message in adjusting information was found to significantly improve organizational reputation. However, it is not necessarily because the proxy efficacy message reduced defensive attribution of responsibility (the effect on accountability and locality was significant in Experiment 1, but not in Experiment 2). The ethical behavior might reassure the public, making the reputation perception more favorably (Claeys & Coombs, 2019; Lee, 2009). As such, the felt ethics might mediate the relationship between adjusting information and organizational reputation. Future studies should continue to examine other potential mechanisms the two types of efficacy messages may undertake to help protect organizational reputation in a crisis.

The findings of the current study offer practical implications for crisis managers. The lack of direct effect of threat in predicting organizational reputation suggests that severe consequences should not be automatically translated into damaged organizational reputation. As the background of a crisis, crisis managers could evaluate the threat to gain a better understanding of the public's mentality to facilitate drafting crisis responses. Crisis managers should also address the public's fear to reduce defensive attribution. As literature suggested, fearful people tend to be pessimistic about the future and seek emotional support and venting (Lerner & Keltner, 2000), organizations in a crisis need to better communicate with the public to make them feel heard and supported. The efficacy message in instructing and adjusting information will also be useful to boost the public's hope.

Although instructing and adjusting information are not designed to shift the blame, yet they are not received as neutral. The proxy efficacy was found to help protect organizational reputation, implying that in practice, the corrective action message should be provided after a crisis with accuracy and details to improve the public's perceived efficacy that the organization is capable of protecting the public from future losses. In previous studies, self efficacy messages have been found to attract attention (Zhang & Zhou, 2019) and drive risk information dissmination on social media (Zhang & Zhou, 2020). Therefore, providing concrete self efficacy message in instructing information may potentially improve the reach and effectivess of organization's post-crisis response.

5.3. Limitation and future research

The conclusions are affected by several methodological limitations. First, as the two experiments collected samples from two different research platforms using two different products, the results may vary because of the compounding effect of participants' individual characteristics and the crisis scenarios. The results from only two experiments are also limited to capture the effect of instructing and adjusting information in a dynamic crisis. Therefore, replication is required in the future to establish reliability and validity. Second, theoretically, the generalizability of an experiment is questionable. Using a fictitious brand name to remove the compounding effect of prior reputation and involvement also reduces the external validity of the experiment. Future studies can examine how threat and efficacy contribute to attribution and organizational reputation by utilizing a survey to investigate real-world crisis scenarios. Thirdly, the stimuli in the second study mentioned Walmart in the news as a part of the background information. Although Walmart was not the organization involved in the crisis, it may impact the result. Future studies should be cautious about stimuli design.

Despite the limitations, this study presents an empirical study of an understudied topic in crisis communication. The results point to many research directions. Future studies should introduce mediators or moderators to explain why efficacy in instructing information does not have a direct influence on crisis responsibility and organizational reputation. Is the influence of threat and efficacy on defensive attribution mediated by perceived control over a crisis? Does adjusting information help improve organizational reputation because the public believes the organization acts ethically? Besides, what individual characteristics may influence participants' reactions toward instructing and adjusting information? Previous fear appeal studies have suggested that previous knowledge of the threat would influence message processing (McKay, Berkowitz, Blumberg, & Goldberg, 2004). Research of defensive attribution also noticed that individual regulatory focus played an important role in influencing service evaluation after a crisis (Wan et al., 2011). These studies pointed out many potential directions for future research.

Declaration of Competing Interest

The authors report no declarations of interest.

Appendix A. Experiment stimuli

Experiment 1. Prepackaged Salad Contamination

Threat manipulation:

High threat message

SUNtrue was informed by the Food and Drug Administration (FDA) that around 250 customers were sickened by *Listeria monocytogenes* infections after purchasing and eating prepackaged salads from multiple states. To identify the possible causes of the outbreak, we are investigating various brand names. *Listeria monocytogenes* can cause serious and sometimes life-threatening infections. A person with Listeria usually has fever and muscle aches, sometimes preceded by diarrhea or other

gastrointestinal symptoms. Pregnant women, the elderly, young children, and cancer patients are particularly at risk. Around 8–12 percent of listeriosis cases are fatal.

Low threat message

Suntrue was informed by the Food and Drug Administration that five customers were sickened by *Listeria monocytogenes* infections after purchasing and eating Lettuce. We are fully cooperating with DPH to identify the possible causes of the outbreak. This type of infection tends to have only limited influence because Listeria moncytogenes mainly cause unserious and nonfatal infections in infants and elderly people.

Efficacy manipulation (instructing information):

High efficacy message

Since food quality and safety have always been the priority of SUNtrue, we encourage you to follow these instructions. Listeria infection can be easily avoided if you prepare your food by strictly following the following tips.

- Wash food before eating
- Scrub firm produce, such as melons and cucumbers, with a clean produce brush.
- Separate uncooked meats and poultry from vegetables, cooked foods, and ready-to-eat foods.
- Keep your kitchen and environment cleaner and safer
- Wash hands, knives, countertops, and cutting boards after handling and preparing uncooked foods.
- Clean up all spills in your refrigerator right away–especially juices from hot dog and lunch meat packages, raw meat, and raw poultry.
- Store foods safely
- Use precooked or ready-to-eat food as soon as you can.
- Do not store the product in the refrigerator beyond the use-by date; follow USDA refrigerator storage time guidelines;
- Divide leftovers into shallow containers to promote rapid, even cooling.
- Monitor yourself
- If you notice any of the symptom (nausea, vomiting, and diarrhea), please seek medical treatment right away, tell your doctor about possible Listeria exposure, and report to FDA at 320-154-3684.

Low efficacy message

Since food quality and safety have always been the priority of Suntrue, we encourage you not to consume raw foods to reduce the risk of Listeria infection. Keeping your kitchen and environment cleaner and safer also helps. However, the infections starting from food industry are extremely hard to avoid.

Proxy efficacy (adjusting information) manipulation:

High proxy efficacy message

It is obviously a disappointing incident to our valued customers and our thoughts go out to those affected by the incident. Suntrue is doing everything we can to ensure the safety of our customers. We believe the following measures we take will contain the infections from further spreading.

- Suntrue voluntarily recalls packaged salads from all US grocery stores including Walmart, Target, Kroger, Publix, etc.
- Suntrue has stopped selling other vegetable products, such as coleslaw, bok choy, and spinach, until the cause of the infections is identified.
- Suntrue is cooperating with the CDC to investigate potential vegetable suppliers.
- Quality Control Consultants Group is providing consulting service to Dole to identify potential quality control problems.

Low proxy efficacy message

It is obviously a disappointing incident to our valued customers and our thoughts go out to those affected by the incident. Suntrue is doing everything we can to ensure the safety of our customers and taking measures to contain the infections from further spreading. We are examining our suppliers to identify possible causes.

Experiment 2. Tire blowout

Threat manipulation:

High threat message

Suntrue was informed by the National Transport Safety Board (NTSB) that 1071 accidents were reported in Georgia, California, Florida, Maryland, North Carolina, Ohio, New Mexico which were all caused by tire blowouts. We are fully cooperating with NTSB to identify the possible causes of the blowouts. In the US, 11,000 collisions and 200 fatalities are associated with tire blowouts each year. Although some incidents are linked to Suntrue ZIEX ZE960 tires, we don't know if this will happen to other Suntrue models.

Low threat message

Suntrue was informed by the National Transport Safety Board (NTSB) that three accidents were reported in Georgia and Florida, which were all caused by tire blowouts. We are fully cooperating with NTSB to identify the possible causes of the blowouts. The involved tires are ZIEX ZE960 produced between November 2019 and December 2019. We produced over 10,000 tires and sold 2,000. Other models are produced in different factories so it is unlikely other models have the same problem.

Efficacy manipulation (instructing information):

High efficacy message

Since product quality and customer safety have always been the priority of Suntrue, we encourage you to follow these instructions if you are using our tires. Tire blowouts can be effectively avoided by taking the following actions:

- Check tread tire depth

Simply insert a penny into your tire's tread groove with Lincoln's head upside down and facing you. If you can see all of Lincoln's head, your tread depth is less than 2/32 inch and it is time to replace your tires. Another way to check tread depth is to look at the treadwear indicator bar that's molded into most tires. When these bars become visibly flush with the adjacent ribs the tire has no more than 2/32" of tread remaining.

- Check tire pressure indicator

Your car has a horseshoe-shaped indicator that monitors your tire pressure. When the symbol illuminates, it indicates your tire is underinflation. Please add air and go to a car service shop to check tire pressure.

- Check your tire condition at a store

Please drive your car to a participating store to get a free tire examination. You can find a store near you here www.suntrue.com/examinationlocator

Low efficacy message

Since product quality and customer safety have always been the priority of Suntrue Tire, we encourage you to closely inspect and monitor your tread tire depth. You can also drive your vehicle to a participating store for a free tire examination.

Proxy efficacy (adjusting information) manipulation:

High proxy efficacy message

It is obviously a disappointing incident to our valued customers and our thoughts go out to those affected by the incident. Suntrue is doing everything we can to ensure the safety of our customers and taking measures to locate the problem. We believe the following actions will effectively protect our customers:

- Suntrue voluntarily recalls ZIEX ZE960 tires from major US auto shops including Pep Boys, Tire Kingdom, Discount Tire, etc.
- Suntrue has stopped the production of all models until the cause is identified.
- Suntrue is cooperating with the NTSB to investigate potential fiber suppliers.
- Quality Control Consultants Group is providing consulting service to Suntrue to identify potential quality control problems.

Low proxy efficacy message

It is obviously a disappointing incident to our valued customers and our thoughts go out to those affected by the incident. Suntrue is doing everything we can to ensure the safety of our customers and taking measures to locate the problem. We are planning to recall some models and keep monitoring other models.

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