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RESPONSIBILITY, RECALLS, AND REPUTATIONS OF ORGANIZATIONS:

THEORY-BASED EXPERIMENTAL STUDIES TO IMPROVE FOOD SAFETY CRISIS COMMUNICATION

By

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ABSTRACT OF THE DISSERTATION

Responsibility, Recalls, and the Reputations of Organizations: Theory-based Experimental Studies to Improve Food Safety Crisis Communication by FANFAN WU

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Food safety crises (incidents such as food contamination, foodborne illness outbreaks, food adulterations, etc.) are a major concern for the American public, the US government, and the companies processing food products. However, there is little empirical research specifically focused on food safety crisis communication that is helpful to optimizing the balance between the needs of public health and organizational reputation. In this dissertation, we use a theory-based experimental design to test the applicability of existing crisis communication theory (Situational Crisis Communication Theory, SCCT) to the unique circumstances posed by food safety crises. We also advance theory by proposing and testing a new categorization of food safety crises and new crisis communication strategies, taking into consideration different crisis stages and how a food safety crisis normally unfolds.

Two experiments were conducted using factorial experimental designs with a national representative sample of 743 and 1888 online participants, respectively. The experiments used the scenario of an unfolding food safety crisis involving a fictitious ice cream company (Goodman's) whose products are initially suspected as being the cause of a widespread outbreak of *Salmonellosis*. Together, the two experiments examined the main effects and interactions of initial crisis communication strategy

(deny responsibility for the outbreak without recalling suspected products, deny responsibility and recall products, and accept responsibility and recall products), linkage (whether the company is linked or not linked to the crisis), food safety crisis type (accidental - crises caused by accidents such as technical error, omission preventable – crises caused by failures to comply one's obligations, and commission preventable - crises caused by intentional wrongdoing), follow-up crisis communication strategy (deny responsibility with scapegoating - to disconnect the organization from the crisis by blaming others, diminish – to downscale the perceived damage, rebuild with responsibility – to take responsibility and apologize, and rebuild without responsibility – to take corrective actions without taking responsibility and apologizing), and message framing (thematic - focuses on organizational responsibility vs. episodic - focuses on individual responsibility, and victim-centered - focuses on the victim vs. victim-free - focuses on involved organization) on public responses to an unfolding food safety crisis (Time Point 1 - breakout of crisis, Time Point 2 - confirmation of whether the company is involved, Time Point 3 identification of the cause of crisis, Time Point 4 - release of company statement using follow-up crisis communication strategy).

Our results suggest a less negative public response when the suspected company turns out to be not linked to the crisis than when it turns out to be linked. The public makes a distinction between accidental and preventable crisis, with a preventable crisis generating the most negative public response. Interestingly, the public also makes a distinction between omission and commission preventable crises when it comes to attribution of responsibility and perception of appropriate legal outcomes, but sees them similarly with respect to post-crisis attitude and behavioral intentions. Our results also show that having a recall as a component of the initial communication strategy is extremely important for a company to restore public postcrisis attitude and behavioral intentions, regardless the type of crisis. Moreover, the rebuild with responsibility and apology follow-up strategy generates the most favorable public response to a food safety crisis.

Our study highlights that a crisis represents an ongoing process and that companies should issue communications (initial communication strategy and followup communication strategy) appropriate to each stage. Our findings demonstrate the importance of having a corrective action (a recall) at the early stage of a food safety crisis to protect public health, as well as organizational reputation. Furthermore, these results also underline the advantage of taking responsibility and offering apology in restoring organizational reputation and behavioral intentions.

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CHAPTER ONE Introduction

Food safety problems are a major concern for both the American public and for the US government (W. K. Hallman & Cuite, 2009). The US Centers for Disease Control and Prevention (CDC) estimates that about 1 in 6 Americans (48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases each year (Scallan et al., 2011). In addition, food allergens can result in severe or even lifethreatening anaphylactic reactions (Gendel, 2012). Therefore, accidental or purposeful contamination, adulteration, or mislabeling of foods containing pathogens or allergens represents a condition that may pose a serious threat to public health. To reduce (or prevent) adverse health impacts associated with such products, it is important to identify them as quickly as possible and to warn the public not to consume them. As a result, a Class 1 recall of the implicated products is likely to be triggered to prevent consumer exposure to the contaminants. The term "food safety crisis" in the proposed study refers to incidents that involves food contamination, food adulteration, foodborne illness outbreaks, mislabeling involving allergens, and similar incidents that would represent a threat to public health and would likely result in major food recalls and other actions designed to reduce that threat.

In addition to the potential threats to public health, food safety crises can also represent major threats to the economic and reputational viability of the companies held responsible, and to the credibility of the government agencies tasked with ensuring the safety of the food supply (Benjamin Onyango, 2010; Verbeke, 2001; Wansink, 2005). Thus, effective crisis communication is crucial to respond to food safety crises – for the public's safety and for the viability of companies and government agencies. However, the systematic study of how to do so is still in its infancy (W. K. Hallman & Cuite, 2009). While many of the practices of general crisis communications also apply to food safety crises, their very real threat to public health, and the special place that food holds in society and within individual psychology, makes food safety crisis communication unique in several ways (Gaspar et al., 2014; W. Hallman, Cuite, & Hooker, 2009; W. K. Hallman & Cuite, 2009; Kumar & Budin, 2006).

The central problem is that while the priority of any food safety crisis communication must be to protect public health, doing so often creates important additional challenges for the companies that manufacture and market food products, and for the government agencies that regulate them. Companies must work with authorities to issue food recalls when necessary to protect public health, while also minimizing unwarranted economic and reputational damage to themselves. In response to contamination incidents involving recalls, governments must issue effective warnings that motivate people to take appropriate action, without also unnecessarily frightening them, or leading them to avoid products not subject to the recall (W. K. Hallman & Cuite, 2009).

Unfortunately, there is little empirical research specifically focused on food safety crisis communication that is helpful to optimizing the balance between the needs of public health and organizational reputation. To address this issue, we use a theory-based experimental design to test the applicability of existing crisis communication theory to the unique circumstances posed by food safety crises. We also advance theory, by examining the specific kinds of food safety crises that typically occur, and the strategies that companies attempt to use to protect their reputations throughout different stages of a crisis, including efforts to issue a recall (or not), and to accept (or deny) responsibility for the crisis. Because there are so few studies that have specifically addressed effective communications within the context of food safety crises. Therefore, before exploring food safety crisis communication specifically, it makes sense to begin with the key concepts, theories, and prior research on general crisis and crisis communication that inform our current investigation.

1. Crisis

1.1. Crisis: Definition and Impacts

Crises constitute more than simple problems or troubling events (Fearn-Banks, 2010; Ulmer, Sellnow, & Seeger, 2011). Scholars suggest that those events called "crises" have certain traits that distinguish them from more routine problems. Hermann (1963) has identified three unique characteristics of crises, namely "surprise, threat, and short response time" (Hermann, 1963; Ulmer et al., 2011). Thus, to be considered a crisis, an event (or series of events) would typically be unexpected (surprise), create existential challenges beyond the routine problems that organizations typically face (threat), which should be addressed swiftly to limit potential damage (short response time) (Ulmer et al., 2011). According to Coombs, a crisis is "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes." (W Timothy Coombs, 2014) Fearn-Banks similarly describes a crisis as "a major occurrence with a potentially negative outcome affecting the organization, company, or industry, as well as its publics, products, services, or good name." (Fearn-Banks, 2010)

The negative outcomes caused by a crisis can impact two major groups. The first one involves an organization's various stakeholders. There are different definitions of "stakeholders"; here we refer to a stakeholder as "a person or group that

is affected by, or can affect an organization." (Bryson, 2004) As such, the most common stakeholders for companies and organizations are the public that they serve. Stakeholders can also be negatively affected at different levels (ranging from encountering minor inconveniences, up to life threats) whenever there is a product failure or tampering. Coombs states "Crises can harm stakeholders physically, emotionally and/or financially. Wide arrays of stakeholders are adversely affected by a crisis including community members, employees, customers, suppliers and stockholders." (W Timothy Coombs, 2007)¹⁵ For example, people can be sickened by the contaminated food; workers of the company may lose their jobs; and stockholders of the company might suffer from financial damage.

The second group that would be negatively affected is the organization responsible (or perceived to be responsible) for the crisis. Again, "organizations" can be defined in different ways. In this paper, the word "organization" can represent a company, or a governmental or non-governmental entity (Capozzi, 2013; W Timothy Coombs, 2007). It is not difficult to understand that the threats posed by crises can be catastrophic to organizations. A crisis can disrupt an organization's operations, negatively affect its finances and reputation, and sometimes even pose threats to the continued existence of the organization (W. Timothy Coombs, 2007; W Timothy Coombs, 2007; Fearn-Banks, 2010). For example, Hurricane Katrina led to intense criticisms of the Bush Administration (Garnett & Kouzmin, 2007); Enron filed for bankruptcy in 2001 (which was considered to be the largest bankruptcy reorganization in American history at that time) after the "Enron scandal" (Ulmer et al., 2011); and in 2008, melamine-adulterated infant formula directly led to the bankruptcy and demise of the Sanlu Group, one of the largest dairy companies in China (Kong, 2012).

Even though crises may often result in negative outcomes for organizations, they can also create opportunities. It is interesting that in Chinese, the word for "crisis" ("危机") is built up by two Chinese characters: "危" (danger/threat) and "机" (opportunity). Ulmer et al. defines an organizational crisis as "a specific, unexpected, and non-routine event or series of events that create high levels of uncertainty and simultaneously present an organization with both opportunities for and threats to its high-priority goals." (Ulmer et al., 2011) Martinelli and Briggs also state "a crisis can be seen as an opportunity to demonstrate the organization's commitment to responsible behavior and to outline the steps being taken to eliminate the problem." (Martinelli & Briggs, 1999) As an example, in 1996, E.coli contaminated fresh juice products from Odwalla, Inc. (a California based organic foods company), which resulted in the death of an infant and serious illness in 60 adults. The CEO of the company quickly informed the public, issued a recall of the contaminated products, and took immediate actions to ensure product safety. The company further examined the process of fresh juice production after the crisis, and started applying flash pasteurization, which has subsequently been adopted generally by juice companies. As a result, the company is stronger than it had been, and sales (which dropped dramatically immediately after the crisis) have increased tremendously (Kumar & Budin, 2006). Thus, it is clear that despite the immediate threats and potential damage caused by a crisis, with appropriate communications and responses, the responsible organization can create opportunities to improve its reputation and future development.

In addition to the threats and potential opportunities crises may create for the specific organizations involved, organizations not directly involved in the crises may be affected as well. Indeed, reputational damage to the organization held to be

responsible for the crisis may create opportunities for other competitor organizations (Laestadius, Lagasse, Smith, & Neff, 2012). Conversely, it can also have negative impacts (spillover effects) on similar or connected organizations (Gao, Knight, Zhang, & Mather, 2013).

Finally, it is important to appreciate that "a crisis is unpredictable but not unexpected", and "no organization is immune from crises." (W Timothy Coombs, 2007, 2014) Thus, it is crucial to have a better understanding of crisis and crisis communication so that one can best prepare for "expected unpredictable" crises that could happen at any time.

1.2. Crisis: Types

Despite some similarities shared by all crises, there are different types of crises based on different criteria. When reviewing the literature on crisis and crisis communication, one can see different typologies, such as natural disasters, rumors, technical-error accidents, human-error accidents, etc. (W Timothy Coombs, 2014; Egelhoff & Sen, 1992; Pearson & Mitroff, 1993). Further, Quarantelli and Dynes (1977) classify crises into consensus crises (people reach an agreement on the meaning of the situation and responses to it) and dissensus crises (the meaning and proper responses to the situation are controversial) (Quarantelli & Dynes, 1977). Dutta and Pullig argue that crises can be defined as performance-related (involving defective products) or values-related (involving social or ethical issues) (Dutta & Pullig, 2011). Ulmer classifies crises as either unintentional or intentional (Ulmer et al., 2011), while Heath and Palenchar propose the categories of internal crises (poor operational procedures) and external crises ("acts of God") (Heath & Palenchar, 2008).

Coombs divides crises into three clusters, based on the attribution of responsibility for the crisis: a victim cluster, an accidental cluster, and a preventable cluster (W. Timothy Coombs, 2007; W Timothy Coombs, 2007; W. Timothy Coombs & Holladay, 2008). We believe that attribution of responsibility for the crisis has important implications for crisis communications, and argue that because of the unique nature of food safety crises linked to foodborne illnesses, there are likely to be important subtypes within each cluster, which we describe in Section 3.3.

1.3. Crisis: Stages

Another critical concept to consider regarding a crisis is its stages. Crises are not typically singular events, but rather represent an ongoing process with different stages that evolve one after another. As one of the first researchers to evaluate crisis as an extended event, Fink proposes that crises have four stages: prodromal (when there is the presence of hints of a potential crisis), crisis breakout (when the actual crisis event occurs), chronic (when the crisis and efforts to clean it up progresses), and resolution (when the crisis is over) (W Timothy Coombs, 2014; Fink, 1986). Since then, researchers have suggested different models and stages for crises. For example, Mintroff identifies (1994) five stages of crises: signal detection (when the warning signs of a crisis become apparent), probing and prevention (when efforts of preventing the crisis were applied), damage containment (when the crisis happens and damages occurs), recovery (when the organization starts to recover from the crisis), and learning (when the organization summarize and learn from the past crisis experience) (Mitroff, 1994). Coombs divides a crisis into three macro stages: precrisis (encompasses all crisis preparation), crisis (includes all crisis action events), and postcrisis (reflects time after the crisis) (W Timothy Coombs, 2014). In the Crisis and Emergency Risk Communication Model (CERC), Reynolds and Seeger present a 5stage model for crisis and emergency risk communication: precrisis (risk messages; warnings; preparations), initial event (uncertainty reduction; self-efficacy; reassurance), maintenance (ongoing uncertainty reduction; self-efficacy; reassurance), resolution (updates regarding resolution; discussions about cause and new risks/new understandings of risk), and evaluation (discussions of adequacy of response; consensus about lessons; new understandings of risks) (B. S. Reynolds, Galdo, & Sokler, 2004). Finally, Jordan-Meier divides crisis into four stages: stage one – fact-finding (confirmation of basic details of a crisis), stage two – the unfolding drama (the initial facts about the incident are available for discussion), stage three – finger-pointing stage (attribution of blame, key question at this stage is "why"), and stage four – resolution and fallout (marks the end of a crisis) (Jordan-Meier, 2011).

These models for crisis stages share something in common: they all recognize a crisis as an ongoing process subject to changes (W Timothy Coombs, 2014). The differences among these models lie in the fundamental emphasis of the researchers. For example, Sturges has adopted and elaborated on Fink's four-stage model to underline the importance of different actions at different stages. He points out that "instructing information" and "adjusting information" are required at the crisis breakout and chronic stages to inform the public how to protect themselves from potential harm, whereas "reputation management information" should be released at the resolution stage since "stakeholders would be receptive to these messages once the crisis ends" (Sturges, 1994). In this case, Sturges' use of Fink's stages reflects his emphasis on crisis communication to protect and restore an organization's reputation. CERC, on the other hand, is promoted by the Centers for Disease Control and Prevention (CDC) and is mostly used to guide crisis and emergency risk communication by the public health or related authorities. As such, CERC highlights two-way crisis communication at each stage as means to protect public health rather than to restore organizational reputation. Meanwhile, Jordan-Meier's four stages of crisis, which fall into the "crisis" stage in Coombs' three-stage model, are divided based on different foci of media reports during a crisis.

Although the ways of dividing crisis stages are different, the reasoning for doing so is essentially the same, that is – the crisis communication strategy adopted should be responsive to the ongoing crisis as it evolves. For crisis communications to be effective, one needs to react to the stages of crisis and the public perceptions at each stage differently (W Timothy Coombs, 2014; B. S. Reynolds et al., 2004; Sturges, 1994). As Coombs states, "The demands of the crisis stage dictate what crisis managers can and should be doing at any particular time." (W Timothy Coombs, 2014)

2. Crisis Communication

2.1. Crisis Communication: Concepts

When an organizational crisis happens, immediate and effective crisis communication is required. As discussed, a crisis can pose negative effects on both the organization and its stakeholders. Accordingly, to address the negative outcomes from a crisis, effect crisis communication must be targeted at both groups. That is to say, there are two goals for organizational crisis communication: (1) protect the public or other stakeholders who are threatened; and (2) minimize organizational damage.

Much of crisis communication theory and advice refers to communicating with "the public" (Herrero & Pratt, 1996). As with "stakeholders", there are many different definitions of "the public". Lukazweski (1997) states that the "public" can be the victims affected by the events, the relatives and families of the victims, the employees, and the news media (Lukaszewski, 1997). Informed by Jin et al., we will refer the public as people who "(1) are most affected by the crisis; (2) share common interests and destiny in seeing the crisis resolved; and (3) have long-term interests and influences on the organization's reputation and operation." (Jin, Pang, & Cameron, 2007)

If a crisis poses any threat to the public or any stakeholders, "the first priority in any crisis is to protect stakeholders from harm" (W Timothy Coombs, 2007). During a crisis, especially the outbreak stage (early stage) of a crisis, members of the public need information to protect themselves. In this case, the CDC describes crisis communication as it is "most often used to describe an organization facing a crisis and the need to communicate about that crisis to stakeholders and the public"; and that crisis communication is "a vital component to help people cope and begin to rebuild a sense of order and understanding in their lives" and "to efficiently and effectively reduce and prevent illness, injury, and death and return individuals and communities to normal." (B. S. Reynolds et al., 2004) Sturges suggests that there should be three pieces of crisis communication information, two of which should address threats posed to stakeholders. First, the government and responsible organizations should provide "instructing information" to the public, to tell stakeholders how to react to the crisis both physically and financially (Sturges, 1994). For example, an organization may issue a press release to instruct the public to identify and destroy/return/avoid contaminated food products during a recall or foodborne illness outbreak. Sturges posits that the second critical piece of crisis communication information should be "adjusting information", information to reduce uncertainty and stress, to help people psychologically cope with the crisis (Sturges, 1994).

Sturges' third component of crisis communication information, which is also the component that receives the most attention, is reputation management information. This is information that people will use to formulate an image about the organization. Reputation management information aims at rebuilding the damaged reputation and image of an organization, to minimize the threats posed to the organization by a crisis (Sturges, 1994). Most definitions of crisis communication focus on this component, for example, the definition offered by Fearn-Banks says, "crisis communications is the dialog between the organization and its public(s) prior to, during, and after the negative occurrence. The dialog details strategies and tactics designed to minimize damage to the image of the organization. Effective crisis management includes crisis communications that not only can alleviate or eliminate the crisis but also can sometimes bring the organization a more positive reputation than it had before the crisis." (Fearn-Banks, 2010)

To achieve the goals of crisis communications, communicators actually need to adopt different strategies to affect public perception. As Benoit pointed out, perception is more important than reality. Even when an organization is not responsible for a crisis, it may experience the negative effects of being held responsible for a crisis if the public believes it is to be blamed (Benoit, 1995). Coombs takes it further by defining crisis as "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcome." (W Timothy Coombs, 2014) Thus, to understand public perception of crises, the responsibility of crises, and the crisis communication strategies will be extremely important.

2.2. Crisis Communication: Theories

Crisis communication is multi-disciplinary, in that to be effective, it requires a basic understanding of psychology, sociology, business, communication, and other disciplines. Researchers from these areas have provided their perspectives and developed theories to better understand the process of crisis communication. Some of the most influential theories include: Situational Crisis Communication Theory (W. Timothy Coombs, 2007; W Timothy Coombs, 2007, 2009; W Timothy Coombs & Holladay, 2002), Corporate Apologia Theory (Hearit, 1995; Weiner, 1986), Image Repair Theory (Benoit, 1995), Integrated Crisis Mapping (ICM) (Holmes, 2011), and social-mediated crisis communication model (SMCC) (Liu, Austin, & Jin, 2011). In this study, Situational Crisis Communication Theory (SCCT), a well-accepted and widely used theory in crisis communication research, is used to guide the study design and implementation (Claeys, Cauberghe, & Vyncke, 2010).

Derived from Attribution Theory (Weiner, 1985, 1986), Situational Crisis Communication Theory (SCCT) draws upon experimental methods (instead of case studies) and social-psychological theory (W. Timothy Coombs, 2007; W Timothy Coombs, 2007, 2009, 2013, 2014). SCCT identifies key factors likely to affect crisis attributes, how organizations can adopt the most effective crisis communication strategies that best fit the specific crisis situations; and most importantly, how the public and other stakeholders will likely respond to different crisis communication strategies (Figure 1).

Coombs notes that an organization's reputation is important, benefitting it in various ways, including attracting consumers and investors. When a crisis happens, the organization can face reputational threats that may endanger its survival. Since reputations are evaluative and are developed through stakeholders' perceptions of organizations, the negative view of the involved organization during a crisis can lead to lasting reputational damage. To protect an organization's reputation, it is important to understand the factors that can affect it during crises. SCCT proposes that when an organizational crisis happens, initial crisis responsibility and crisis response strategies can shape public perceptions of that crisis and affect organizational reputation. Crisis history (whether or not an organization has had a similar crisis in the past) and prior relationship reputation (the relationship between stakeholders and the company before the crisis) are two intensifying factors that also play important roles in organizational reputation threat.

SCCT identifies three crisis clusters based upon attribution of crisis responsibility: (1) the victim cluster, (2) the accidental cluster, and (3) the intentional cluster. Key to these clusters is that the greater the perceived responsibility the organization has for causing the crisis, the greater the threat to the organization's reputation.

Organizations faced with a crisis associated with the "victim cluster" are considered to be victims of crises instead of being responsible for them. Examples of such crises are natural disasters ("acts of God", such as earthquakes and hurricanes), rumor (damaging but false information about organizations), workplace violence former employee attacks employees (when а current or onsite), and malevolence/product tampering (when an external agent causes damage to an organization). Because the organizations are considered to be victims of crises, they typically experience mild reputational threat.

Organizations faced with a crisis that falls within "the accidental cluster" are also seen has having little responsibility for causing the crisis, because they lack control over the event, or the crises are caused by unintentional actions. Examples of crises within this cluster are challenges (when stakeholders consider organizations are operating in an inappropriate manner), technical-error accident (an industrial accident caused by a technology or equipment failure), and technical-error product harm (a product is recalled because of a technology or equipment failure). This type of crises is thought to pose moderate reputational threat to organizations.

In contrast, organizations faced with crises belonging to the "preventable cluster" are seen has having primary responsibility for the crisis because they intentionally took inappropriate or unlawful actions that caused the crisis, and thus put stakeholders at risk. Examples of crises within this cluster are human-error accidents (an industrial accident caused by human-error), human-error product harm (a product recall due to human errors), organizational misdeed with no injuries (stakeholders are deceived, but without injury), organizational misdeed management misconduct (management make decisions which violate laws or regulations), and organizational misdeed with injuries (management makes decisions which violate laws or regulations and lead to injuries). Crises within this cluster happen due to intentional organizational misconduct and sometimes cause injuries, thus, organizations have strong attribution of crisis responsibility and typically experience severe reputational threat.

When an organizational crisis occurs, the organization first needs to evaluate the potential reputational threat by identifying the crisis type (initial crisis responsibility). As previously stated, crises in the intentional cluster pose the most severe reputational threat, followed by the accidental cluster crises, and the victim cluster crises. However, the crisis type is not the only factor that determines the severity of reputational threats in a crisis. Two intensifying factors (crisis history and prior reputation) also play important roles. Faced with the same type of crisis, an organization with no prior crisis history and an existing favorable reputation is likely to experience less reputational threat than an organization with a history of crises and/or an existing unfavorable reputation.

In addition to describing the different types of crises and intensifying factors, SCCT further identifies strategies that have been used or can be used in crisis communication. These include three primary crisis response strategies: denial, diminish, and rebuild; and three secondary/bolstering crisis response strategies: reminding, ingratiation, and "victimage".

The denial strategy attempts to disconnect the organization from the crisis. In implementing a denial strategy, an organization could "attack the accuser" (confronting the person or group that claims that a crisis exists), engage in "denial" (state that no crisis exists), and/or "scapegoating" (state that some other person or group outside of the organization is to blame for the crisis).

The diminish strategy attempts to make people believe that the crisis is not as bad as it seems, or that the organization lacked control over the crisis. To carry out a diminish strategy, an organization could use "excusing" (attempting to minimize the organization's responsibility for the crisis by claiming the crisis is unintentional or the organization has no control over it) or "justification" (trying to minimize the perceived damage associated with the crisis).

The rebuild strategy seeks to improve the organization's reputation by focused actions. These rebuilding strategies, include offering "compensation" (by providing money or other gifts to the victims) or an "apology" (by publicly taking full responsibility, apologizing for the crisis, and asking for forgiveness).

To achieve better outcomes, organizations can also use secondary/bolstering crisis response strategies together with the primary crisis response strategy. The "reminding strategy" highlights the prior good works of the organization. "Ingratiation" involves praising of stakeholders and/or reminding them of the past good works of the organization. "Victimage" emphasizes that the organization is a victim of the crisis as well.

SCCT suggests that to protect organizations from the reputational damage of crises, organizations should first evaluate reputational threats by assessing the initial crisis responsibility (type of crisis) and two intensifying factors. Then, crisis communication strategies should be adopted that appropriately match the perceived responsibility and reputational threats.

SCCT also touches on the role of emotion during crisis communications. Crisis responsibility and crisis communication strategies can trigger emotional reactions in separate pathways. In particular, perceptions of greater responsibility for a crisis can lead to an increase in anger and a decrease in sympathy for the organization; while different crisis communication strategies under different circumstances (different crisis types) can trigger different emotions as well (for example, victimage might evoke sympathy for the organization).

In summary, SCCT offers a framework for crisis evaluation and crisis communication. During a crisis, organizational reputation can be affected by initial crisis responsibility, crisis history, and prior relationship reputations. Reputation will also be affected by the crisis response strategies chosen by organizations to deal with the crisis. Crisis responsibility and crisis response strategies could also generate different emotions among stakeholders. The combination of the emotions evoked during a crisis and the organization's reputation during the crisis further affect the behavioral intentions of stakeholders, which will have tremendous impacts on the organization. Thus, organizational reputation and stakeholders' emotions are two key factors that need to be addressed in order to protect an organization from the threats posed by a crisis.

2.3. Current Knowledge of Crisis Communication

2.3.1. Strategies

According to SCCT, managers of organizations should adopt "appropriate" crisis communication strategies after examining the crisis types/responsibility, crisis history, and prior relationship reputation, which together determine reputational threats posed by the crisis (W Timothy Coombs, 2007). In other words, crisis communication strategies adopted by organizations should match the reputational threats, especially the crisis type.

Claeys et al. tested this hypothesis using an experimental design (Claeys et al., 2010). They presented combinations of three crisis types (victim crisis, accidental crisis, preventable crisis) and three crisis response strategies (deny, diminish, and rebuild) to 316 participants and assessed perceptions of organizational reputation after the experiment. The results showed that, as proposed by SCCT, preventable crises are associated with the most severe reputational threat. However, the reputational perceptions were not significantly different between the accidental cluster crises and the victim cluster crises. They also found that in terms of reputation restoration, rebuild strategies are the most effective strategy for preventable crises, compared with diminish strategies.

Dutta and Pullig categorized brand crises (brand-related adverse events) into two major types: 1) performance-related (crises involve defective products) and 2) value-related (crises that don't involve defective products but do involve social or ethical issues) (Dutta & Pullig, 2011). They also analyzed the relationship between crisis type and crisis communication/response strategy by adopting three of Benoit's typology of response types (denial – simple denial or shift the blame, reduction-ofoffensiveness – reduce the perceived offensiveness of the wrongful act, and corrective action – plan to solve or prevent problems) (Benoit, 1997). The results confirmed that the effectiveness of crisis response strategies is associated with the type of crisis. Specifically, they found that: 1) corrective action is the most effective response strategy for performance-related crises; 2) reduction-of-offensiveness and corrective action are equally effective for value-related crises in most cases, with the exception that corrective action is more effective for crises involving internal values (i.e., psychological risk perception); and 3) denial is not effective in either crisis type (Dutta & Pullig, 2011).

2.3.2. Framing

Framing is another important topic in crisis communication studies. According to Entman, framing means telling a story by selecting certain elements to "promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." (Entman, 1993)

Researchers have proposed different ways of categorizing framing. Druckman proposes that there are two levels of frames: frames in communication and frames in thought (Druckman, 2001). Frames in communication is the way information is framed and presented to an audience (words, phrases, images, etc.), while frames in thought refers to the cognitive structure of information which people use to interpret meaning (scripts and schema). Hallahan proposes "seven models of framing", namely: (1) situational framing (framing of situations; provides a structure for examining communication), (2) attributes framing (focusing on positive or negative attributes), (3) choice framing (providing alternative choices when uncertainty is involved), (4) action framing (information is framed in a way that certain desired actions might be undertaken by individuals), (5) issue framing (providing alternative terms preferred by different parties which are disputed with respect to certain issues, with the goal of better presenting the issue), (6) responsibility framing (framing an event in a way of identifying attribution of responsibility), and (7) news framing (how stories are portrayed by the media) (Hallahan, 1999). Pan and Kosicki suggest four structural dimensions of news frames: (1) syntactical (messages are arranged in a certain sequence); (2) script (messages provide a description of certain event); (3) thematic (different themes involved in messages); and (4) rhetorical structures (different writing styles of messages) (Pan & Kosicki, 1993).

In summary, there are various ways to "frame"/describe a crisis, which may serve particular purposes for the presenter of the crisis. While the nature of the crisis itself influences how the public perceives and responses to it, how the crisis is described/framed is also crucial in affecting public's perception. A growing body of literature shows that different framing of crises have different impacts on the way stakeholders perceive crises.

It has been shown that the way information is framed (i.e., emotional versus rational framing) will affect individuals' willingness to examine the information and affect consumers' evaluation of organizational messages (McKay-Nesbitt, Manchanda, Smith, & Huhmann, 2011; Yoo & MacInnis, 2005). Claeys and Cauberghe examined the effects of framing (emotional or rational) on respondents' attitude toward the organization in crisis and showed differences in these two framings (Claeys & Cauberghe, 2014). The researchers tested the effect of framing under two circumstances: 1) the crisis response strategy matches the crisis type, and 2) the crisis response strategy does not match the organization under either condition

(match or mismatch) when respondents received emotionally framed crisis communication information. However, in the case of rational framing, the respondents had higher positive attitudes toward the organization when the communication strategy matched the crisis type.

An tested the effects of different types of framing on stakeholders' emotion (anger) and blame (An, 2011). She found that in an internal crisis (i.e. resulting from poor operational procedures), episodic framing (which emphasizes individual responsibility, e.g., blame one worker) led to higher blame and anger in stakeholders than thematic framing (emphasizing organizational responsibility). Furthermore, immorality framing (emphasizing an organization's immoral behaviors in a crisis) generated higher blame and anger in stakeholders than framing that did not focus on immorality.

Cho and Gower propose that there is a relationship between the framing of a crisis, emotion, and the perception of and response to a crisis, in that: different crisis framings can lead to different emotions, which will result in different perceptions of and responses to a crisis (Cho & Gower, 2006). They examined the hypothesis in an experimental study, and found that human interest framing (which "puts a human face and emotional angle to the presentation of an event") can significantly influence people's emotions during a crisis. For both preventable and accidental crises, participants exposed to human-interest framing showed more empathy about the crisis. The difference is that the participants' emotional response generated by human-interest framing did not lead to negative evaluations of the company in an accidental crisis. In contrast, in a preventable crisis, the participants to blame the company.

Kim and Cameron found that different emotion-based framings elicit different ways of information processing, which we will discuss in the following 2.3.3. Emotions section (H. J. Kim & Cameron, 2011). In a study conducted by Cerulo et al., the authors discovered that discursive style, sequential structure, social interaction factors, sequencing, and message framing all play important roles in public's forgiveness in response to apologies. They also found that victim-centered framed atonement is associated with greater public forgiveness, compared to victim-free framed atonement (Cerulo & Ruane, 2014).

To sum up, all of these studies suggest that framing plays an important role in a crisis and in crisis communication, potentially affecting stakeholders' emotions, attributions of responsibility, and perceptions of and responses to a crisis.

2.3.3. Emotions

The public's perception of a crisis is not only affected by the nature of the crisis itself, but also the emotions elicited by the crisis (Carver & Blaney, 1977). Studies have shown that emotions can affect individual preferences and attitudes. However, very few studies have examined how emotions can affect attribution of responsibilities/blame and differences in information processing (Malhotra & Kuo, 2009).

According to integrated crisis mapping (ICM), different types of crises may generate four primary negative emotions (anger, sadness, fright, and anxiety), which will further impact stakeholders' perceptions of crises (Jin et al., 2007; H. J. Kim & Cameron, 2011). SCCT also stresses the importance of emotion in crisis communication by emphasizing that crisis responsibility and crisis response strategies can generate different emotions among stakeholders and further affect their behavioral intentions (W Timothy Coombs, 2007). As discussed in 2.3.2., frames had impacts on people's information processing (H. J. Kim & Cameron, 2011). Specifically, they found that anger elicited by an anger-inducing news frame led to heuristic processing; while sadness elicited by a sadness-inducing news frame led to systematic processing. They also found that anger-inducing news, which led to the emotion "anger" in participants, was associated with more negative attitudes toward the company, compared to sadness-inducing news. Moreover, when people were exposed to a sadness-inducing news story and experienced "sadness" as the main emotion with respect to a crisis, a relief-focused crisis response strategy (frame the corporate messages by emphasizing that the victims have received proper treatment) is more effective than a punishment-focused strategy (frame the corporate messages by emphasizing how the company will be punished). Their study also showed that people who read messages with emotional appeals (compared to those people who read messages that did not include emotional appeals) had higher behavioral intentions, which supports Coombs' SCCT framework.

3. Food Safety Crisis

3.1. Definition and Importance

As stated at the beginning, in this study "food safety crises" refer to incidents such as food contamination, foodborne illness outbreaks, food adulterations, etc., which might eventually result in major food recalls or other actions designed to reduce or prevent threats to public health.

With the increasing globalization of the food supply chain (Anderson, 2000), weakness in government oversight even within an elaborated food safety system (Bellows, Alcaraz V, & Hallman, 2010; Benjamin Onyango, 2010), and ongoing bacterial mutations and adaptations (Kriflik & Yeatman, 2005), food safety crises are a worldwide issue with growing frequency. In the US, food safety crises have resulted in major food recalls in the past decade. For example, the 2006 foodborne illness outbreak involving spinach involved 200 cases of reported infections of E. coli O157:H7 nationwide, resulting in more than 100 cases of hospitalization, 31 cases of hemolytic uremic syndrome (HUS, a kidney failure), and three deaths (Cuite, Condry, Nucci, & Hallman, 2007). Beyond the public health impacts, the resulting recall also caused an estimated loss of \$74 to 100 million dollars to the spinach industry (Hirsch, 2007). The Salmonella Saintpaul outbreak of 2008 involved 1500 cases of infection in 43 states, among which 21% were hospitalized, and the infection is suspected of causing two deaths (Barton Behravesh et al., 2011). The outbreak strain was first identified as being associated with consuming tomatoes, which has been proven to be unlikely, and then identified as being associated with consumption of jalapeno and serrano peppers grown in Mexico. The Iowa farm eggs recall of 2010, the largest egg recall in US history, was associated with nearly 1939 cases of Salmonella Enteriditis infection, and led to the recall of more than 500 million eggs ("Investigation Update: Multistate

Outbreak of Human Salmonella enteritidis Infections Associated with Shell Eggs," 2010; Laestadius et al., 2012). The Jensen Farms cantaloupes recall of 2011, the largest listeriosis outbreak in U.S. history, was associated with 147 illnesses, 33 deaths, and 1 miscarriage ("Multistate Outbreak of Listeriosis Associated with Jensen Farms Cantaloupe --- United States, August--September 2011," 2011). These, and numerous other cases illustrate the public health threats posed by food safety crises ("Morbidity and mortality weekly report: vital signs, incidence and trends of infection with pathogens, transmitted commonly through food, 1996 to 2010," 2011).

As already noted, food safety crises can also cause economic losses and reputational threats to individual organizations. For example, the 2009 Peanut Corporation of America peanut products recall led to both the bankruptcy of the company and jail terms for key management (Goetz, 2013). Food safety crises can even put an entire industry in danger, such as the beef industry in Europe, which was compromised due to bovine spongiform encephalopathy, BSE, also known as mad cow disease (Verbeke, 2001; Wansink, 2005). Moreover, food safety crises also lead to public trust issues with the government regulations and other food safety control systems and with general food policy (Benjamin Onyango, 2010; Verbeke, 2001). For example, the Food and Drug Administration (FDA) was criticized by the tomato industry and the media for initially pointing to the wrong source of the aforementioned *Salmonella* outbreak in 2008 (Irlbeck & Akers, 2010).

Despite their major impacts and resulting public concerns, food safety crises have continued to increase, especially in the US (Ollinger & Ballenger, 2003; Potter, Murray, Lawson, & Graham, 2012). The increase in recalls is partially due to the increase of biological hazards and the increasing ability to detect and identify particular strains of pathogens (i.e. *Salmonella, Listeria*, and *E. coli*) responsible for outbreaks of foodborne illness (W. K. Hallman & Cuite, 2009; Potter et al., 2012).

3.2. Crisis Communication in the Food Sector

Despite the common features shared with general crisis communication, food safety crisis communication is unique in several aspects. First, food safety crises are a major source of public concern (Gaspar et al., 2014). As Kumar stated, "there is nothing more personal to a consumer than what they physically ingest"; people have very different feelings for food products (Kumar & Budin, 2006). Moreover, researchers have suggested that factors such as voluntariness of actions, the level of
threat and dreadfulness, and controllability are tightly associated with feelings, emotions, and risk perception (Peter M Sandman, 1989; Slovic, Finucane, Peters, & MacGregor, 2004; Starr, 1969). Considering the high degree of involuntary exposure of food products, the high level of threat and the dreadfulness of the consequences posed by foodborne illness, and the controllability of food safety crises, it is not surprising that food safety crises often gain public and media attention and generate very intense emotional reactions (Chaudhuri, 1997; Fischer, De Jong, De Jonge, Frewer, & Nauta, 2005; Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978; Gaspar et al., 2014; Kumar & Budin, 2006).

Secondly, "instructing information" and "adjusting information" is extremely important in food safety crisis communication, since individuals need the information to implement coping strategies to avoid health or economic threats (Gaspar et al., 2014). To prevent illness and death, government agencies (such as CDC and FDA) and food organizations need to communicate with the public effectively (W. Hallman et al., 2009). It is challenging for both government agencies and organizations to successfully communicate about food safety crises, which focuses on warning and instructing consumers, without also potentially frightening them (W. Hallman et al., 2009; W. K. Hallman & Cuite, 2009).

3.3. Current Gaps in Scientific Knowledge and Rationale

Over the years, researchers in the field of food safety risk and crisis communication have proposed some best practices, based on empirical evidence. Hallman et al. note in a report that ten basic "best practices" rules should be applied when dealing with food safety crises: (1) the organization should give out an immediate response to the public; (2) the organization should be the first communicator; (3) the crisis communication should be honest, transparent, and open; (4) the organization should choose appropriate communication channels based on an identification and understanding of its audience; (5) the organization should collaborate and coordinate with credible news sources (such as government and major media); (6) the organization should meet the needs of media and keep reachable; (7) the organization should accept the fact that there will be uncertainty and ambiguity and be honest and open about it; (8) the organization should provide the public with information about the actions they're taking to resolve the problem(s); (9) the organization should provide clear instructions for the public; and that (10) the organization should adopt a victim-centered communication strategy so that the message the organization sends out would direct to those who have been harmed by the crisis. The report also points out the importance of social media and culturally appropriate communication in food safety crisis communication (W. K. Hallman, Cuite, & Wu, 2013).

However, as Hallman et al. also note, "The systematic study of effective [food] recall communications is in its infancy." (Benjamin Onyango, 2010) There are limited studies on food safety crisis communication, and most of the studies that have been conducted with regard to effective risk and crisis communication with respect to food safety crises have focused on only a single priority. They either investigate how to best communicate the risks to public health, or how to best protect an organization's reputation and economic viability, but not on how to do both at the same time. As already discussed, since food safety crises can pose major threats both to public health, and to the economic and reputational viability of the companies held responsible, organizations must make difficult decisions concerning how to prevent threats to public health, while also minimizing potential organizational damage. Thus, exploring crisis communication that can simultaneously accomplish the two goals has both theoretical importance and applied value.

SCCT is widely accepted as a useful theory to apply to crisis communication practice (Claevs et al., 2010). The different crisis types (victim, accidental, and preventable) and crisis communication strategies (denial, diminish, and rebuild) proposed by SCCT have been used and tested in various studies (Ma & Zhan, 2016). However, among those limited studies that have attempted to systematically examine food safety crisis communication using theory-based approaches, very few have applied SCCT concepts. In this study, we attempt to fill this gap, while also appropriately refining SCCT based on the unique characteristics of food safety crises. Informed by Shaver's conceptions of attribution of blame, we propose that in the context of food safety, the SCCT category of preventable crises can be further subdivided into two subcategories: omission food safety crises (an organization fails to do something which causes the food safety crisis) and *commission* food safety crises (an organization intentionally does something which causes the food safety crisis) (Shaver, 1985; Spranca, Minsk, & Baron, 1991). An example of an omission food safety crisis is the 2015 recall of Bull's-Eye-brand Barbecue Sauce produced by Kraft Canada Inc.. The recall was issued because an ingredient was not declared on the label ("Food Recall Warning (Allergen) - Bull's-Eye Hot Southern Cajun Barbecue Sauce recalled due to undeclared mustard," 2015). An example of a commission food safety crisis is the 2008 Salmonellosis outbreak caused by contaminated peanut butter products produced by the now defunct Peanut Corporation of America (PCA). Investigations revealed that the owner of PCA knowingly distributed contaminated peanut butter products, introducing them into interstate commerce (Goetz, 2013). Due to the differences in the nature of omission and commission crises, we further propose that they are likely to evoke different public responses.

As already discussed in section 1.3., recognizing different crisis stages and adopting different communication strategies in response are crucial to effective crisis communication (W Timothy Coombs, 2007, 2014; Jordan-Meier, 2011; Sturges, 1994). However, to our knowledge, no research has used an experimental approach to examine the efficacy of food safety crisis communication strategies at different stages of a crisis. Therefore, to examine the effects of crisis type and crisis communication strategy on public perceptions and behavioral intentions, our experimental manipulations are introduced to the participants within the context of an ongoing food safety crisis.

We use Jordan-Meier's four-stage model (Jordan-Meier, 2011) to guide our experimental design, for two reasons: First, the main focus of this study is on the actual crisis stage and its sub-stages, rather than the precrisis and post-crisis stages. That is, we focus on the unfolding events *during* the crisis rather than what happens before or after it. Secondly, we use mock news stories at different stages of the crisis convey information necessary to manipulate our independent variables (crisis type and initial communication strategies) as the crisis unfolds. Thus, Jordan-Meier's four-stage model, which addresses stages of crisis and media reports at each stage, is ideal for such purposes.

While incorporating crisis stage into our experimental design, we also make a distinction between the crisis communication strategies commonly adopted at the early (breakout) stage of a food safety crisis and those adopted at the later stages of such crises. We propose that at the initial stage of a food safety crisis (stage one - "fact-finding" of Jordan-Meier's four-stage model), the appropriate communication

strategies (referred to as "initial communication strategy" in this dissertation) differ from the general crisis communication strategies (denial, diminish, and rebuild) within SCCT, and are thus worth scrutiny. For example, at stage one of a food safety crisis involving a foodborne illness outbreak, a company's product might be pointed to as the potential cause of the outbreak. However, a great deal of uncertainty typically exists at this stage because information is often so limited that the real cause of the outbreak remains unclear. Thus, with little evidence at the initial "fact-finding" stage that the company is responsible, making apologies (the main component of a rebuild strategy) for causing the outbreak would likely be inappropriate.

Whether to accept or deny causal responsibility at the initial stage of a food safety crisis is a difficult decision for most companies. Assuming responsibility without definitive evidence that their company's product is involved risks publically accepting liability for damages that the company did not cause (Claeys & Cauberghe, 2012; W. Timothy Coombs & Holladay, 2008). However, denying responsibility at the initial stage of the food safety crisis may result in a significant threat to a company's reputation if the product is ultimately found to be the cause of an outbreak (W Timothy Coombs et al., 2016). Thus, when their products are initially implicated in a foodborne illness outbreak, companies must make a difficult choice under conditions of uncertainty. In response, risk communication consultant Peter Sandman suggests that companies may choose to adopt a strategy where they do not admit that they are responsible for the crisis, while also taking the appropriate actions as if they are responsible (Peter M Sandman, 1993; Peter M. Sandman, 2006). Because of the significant public health impacts associated with foodborne illness outbreaks, one of the appropriate actions may be to issue a recall to prevent additional exposures to affected products.

Issuing a product recall as a precautionary measure may make sense even when it is not certain that the suspected product is the cause of an outbreak. If the product is indeed the cause of an outbreak, failing to recall it may lead to additional illnesses, additional liability, and additional threats to the reputation of the company (W Timothy Coombs, 2016; W Timothy Coombs et al., 2016). The threat to reputation may be amplified if the public learns that the company had information that one of its products may have been the cause of the outbreak but failed to take action. In terms of public perceptions, this might turn what had been seen an accidental food safety crisis into a preventable food safety crisis.

However, food recalls can be extremely expensive (Golan et al., 2004; Pouliot & Sumner, 2008), so, the financial costs of recalling a product that turns out not to be the cause of a foodborne illness outbreak also has negative consequences. For example, the 2008 *Salmonella* Saint Paul outbreak was wrongly attributed to tomatoes, resulting in significant economic losses for tomato farmers and distributers (Barton Behravesh et al., 2011; Flynn, 2013). Similarly, the Spanish cucumber was wrongly accused as the source of the 2011 *E.coli* outbreak in Germany, which resulted a weekly loss of \$200 million for Spanish cucumber growers (Desk, 2015). There are potential reputational costs as well, as consumers may interpret the company's recall of its products as implying its acceptance of responsibility for causing the outbreak. Moreover, the public may associate the recall of a company's products with a foodborne illness outbreak long after those products are found not to have been the cause. Based on SCCT, having a history of prior recalls is also likely to be detrimental to a company's ability to recover from the reputational threats posed by future food safety crises (W Timothy Coombs, 2007). Therefore, the company's

issuance of a recall of its products for any reason may count against it in the event of a future recall.

Based on these considerations, food companies appear to adopt one of three main strategies at the initial stage of a food safety crisis: (1) denial without a recall (the company denies its association with the food safety crisis and thus issues no recall); (2) denial with a recall (the company denies its association with the food safety crisis but issues a recall as a precautionary measure); and (3) accept with a recall (the company accepts the potential association with the food safety crisis and thus, issues a recall). As such, we examine the potential effects of these three major initial communication strategies on public responses to a food safety crisis.

We also propose that at the later stages of an ongoing food safety crisis, a company should adopt a follow-up crisis communication strategy (referred to as "follow-up strategy" in this dissertation) to respond to the public and its other stakeholders. The follow-up strategies a company can use are those indicated in SSCT - denial, diminish, and rebuild.

To our knowledge, no study has systematically examined the effects of these communication strategies in responding to different types of food safety crises as they unfold. Thus, this study uses an experimental design embedded in a serious of unfolding events to create a better understanding of the main effects and interactions of food safety crisis type and crisis communication strategies at different crisis stages, on the public's response to such crises.

Furthermore, as discussed in section 2.3.2., different framings of the same crisis communication message can have different effects on individuals (An, 2011; Cerulo & Ruane, 2014; Cho & Gower, 2006). However, very limited research has examined these effects within the context of food safety crises. Thus, in this study, we

examine how different message framings can affect the public's responses to a specific food safety crisis communication strategy.

Because the main goal of this study is to examine the effects of crisis type, crisis communication strategy, and message framing on public responses to a food safety crisis, we included multiple measurements of public responses. These include the typically measured public response indicators (such as post-crisis attitude, attribution of responsibility and blame, behavioral intentions, etc.). Additionally, a recent research has shown - contrary to one would expect – that judgments of "ought" (one's moral obligation to do something) do not imply judgments of "can" (one's ability to do something), but do affect attribution of blame (Chituc, Henne, Sinnott-Armstrong, & De Brigard, 2016). Therefore, we also include moral obligations and abilities as our measurements to investigate the potential effects and interactions between obligation, ability, and attribution of responsibility and blame. Furthermore, because no research has examined the role of emotion in food safety crisis communication using a theory-based experimental study, we also include emotions as one of our measurements. Informed by Lazarus and Jin (Jin et al., 2007; Lazarus, 1991), we examine the role of four emotions (anger, fright, anxiety, and sadness) in food safety crisis communication in this study. Thus, we add information to the growing body of evidence that emphasizes the importance of emotion in crisis communication.

Legal liability and related issues are a crucial part of any food safety crisis event, as most major food safety crises resulting in death and injuries are followed by lawsuits. While crisis type and the intention of action are the keys to determinate whether the violators are subjecting to civil or criminal liability or both, and whether the violation is classified as felony or misdemeanor (Hutt, 1991; Marler, 2015), risk perceptions associated with emotions have important implication for shaping the law and related regulations (Ferrari, 2016). Despite the importance of this issue, there are very limited social psychological studies investigating public perceptions of legal outcomes of such crisis under an experimental condition. Thus, we fill this gap by measuring public perception of appropriate legal outcomes in this study.

To summarize, we use an experimental design to test the applicability of existing crisis communication theory to the unique circumstances posed by ongoing food safety crisis. We also advance the theory by examining the effects of specific kinds of food safety crises that typically occur, stages of food safety crises, stagespecific crisis communication, and message framing on public responses to food safety crisis.

As an attempt to get a better understanding of food safety crisis communication, this study is intended to help food companies find ways to protect public health during food safety crises. The results of this study can offer practical insights into how a food company can minimize reputational damage due to a food crisis, so that this will not be a disincentive for the company to effectively inform and warn the public about a food safety crisis, thereby protecting public health. Moreover, the novel sub-categories of food safety crisis types and stage-specific food safety crisis communication strategies proposed in this study will be broadly applicable to understanding and analyzing other crisis contexts and crisis communication strategies.

4. Research Questions

The main research questions for this study are:

Q1.What is the effect of initial crisis communication strategy on public responses to a food safety crisis?

- (1) Is the effect the same at different stages of a crisis?
- (2) Are there interactions between initial communication strategy and other factors?
- Q2. What is the effect of crisis type on public responses to a food safety crisis?
 - (1) Is the effect the same at different stages of such crisis?
 - (2) Are there interactions between initial strategy and other factors?
- Q3.What is the effect of follow-up crisis communication strategy on public responses toward a food safety crisis? Is there an interaction between follow-up strategy, initial strategy, and crisis type?
- Q4.What is the effect of message framing on public responses toward a food safety crisis?

Chapter 2 reports the results of an experimental study (Experiment 1) aiming to address Q1 and Q2. It also describes the experiment design and measurement development process. **Chapter 3** reports the results of another experimental study (Experiment 2) aiming to answer Q3 and 4. Experiment 2 was also a continuum of Experiment 1, exploring the effects of follow-up strategy and framing based on the results we found from the first experiment. **Chapter 4** concludes our findings from Experiment 1 and 2, and discusses the implications of our findings, as well as future directions.





CHAPTER TWO Effects of Initial Communication Strategy and Crisis Type on Public Responses toward Food Safety Crisis: A Theory-based Experimental Study

1. Introduction

Food safety problems are a major concern for both the American public and for the US government (W. K. Hallman & Cuite, 2009). The US Centers for Disease Control and Prevention (CDC) estimates that about 1 in 6 Americans (48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases each year (Scallan et al., 2011). Food allergens can also result in severe or even lifethreatening anaphylactic reactions (Gendel, 2012). Therefore, the discovery of accidental or purposeful contamination, adulteration, or mislabeling of foods containing pathogens or allergens represents a condition that may pose a serious threat to public health.

When foodborne illness outbreaks occur, or products are suspected to contain pathogens or allergens likely to cause serious illness or death, it is extremely important to identify the affected products as quickly as possible and to warn the public not to consume them. Thus, such events are likely to trigger a Class 1 recall of the implicated products to prevent consumer exposure to the contaminants. As such, the term "food safety crisis" in this study refers to such incidents involving food contamination, food adulteration, foodborne illness outbreaks, mislabeling involving allergens, and other incidents that would represent a threat to public health and would likely result in major food recalls and other actions designed to reduce that threat.

In addition to the potential threats to public health, food safety crises can also represent major threats to the economic and reputational viability of the companies held responsible (Benjamin Onyango, 2010; Powell, Jacob, & Chapman, 2011; Verbeke, 2001; Wansink, 2005). For example, the former Peanut Corporation of America filed bankruptcy after being held responsible for a Salmonella outbreak which led to nine death and 714 sickness across the U.S. and in Canada (Goetz, 2013; Powell et al., 2011). Chipotle, the Mexican Grill chain, reported a 6.8% (\$72.78 million) decrease in revenue and a 44.0% (\$53.35 million) decrease in net income due to multiple foodborne illness outbreaks linked to its restaurants in the U.S. in 2015 ("Chipotle Mexican Grill, Inc. Announces Fourth Quarter and Full Year 2015 Results; CDC Investigation Over; Chipotle Welcomes Customers Back to Restaurants," 2016). In addition to the impacts on the food companies themselves, food safety crises also pose major threats to the credibility of the government agencies tasked with ensuring the safety of the food supply (Benjamin Onyango, 2010; Verbeke, 2001; Wansink, 2005). For example, the Food and Drug Administration (FDA) was criticized by both the tomato industry and the media for initially pointing to tomatoes as the source of a Salmonella outbreak in 2008, while the culprit was later identified as jalapeno and serrano peppers grown in Mexico (Irlbeck & Akers, 2010).

Effective crisis communication is crucial to respond to food safety crises. However, the systematic study of crisis communications related to food safety is still in its infancy (W. K. Hallman & Cuite, 2009). While many of the rules of general crisis communications apply to food safety crises, their very real threat to public health, and the special place that food holds in society and within individual psychology, makes food safety crisis communication unique in several ways (Gaspar et al., 2014; W. Hallman et al., 2009; W. K. Hallman & Cuite, 2009; Kumar & Budin, 2006).

The central problem is that while the priority of any food safety crisis communication must be to protect public health, doing so often creates important challenges for the companies that manufacture and market food products, and for the government agencies that regulate them. Governments are faced with the need to effectively warn people without unnecessarily frightening them (W. K. Hallman & Cuite, 2009), and companies must appropriately cooperate with the government to issue food recalls when necessary to protect public health, while also minimizing unnecessary economic and reputational damage to themselves. Moreover, both the government and the companies potentially involved in a foodborne illness outbreak must often make decisions about what to communicate, when, and with whom, under conditions of uncertainty regarding the identity of the pathogen, the food items that may have been contaminated, and the vector responsible for the contamination.

1.1. Crisis and Crisis Communication

A crisis is "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes." (W Timothy Coombs, 2014) The negative outcomes caused by a crisis can impact two major groups - various stakeholders directly or indirectly affected by the crisis and the organization(s) responsible, or perceived to be responsible for the crisis.

To protect the public from the potential threats posed by a crisis, timely communication is required to provide "instructing information" (telling stakeholders how to react to the crisis both physically and financially) and "adjusting information" (to reduce uncertainty and stress to help people cope with the crisis psychologically) (Sturges, 1994). On the other hand, to minimize the threats posed to the organization by a crisis, communication containing "reputation management information" (information that people will use to formulate an image about the organization) is essential and has received most attention (Sturges, 1994). Moreover, researchers also point out that despite the immediate threats and potential damage caused by a crisis, with appropriate communications and responses, the responsible organization can create opportunities to improve its reputation and future development (Ulmer et al., 2011). Thus, effective crisis communication is crucial not only to protect the public and other stakeholders who are threatened, but also to minimize organizational damage.

1.2. Crisis Communication Theory

Crisis communication is a multi-disciplinary area, which requires a basic understanding of psychology, sociology, business, communication, and other areas of scholarship. Researchers from all of these areas have provided their perspectives and developed theories to better illustrate the process of crisis communication. Some of the most influential theories include: Situational Crisis Communication Theory (W. Timothy Coombs, 2007; W Timothy Coombs, 2007, 2009; W Timothy Coombs & Holladay, 2002), the Crisis and Emergency Risk Communication Model (CERC) (B. Reynolds & W. SEEGER, 2005; B. S. Reynolds et al., 2004), Corporate Apologia Theory (Hearit, 1995; Weiner, 1986), Image Repair Theory (Benoit, 1995), Integrated Crisis Mapping (ICM) (Holmes, 2011), and the social-mediated crisis communication model (SMCC) (Liu et al., 2011).

In this investigation, Situational Crisis Communication Theory (SCCT) was used to guide the study design and implementation. SCCT is a well-accepted and widely used theory in crisis communication research with several advantages (Claeys et al., 2010). Derived from Attribution Theory (Weiner, 1985, 1986), Situational Crisis Communication Theory (SCCT) draws upon experimental methods (instead of case studies) and social-psychological theory (W. Timothy Coombs, 2007; W Timothy Coombs, 2007, 2009, 2013, 2014; W Timothy Coombs & Holladay, 2002). SCCT identifies key factors likely to affect attributions about the crisis; how organizations can adopt the most effective crisis communication strategies to suit the specific crisis situation; and most importantly, how the public/stakeholders will respond to different crisis communication strategies (Figure 1).

Coombs points out that an organizational crisis holds the potential to not only disrupt operations and pose financial threats, but also put the organization under reputational threats that may endanger its ultimate survival. To protect organizational reputation, it is important to understand the factors that can affect reputations during crises. SCCT proposes that when an organizational crisis occurs, initial crisis responsibility and crisis response strategies will shape public perceptions of that crisis and affect organizational reputation. Crisis history (whether or not an organization has had a similar crisis in the past) and prior relationship reputation (the relationship between stakeholders and the company before the crisis) are two intensifying factors that also play important roles in organizational reputation threat.

SCCT identifies three clusters of crises, based upon attributions of crisis responsibility: (1) the victim cluster, (2) the accidental cluster, and (3) the intentional cluster. Organizations involved in "victim cluster" crises are considered to be victims of the crisis themselves, rather than the cause of the crisis and therefore, the organizations have very little attribution of crisis responsibility in this case. Examples of crises in this cluster are natural disasters ("acts of God", such as earthquakes and hurricanes) and rumor (damaging but false information about organizations). Since the organizations are also considered to be victims of crises, they typically experience only mild reputational threat.

Organizations involved in "accidental cluster" crises have minimal attributions of crisis responsibility. In such cases, organizations are considered to lack

control over the event(s) that cause the crisis, or the crisis is triggered by the organization's unintentional actions. Examples of crises belonging to this cluster are challenges (stakeholders claim/consider that an organization is operating in an inappropriate manner) and technical-error accidents (an industrial accident caused by a technology or equipment failure). This type of crises is thought to pose a moderate reputational threat to organizations. Organizations involved in "preventable cluster" crises are seen as having intentionally taken inappropriate or unlawful actions, which caused the crisis that put stakeholders at risk. Examples of crises that belong in this cluster are human-error accidents (an industrial accident caused by human-error) and human-error product harm (a product recall due to human errors). Crises in this cluster happen due to intentional organizational misconduct and sometimes cause injuries, thus, the organizations involved have both strong attribution of crisis responsibility and will experience severe reputational threat. According to SCCT, when a crisis happens, the organization first needs to evaluate the reputational threat by identifying the crisis type (initial crisis responsibility). The organization should also take two intensifying factors (crisis history and prior relationship reputation) into consideration. An organization with no crisis history and a favorable prior relationship reputation will experience less reputational threat than an organization with a history of crises and/or an unfavorable prior relationship reputation, even when experiencing the same type of crisis.

Based on the results of the crisis type evaluation, the organization should then identify the crisis communication strategies most appropriate to respond to the specific type of crisis in which they are involved. SCCT identifies the three primary crisis response strategies as: denial, diminish, and rebuild. Denial strategies try to disconnect the organization from the crisis. To apply denial strategies, an organization could "attack the accuser" (confronting the person or group that claims that a crisis exists), engage in "denial" (stating that no crisis exists), or employ "scapegoating" (maintaining that some other person or group outside of the organization is to blame for the crisis).

Diminish strategies attempt to make people believe that the crisis is not as bad as they think, or that the organization lacked control over the crisis. To apply diminish strategies, an organization could use "excusing" (minimizing the organization's responsibility for the crisis by claiming the crisis is unintentional or that the organization has no control over it) or "justification" (minimizing the perceived damage associated with the crisis).

Rebuild strategies aim at improving the organization's reputation through certain actions. To apply rebuild strategies, an organization could offer "compensation" (providing money or other gifts to the victims) or "apology" (publicly taking full responsibility, apologizing for the crisis, and asking for forgiveness).

SCCT also suggests that in addition to employing a primary crisis response strategy, organizations can also use a secondary/bolstering crisis response strategy to achieve better outcomes. Thus, elements of the principal strategies may be combined, and new strategies may be used at different stages of the crisis as it unfolds.

SCCT also touches on the role of emotion with regard to crises. Both crisis responsibility and crisis communication strategies can trigger emotional reactions. Perceptions of greater responsibility for a crisis can lead to an increase in anger and a decrease in sympathy for the organization; while particular crisis communication strategies used under varying circumstances (different crisis types) may ameliorate or exacerbate those emotions, or perhaps trigger different emotions as well. Lazarus suggests that there are six negative emotions elicited by a crisis, namely: anger, fright, anxiety, guilt, shame, and sadness (Lazarus, 1991). Jin et al. has further identified four of the six emotions (anger, fright, anxiety, and sadness) as the dominant negative emotions in ICM. Thus, in this study, we examine the role of these four emotions in food safety crisis communication (Jin et al., 2007).

1.3. Stages of Crisis

In addition to crisis type and crisis communication strategy, another important concept to consider regarding a crisis is its stages. As one of the first researchers to evaluate crisis as an extended event, Fink proposes that crises have four stages: prodromal (when there is the presence of hints of a potential crisis), crisis breakout (when the actual crisis event occurs), chronic (when the crisis and efforts to clean it up progresses), and resolution (when the crisis is over) (Fink, 1986). Since then, researchers have suggested different models and stages for crises. For example, Mintroff identifies (1994) five stages of crises: signal detection (when the warning signs of a crisis become apparent), probing and prevention (when efforts of preventing the crisis were applied), damage containment (when the crisis happens and damages occurs), recovery (when the organization starts to recover from the crisis), and learning (when the organization summarize and learn from the past crisis experience) (Mitroff, 1994). Coombs divides a crisis into three macro stages: precrisis (encompasses all crisis preparation), crisis (includes all crisis action events), and postcrisis (reflects time after the crisis) (W Timothy Coombs, 2014). In the Crisis and Emergency Risk Communication Model (CERC), Reynolds and Seeger present a 5stage model for crisis and emergency risk communication: precrisis (risk messages; warnings; preparations), initial event (uncertainty reduction; self-efficacy;

reassurance), maintenance (ongoing uncertainty reduction; self-efficacy; reassurance), resolution (updates regarding resolution; discussions about cause and new risks/new understandings of risk), and evaluation (discussions of adequacy of response; consensus about lessons; new understandings of risks) (B. Reynolds & W. SEEGER, 2005). Finally, Jordan-Meier divides crisis into four stages: stage one – fact-finding (confirmation of basic details of a crisis), stage two – the unfolding drama (the initial facts about the incident are available for discussion), stage three – finger-pointing stage (attribution of blame, key question at this stage is "why"), and stage four – resolution and fallout (marks the end of a crisis) (Jordan-Meier, 2011).

These models for crisis stages share something in common: they all recognize a crisis as an ongoing process subject to changes. The differences among these models lie in the fundamental emphasis of the researchers. For example, Sturges has adopted and elaborated on Fink's four-stage model to underline the importance of different actions at different stages. He points out that "instructing information" and "adjusting information" are required at the crisis breakout and chronic stages to inform the public how to protect themselves from potential harm, whereas "reputation management information" should be released at the resolution stage since "stakeholders would be receptive to these messages once the crisis ends" (Sturges, 1994). In this case, Sturges' use of Fink's stages reflects his emphasis on crisis communication to protect and restore an organization's reputation. CERC, on the other hand, is promoted by the Centers for Disease Control and Prevention (CDC) and is mostly used to guide crisis and emergency risk communication by the public health or related authorities. As such, CERC highlights two-way crisis communication at each stage as means to protect public health rather than to restore organizational reputation. Meanwhile, Jordan-Meier's four stages of crisis, which fall into the "crisis" stage in Coombs' three-stage model, are divided based on different foci of media reports during a crisis.

Although the ways of dividing crisis stages are different, the reasoning for doing so is essentially the same, that is – the crisis communication strategy adopted should be responsive to the ongoing crisis as it evolves. For crisis communications to be effective, one needs to react to the stages of crisis and the public perceptions at each stage differently (W Timothy Coombs, 2014; B. Reynolds & W. SEEGER, 2005; Sturges, 1994). As Coombs states, "The demands of the crisis stage dictate what crisis managers can and should be doing at any particular time." (W Timothy Coombs, 2014)

In this study, we use Jordan-Meier's four-stage model to guide our experimental design, mainly for two reasons: First, the main focus of this study is the actual crisis stage and its sub-stages, rather than the precrisis and postcrisis stages. Secondly, in the attempt to manipulate our independent variables (crisis type and initial communication strategies) as a crisis unfolds, we use news reports at different time points as manipulations. Thus, Jordan-Meier's four-stage model, which addresses stages of crisis and media reports at each stage, is ideal for such purposes.

1.4. Food Safety Crisis

As already stated, "food safety crises" in this study refers to incidents such as food contamination, foodborne illness outbreaks, food adulterations, etc., which might eventually result in major food recalls or other actions designed to reduce or prevent threats to public health. Effective crisis communication is extremely important when such incidents happen. Although it shares common features with general crisis communication, food safety crisis communication is unique in several aspects. First, food safety crises are a major source of public concern (Gaspar et al., 2014), and people have very different feelings concerning food products than non-food products (Kumar & Budin, 2006). Considering the degree of voluntary exposure of food products, the high level of threat and the dreadfulness of the consequences posed by foodborne illness, and the controllability of food safety crises, food safety crises often gain public (and media) attention. Moreover, as psychometric research suggests, these characteristics of food safety crises are associated with higher perceived risk and can influence emotional responses. Thus, such crises can generate very intense emotional reactions (Chaudhuri, 1997; Fischer et al., 2005; Fischhoff et al., 1978; Starr, 1969).

Secondly, "instructing information" and "adjusting information" is extremely important in food safety crisis communication, since individuals need the information to implement coping strategies to avoid health or economic threats (Gaspar et al., 2014). To prevent illness and death, government agencies (such as CDC and FDA) and food companies need to communicate with the public effectively (W. Hallman et al., 2009). Yet, it is challenging for both government agencies and companies to successfully communicate about food safety crises, which focuses on warning and instructing consumers, without also potentially frightening them (W. Hallman et al., 2009; W. K. Hallman & Cuite, 2009).

Over the years, researchers in the field of food safety risk and crisis communication have proposed some best practices based on empirical evidence (W. K. Hallman et al., 2013). However, as Hallman et al. notes, "The systematic study of effective [food] recall communications is in its infancy." (Benjamin Onyango, 2010) There are limited studies on food safety crisis communication, and most of the studies that have been conducted with regard to effective risk and crisis communication in food safety crisis have focused on only a single priority. They either investigate how to best communicate the risks to public health, or how to best protect an organization's reputation and economic viability, but not on how to do both at the same time. However, because food safety crises can pose major threats both to public health, and to the economic and reputational viability of the companies held responsible, organizations must make difficult decisions concerning how to prevent threats to public health, while also minimizing potential organizational damage. Thus, exploring crisis communication that can accomplish has both theoretical importance and applied value.

SCCT has been adopted and tested in many crisis communication studies and is widely accepted as a useful theory to adopt in crisis communication application (Claeys et al., 2010). The different crisis types (victim, accidental, and preventable) proposed by SCCT have been used and tested in several studies. However, there are very limited studies that have systematically examined food crisis communication on a theory-based level; and very few studies on food safety crises have applied SCCT concepts. As such, we seek to fill this gap, as well as to refine the SCCT theory in this study. Informed by Shaver's conceptions of attribution of blame, we propose that we can further divide preventable food safety crises into two subcategories: omission food safety crisis (an organization failed to do something which caused the food safety crisis) and commission food safety crisis (an organization intentionally did something which caused the food safety crises) (Shaver, 1985; Spranca et al., 1991). An example for omission food safety crisis is the 2015 recall of Bull's-Eye-brand Barbecue Sauce produced by Kraft Canada Inc.. The recall was issued because an ingredient was not declared on the label ("Food Recall Warning (Allergen) - Bull's-Eye Hot Southern Cajun Barbecue Sauce recalled due to undeclared mustard," 2015).

An example for commission food safety crisis is the 2008 Salmonella outbreak caused by contaminated peanut butter products produced by the now defunct Peanut Corporation of America (PCA). Investigation later revealed that the owner of PCA knowingly distributed contaminated peanut butter products and hence introduced them into interstate commerce (Goetz, 2013). Due to the differences of the nature of omission and commission crises, we further propose that these two subcategories are also associated with different public responses to food safety crises.

As already discussed in section 1.3., recognizing different crisis stages and adopting different communication strategies in response are crucial to effective crisis communication (W Timothy Coombs, 2014; Jordan-Meier, 2011; Sturges, 1994). However, to our knowledge, no research has yet examined food safety crisis communication at different stages of a crisis using an experimental design. Therefore, we placed our experimental manipulations within the context of an ongoing food safety crisis, to examine the effects of crisis type and crisis communication strategies on public perception. While doing so, we also make a distinction between the crisis communication strategies adopted at the early (breakout) stage of a food safety crisis and those adopted at the later stages of a food safety crisis.

We propose that at the initial stage of a crisis (stage one - "fact-finding" of Jordan-Meier's four-stage model), the communication strategies (referred to as "initial communication strategy" in this paper) differ from the general crisis communication strategies (denial, diminish, and rebuild from SCCT), and are thus worth scrutiny. At stage one, a company might be pointed to as the potential cause of a food safety crisis (e.g. a foodborne illness outbreak). However, there often remains a great deal of uncertainty at this stage of a food safety crisis, as information is often so limited that the real cause is unclear. Thus, making apologies (the main component of a rebuild strategy) at the initial "fact-finding" stage is not necessary or recommended. Yet, due to the potential public health impacts of a food safety crisis, actions such as issuing a recall might be warranted to prevent exposures to affected products. As such, we examine three major initial strategies used by food companies when a food safety crisis occurs, which are discussed in detail in section 1.5.2.1.

In this study, we also to add information to the growing body of evidence that emphasizes the importance of emotion in crisis communication. To our knowledge, currently no research has examined the role of emotion in food safety crisis communication using a theory-based experimental study.

Other innovative components we are putting under scrutiny in this study include the measurements for public responses to food safety crisis. We have the most commonly examined outcome post-crisis attitude as the measurement of organizational reputation, while also include the outcomes which are not widely examined, such as attribution of responsibility and blame and behavioral intentions. Additionally, a recent research has shown - contrary to one would expect - that judgments of "ought" (one's moral obligation to do something) do not imply judgments of "can" (one's ability to do something), but do affect attribution of blame (Chituc et al., 2016). Therefore, we also include moral obligations and abilities as our measurements to investigate the potential effects and interactions between obligation, ability, and attribution of responsibility and blame. Another new outcome variable we are examining is public perception of appropriate legal consequences of food safety crisis. Legal liability and related issues is a crucial part of any food safety crisis event, as most major food safety crises result in death and injuries are followed by lawsuits. While crisis type and the intention of action are the keys to determinate whether the violators are subject to civil or criminal liability or both, and whether the violation is

classified as felony or misdemeanor (Hutt, 1991; Marler, 2015), risk perceptions associated with emotions have important implication for shaping the law and related regulations as well (Ferrari, 2016). In addition, they are likely to determine whether the actual judicial outcomes in such cases are perceived by the public as fair and just.

However, despite the importance of the issue, there are very limited social psychological studies that have investigated public perceptions of appropriate legal outcomes of such crises. Thus, we fill in the gap by measuring public perceptions of appropriate legal outcomes in this study.

To summarize, we use a theory-based experimental design to test the applicability of existing crisis communication theory to the unique circumstances posed by ongoing food safety crises. We also advance theory, taking advantage of the specific kinds of food safety crises that typically occur, the different stages of food safety crises, and the strategies that companies attempt to use to protect their reputations at the initial stage of a crisis, including efforts to issue (or not issue) a recall.

1.5. Research Questions and Hypotheses

1.5.1. What are the predictors of post-crisis behavioral intentions at different stages of an ongoing food safety crisis?

According to Coombs, the SCCT model ultimately connects the effects of a crisis to behavioral intention (W Timothy Coombs, 2007). All the main concepts discussed in SCCT (such as crisis responsibility, crisis response strategies, organizational reputation, and emotions) are predicted to have effects on the public's behavioral intentions. Thus, in this study, we examine the predictors of post-crisis behavioral intentions (e.g. purchase intention).

1.5.2. What are the effects of our independent variables (initial crisis communication strategy and crisis type) on behavioral intentions and other public responses at different stages of an ongoing food safety crisis?

1.5.2.1. What are the effects of different initial crisis communication strategies on the public's responses at different stages of an ongoing food safety crisis?

As stated in section 1.4., the initial communication strategies for stage one ("fact-finding") would likely be different from those adopted in later stages. In reality, when a food safety crisis happens, three main strategies are adopted by food companies at the initial stage of a crisis -(1) denial without a recall (the company denies its association with the food safety crisis and thus issues no recall); (2) denial with a recall (the company denies its association with the food safety crisis but issues a recall as a precautionary measure); and (3) accept with a recall (the company accepts the potential association with the food safety crisis and thus issues a recall). We hypothesize that different initial food safety crisis communication strategies lead to different public responses toward the crisis. Since previous studies suggest that taking responsibility is superior than other crisis communication strategies in terms of restoring organizational reputation, we specifically hypothesize that an initial response strategy of "accept with a recall" would generate better public responses (e.g. attribution of responsibility, emotions, and purchase intentions, etc.) compared to an initial response strategy of "denial with a recall", while an initial response strategy of "denial without a recall" would generate the most negative responses. We further hypothesize that the effects of different initial crisis communication strategies will vary at different stages of the crisis as it unfolds.

1.5.2.2. What are the effects of different types of food safety crises on public responses?

As discussed in section 1.4., we propose that there are at least two subcategories for food safety crises within the preventable cluster, namely crises of omission (an organization fails to do something, which ultimately causes the food safety crisis) and crises of commission (an organization intentionally does something which causes the food safety crises). Since the victim type of crisis is not the main focus here (it is relatively rare to happen in reality), this study mainly looks at public responses to accidental, omission, and commission crises. We hypothesize that as the public learns the source and cause of an ongoing food safety crisis, it will respond differently based on whether the company is linked to the food safety crisis, and the type of the crisis.

1.5.3. What are the effects of having an instruction before behavioral intention questions on the results of those questions?

In the attempt to avoid the potential impacts of crisis history and prior relational reputation on post-crisis responses, we created a hypothetical company and brand (Goodman's Creameries) with no past crisis history for the manipulation scenarios used in the experiment. Thus, the participants have no previous experience associated with the company described in our scenarios. Because prior research suggests that past purchasing behavior can predict future purchase intentions (Weisberg, Te'eni, & Arman, 2011), we examine whether introducing a single instruction "Please answer the following questions, assuming that you have purchased Goodman's ice cream products in the past" before participants answering the behavioral intention questions would yield different results on those questions, compared to participants not having such instruction.

2. Material and Methods

2.1. Design and Stimuli

A repeated-measures factorial experimental design was developed to test the study hypotheses. The dependent variables include: (1) food safety crisis initial response strategy (denial without recall, denial with recall, and accept with recall); (2) company's linkage to the source of the crisis ("linked" and "not linked"); (3) food safety crisis type (accidental, omission preventable, and commission preventable); (4) stage of crisis (Time Point 1 - breaking out of a food safety crisis, Time Point 2 – confirmation of whether the company is linked or not linked to the food safety crisis, and Time Point 3 – identification of the cause of the food safety crisis); (5) instruction for behavioral intention measurements (the presence and absence of a single instruction asking participants to "assume you have purchased the mentioned product in the past" before behavioral intention questions, at each time point). As a result, there were 24 groups in total for this experiment. The group assignment is shown in Figure 2 and Table 1.

At Time Point 1 (TP1), the participants read one news article. Three variations of the hypothetical scenario were developed to manipulate the three initial food safety crisis communication strategies. The news article reported on a recent food illness outbreak caused by *Salmonella*. It provided basic information about the *Salmonella* outbreak, pointed out that although it was early in their investigation Centers for Disease Control and Prevention (CDC) suspected Goodman's creameries' (a fictitious brand) ice cream products as potentially responsible, "because many of those affected reported eating Goodman's ice cream before becoming ill." (See Appendix) The three variations of this scenario were the description on the company's reaction to the food safety crisis (manipulation of initial communication strategy): "denial without recall"

(the company denies it is the source of the outbreak and thus issues no recall), "denial with recall" (the company denies it is the source of the outbreak but issues a recall as a precautionary measure), or "accept with recall"(the company accepts its potential association with the outbreak and so issues a recall).

At Time Point 2 (TP2), the participants read one article described as "breaking news" related to the food safety crisis. Six variations of the hypothetical scenario were developed to manipulate the company's linkage to the food safety crisis. The articles stated either that the CDC had confirmed that Goodman's Creameries' products *were* the source of the ongoing outbreak, or that CDC had confirmed that Goodman's Creameries' products *were* not the source (i.e., either "linked" or "not linked"). Each article also provided a short recapitulation of the initial strategy the company adopted at TP1 (three variations).

At Time Point 3 (TP3), the participants read a follow-up news article regarding the food safety crisis. Nine variations of the hypothetical scenario were developed to manipulate the three types of food safety crisis at TP3. In the reports, investigation by authorities identifies the cause of the outbreak to be one of the following (three variations): "accidental" (the company didn't know the products were contaminated, because faulty test kits led to false negative results), "omission preventable" (the company didn't know the products were contaminated due to failure to perform regular tests), or "commission preventable" (the company knew the products were contaminated but distributed the contaminated products anyway). Each scenario also provided a short recapitulation of the initial strategy the company adopted at TP1 (three variations) and the confirmation of linkage at TP2. Participants in "not linked" groups did not proceed to TP3.

To increase the ecological validity of the experiments, the scenarios were reviewed by food safety experts to ensure that they were realistic and good representations of actual cases. All scenarios were also written in the style and language used by actual news reports of foodborne illness outbreaks and recalls. Except for the sections necessary to vary to create the appropriate manipulations of the independent variables, the scenarios were also written to be as consistent as possible across conditions.

2.2. Measures

Before discussing the details of the measurements, it needs to be noted that as a response to most of the questions, participants were offered the opportunity to indicate, "I don't know enough to decide" as an option at each time point. There is some controversy over whether one should include a "don't know" (DK) option as part of a response scale. Some researchers emphasize the advantage of having such option to avoid forcing participants to choose a point on a scale while they have no or limited knowledge, attitude, or information (Lam, Green, & Bordignon, 2002). Others suggest that having a DK option might induce participants to choose it when they do have attitudes formed (Gilljam & Granberg, 1993). In this study, we include the DK option to questions at each time point to measure patterns of participant uncertainty during an evolving food safety crisis. In the experimental design, new information is revealed at each subsequent stage. As a result, at the earliest stages (especially TP 1) of the experiment participants have very limited information on which to base their answers to some of the questions. In this case, the DK option may be the most appropriate response and not having a DK option would force participants to choose an answer randomly (Lam et al., 2002). Thus, the DK option was included for all the questions, and kept at all three time points to maintain consistency.

We specifically worded the DK option, "I don't know enough to decide," and placed it separate from, and to the right of the response scale for each question measuring a belief, attitude or intention. This physical design was used so that participants would read each question, think about their answer, and then use the scale to record the response closest to the belief, attitude, or intention they had formed using the available information. Separating the DK option from the scale was intended to cue the participants that they should only use it to indicate when they lacked sufficient information to give an appropriate answer after first considering using the response scale provided. In doing so, we tried to reduce the likelihood that participants would use the DK option to simply avoid using the appropriate scales to record their beliefs, attitudes, and intentions.

The dependent variables and measures are:

Manipulation check questions: To check the manipulation of the initial communication strategies, the participants answered two questions: 1. "Which of the following best describes the message you took from the news article?" (A. The company is denying responsibility. B. The company is acting as if it's responsible. C. Neither A nor B.) 2. "Which of the following best describes the message you took from the news article?" (A. The company is issuing a recall. B. The company is NOT issuing a recall.) To check the manipulation of the company's involvement in the outbreak, the participants answered the question: "Which of the following best describes the message you took from the news article?" (A. The CDC confirmed that ice cream products from Goodman's Creameries are the source of the outbreak. B. The CDC confirmed that ice cream products from Goodman's Creameries are NOT the source of the outbreak. C. Neither A nor B.) To check the manipulation of the types of food safety crisis, the following question was asked: "No company wants to

make their customers sick. However, when an outbreak does happen, it could be caused due to the following reasons. Which of these best describes the situation you have read in the news article earlier? (Choose only one)" (A. Pure accident. The outbreak was caused by something out of the company's control. B. The company did not do what they were supposed to do, which ultimately caused the outbreak. C. The company intentionally did something wrong, which ultimately caused the outbreak. D. None of the above.)

To measure perception of the severity of the health consequence of the crisis, a single 5-point Likert scale item was used: "In your opinion, how serious are the health consequences of this foodborne illness outbreak?" The Likert scale was anchored using 1 for "not at all serious" and 5 for "extremely serious". The option of, "I don't know enough to decide" was added to the right of the 5-point Likert scale. This measure was used at each time point (TP 1, 2, and 3).

To measure post-crisis organizational reputation, a single 5-point Likert scale item "How would you describe your attitude/feeling toward Goodman's Creameries after the outbreak?" The Likert scale was anchored using 1 for "very negative" and 5 for "very positive". This item was revised based on MacKenzie et al. and Mitchell et al.'s work (Cronbach's α =.86) (MacKenzie & Lutz, 1989) (Mitchell, 1986). The option of, "I don't know enough to decide" was added to the right of the 5-point Likert scale to measure uncertainty. The participants answer this measure at each time point.

To measure attributions of responsibility and blame, a 4-item 5-point Likert scale was developed based on Griffin et al.'s work (Cronbach's α =.92) (Griffin, Babin, & Darden, 1992). The questions asked how responsible Goodman's Creameries was for "causing" and "not preventing" the outbreak, and how much

Goodman's Creameries was to blame for "causing" and "not preventing" the outbreak, respectively. The Likert scale was anchored using 1 for "not at all responsible" or "not at all to blame" and 5 for "completely responsible" or "completely to blame". The option of, "I don't know enough to decide" was added to the right of the 5-point Likert scale to measure uncertainty. The participants answer these measures at each time point.

To measure perception of the company's obligation and ability to prevent the food safety crisis, a 2-item 5-point Likert scale was used (Chituc et al., 2016). The participants were asked whether they disagree or agree with the two statements: "Goodman's Creameries ought to have prevented the outbreak from happening" (obligation) and "Goodman's Creameries had the ability to prevent the outbreak from happening" (ability). The Likert scale was anchored using 1 for "completely disagree" and 5 for "completely agree". The participants answer these measures at each time point.

To measure emotional responses to the food safety crisis, a 4-item 5-point Likert scale was adopted to measure anger, sadness, fright, and anxiety, respectively. The Likert scale was anchored using 1 for "not at all" and 5 for "extremely") (Malhotra & Kuo, 2009). An option of "I don't know enough to decide" was added to the end of each item to measure uncertainty. The participants answer these measures at each time point.

To measure behavioral intentions, a 5-item 5-point Likert scale was developed based on previous work (Jorgensen, 1996; Sen, Bhattacharya, & Korschun, 2006). The five items ask the participants to indicate the likelihood that they will: purchase Goodman's ice cream products (short-term and long-term), purchase Goodman's other products, invest in Goodman's Creameries, and recommend Goodman's products to a friend, respectively. The Likert scale was anchored using 1 for "very unlikely" and 5 for "very likely"). An option of "I don't know enough to decide" was added to the end of each item to measure uncertainty. The participants answer these measures at each time point.

To measure public perceptions of appropriate legal outcomes, a 5-item 5-point Likert scale was created. Participants were provided with the five statements and were asked to rate how much they agree with each statement (from 1 - strongly disagree to 5 - strongly agree). The statements were as follows: (1) The company (Goodman's Creameries) itself should be fined; (2) The company manager(s) responsible for overseeing product testing and distribution should be fined; (3) Individual employee(s) of the company responsible for testing and distributing contaminated products should be fined; (4) The company manager(s) responsible for overseeing product testing and distribution should be sent to jail; and (5) Individual employee(s) of the company responsible for testing and distributing contaminated product should be fined; (4) The sent to jail; and (5) Individual employee(s) of the company responsible for testing and distributing contaminated products should be sent to jail. An option of "I don't know enough to decide" was added to the end of each item to measure uncertainty. The participants answer these measures only at TP 3.

To record the participants' demographic information, they were asked to answer 13 questions with respect to their age, gender, education, income, household composition, marital status, grocery shopping, ethnicity, language, past foodborne illness experience, preferred information sources, ice cream consumption.

2.3. Cognitive Interviews and Pilot Tests

A serious of cognitive interviews was conducted to test and validate the scenarios and survey questions. The scenarios and survey questions were modified based on the feedback from the interviews, and re-tested until no further concerns were raised.

Two pilot tests were conducted to further test the scenarios, manipulated variables and the instruments. A pilot test with 196 undergraduate students was first performed. The experimental design at this time was a factorial design (all information of manipulated variables was provided at one-time without different time points). The results revealed manipulation of crisis type (especially commission preventable crisis) was not effective. Participants in general tend to consider the commission crisis as an omission one. After revisions of the scenarios, a second pilot test with 213 undergraduate students was conducted. The results showed that despite some improvements to the manipulation, participants were still having some difficulties with correctly identifying the crisis type. Feedback further suggested it was possibly due to the fact that all of the manipulated variables were provided at one time. We then updated the experimental design into a factorial design with three time points, which would allow us to better manipulate the conditions, measure the outcomes, and to reflect the natural process of a crisis. To our knowledge, there is no research using such experimental approach to study public perception during a food safety crisis, thus this updated design would provide innovative method and add valuable results to the exiting evidence body.

2.4. Participants and procedure

Data was collected via the Internet from 750 participants recruited through the Qualtrics Panel, from February to March 2016. Qualtrics, Inc. is a company that provides online survey software and participant pool service for research purpose. The Qualtrics Panel participant pool consists of more than 4 million members, and is designed to be statistically representative of the U.S. population (McKeever,
McKeever, Holton, & Li, 2016) (Cataldo, 2016; Wright & Skagerberg, 2012). The Panel members 'opt-in' to participate in the Qualtrics Panel, and participants for studies are invited by emails, which are designed to avoid self-selection bias ("ESOMAR 28: 28 Questions to help research buyers of online samples," 2014). Qualtrics, as well as its online panel, have been used widely in recent research and are considered comparable to other traditional recruiting methods (Brandon, Long, Loraas, Mueller-Phillips, & Vansant, 2013; McKeever et al., 2016). All procedures and protocols were approved by the Institutional Review Board at Rutgers University prior to data collection.

Once recruited, participants were randomly assigned to one (and only one) of the 24 experimental groups. Upon their consent to participate, participants completed the experiment in the following sequence: they, (1) answered three screening questions (state, age, and gender); (2) read the TP1 scenario, a news article reporting Goodman's Creameries' ice cream products as the potential source of a recent Salmonella outbreak, and the company's reaction to the food safety crisis (denial without recall, denial with recall, or accept with recall); (3) completed a questionnaire with two manipulation check questions and 17 items using 5- or 6-point Likert scales; (4) read the TP2 scenario, a short "breaking news" article confirming whether Goodman's creameries was linked to the E. coli outbreak (linked or not linked); (5) completed a questionnaire with one manipulation check question and the same 17 items using 5 or 6-point Likert scale; (6) read the TP3 scenario, a follow-up news article on the food safety crisis which identified the cause of the outbreak (accidental, omission preventable, or commission preventable); (7) completed a questionnaire with one manipulation check question and 22 questions using 5 or 6-point Likert scales (i.e. the same 17 questions as in TP1 and TP2 and the 5-item scale of legal outcomes); (8) answered 13 demographic questions; (9) answered three questions regarding to the similarity of the hypothetical scenarios to real food safety crises.

All analyses were conducted using SPSS version 21.

3. Results

3.1. Demographics

A total of 750 participants recruited through the Qualtrics Panel completed the online survey, of which, 743 are included in the final analysis. The seven participants are excluded because either they are under age of 18 or they had most questions in the survey not answered. There were 30-32 participants in each of the 24 groups.

The demographic characteristics of participants in this experiment are shown in Table 2. The participants' region information was nationally representative, with 21.7%, 18.2%, 37.0%, and 23.1% of the participants from the Midwest, Northeast, South, and West, respectively. Overall mean age was 45.58 years (range from 16 to 89 years). The gender ratio of participants was 1:1 (49.9% male and 50.1% female). Most of the participants had at least a high school diploma or GED (30.3% with high school diploma or GED, 39.2% with some college education, 22.3% with bachelor's degree, and 6.5% with post graduate degree). In terms of race, the majority of the participants identified themselves as White (82.0%). Almost all participants said English was their native language. For household income, 23.4% of the participants annual incomes of less than \$25,000, 36.7% with \$25,000 to \$49,999, 32.3% with \$50,000 to \$99,999, and 7.7% with \$100,000 or more. Almost a half of the participants were married (47.1%) and 36.3% of the participants had at least one child under 18. When it comes to grocery shopping, most participants claimed they "do all of it" (65.9%). Their preferred information source was TV (50.7%), followed by webbased news reports (25.0%) and social media (14.5%). Nearly a third (32.7%) reported that they or someone in their family have had a foodborne illness experience and 46.0% of the participants reported their friends have had such an experience. Most of the participants reported that they (81.5%) and their families (85.6%) consume ice cream "sometimes" or "often".

3.2. Manipulation Check

To test the effective manipulation of our independent variables, crosstabs and chi-square analyses were performed, using SPSS (Version 21). The crosstabs results of initial communication strategy at TP1 show that 75% of the participants in the "denial without a recall" groups (Group 1 to Group 8) correctly chose "deny" as the answer to the question asking about the company's stand on its responsibility for causing the outbreak and 81% correctly chose "no recall" as the response to the question asking if a recall was issued. Of those in the "denial with a recall" groups (Group 9 to Group 16), 86% chose either "deny" (49%) or "act as responsible" (37%) as the answer to the question asking about the company's stand on responsibility (both answers are considered to be a result of effective manipulation, because the company took a corrective action thus can be viewed as "act as responsible") and 89% chose "recall" to the question asking if a recall was issued. In the "accept with a recall" groups (Group 7 to Group 24), 81% of the participants chose "act as responsible" as the answer to the question asking the company's stand on responsibility, and 92% chose "recall" to the question asking if a recall was issued. In line with the results from the crosstabs, the chi-square test for different initial communication strategy manipulation was significant, $\chi^2(4, N=743)=270.744$, p<.001.

The crosstabs results of the company's linkage to the food safety crisis at TP2 show that 83% of the participants in the "linked" groups (Group 1 to Group 6, Group

9 to Group 14, Group 7 to Group 22) chose "confirmed linked" as the answer to the manipulation question, while 89% of the participants in the "not linked" groups (Group 7, 8, 15, 16, 23, 24) chose "not linked" to the manipulation question. Consistent with the crosstabs results, the chi-square test for "linkage" manipulation was significant, χ^2 (2, N=743)=483.107, p<.001.

The crosstabs results of different types of food safety crisis at TP3 show that 70% of the participants in "accidental" groups (Group 1, 4, 9, 12, 17, 20) chose "accident" as the answer to the crisis type manipulation question, 72% of the participants in "omission" groups (Group 2, 5, 10, 13, 18, 21) chose "omission" as the answer to the manipulation question, and 71% of the participants in "commission" groups chose "commission" as the answer to the manipulation question. In line with the crosstabs results, the chi-square test for different crisis type manipulation was significant, χ^2 (6, N=557)=441.025, p<.001.

In conclusion, the results show effective manipulations of all three independent variables. Despite there are variations of the answers participants chose (not all of them chose the "correct" answer), we still included all of them in our following analyses. The reasoning for doing so is that the variation of answers to our manipulation questions actually reflects crisis communication in reality – that people perceive the same information in different ways and produce variance in public perception (Y. Kim, 2016).

3.3. Report on DK option

To explore the pattern of how participants used the DK ("I don't know enough to decide") option for the scale questions, we counted how many participants answered DK for each question at each time point. As expected, the results show that the counts of DK decrease as the participants moved from TP1 to TP2 to TP3, receiving additional information at each stage. At TP1, out of the 743 participants included in our final analyses, the percentages of participants who answered DK for each of the following questions are: 2.5% for the perceived health consequence question, 7.3% for the post-crisis attitude question, 36.9% for at least one out of the four attribution of responsibility and blame questions, 10.6% for at least one out of the four emotion questions, and 12.1% for at least one out of the five behavioral intention questions. At TP2, the numbers decrease to 1.7% for the perceived health consequence question, 2.6% for the post-crisis attitude question, 10.4% for at least one out of the four attribution of responsibility and blame questions, 5.2% for at least one out of the four emotion questions, and 7.3% for at least one out of the five behavioral intention questions. Only the "linked" groups proceeded to At TP3, (N = 557), and the DK counts for all questions continue to decrease from TP2. The numbers are: 2% for the perceived health consequence question, 2.3% for the postcrisis attitude question, 4.1% for at least one out of the four attribution of responsibility and blame questions, 5% for at least one out of the four emotion questions, 3.6% for at least one out of the five behavioral intention questions, and 10.6% for at least one out of the five perceived legal outcome questions. These results are as expected since there was limited information at TP1, and more information that would help participants to form attitudes and opinions was added at TP2 and TP3, respectively.

There are several things need to be noted here. At TP1, the news report only described a foodborne illness outbreak and pointed to Goodman's ice cream products as the likely source of the outbreak. However, it did not confirm whether Goodman's was responsible or not. Thus, there is not enough information at this time point to give definitive answers to key questions about blame and responsibility. This is reflected in

our results. We received the highest DK counts at TP1 for all questions, and 36.9% of the participants answered DK for at least one of the four attribution of responsibility and blame questions. Yet, 63.1% of the participants answered the four attribution of responsibility and blame questions without resorting to the DK option at TP1, despite the fact that there is not enough information to decide. Furthermore, most of the 36.9% participants who answered DK for one or more of the responsibility and blame questions, attitudes, and post-crisis purchase behavior intentions.

We also conducted chi-square tests on the questions at each time point to examine the relationship between answering DKs for questions and groups. No significant difference was detected, suggesting DKs are evenly distributed among groups. We further performed hierarchical regression analyses at each time point, in the attempt to explore whether there are any predictors of choosing DK. However, we didn't find any strong predictors, using different models.

3.4. Exploratory factor analysis

We conducted a series of exploratory factor analyses first to identify the proper clusters of dependent variables to include in our following analyses.

A principal axis factor analysis with oblique rotation (promax) was conducted using the 17 items at TP1. The Kaiser-Meyer-Olkin measure of sampling adequacy was .889, above the commonly recommended .5 (Field, 2009) and can be considered as "meritorious" according to Hutcheson & Sofroniou (Hutcheson & Sofroniou, 1999). Bartlett's test of sphericity was significant (X^2 (136)=5130.267, p<.001), suggesting the correlations between variables are (overall) significantly different from zero (Field, 2009). Table 3 shows the factor loading after rotation. The items loaded on 3 main factors as we expected. Factor 1 represents the items related to post-crisis behavioral intentions. The item to measure post-crisis attitude also loaded on this cluster, showing high correlation between post-crisis attitude and post-crisis behavioral intentions. Factor 2 represents the items measuring attribution of responsibility and blame, and perception of obligation and ability to prevent the outbreak. Factor 3 represents the items measuring emotions. The item to measure perceived health consequence of the food safety crisis also loaded on factor 3, suggesting correlation between emotions and perceived health consequence. A principal axis factor analysis using an oblique rotation (promax) was conducted on the same 17 items at TP2. As expected, the results showed the same factor loading pattern as at TP 1 (Table 4). Another principal axis factor analysis with oblique rotation (promax) was performed on the 22 items at TP3 (same first 17 items with an additional five items measuring perception of appropriate legal consequences). The Kaiser-Meyer-Olkin measure of sampling adequacy was .926; above the commonly recommended .5 (Field, 2009) and can be considered as "marvellous" according to Hutcheson & Sofroniou (Hutcheson & Sofroniou, 1999). Bartlett's test of sphericity was significant ($\Box^2(231)=10222.615$, p<.001), suggesting the correlations between variables are (overall) significantly different from zero (Field, 2009). The items loaded on the same three main factors as those at TP1 and TP2, with all five legal outcome items loading with the attribution of responsibility and blame questions on Factor 1 (Table 5). The results suggest that there is a high correlation between attribution of responsibility and blame and perceptions of appropriate legal outcomes, as one would predict.

Because the five behavioral intention questions have large factor loadings (most are greater than .9) at each of the three time points, we ran a correlation analyses on those questions for all time points. The significant results of these analyses show that these five questions are highly correlated (Pearson Correlation over .8). Thus, we decided to take the average of the five behavioral intention questions and compute it into one new dependent variable named "behavioral intention" for each time point (TP1 behavioral intention, TP2 behavioral intention, and TP3 behavioral intention). Therefore, based on the factor analysis results and our research questions, we performed analyses on TP1 and TP2 measurements in 5 clusters: perceived health consequence (one item), post-crisis attitude (one item), attribution of responsibility and blame (four items), obligation and ability (2 items), emotions (four items), and post-crisis behavioral intention (one item). Similarly, we later conducted analyses on TP3 measurements in 6 clusters: perceived health consequence (one item), post-crisis attitude (one item), attribution of responsibility and blame (four items), obligation and ability (2 items), emotions (four items), obligation and ability (2 items), sostcrisis behavioral intention (one item), and perceived legal outcomes (five items). 3.5. The effect of an instruction before answering behavioral intention questions on

the results of behavioral intention.

Three independent-samples t-tests (one for each time point) were performed, using SPSS (Version 21), to examine the effect of an instruction ("Please answer the following questions, assuming that you have purchased Goodman's ice cream products in the past") on the answers to behavioral intention questions. The instruction was included because we want to examine whether introducing this single instruction of asking participants to assume past history with the hypothetical company would yield different results, compared to participants not having such instruction. No significant differences were found at TP 1, 2, or 3 (data not shown). For the analyses discussed later in this manuscript, the "no instruction" groups and "instruction" groups under the same condition were combined (e.g. Group 1 and 4). 3.6. What are the predictors of post-crisis behavioral intention?

To explore the predictors of post-crisis behavioral intention, hierarchical regression analyses were conducted at each time point. All categorical variables were re-coded into dummy variables.

We first conducted a hierarchical regression to explore whether there are any demographic predictors of TP1 behavioral intention. Participants who answered DK for TP1 behavioral intention questions were excluded from the analysis, yielding a sample size of 653. According to the model summary (Table 6): Among all the demographic variables – gender, age, education, race, number of people living in household, child under 18, household income, grocery shopping, marital status, information source, native language, past foodborne illness experience (self and family and friends), ice cream consumption (self and family) – only age and past foodborne illness experience result in significant changes to R^2 . Therefore, we only include age and past foodborne illness as demographic predictors in the following regression analyses.

We performed a hierarchical regression to examine the predictors of behavioral intention at TP1. The predictors of interest included - demographics (age and past food illness experience), initial strategy, TP1 attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items), TP1 emotions (4 items), and TP1 post-crisis attitude. These were entered in blocks 1, 2, 3, 4, 5, and 6, respectively. Missing values were excluded pair-wise. Because there were many DK options (counted as missing values) at TP1, the numbers of responses included in the regression for each predictor range from 516 to 743. As shown in Table 7 and 8, all 6 models find significant regression equations for TP1 behavior intention. Adding demographics (age and past foodborne illness experience), TP1 attribution of responsibility and blame items, and TP1 post-crisis attitude into the model leads to

significant changes in R^2 . Model 6 - with all aforementioned independent variables entered – has the greatest predictive power ($F(18, 419) = 10.692, p < .001, R^2 = .315$). Table 9 reveals that, in Model 6, the significant predictors of participant behavioral intention at TP1 are age (b=-.010, p<.001), past foodborne illness experience of family and friends (yes vs. no) (b=.281, p=.018), initial strategy ("denial without recalling" vs. "denial with recalling") (b=-.223, p=.048), initial strategy ("denial without recalling" vs. "accept with recalling") (b=-.244, p=.037), and TP1 post-crisis attitude (b=.446, p < .001). Attribution of responsibility and blame (TP1 blame for not preventing the outbreak) and emotions (anger) were significant predictors in earlier models, but are not significant predictors of behavioral intention in model 6 (with post-crisis attitude added into the model). Also, adding post-crisis attitude into the model leads to the greatest increase of predictive power of the model (the R^2 change from model 5 to 6 is .209).

We performed another hierarchical regression to examine the predictors of behavioral intention at TP2. Information with regard to whether the company (Goodman's Creameries) is linked to the food safety crisis was added at this time point. Independent variables (predictors of interest) included demographics (age and past food illness experience), linkage (whether the company is linked or not linked to the crisis), initial strategy, TP1 attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items), TP1 emotions (4 items), and TP1 post-crisis attitude - were entered in blocks 1, 2, 3, 4, 5, 6, and 7, respectively. Missing values were excluded pair-wise. As mentioned in section 3.3., with the added new information, the counts of DK for each questions (especially for attribution of responsibility and blame questions) decrease greatly at TP2. As a result, the numbers of responses included in the regression for each predictor range from 645 to 743. As shown in Table 10 and

11, all 7 models yield significant regression equations for TP1 behavior intention. Adding demographics (age and past foodborne illness experience), linkage, TP2 attribution of responsibility and blame items, and TP2 post-crisis attitude into the model leads to significant R^2 changes. Model 7 - with all aforementioned independent variables entered – has the greatest predictive power (F(19, 574) = 42.550, p < .001, R^2 = .585). Table 12 reveals that, in Model 7, significant predictors of participant behavioral intention at TP2 are age (b=-.006, p=.004), past foodborne illness experience (yes vs. not sure) (b=.271, p=.043), past foodborne illness experience of family and friends (yes vs. no) (b=.241, p=.009), TP2 responsibility for causing the outbreak (b=-.113, p=.025), TP2 post-crisis attitude (b=.579, p<.001). Linkage, initial strategy (denial without recalling vs. accept with recalling), TP2 blame for not preventing the outbreak, TP2 obligation to prevent the outbreak, and TP2 anger were significant predictors in earlier models, but are not significant predictors of behavioral intention in model 7 (with post-crisis attitude added into the model). Also, similarly as at TP1, adding linkage and post-crisis attitude into the model leads to the greatest increases of predictive power of the model (the R^2 change from model 1 to 2 is .228 and the R^2 change from model 6 to 7 is .241). Comparing Model 7 at TP2 with Model 6 at TP1, the predictive power of the model increased from .315 to .585. In other words, the predictors included in Model 7 at TP2 can explain 58.5% of the variance in TP2 behavioral intention.

Lastly, we performed another hierarchical regression to examine the predictors of behavioral intention at TP3. Only participants in the "linked" group at TP2 moved forward to TP3 (N=557). At this time point, information regarding the cause of the food safety crisis (crisis type - accidental, omission preventable, and commission preventable) was provided to the participants. Independent variables (predictors of

interest) included: demographics (age and past food illness experience), crisis type, initial strategy, TP1 attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items), TP1 emotions (4 items), and TP1 post-crisis attitude - were entered in blocks 1, 2, 3, 4, 5, 6, and 7, respectively. Missing values were excluded pair-wise. The numbers of responses included in the regression for each predictor range from 485 to 557. As shown in Table 13 and 14, all 7 models result in significant regression equations for TP3 behavioral intention. Adding demographics (age and past foodborne illness experience), linkage, TP3 attribution of responsibility and blame items, TP3 obligation and ability items, and TP3 post-crisis attitude into the model leads to significant R^2 changes. Model 7 - with all aforementioned independent variables entered – has the greatest predictive power (F(20, 445) = 26.938, p < .001, R^2 = .548). Table 15 reveals that, in Model 7, significant predictors of participant behavioral intention at TP3 are age (b=-.006, p=.007), past foodborne illness experience of family and friends (yes vs. no) (b=.244, p=.017), TP3 post-crisis attitude (b=.607, p<.001). Crisis type (accidental vs. omission and accidental vs. commission), TP3 blame for causing the outbreak, and TP3 obligation to prevent the outbreak were significant predictors in earlier models, but are not significant predictors of behavioral intention in model 7 (with post-crisis attitude added into the model). Also, consistent with the results at TP1 and TP2, adding linkage and postcrisis attitude into the model leads to the greatest increases of predictive power of the model (the R^2 change from model 6 to 7 is .310). Model 7 at TP3 with Model 7 at TP2 have similar predictive power - the predictors included in Model 7 at TP3 can explain 54.8% of the variance in TP3 behavioral intention.

In summary, the demographic variables (age and past foodborne illness experience) and post-crisis attitude are significant predictors of behavioral intentions at all three time points. The results also suggest that post-crisis attitude is the strongest predictor of all. Moreover, our experimental manipulations (initial strategy, linkage, and crisis type) and some key outcome variables (attribution of responsibility and blame and anger) were all predictors of behavioral intentions when post-crisis attitude was not included in the model (with the exception of initial strategy at TP1 and attribution of responsibility and blame at TP2, which are significant even in the model with post-crisis attitude included). Since our manipulations are designed to be the driving force behind all of the outcome variables, the next question we asked is "what are the effects of our manipulations on behavioral intentions and its predictors"? 3.7. What are the effects of our manipulations (independent variables) on behavioral

intentions and its predictors?

We conducted a serious of multivariate analyses of variance (MANOVAs) and analyses of variance (ANOVAs) in this section. The results and corresponding tables and figures are discussed and shown separately in the following part. We also provide a master table for all these ANOVA results at the end (Table 20), to make reading and comprehending the results easier.

3.7.1. What are the effects of the manipulations (initial strategy, linkage, crisis type) on behavioral intention at each time point?

We first performed two ANOVAs to examine the effects of initial strategy (denial without recall, denial with recall, and accept with recall) on TP1 behavioral intention. Because the three initial strategies contain combinations of two different factors ("denial" and "recall"), we examine the effects of those two factors in initial strategies separately. Therefore, we conducted two ANOVAs with two different contrast plans. The contrast in the first ANOVA was designed to test if there is any difference between "denial" strategies and "accept" strategy (contrast 1, "denial without recall" and "denial with recall" vs. "accept with recall"), and if there is any difference between "denial without recall" and "denial with recall" strategies (contrast 2). With the participants who answered DK for TP1 behavioral intentions excluded from the analysis, the total sample size in this one-way ANOVA is 653. There is a significant effect of initial strategy on TP1 behavioral intentions, F(2, 650) = 3.399, p =.034. There is also a significant linear trend, F(1, 650) = 6.798, p = .009, indicating that as the strategies change from "denial without recall" to "denial with recall" and to "accept with recall", TP1 behavioral intentions increase proportionately (Figure 3). Planned contrasts reveal that having an "accept" initial strategy significantly increases TP1 behavioral intention over having "denial" strategies, t(650) = 2.253, p = .025. However, there is no significant difference in behavioral intentions with respect to the two "denial" strategies at TP1. Similarly, we conducted the same ANOVA with another contrast designed to examine differences between the "no recall" strategy and recall strategies (contrast 1, "denial without recall" vs. "denial with recall" and "accept with recall"), and if there is any difference between "denial with recall" and "accept with recall" (contrast 2). The results reveal that having "recall" initial strategies significantly increases TP1 behavioral intention over having a "no recall" initial strategy, t(650) = 2.264, p = .024, but there is no significant difference of TP1 behavioral intentions between "denial with recall" and "accept with recall". This highlighted the advantage of having a recall or "accept" component (or both) in the initial communication strategy, which we will discuss in detail in section 4. Discussion and Conclusion.

We then performed a two-way ANOVA to examine the effects of initial strategy (denial without recall, denial with recall, and accept with recall) and linkage (linked and not linked) on TP2 behavioral intention. With the participants who answered DK for TP2 behavioral intentions excluded from the analysis, the total sample size in this two-way ANOVA is 689. There is a significant main effect of initial strategy on TP2 behavioral intention, F(2, 683) = 5.387, p = .005. Simple contrasts reveal that the TP2 behavioral intention is significantly lower in "denial without recall" groups (M = 2.446, SD = .083) than in both the "denial with recall" group (M = 2.811, SD = .085) and the "accept with recall" group (M = 2.748, SD)=.086) (p=.002 and p =.012, respectively). Another simple contrast (compared to "accept with recall") reveals that there is no significant difference in TP2 intention between "denial with recall" groups (M = 2.811, SD = .085) and "accept with recall" groups (M = 2.748, SD = .086) (p=.604). However, there is a significant main effect of linkage on TP2 behavioral intention as well, F(1, 683) = 205.748, p < .001, suggesting that TP2 behavioral intention is significantly higher in the "not linked" (M = 3.372, SD = .085) than "linked" conditions (M = 1.965, SD = .049). There is also a significant interaction between initial strategy and linkage, on TP2 behavioral intentions, F(2,(683) = 6.036, p=.003. This effect indicates that "linked" groups and "not linked" groups are affected differently by initial strategy. Specifically, when the company is confirmed to be linked to the food safety crisis, the "accept with recall" strategy generates the highest TP2 behavioral intention (M = 2.097, SD = 1.043), followed by "denial without recall" (M = 1.920, SD = 1.197), and "denial with recall" generates the lowest behavioral intention (M = 1.880, SD = 1.085). However, when the company is *not* linked to the crisis, the pattern is completely different. Under such conditions, the "denial with recall" strategy generates the highest TP2 behavioral intention (M = 3.7429, SD = .987), followed by "accept with recall" (M = 3.400, SD =1.74), and "denial without recall" generates the lowest behavioral intention (M =2.973, SD = 1.121). The interaction effects are also shown in Figure 4 and 5.

Finally, we performed a two-way ANOVA to examine the effects of initial strategy (denial without recall, denial with recall, and accept with recall) and crisis type (accidental, omission preventable, and commission preventable) on TP3 behavioral intention. Because only the participants in the "linked" groups proceeded to TP3, the total available sample was 557. However, after excluding participants who answered DK for TP3 behavioral intentions size of the analytical sample in this twoway ANOVA is 537. The analysis shows that there is a significant main effect of crisis type on TP3 behavioral intention, F(2, 528) = 21.638, p < .001. Simple contrasts reveal that behavioral intentions at TP3 are significantly higher in the "accidental" group (M = 2.394, SD = 1.274) than in the "omission preventable" group (M = 1.748, M = 1.748)SD = 1.035) and "commission preventable" group (M = 1.657, SD = 1.119) (p<.001) for both). Another simple contrast suggests that there is no significant difference in TP3 behavioral intentions between the "omission preventable" (M = 1.748, SD =1.035) and "commission preventable" (M = 1.657, SD = 1.119) groups (p=.411). There is also no significant main effect of initial strategy on TP3 behavioral intentions, F(2, 528) = .711, p = .491, and there is no significant interaction between crisis type and initial strategy, on TP3 behavioral intentions, F(4, 528) = 1.425, p =.224 (Figure 6).

3.7.2. What are the effects of the manipulations (initial strategy, linkage, crisis type) on other dependent variables at each time point?

We conducted a series of MANOVAs and ANOVAs to explore the effects of the manipulations on other dependent variables at each time point. The dependent variables included: perceived health consequence of the food safety crisis (perceived health consequence), post-crisis attitude, attribution of responsibility and blame cluster (responsibility for causing the outbreak, blame for causing the outbreak, responsibility for not preventing the outbreak, and blame for not preventing the outbreak), obligation and ability cluster (obligation to prevent the outbreak and ability to prevent the outbreak), emotion cluster (anger, sadness, fright, and anxiety), and the perceived legal outcomes cluster (the company should be fined, the responsible manager should be fined, the responsible employee should be fined, the responsible manager should be sent to jail, and the responsible employee should be sent to jail) (this cluster was only measured at TP3).

3.7.2.1. At TP1: Manipulation – Initial Strategy

We first performed a one-way ANOVA to examine the effects of initial strategy (denial without recall, denial with recall, and accept with recall) on TP1 perceived health consequence. The sample size is 722, with participants answered DK for this question excluded. As expected, since each of the scenarios associated with these strategies described the same number of people made sick with *Salmonellosis*, there were no significant differences in perceived health consequences among the strategies.

We then performed a one-way ANOVA to examine the effects of initial strategy on TP1 post-crisis attitude. The sample size is 689, with participants answered DK for this question excluded. We performed the same planned contrasts as described in section 3.7.1. The results show a significant effect of initial strategy on TP1 post-crisis attitude, F(2, 686) = 55.678, p < .001. There is also a significant linear trend, F(1, 686) = 104.589, p <.001, suggesting that as the strategies change from "denial without recall" to "denial with recall" and to "accept with recall", TP1 post-crisis attitude increases proportionately. Planned contrasts reveal that having an "accept" initial strategy significantly increases TP1 post-crisis attitude above "denial" strategies, t(686) = 7.565, p < .001. And within the two "denial" strategies, having a

"recall" significantly increases TP1 post-crisis attitude over not having a recall, t(686)= 7.376, p < .001. Similarly, having "recall" initial strategies significantly increases TP1 post-crisis attitude than having a "no recall" strategy, t(686) = 10.161, p < .001; and within the "recall" strategies, "accept with recall" significantly increases TP1 post-crisis attitude than "denial with recall", t(686) = 2.873, p = .004. To sum up, at TP1, "accept with recall" strategy generates the highest post-crisis attitude, followed by "denial with recall" and "denial without recall" (shown in Figure 7).

We conducted a MANOVA to test the effects of initial strategy on the TP1 attribution of responsibility and blame outcome variables. Only 469 participants were included in this analysis due to the missing values from DK answers for these questions at TP1. No significant effect was detected, Pillai's trace, V = .028, F(8, 928) = 1.674, p = .101.

We also conducted a MANOVA to examine the effects of initial strategy on TP1 perceived obligation and ability outcome variables (N = 645), and found no significant effect, Pillai's trace, V =.012, F(4, 1284) = 1.857, p =.116.

Lastly, we conducted a MANOVA to examine the effects of initial strategy on the four TP1 emotion outcome variables (N = 664), but did not find significant effects overall. Pillai's trace, V=.022, F(8, 1318) = 1.797, p = .074.

3.7.2.2. At TP2: Manipulations – Initial Strategy and Linkage

We first performed a two-way ANOVA to examine the effects of initial strategy and linkage on TP2 perceived health consequence (N =730), and found no significant results.

We then conducted a two-way ANOVA to test the impacts of initial strategy and linkage on TP2 post-crisis attitude (N = 724). There is a significant main effect of initial strategy on TP2 post-crisis attitude, F(2, 718) = 8.180, p < .001. Simple contrasts reveal that the TP2 post-crisis attitude is significantly lower in reaction to "denial without recall" (M = 2.46, SD = 1.351) than to "denial with recall" (M = 2.60, SD = 1.353) and "accept with recall" (M = 2.87, SD = 1.284) (p=.014 and p <.001, respectively). Another simple contrast reveals there is no significant difference in TP2 post-crisis attitude between "denial with recall" (M = 2.60, SD = 1.353) and "accept with recall" (M = 2.60, SD = 1.353) and "accept with recall" (M = 2.87, SD = 1.284), p =.119. There is a significant main effect of linkage on TP2 post-crisis attitude, F(1, 718) = 215.026, p <.001, indicating that TP2 post-crisis attitude is significantly higher in "not linked" groups (M = 3.736, SD =.086) than in "linked" groups (M = 2.274, SD =.050). There is no significant interaction of initial strategy and linkage on TP2 post-crisis attitude, F(2, 718) = 2.980, p =.051.

We performed a MANOVA to examine the effects of initial strategy and linkage on TP2 attribution of responsibility and blame outcome variables. Notably, at TP2 (the company Goodman's Creameries was confirmed by CDC and FDA to be linked or not linked to the food safety crisis), the DK counts for the responsibility and blame questions decreased greatly from TP1. Thus, the sample size in this analysis is 666. The results show no significant main effect of initial strategy on TP2 attribution of responsibility and blame outcome variables, Pillai's trace, V =.010, *F*(8, 1316) = .838, *p* =.569. There is also no significant interaction of initial strategy and linkage, on TP2 responsibility and blame outcomes, Pillai's trace, V = .005, *F*(8, 1316) = .420, *p* =.909. However, there is a significant main effect of linkage on TP2 responsibility and blame outcomes, Pillai's trace, V = .234.827, *p* <.001. Further ttests to examine the effect of linkage on each of the four responsibility and blame outcome variables on TP2 were conducted. The results suggest that, as expected, compared to "not linked" groups, "linked" groups have significant higher scores for all four of the responsibility and blame outcome variables (all *ps* <.001). For example,

perceived responsibility for causing the outbreak in the "linked" group (M = 4.14, SD = 1.082) is significantly higher than in "not linked" group (M = 1.58, SD = 1.158), p < .001.

We also performed a MANOVA to examine the effects of initial strategy and linkage on TP2 obligation and ability outcome variables (N = 645). There is a significant effect of both initial strategy (Pillai's trace, V = .018, F(4, 1278) = 2.894, p =.021) and linkage (Pillai's trace, V =.487, F(2, 638) = 303.014, p < .001) on TP2 obligation and ability outcome variables. However, no significant interaction of initial strategy and linkage is evident, Pillai's trace, V = .001, F(4, 1287) = .203, p = .937. Separate univariate ANOVAs on the outcome variables reveal that there is a significant main effect of initial strategy on TP2 obligation, F(2, 639) = 4.359, p =.013. Simple contrasts suggest that the TP2 obligation is significantly higher in "denial without recall" (M = 3.78, SD = 1.40) than "accept with recall" (M = 3.42, SD= 1.39), p = .004. There is no significant difference on TP2 obligation detected between "denial without recall" and denial with recall", or between "denial with recall" and "accept with recall". There is also a significant main effect of linkage on TP2 obligation, F(1, 639) = 586.926, p < .001, indicating significantly higher TP2 obligation in the "linked" group (M = 4.15, SD = .950) than in the "not linked" group (M = 1.89, SD = 1.249). Similarly, there is also a significant main effect of initial strategy on TP2 ability, F(2, 639) = 5.388, p = .005. Simple contrasts suggest that the TP2 ability is significantly higher in "denial without recall" (M = 3.78, SD = 1.348) than in both "denial with recall" (M = 3.54, SD = 1.383) and "accept with recall" (M =3.41, SD = 1.355), p = .028 and p = .001, respectively. However, the TP2 ability scores are not significantly different in "denial with recall" and "accept with recall". There is a significant main effect of linkage on TP2 ability, F(1, 639) = 402.094, p < .001,

indicating higher TP2 can scores (how much the participants agree on the statement "Goodman's Creameries had the ability to prevent the outbreak from happening") in "linked" groups (M = 4.06, SD = .954) than "not linked" groups (M = 2.11, SD = 1.385).

Lastly, we conducted a MANOVA to examine the effects of initial strategy and linkage on TP2 emotion outcome variables (N = 704). There is a significant main effect on linkage on TP2 emotion outcome variables, Pillai's trace, V = .069, F(4, 695)= 12.821, p < .001. There is no significant main effect of initial strategy, and there is no significant interaction of initial strategy and linkage. We then performed separate two-way ANOVAs on TP2 anger, sadness, fright, and anxiety, respectively. The ANOVA on TP2 anger reveals a significant main effect of linkage (F(1, 708) =37.256, p < .001): the results suggest TP2 anger is significantly higher in "linked" groups (M = 3.52, SD = 1.279) than "not linked" groups (M = 2.83, SD = 1.413). The ANOVA on TP2 sadness suggests a significant main effect of linkage, F(1, 714) =16.383, p < .001, indicating higher TP2 sadness score in "linked" groups (M = 3.48, SD = 1.253) than "not linked" groups (M = 3.04, SD = 1.343). The ANOVA on TP2 fright reveals that there is no significant main effect of linkage. The ANOVA on TP2 anxiety suggests a significant main effect of linkage, F(1, 716) = 4.501, p = .034, indicating higher TP2 anxiety in "linked" groups (M = 3.14, SD = 1.381) than "not linked" groups (M = 2.89, SD = 1.306).

3.7.2.3. At TP3: Manipulations – Initial Strategy and Crisis Type

We first performed a two-way ANOVA to examine the effects of initial strategy and crisis type on TP3 perceived health consequence (N = 546). Consistent with TP1 and TP2, we found no significant results. This non-significant finding is no surprise, since the health consequences did not vary across different manipulations.

We then conducted a two-way ANOVA to test the impacts of initial strategy and crisis type on TP3 post-crisis attitude (N = 544). There is a significant main effect of crisis type on TP3 post-crisis attitude, F(2, 535) = 45.081, p < .001. There is no significant main effect of initial strategy and there is no significant interaction between initial strategy and crisis type. Simple contrasts reveal that the TP3 postcrisis attitude is significantly lower when the crisis was caused by an act of "omission" (M = 1.83, SD = 1.095) or "commission" (M = 1.83, SD = 1.359) than when it was "accidental" (M = 2.90, SD = 1.252), all ps < .001.

We performed a MANOVA to examine the effects of initial strategy and linkage on TP3 attribution of responsibility and blame outcome variables (N = 534). The results indicate that there is a significant main effect of crisis type on TP3 attribution of responsibility and blame outcome variables, Pillai's trace, V = .434, F(8), 1046) = 36.194, p <.001. However, there is no significant main effect of initial strategy, and there is no significant interaction between crisis type and initial strategy. We then conducted separate ANOVAs to examine the effect of crisis type on the four attribution of responsibility and blame outcome variables: (1) responsibility for causing (the outbreak); (2) blame for causing (the outbreak); (3) responsibility for not preventing (the outbreak from happening); and (4) blame for not preventing (the outbreak from happening). The ANOVA on TP3 responsibility for causing reveals a significant main effect on crisis type, F(2, 533) = 137.556, p < .001. Simple contrasts suggest that at TP3 perceptions of responsibility for causing the crisis is lower in the "accidental" condition (M = 2.75, SD = 1.460) than in both the "omission" (M = 4.38, SD = 1.049) and "commission" conditions (M = 4.60, SD = .882), all ps <.001. However, there is no significant difference in perceived TP3 responsibility for causing between "omission" and "commission". The ANOVA on TP3 blame for causing reveals the same pattern as TP3 responsibility for causing (data not shown here). The ANOVA on TP3 responsibility for not preventing suggests a significant main effect of crisis type, F(2, 532) = 96.718, p < .001. Simple contrasts reveal that TP3 responsibility for not preventing is significantly lower in the "accidental" condition (M = 2.81, SD = 1.441) than in the "omission" (M = 4.18, SD = 1.310) and "commission" conditions (M = 4.54, SD = .922), all ps < .001. Furthermore, TP3 responsibility for not preventing is significant lower in "omission" than in "commission," p = .006. The ANOVA results on TP3 blame for not preventing reveal the same pattern as responsibility for causing and blame for causing (data not shown here).

We also conducted a MANOVA to examine the effects of initial strategy and crisis type on TP3 obligation and ability outcome variables (N = 485). The results indicate that there is a significant main effect of crisis type on the TP3 obligation and ability outcome variables, Pillai's trace, V = .306, F(4, 952) = 42.949, p < .001. There is no significant main effect of initial strategy, and there is no significant interaction between crisis type and initial strategy. We then conducted separate ANOVAs on the two obligation and ability outcome variables (obligation and ability). The ANOVA on TP3 ought suggests a significant main effect of crisis type, F(2, 476) = 80.094, p < .001. Simple contrasts indicate TP3 obligation is significantly lower in "accidental" (M = 3.22, SD = 1.348) than in "omission" (M = 4.47, SD = .940) and "commission" (M = 4.54, SD = .809), ps<.001. However, there is no significant difference between "omission" and "commission". The ANOVA on TP3 "can" reveals the same pattern as TP3 "ought" (data not shown here).

We then performed a MANOVA to examine the effects of initial strategy and crisis type on TP3 emotion outcome variables (N = 529). There is a significant main

effect of crisis type on TP3 emotion outcome variables, Pillai's trace, V =.132, F(8, 1036) = 9.164, p <.001. There is no significant main effect on initial strategy, and there is no significant interaction of initial strategy and crisis type. We further performed separate two-way ANOVAs on TP3 anger, sadness, fright, and anxiety, respectively. The ANOVA on TP3 anger suggests a significant main effect of crisis type, F(2, 526) = 27.710, p <.001. Simple contrasts indicate TP3 anger is significantly lower when the crisis is "accidental" (M = 3.33, SD = 1.309) than the result of an act of "omission" (M = 4.01, SD = 1.132) or "commission" (M = 4.20, SD = 1.011), all ps <.001. There is no significant difference between "omission" and "commission" on TP3 anger. The ANOVA on TP3 sadness reveals the same pattern as TP3 anger (data not shown here). However, the ANOVAs on TP3 fright and anxiety reveal no significant main effects or interactions.

Lastly we conducted a MANOVA to explore the effects of initial strategy and crisis type on TP3 perceived legal outcomes variables (N = 498). There is a significant main effect of crisis type on TP3 perceived appropriate legal outcomes variables, Pillai's trace, V = .363, F(10, 972) = 21.570, p < .001. There is no significant main effect on initial strategy, and there is no significant interaction of initial strategy and crisis type. We further conducted separate two-way ANOVAs on those five outcome variables: (1) "the company should be fined"; (2) "the responsible manager should be fined"; (3) "the responsible employee should be fined"; (4) "the responsible manager should be sent to jail"; and (5) "the responsible employee should be fined" suggests a significant main effect of crisis type, F(2, 527) = 99.208, p < .001. Simple contrasts indicate that the perception that "the company should be fined" is significantly lower when the crisis is "accidental" (M = 2.97, SD = 1.454) than when

caused by an act of "omission" (M = 4.36, SD = 1.016) or "commission" (M = 4.54, SD = .932), all ps <.001. However, there is no significant difference between "omission" and "commission". The ANOVAs on TP3 "the responsible manager should be fined" question and on TP3 "the responsible employee should be fined" question reveal the same results pattern as TP3 "the company should be fined" (data not shown). The ANOVA on TP3 "the responsible manager should be sent to jail" question indicates a significant main effect of crisis type, F(2, 509) = 59.815, p <.001. Simple contrasts reveal that the score of TP3 "the responsible manager should be sent to jail" question is significantly lower when the cause of the crisis is "accidental" (M = 2.49, SD = 1.367) than when caused by an act of "omission" (M = 3.40, SD = 1.155) or "commission" (M = 3.93, SD = 1.140), ps<.001. Noticeably, the score is also significantly lower with respect to "omission" than to "commission", p <.001, shown in Figure 8. Importantly, the same pattern of results is observed while conducting ANOVA on TP3 "the responsible employee should be sent to jail" question (data not shown).

3.8. What are the relationships among the outcome variables, post-crisis attitude, and behavioral intentions?

Our results indicate that our manipulations have various impacts on the outcome variables, and that post-crisis attitude might mediate the influence of other intermediate outcome variables (attribution of responsibility and blame, emotions, etc.) on behavioral intentions. Thus we want to further examine the relationship among attribution of responsibility and blame, obligation and ability, emotions, post-crisis attitude, and behavioral intentions.

3.8.1. At TP1

We first conducted a bivariate correlations between the following outcome variables: (1) TP1 post-crisis attitude, (2) TP1 responsibility for causing, (3) TP1 blame for causing, (4) TP1 responsibility for not preventing, (5) TP1 blame for not preventing, (6) TP1 obligation, (7) TP1 ability, (8) TP1 anger, (9) TP1 sadness, (10) TP1 fright, (11) TP1 anxiety, and (12) TP1 behavioral intentions. The results (shown in Table 16) indicate there are significant correlation between almost all the variables, except between (1) TP1 post-crisis attitude and (2) TP1 responsibility for causing, (1) TP1 post-crisis attitude and (2) TP1 responsibility for causing, (1) rP1 post-crisis attitude and (2) TP1 responsibility for causing, (1) responsibility for not preventing, and (12) TP1 behavioral intentions, and (4) TP1 responsibility for not preventing, and (12) TP1 behavioral intentions (Table 16).

Since post-crisis attitude is a strong predictor of behavioral intentions, we performed partial correlations to explore the relationships between the outcome variables and behavioral intentions by holding the effects of post-crisis attitude constant. As shown in Table 17, when post-crisis attitude is taken into consideration, only (6) TP1 obligation and (9) TP1 sadness are significantly related to TP1 behavioral intention, r (370) = -.105, p = .044 and r (370) = -.114, p = .028, respectively.

3.8.2. At TP2

Similarly as TP1, we first conducted bivariate correlations between the same outcome variables ((1)-(12) at TP2). The results reveal that all outcome variables (1) to (12) are significantly related to each other (data not shown). We then performed partial correlations to examine the relationships between the outcome variables and behavioral intentions by holding the effects of post-crisis attitude constant. As Table 18 shows, TP2 outcome variables TP2 responsibility for causing, TP2 blame for causing, TP2 responsibility for not preventing, TP2 blame for not preventing, TP2

obligation, TP2 ability, and TP2 anger are all significantly related to TP2 behavioral intentions. For example, TP2 responsible for causing is significantly related to TP2 behavioral intentions, r = -.262, p < .001. TP2 sadness, fright, and anxiety are not significantly related to TP2 behavioral intentions (Table 18).

3.8.3. At TP3

We conducted bivariate correlations on the same outcome variables ((1)-(12) at TP3). The results show that most of the outcome variables ((1) to (9)) are significantly related to TP3 behavioral intentions, except (10) TP3 fright and (11) TP3 anxiety (Table 19). Finally we performed partial correlations to examine the relationships between the outcome variables and behavioral intentions by holding the effects of post-crisis attitude constant. After controlling for TP3 post-crisis attitude, there are no significant correlations between the outcome variables and behavioral intentions (data not shown), suggesting that post-crisis attitude serves as a mediating pathway.

4. Discussion and Conclusions

4.1. General Discussion

Due to the nature of the experimental design, we added a DK option for most of the scales measuring the outcome variables. As expected, we found that participants gave the most DK at TP1, a point at which very limited information was available, and that the number of DK answers decreased at TP2 and TP3, as additional clarifying information was provided. Interestingly, at TP1, the outcome variables with the most DK answers were the four questions regarding attribution of responsibility and blame. More than one third (36.9%) of the participants answered DK for at least one out of the four questions, indicating that they felt there was not enough information to allocate responsibility and blame at this point. This is not surprising in that the news report at TP1 indicated that, ". . . the outbreak has not been conclusively identified yet. CDC officials have said that although it's early in their investigation, they suspect that ice cream products produced by Goodman's Creameries may be responsible because 'many of those affected reported eating Goodman's ice cream before becoming ill."

In fact, the information provided at TP1 is not sufficient to definitively assign responsibility or blame, so it is remarkable that nearly two-thirds of the participants felt that they were able to do so based on the inconclusive, circumstantial evidence provided in the scenario. This may be because they think that the CDC officials are confident enough that Goodman's products are responsible for the outbreak that they are willing to make a statement to the press, but for legal or other reasons don't want to indicate that the link is definitive until further testing can confirm it. It is also possible that some participants are unfamiliar with these kinds of outbreaks and do not realize that products identified as being potentially associated with foodborne illness at the initial stages of an investigation are not always confirmed to be the cause of the outbreak.

Regardless, nearly two-thirds of the participants thought they knew enough to assign responsibility/blame and around 90% were ready to assign responsibility/blame to Goodman's for the outbreak despite the lack of definitive evidence. This underscores the potential consequences of having public officials publically link a company's product with a foodborne illness outbreak even when emphasizing the preliminary nature of this association.

Moreover, despite the uncertainty over whether Goodman's products were related to the outbreak, 92.7%, 89.4%, and 87.9% of the participants answered the post-crisis attitude question, the emotion questions, and the behavioral intention questions at TP1, respectively. SCCT and other crisis communication research suggest (Claeys & Cauberghe, 2014; W Timothy Coombs, 2007), the level of responsibility individuals attribute to the company involved in a crisis determines their post-crisis attitudes, and thus also the reputational threat to the company. Other findings from this study also support this hypothesis. However, our observation that relatively few participants used the DK option at TP1 suggests that they formed attitudes, emotions, and behavioral intentions at the very early stage of the food safety crisis, even under conditions of significant uncertainty, and when many could not decide whether the company was responsible or to be blamed. This suggests that the majority of people are willing to decide how they feel, and how they will act in response to a food safety crisis even before definitive evidence of its cause becomes available. Whether this is due to the unique nature of food safety crises or to some other factors is worthy of further investigation.

In the attempt to examine the predictors of behavioral intentions at different time points of a food safety crisis, we found several interesting results. First, demographic variables including age and past foodborne illness experience and postcrisis attitude are significant predictors of behavioral intentions at all time points. Secondly, our final models explain 31.5% of the variation in behavioral intentions at TP1, 58.5% of the variation in behavioral intentions at TP2, and 54.8% of the variation in behavioral intentions at TP3. Thirdly, among all the predictors for behavioral intentions, post-crisis attitude is the strongest at all time points. Importantly, our experimental manipulations (initial strategy, linkage, and crisis type) and some key outcome variables (attribution of responsibility and blame and anger) were all predictors of behavioral intentions when post-crisis attitude was not included in the model (with the exception of initial strategy at TP1 and attribution of responsibility and blame at TP2, which are significant even in the model with postcrisis attitude included). This suggests the potential interaction between these outcome variables, post-crisis attitude, and behavioral intentions.

While exploring the effects of our manipulations (initial strategy, linkage, and crisis type) on behavioral intentions and other outcome variables at each time point, there are several important things need to be noted. At TP1, we find that behavioral intention is significantly lower in response to "denial" strategies ("denial without recall" and "denial with recall") than with the "accept" strategy; and significantly lower in response to the "no recall" strategy than the "recall" strategy ("denial with recall" and "accept with recall"). There is no difference detected between the two "denial" strategies and the two "recall" strategies. The same pattern is observed in post-crisis attitude, except that an additional linear relationship is detected in postcrisis attitude: the behavioral intentions from lowest to highest are "denial without recall", "denial with recall", and "accept with recall". These results, which are consistent with our hierarchical regression results at TP1, highlight the importance of issuing a recall regardless of denying or accepting responsibility at the early stage of a food safety crisis, especially in terms of consumer's behavioral intentions toward the company and its products. Also, we found no significant effect of initial strategy on the four TP1 emotion outcome variables in MANOVA. However, we conducted a one-way ANOVA on just anger (N = 683), using the same planned contrasts as described in section 3.7.1. Interestingly, there is a significant effect of initial strategy on TP1 anger and there is also a significant linear trend, indicating that as the strategies change from "denial without recall" to "denial with recall" and to "accept with recall", TP1 anger decreases proportionately. On the other hand, they certainly have face validity (i.e. they make sense). Since the MANOVA of all four emotions is

not significant, this observation on anger alone may be capitalized on chance. However, this finding does meet one's expectation and has face validity, thus raises questions worthy of further investigation.

At TP2, there are significant main effects of both initial strategy and linkage, as well as a significant interaction between the two. Behavioral intention is significantly lower in response to the "denial without recall" strategy than in response to the "denial with recall" and "accept with recall" strategies. Consistent with the results at TP1, taking action to recall products significantly increases behavioral intentions.

With regard to the effect of linkage; as one would expect, behavioral intention is significantly lower when the company's products are "linked" to the outbreak than when "not linked." Interestingly, the significant interaction between initial strategy and linkage reveals that when the company is ultimately linked to the food safety crisis, the behavioral intentions from lowest to highest are "denial with recall", "denial without recall", and "accept with recall." In contrast, when the company turns out to be not linked to the food safety crisis, the behavioral intentions from lowest to highest are "denial without recall", "accept with recall", and "denial with recall". These results suggest that in response to a food safety crisis in which the company's products are initially suspected as the cause, "denial with recall" is the most effective initial strategy if the company is ultimately not linked to the cause of the crisis; whereas "accept with recall" is the most effective initial strategy if the company is indeed linked to the crisis. The problem, of course, is that at the initial stages of an investigation, it often is not clear what has caused an outbreak, so companies have to choose a strategy under conditions of uncertainty. At this stage, we also find a significant main effect of linkage on almost all of the outcome variables (except one emotion outcome – fright). Compared to the "not linked" condition, the "linked" condition results in significantly lower post-crisis attitude, higher scores for attribution of responsibility and blame questions, higher scores for obligation and ability questions, and higher scores for negative emotions (anger, sadness, and anxiety). There is also a significant main effect of initial strategy on post-crisis attitude, obligation and ability. Consistent with behavioral intentions, post-crisis attitude is significantly lower in the "denial without recall" condition than in the "denial with recall" and "accept with recall" conditions, while there is no difference between the "denial with recall" and "accept with recall" groups.

Regarding obligation and ability, participants perceived the company in "denial without recall" group to be more obligated to prevent the food safety crisis then other two groups. Participants in the "denial without recall" condition also perceived that the company had a greater ability to prevent the food safety crisis. This result is quite interesting, as it suggests that participants actually perceive a company's obligation and ability to prevent a food safety crisis differently depending on the different initial strategy adopted by the company at the early stage of a crisis.

At TP3, there is no longer any significant main effect of initial strategy on any of our outcome variables. This result suggests that as the crisis unfolds to this point, the impacts of initial strategy dissipate. Since TP1, significant additional information regard to the food safety crisis has been provided to the participants. The information includes a confirmation of the company's linkage to the crisis at TP2, and the cause of the crisis at TP3 (accidental, omission, and commission). It is possible that the effects of initial strategy at TP1 (whether positive or negative) have been overwhelmed by the new information that also affects public response (such as post-crisis attitude, behavioral intentions, and attribution of responsibility and blame). Thus, after TP3, in order to further influence post crisis attitudes, emotions, and behavioral intentions that can minimize the reputational threats to the company, it's reasonable to suggest that appropriate follow-up crisis communication strategies should be adopted by the company (this will be our next research question in our next study).

There is also no significant interaction between initial strategy and crisis type at TP3. However, we do find a significant main effect of crisis type on most of our outcome variables. To begin with, the behavioral intentions outcome and post-crisis attitude are both significantly higher under the "accidental" condition than under the "omission" and "commission" conditions. However, there are no significant differences in either post-crisis attitudes or behavioral intentions with respect to the "omission" and "commission" conditions.

This pattern is similarly observed with respect to most if the other outcome variables as well: compared to the "omission" and "commission" groups, "accidental" groups have significantly lower scores for all four attribution of responsibility and blame questions, both obligation and ability questions, two out of the four emotion questions (anger and sadness), and all five perceived legal outcomes questions. However, no significant difference is detected between "omission" and "commission" groups in these outcome variables, except for the responsibility for preventing item, and the "the responsible manager should be sent to jail" and "the responsible employee should be sent to jail" statements.

These results shed light on how people perceive omission and commission food safety crisis. First, it appears that participants don't react differently to omission and commission crises, in terms of behavioral intentions, post-crisis attitude, most of the attribution of responsibility and blame, obligation and ability, emotions, and whether the responsible company, manager or employee should be fined. That is, as compared to when the company is involved in an accidental food safety crisis, people have more negative responses if the company is found to be responsible for a preventable food safety crisis, irrespective of the company's apparent intentions.

However, based on our results, there appear to be three exceptions: responsibility for not preventing the outbreak outcome, "the responsible manager should be sent to jail" statement, and "the responsible employee should be sent to jail" statement. For these three outcome variables, a significant linear relationship is detected with respect to intentionality. The scores for those outcome variables from lowest to highest are: "accidental", "omission", and "commission".

This result is extremely interesting when comparing it to the current practice of law in food safety crisis events. Based on the Federal Food, Drug, and Cosmetic Act (FDCA), felony violations include "adulterating or misbranding a food, drug, or device, and putting an adulterated or misbranded food, drug, or device into interstate commerce" (Hutt, 1991). A person with a felony conviction can be "punished by years in jail and millions in fines or both" (Marler, 2015), and the key here is "whether this person committed a prohibited act with the intent to defraud or mislead". That is to say, the intention of such an act is crucial when deciding whether there is jail time involved in the punishment. Thus, only a person responsible for a commission food safety crisis would likely face the possibility of felony charges. On the other hand, unlike a felony conviction, a misdemeanor conviction ("punishable by not more than one year or fined not more than \$250,000, or both") does not require the proof of intention. In summary, the current practice of law in the U.S. treats omission and commission food safety crises equally when it comes a misdemeanor conviction (usually involves fines) and differently when it comes to a felony charge (usually involves jail time). Therefore, the perceptions of appropriate legal outcomes in this study are consistent with actual likely legal outcomes.

4.2. Strengths and Limitations

In this study, we used an innovative multiple time-point, theory-based experimental design to test the applicability of SCCT and crisis stages to food safety crises. In addition, we examined the three most commonly used crisis communication strategies at the early stages of food safety crises and tested their effects in terms of protecting against reputational threat. We also proposed new sub-categories of crisis type, and tested differences in public perceptions toward these different types of food safety crises. Furthermore, we measured public response outcomes that are overlooked in previous studies, such as behavior intentions, obligation and ability, and legal outcome perception of food safety crisis.

Despite its significant strengths, as with all other studies, there are several limitations that should be noted. First, the experimental setting was well controlled to examine the effects of our manipulations, but it cannot completely represent what happens in reality during a food safety crisis. The information was provided to participants in the form of news articles and only news articles; while in today's world, the public receives information from various channels – particularly new media (such as social media), which adds complexity to crisis communication (Capozzi, 2013; Holmes, 2011; Schwarz, 2012). Secondly, even though the sample we obtained from Qualtrics Panel is designed to be statistically representative of the U.S. population, the fact that the data was collected online limits participants to only those who have Internet access. Thirdly, for the purpose of our study, our scenarios depict a large scale, multi-state foodborne illness outbreak involving *Salmonella*, with serious consequences, including hundreds made sick and two deaths. Therefore, the

generalizability of our results to food safety crises involving different contaminants, at smaller scales, or with less serious consequences is not assured.

4.3. Implications and suggestions for food safety crisis communication practice

The results from this study have several important implications for food safety crisis communication practice. First, our results highlight the importance of having a recall at the early stage of a food safety crisis whenever a company is suspected to be the potential source. If the company is indeed the source of the food safety crisis, an initial strategy issuing a recall while taking responsibility is the most effective in terms of protecting organizational reputation and minimizing reductions in consumers' purchase and invest intentions.

When a company has been identified as a potential source of a food safety crisis by the government agencies at the early stage of such crisis, the company faces unavoidable reputational threat even if it later turns out not to be the source. Under such circumstance, issuing a recall to protect public health while denying responsibility seems to be most effective. However, at the early stage of crisis, companies don't typically know with certainty that their products aren't going to ultimately be proven to be the cause of the outbreak or not. In the absence of definitive proof, denying responsibility might be risky because it backfires if the company later is confirmed to be responsible. Furthermore, a recall is the key here, since public health is always the top concern when it comes to a food safety crisis.

Secondly, despite the impacts of an initial crisis communication strategy issued at the early stage of crisis last for a while (TP1 and TP2 in our study), followup crisis communication strategies appropriate to the current situation need to be adopted as the crisis unfolds.
Thirdly, our results imply that omission and commission preventable food safety crises are likely to generate similar public responses and pose similar reputational threats to a company. That is to say, if a food company fails to guarantee the safety of its products and harms the public as a result, it doesn't matter whether the company intentionally did something wrong or failed to do something it was supposed to do. Thus, following current regulations and good manufacturing practice and making every effort to prevent a crisis from happening should be the priority of every food company.

Our results also suggest that while there may be similar reputational threats that result from omission and commission food safety crises, they do differ with respect to public perceptions of appropriate legal punishments for those involved, especially the jail time for responsible individuals. Perhaps reassuringly, this finding corresponds to the current practice of law in such crises. Both the law and the public reserve the strictest punishments to those who cause harm intentionally. It's also worth noting that, the "intention" here refers to situations when the company acts in certain ways while knowing there will be potential harm. An example would be the infamous Salmonella outbreak linked to Peanut Corporation of America, which was linked to at least 9 deaths and 714 sickened, when the owner of the company instructed "just ship it" after receiving a positive Salmonella testing result (Goetz, 2013; "Multistate Outbreak of Salmonella Typhimurium Infections Linked to Peanut Butter, 2008-2009 (FINAL UPDATE)," 2009).

4.4. Conclusions

In summary, the results of this study highlight the importance of having well considered initial crisis communication strategies, especially issuing a recall, at the early stage of a food safety crisis. This study also reveals that the public perceives accidental and preventable food safety crises differently and that the public appears to be more lenient toward accidental crises. Moreover, the public perceives omission preventable and commission preventable food safety crises similarly, except for wanting to impose the strictest punishments in response to commission preventable food safety crisis.



Figure 2.1. Situational Crisis Communication Theory (SCCT)

Figure 2.2. Flowchart of Experiment Design



Outbreak started in September, 2015

Group	Time	Point 1	Time	e Point 2	Time	Point 3
	Initial Strategy	Instruction	Linkage	Instruction	Crisis Type	Instruction
Group 1		No	Link	No	Accidental	No
Group 2		No	Link	No	Omission	No
Group 3	Denial	No	Link	No	Commission	No
Group 4	without	Yes	Link	Yes	Accidental	Yes
Group 5	recall	Yes	Link	Yes	Omission	Yes
Group 6		Yes	Link	Yes	Commission	Yes
Group 7		No	No link	No		
Group 8		Yes	No link	Yes		
Group 9		No	Link	No	Accidental	No
Group 10		No	Link	No	Omission	No
Group 11		No	Link	No	Commission	No
Group 12	Denial with	Yes	Link	Yes	Accidental	Yes
Group 13	recall	Yes	Link	Yes	Omission	Yes
Group 14	-	Yes	Link	Yes	Commission	Yes
Group 15		No	No link	No		
Group 16	-	Yes	No link	Yes		
Group 17		No	Link	No	Accidental	No
Group 18	-	No	Link	No	Omission	No
Group 19	-	No	Link	No	Commission	No
Group 20	Accept	Yes	Link	Yes	Accidental	Yes
Group 21	with recall	Yes	Link	Yes	Omission	Yes
Group 22	1	Yes	Link	Yes	Commission	Yes
Group 23	1	No	No link	No		
Group 24	1	Yes	No link	Yes		

Table 2.1. Group Assignment

	Number of	Percentage (%)
	participants	
Participants, n	743	-
Region		
Midwest	161	21.7
Northeast	135	18.2
South	275	37.0
West	172	23.1
Age		
Gender		
Male	371	49.9
Female	372	50.1
Education		
Less than high school	13	1.7
High school diploma or GED	225	30.3
Some college	291	39.2
Bachelor's degree	166	22.3
Post graduate	48	6.5
Race/ethnicity		
White	609	82.0
Hispanic, Latino, or Spanish origin	45	6.1
Black or African Am.	71	9.6
Asian	23	3.1
American Indian or Alaska Native	13	1.7
Middle Eastern or North African	2	0.3
Native Hawaiian or Other Pacific Islander	2	0.3
Some other race, ethnicity, or origin	7	0.9
N of people living in household		
Child under 18		
Yes	270	36.3
No	473	63.7
Household income		
Less than \$25,000	174	23.4
\$25,000 to \$49,999	273	36.7
\$50,000 to \$99,999	239	32.2
\$100,000 or more	57	7.7
Marital status		
Single, never married	202	27.2
Married	350	47.1
Widowed	32	4.3
Divorced	95	12.8
Separated	11	1.5
Living with partner	53	7.1
Grocery shopping		
You do all of it	490	65.9
You do most of it	126	17.0
You do about half of it	90	12.1
Someone else does mot of it, you do some	29	3.9
Someone else does all of it	8	1.1
Preferred information source		
Paper-based	51	6.9

Table 2.2. Demographic Characteristics of Participants

TV	377	50.7
Web-based news reports	186	25.0
Social media	108	14.5
Radio	11	1.5
Other	10	1.3
Personal foodborne illness experience		
Yes	243	32.7
No	423	56.9
Not sure	77	10.4
Family or friends foodborne illness experience		
Yes	342	46.0
No	285	38.4
Not sure	116	15.6
Native language		
English	724	97.4
Spanish	12	1.6
Other	7	0.9
Personal ice cream consumption		
Never	17	2.3
Rarely	120	16.2
Sometimes	388	52.2
Often	218	29.3
Family ice cream consumption		
Never	16	2.2
Rarely	91	12.2
Sometimes	384	51.7
Often	252	33.9

		Factor	
	1	2	3
TP1. Purchase intention, next 3 months	.927		
TP1. Recommend intention	.884		
TP1. Purchase intention, other products	.872		
TP1. Purchase intention, next 12 months	.869		
TP1. Invest intention	.837		
TP1. Post-crisis attitude	.511		
TP1. Blame for causing the outbreak		.830	
TP1. Blame for not preventing the outbreak		.822	
TP1. Obligation to prevent the outbreak		.725	
TP1. Responsible for causing the outbreak		.709	
TP1. Responsible for not preventing the outbreak		.680	
TP1. Ability to prevent the outbreak		.628	
TP1. Fright			.959
TP1. Anxiety			.891
TP1. Sadness			.803
TP1. Anger			.702
TP1. Perceived health consequence			.443

Table 2.3. Factor loading based on a principal factor analysis with oblique rotation for 17 items from Time Point 1 scale (N=516-722)

Note:

a. The N differs because answers with DK were counted as missing data ^a.

b. Factor loadings <.3 are suppressed.

		Factor	
	1	2	3
TP2. Perceived health consequence			.480
TP2. Post-crisis attitude	.644		
TP2. Responsible for causing the outbreak		.902	
TP2. Blame for causing the outbreak		.920	
TP2. Responsible for not preventing the outbreak		.787	
TP2. Blame for not preventing the outbreak		.911	
TP2. Obligation to prevent the outbreak		.884	
TP2. Ability to prevent the outbreak		.821	
TP2. Anger			.752
TP2. Sadness			.826
TP2. Fright			.941
TP2. Anxiety			.889
TP2. Purchase intention, next 3 months	.913		
TP2. Purchase intention, next 12 months	.912		
TP2. Purchase intention, other products	.959		
TP2. Invest intention	.928		
TP2. Recommend intention	.941		

Table 2.4. Factor loading based on a principal factor analysis with oblique rotation for 17 items from Time Point 2 scale (N=645-730)

Note:

a. The N differs because answers with DK were counted as missing data ^a.

b. Factor loadings < .3 are suppressed.

		Factor	
	1	2	3
TP3. Perceived health consequence			.481
TP3. Post-crisis attitude		.652	
TP3. Responsible for causing the outbreak	.806		
TP3. Blame for causing the outbreak	.858		
TP3. Responsible for not preventing the outbreak	.775		
TP3. Blame for not preventing the outbreak	.863		
TP3. Obligation to prevent the outbreak	.784		
TP3. Ability to prevent the outbreak	.841		
TP3. Anger			.704
TP3. Sadness			.826
TP3. Fright			.928
TP3. Anxiety			.921
TP3. Purchase intention, next 3 months		.975	
TP3. Purchase intention, next 12 months		.911	
TP3. Purchase intention, other products		.931	
TP3. Invest intention		.968	
TP3. Recommend intention		.952	
TP3. The company should be fined	.800		
TP3. The responsible manager should be fined	.798		
TP3. The responsible employee should be fined	.796		
TP3. The responsible manager should be sent to jail	.783		
TP3. The responsible employee should be sent to jail	.748		

Table 2.5. Factor loading based on a principal factor analysis with oblique rotation for 22 items from Time Point 3 scale (N=512-546)

Note:

a. The N differs because answers with DK were counted as missing data. The N decreases from TP1 and TP2 because "not linked" group participants did not proceed to TP3 a .

b. Factor loadings < .3 are suppressed.

Mode	R	R Square	Adjusted R	Std. Error of				Change Sta	atistics	Durbin-Watson
1			Square	the Estimate	R Square	F Change	df1	df2	Sig. F Change	
					Change					
1	.098 ^a	.010	.007	1.08101	.010	3.142	2	650	.044*	
2	.105 ^b	.011		1.08358	.001	.229	4	646	.922	
3	.135 ^c	.018	003	1.08640	.007	.581	8	638	.794	
4	.163 ^d	.027	.002	1.08338	.009	2.783	2	636	.063	
5	.169 ^e	.029	.003	1.08316	.002	1.254	1	635	.263	
6	.178 ^f	.032	001	1.08490	.003	.491	4	631	.742	
7	.236 ^g	.056	.005	1.08158	.024	1.323	12	619	.200	
8	.271 ^h	.073	.017	1.07505	.017	2.886	4	615	.022*	
9	.283 ⁱ	.080	.015	1.07641	.007	.742	6	609	.616	1.462

Table 2.6. Model summary of hierarchical regression analysis assessing demographic variables as predictors of TP1 behavioral intention

a. Predictors: (Constant), Gender, Age

b. Predictors: (Constant), Gender, Age, Education

c. Predictors: (Constant), Gender, Age, Education, Race

d. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18

e. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income

f. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping

g. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status, Information source, Native language

h. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status, Information source, Native language,

Past foodborne illness experience (self and family/friends)

i. Predictors: (Constant), Gender, Age, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status, Information source, Native language, Past foodborne illness experience (self and family/friends), Ice cream consumption (self and family)

j. Dependent Variable: TP1Intnetion

k. * p<.05

Mode	R	R	Adjusted R	Std. Error of		Chan		Durbin-Watson		
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	
					Change	Change			Change	
1	.161 ^a	.026	.015	1.07665	.026	2.288	5	432	.045*	
2	.192 ^b	.037	.021	1.07300	.011	2.470	2	430	.086	
3	.281 ^c	.079	.055	1.05411	.042	4.888	4	426	.001*	
4	.299 ^d	.090	.062	1.05052	.011	2.459	2	424	.087	
5	.326 ^e	.106	.070	1.04592	.016	1.934	4	420	.104	
6	.561 ^f	.315	.285	.91687	.209	127.547	1	419	.000*	2.048

Table 2.7. Model summary of hierarchical regression analysis assessing predictors of TP1 behavioral intention

a. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends)

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items)

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 Obligation and ability (2 items)

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 Obligation and ability (2 items), TP1 Emotions (4 items)

f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 Obligation and ability (2 items), TP1 Emotions (4 items), TP1 Post-crisis attitude

g. Dependent Variable: TP1Intnetion

h. * p<.05

Model		Sum of	df	Mean Square	F	Sig.
		Squares				
1	Regression	13.261	5	2.652	2.288	.045 ^b
	Residual	500.761	432	1.159		
	Total	514.022	437			
2	Regression	18.948	7	2.707	2.351	.023 ^c
	Residual	495.075	430	1.151		
	Total	514.022	437			
3	Regression	40.673	11	3.698	3.328	.000 ^d
	Residual	473.349	426	1.111		
	Total	514.022	437			
4	Regression	46.101	13	3.546	3.213	.000 ^e
	Residual	467.921	424	1.104		
	Total	514.022	437			
5	Regression	54.564	17	3.210	2.934	$.000^{\mathrm{f}}$
	Residual	459.458	420	1.094		
	Total	514.022	437			
6	Regression	161.787	18	8.988	10.692	.000 ^g
	Residual	352.235	419	.841		
	Total	514.022	437			

Table 2.8. ANOVA of hierarchical regression analysis assessing predictors of TP1 behavioral intention

a. Dependent Variable: TP1Intnetion

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends)

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items)

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items) f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items), TP1 Emotions (4 items)

g. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Initial strategy, TP1 Attribution of responsibility and blame (4 items), TP1 obligation and ability (2 items), TP1 Emotions (4 items), TP1 Post-crisis attitude

Model		Unstan	dardized	Standardized	t	Sig.	95.0% Co	onfidence	Con	relations		Collinearity Statistics	
		Coeff	ïcients	Coefficients			Interva	l for B					
		В	Std.	Beta			Lower	Upper	Zero-order	Partial	Part	Tolerance	VIF
			Error				Bound	Bound					
1	(Constant)	2.425	.160		15.201	.000*	2.111	2.739					
	Age	007	.003	115	-2.326	.020*	013	001	080	111	110	.927	1.079
	Past FBI experience-yes vs. no	062	.134	028	464	.643	326	.202	.016	022	022	.599	1.671
	Past FBI experience-yes vs. not sure	.214	.200	.060	1.070	.285	179	.606	.050	.051	.051	.715	1.400
	FF Past FBI experience-yes vs. no	.319	.136	.143	2.345	.019*	.052	.587	.079	.112	.111	.604	1.656
	FF Past FBI experience-yes vs. not sure	.234	.167	.078	1.402	.161	094	.562	.034	.067	.067	.721	1.386
2	(Constant)	2.286	.173		13.195	.000*	1.946	2.627					
	Age	007	.003	116	-2.363	.019*	013	001	080	113	112	.925	1.081
	Past FBI experience-yes vs. no	065	.134	030	486	.627	328	.198	.016	023	023	.598	1.671
	Past FBI experience-yes vs. not sure	.217	.199	.061	1.091	.276	174	.609	.050	.053	.052	.714	1.400
	FF Past FBI experience-yes vs. no	.326	.136	.146	2.399	.017*	.059	.593	.079	.115	.114	.603	1.657
	FF Past FBI experience-yes vs. not sure	.229	.166	.077	1.374	.170	098	.556	.034	.066	.065	.721	1.387
	Initial Strategy-Denialwo vs. Denialw	.149	.126	.065	1.184	.237	098	.396	.001	.057	.056	.748	1.336
	Initial Strategy-Denialwo vs. acceptw	.279	.126	.121	2.221	.027*	.032	.526	.088	.106	.105	.750	1.334
3	(Constant)	2.630	.257		10.225	.000*	2.124	3.136					
	Age	009	.003	138	-2.813	.005*	015	003	080	135	131	.903	1.107
	Past FBI experience-yes vs. no	080	.132	037	611	.542	339	.178	.016	030	028	.597	1.675
	Past FBI experience-yes vs. not sure	.186	.196	.052	.950	.342	199	.571	.050	.046	.044	.712	1.405
	FF Past FBI experience-yes vs. no	.347	.134	.156	2.588	.010*	.084	.611	.079	.124	.120	.596	1.677
	FF Past FBI experience-yes vs. not sure	.239	.165	.080	1.448	.148	085	.563	.034	.070	.067	.708	1.413
	Initial Strategy-Denialwo vs. Denialw	.095	.125	.041	.764	.445	150	.340	.001	.037	.036	.737	1.358

 Table 2.9. Coefficients of hierarchical regression analysis assessing predictors of TP1 behavioral intention

	Initial Strategy-Denialwo vs. acceptw	.223	.125	.097	1.782	.075	023	.469	.088	.086	.083	.732	1.366
	TP1 Responsible for causing	.110	.058	.118	1.894	.059	004	.225	011	.091	.088	.556	1.800
	TP1 Blame for causing	.001	.075	.001	.017	.987	146	.149	123	.001	.001	.334	2.990
	TP1 Responsible for not preventing	.042	.050	.049	.844	.399	056	.140	049	.041	.039	.630	1.587
	TP1 blame for not preventing	230	.067	269	-3.423	.001*	363	098	172	164	159	.349	2.864
4	(Constant)	2.779	.277		10.035	.000*	2.235	3.323					
	Age	009	.003	137	-2.799	.005*	015	003	080	135	130	.900	1.111
	Past FBI experience-yes vs. no	067	.131	031	508	.612	325	.192	.016	025	024	.595	1.679
	Past FBI experience-yes vs. not sure	.185	.196	.052	.946	.345	199	.569	.050	.046	.044	.710	1.409
	FF Past FBI experience-yes vs. no	.342	.134	.153	2.557	.011*	.079	.605	.079	.123	.118	.596	1.678
	FF Past FBI experience-yes vs. not sure	.239	.165	.080	1.451	.148	085	.563	.034	.070	.067	.706	1.417
	Initial Strategy-Denialwo vs. Denialw	.101	.124	.044	.813	.417	143	.346	.001	.039	.038	.733	1.365
	Initial Strategy-Denialwo vs. acceptw	.222	.125	.096	1.774	.077	024	.468	.088	.086	.082	.727	1.375
	TP1 Responsible for causing	.116	.058	.125	1.993	.047*	.002	.231	011	.096	.092	.549	1.820
	TP1 Blame for causing	.020	.075	.021	.263	.793	128	.168	123	.013	.012	.330	3.033
	TP1 Responsible for not preventing	.057	.050	.066	1.125	.261	042	.155	049	.055	.052	.619	1.615
	TP1 blame for not preventing	177	.071	207	-2.483	.013*	317	037	172	120	115	.308	3.243
	TP1 obligation	124	.066	133	-1.893	.059	253	.005	178	092	088	.438	2.282
	TP1 Ability	010	.064	010	150	.881	135	.116	125	007	007	.531	1.884
5	(Constant)	2.834	.290		9.779	.000*	2.265	3.404					
	Age	009	.003	143	-2.916	.004*	015	003	080	141	135	.889	1.125
	Past FBI experience-yes vs. no	061	.131	028	465	.642	319	.197	.016	023	021	.591	1.693
	Past FBI experience-yes vs. not sure	.188	.196	.053	.964	.336	196	.573	.050	.047	.044	.704	1.421
	FF Past FBI experience-yes vs. no	.333	.135	.149	2.474	.014*	.068	.598	.079	.120	.114	.583	1.714
	FF Past FBI experience-yes vs. not sure	.230	.164	.077	1.398	.163	093	.553	.034	.068	.064	.702	1.424
	Initial Strategy-Denialwo vs. Denialw	.083	.125	.036	.665	.507	162	.327	.001	.032	.031	.725	1.379
	Initial Strategy-Denialwo vs. acceptw	.200	.125	.087	1.604	.109	045	.446	.088	.078	.074	.721	1.386
	TP1 Responsible for causing	.113	.058	.122	1.941	.053	001	.228	011	.094	.090	.543	1.842

TP1 Blame for causing	.040	.075	.043	.527	.598	108	.188	123	.026	.024	.326	3.069
TP1 Responsible for not preventing	.051	.050	.059	1.008	.314	048	.149	049	.049	.047	.614	1.630
TP1 blame for not preventing	135	.074	157	-1.808	.071	281	.012	172	088	083	.281	3.562
TP1 obligation	112	.066	120	-1.710	.088	241	.017	178	083	079	.433	2.308
TP1 Ability	001	.064	001	016	.988	127	.125	125	001	001	.521	1.918
TP1 Anger	143	.060	179	-2.386	.017*	260	025	197	116	110	.376	2.658
TP1 Sadness	.055	.061	.064	.900	.369	065	.174	101	.044	.041	.421	2.377
TP1 Fright	.033	.069	.042	.480	.631	103	.169	121	.023	.022	.279	3.583
TP1 Anxiety	040	.068	049	584	.559	173	.094	150	028	027	.299	3.345
(Constant)	1.588	.277		5.734	.000*	1.044	2.133					
Age	010	.003	154	-3.588	.000*	015	004	080	173	145	.889	1.125
Past FBI experience-yes vs. no	128	.115	058	-1.109	.268	355	.099	.016	054	045	.589	1.698
Past FBI experience-yes vs. not sure	.109	.172	.031	.637	.525	228	.446	.050	.031	.026	.703	1.423
FF Past FBI experience-yes vs. no	.281	.118	.126	2.379	.018*	.049	.513	.079	.115	.096	.583	1.717
FF Past FBI experience-yes vs. not sure	.217	.144	.073	1.509	.132	066	.501	.034	.074	.061	.702	1.424
Initial Strategy-Denialwo vs. Denialw	223	.112	097	-1.980	.048*	444	002	.001	096	080	.683	1.463
Initial Strategy-Denialwo vs. acceptw	244	.116	106	-2.093	.037*	472	015	.088	102	085	.639	1.565
TP1 Responsible for causing	.054	.052	.057	1.039	.299	048	.155	011	.051	.042	.537	1.862
TP1 Blame for causing	.074	.066	.079	1.114	.266	056	.204	123	.054	.045	.325	3.075
TP1 Responsible for not preventing	.006	.044	.007	.135	.893	081	.093	049	.007	.005	.609	1.643
TP1 blame for not preventing	035	.066	041	532	.595	164	.094	172	026	022	.276	3.627
TP1 obligation	093	.058	100	-1.621	.106	207	.020	178	079	066	.433	2.310
TP1 Ability	.011	.056	.011	.193	.847	100	.121	125	.009	.008	.521	1.919
TP1 Anger	065	.053	082	-1.239	.216	169	.038	197	060	050	.370	2.703
TP1 Sadness	.014	.053	.016	.256	.798	091	.119	101	.012	.010	.419	2.388
TP1 Fright	.026	.061	.033	.428	.669	093	.145	121	.021	.017	.279	3.583
TP1 Anxiety	048	.060	060	806	.421	165	.069	150	039	033	.299	3.345

b. * p<.05

a. Dependent Variable: TP1Intnetion

Mode	R	R	Adjusted R	Std. Error of			Durbin-			
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	Watson
					Change	Change			Change	
1	.169 ^a	.029	.020	1.25661	.029	3.460	5	588	.004*	
2	.507 ^b	.257	.249	1.09993	.228	180.455	1	587	.000*	
3	.513°	.263	.253	1.09726	.006	2.428	2	585	.089	
4	.575 ^d	.331	.317	1.04897	.068	14.775	4	581	.000*	
5	.580 ^e	.336	.320	1.04694	.005	2.129	2	579	.120	
6	.586 ^f	.343	.323	1.04465	.007	1.634	4	575	.164	
7	.765 ^g	.585	.571	.83150	.241	333.589	1	574	.000*	2.038

Table 2.10. Model summary of hierarchical regression analysis assessing predictors of TP2 behavioral intention

a. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends)

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage, Initial strategy

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items)

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items)

f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items), TP2 Emotions (4 items)

g. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Linkage, Initial strategy, TP2

Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items), TP2 Emotions (4 items), TP2 Post-crisis attitude

h. Dependent Variable: TP2Intention

i. * p<.05

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.315	5	5.463	3.460	.004 ^b
	Residual	928.494	588	1.579		
	Total	955.809	593			
2	Regression	245.636	6	40.939	33.839	$.000^{\circ}$
	Residual	710.174	587	1.210		
	Total	955.809	593			
3	Regression	251.483	8	31.435	26.110	.000 ^d
	Residual	704.326	585	1.204		
	Total	955.809	593			
4	Regression	316.512	12	26.376	23.971	.000 ^e
	Residual	639.298	581	1.100		
	Total	955.809	593			
5	Regression	321.179	14	22.941	20.930	$.000^{\mathrm{f}}$
	Residual	634.631	579	1.096		
	Total	955.809	593			
6	Regression	328.313	18	18.240	16.714	.000 ^g
	Residual	627.496	575	1.091		
	Total	955.809	593			
7	Regression	558.953	19	29.419	42.550	$.000^{h}$
	Residual	396.857	574	.691		
	Total	955.809	593			

Table 2.11. ANOVA of hierarchical regression analysis assessing predictors of TP2 behavioral intention

a. Dependent Variable: TP2Intention

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend)

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage, Initial strategy

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items)

f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items)

g. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items), TP2 emotions (4 items)

h. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friend), Linkage, Initial strategy, TP2 Attribution of responsibility and blame (4 items), TP2 Obligation and ability (2 items), TP2 emotions (4 items), TP2 Post-crisis attitude

Mo	lel	Unstand	lardized	Standardized	t	Sig.	95.0% Co	nfidence	Co	orrelations		Collinearity	Statistics
		Coeff	icients	Coefficients			Interva	for B					
		В	Std.	Beta			Lower	Upper	Zero-	Partial	Part	Tolerance	VIF
			Error				Bound	Bound	order				
1	(Constant)	2.677	.160		16.745	.000*	2.363	2.991					
	Age	011	.003	149	-3.533	.000*	017	005	125	144	144	.927	1.079
	Past FBI experience-yes vs. no	059	.135	023	436	.663	323	.206	.019	018	018	.599	1.671
	Past FBI experience-yes vs. not sure	.228	.200	.055	1.138	.256	165	.621	.026	.047	.046	.715	1.400
	FF Past FBI experience-yes vs. no	.322	.136	.124	2.362	.018*	.054	.590	.075	.097	.096	.604	1.656
	FF Past FBI experience-yes vs. not sure	.138	.167	.039	.824	.410	191	.466	008	.034	.033	.721	1.386
2	(Constant)	.916	.192		4.779	.000*	.540	1.293					
	Age	011	.003	153	-4.134	.000*	017	006	125	168	147	.927	1.079
	Past FBI experience-yes vs. no	034	.118	013	285	.775	265	.198	.019	012	010	.598	1.671
	Past FBI experience-yes vs. not sure	.200	.175	.048	1.142	.254	144	.544	.026	.047	.041	.714	1.400
	FF Past FBI experience-yes vs. no	.347	.119	.133	2.907	.004*	.113	.582	.075	.119	.103	.604	1.657
	FF Past FBI experience-yes vs. not sure	.138	.146	.040	.943	.346	149	.426	008	.039	.034	.721	1.386
	Linkage	1.401	.104	.478	13.433	.000*	1.196	1.606	.475	.485	.478	.998	1.002
3	(Constant)	.787	.201		3.921	.000*	.393	1.181					
	Age	011	.003	154	-4.187	.000*	017	006	125	171	149	.925	1.081
	Past FBI experience-yes vs. no	036	.118	014	305	.760	267	.195	.019	013	011	.598	1.671
	Past FBI experience-yes vs. not sure	.202	.175	.048	1.153	.249	142	.545	.026	.048	.041	.714	1.400
	FF Past FBI experience-yes vs. no	.353	.119	.135	2.963	.003*	.119	.587	.075	.122	.105	.603	1.658
	FF Past FBI experience-yes vs. not sure	.134	.146	.038	.915	.360	153	.421	008	.038	.032	.721	1.387
	Linkage	1.401	.104	.478	13.466	.000*	1.197	1.605	.475	.486	.478	.998	1.002
	Initial strategy-Denialwo vs. Denialw	.168	.110	.062	1.522	.129	049	.385	.012	.063	.054	.748	1.336

 Table 2.12. Coefficients of hierarchical regression analysis assessing predictors of TP2 behavioral intention

	Initial strategy-Denialwo vs. acceptw	.236	.110	.088	2.141	.033*	.020	.453	.057	.088	.076	.750	1.334
4	(Constant)	3.105	.368		8.446	.000*	2.383	3.827					
	Age	011	.003	144	-4.062	.000*	016	006	125	166	138	.921	1.086
	Past FBI experience-yes vs. no	114	.114	045	-1.006	.315	338	.109	.019	042	034	.585	1.710
	Past FBI experience-yes vs. not sure	.142	.168	.034	.845	.399	188	.471	.026	.035	.029	.709	1.411
	FF Past FBI experience-yes vs. no	.367	.115	.141	3.194	.001*	.141	.593	.075	.131	.108	.592	1.689
	FF Past FBI experience-yes vs. not sure	.096	.140	.027	.684	.494	179	.371	008	.028	.023	.716	1.397
	Linkage	.496	.155	.169	3.201	.001*	.192	.801	.475	.132	.109	.411	2.433
	Initial strategy-Denialwo vs. Denialw	.111	.106	.041	1.050	.294	097	.319	.012	.044	.036	.744	1.343
	Initial strategy-Denialwo vs. acceptw	.130	.107	.048	1.221	.223	079	.340	.057	.051	.041	.731	1.368
	TP2 Responsible for causing	117	.063	144	-1.862	.063	240	.006	500	077	063	.191	5.222
	TP2 Blame for causing	119	.078	144	-1.512	.131	273	.035	519	063	051	.126	7.915
	TP2 Responsible for not preventing	.071	.041	.087	1.724	.085	010	.153	344	.071	.058	.457	2.190
	TP2 Blame for not preventing	162	.073	196	-2.216	.027*	306	018	519	092	075	.147	6.793
5	(Constant)	3.247	.382		8.499	.000*	2.496	3.997					
	Age	010	.003	141	-4.004	.000*	016	005	125	164	136	.920	1.088
	Past FBI experience-yes vs. no	121	.114	047	-1.063	.288	344	.102	.019	044	036	.584	1.712
	Past FBI experience-yes vs. not sure	.122	.168	.029	.730	.466	207	.452	.026	.030	.025	.706	1.416
	FF Past FBI experience-yes vs. no	.374	.115	.143	3.252	.001*	.148	.600	.075	.134	.110	.591	1.692
	FF Past FBI experience-yes vs. not sure	.099	.140	.028	.709	.478	176	.374	008	.029	.024	.716	1.397
	Linkage	.458	.156	.156	2.930	.004*	.151	.765	.475	.121	.099	.403	2.483
	Initial strategy-Denialwo vs. Denialw	.103	.106	.038	.969	.333	105	.310	.012	.040	.033	.741	1.349
	Initial strategy-Denialwo vs. acceptw	.122	.107	.045	1.136	.257	089	.332	.057	.047	.038	.727	1.376
	TP2 Responsible for causing	117	.063	145	-1.874	.061	240	.006	500	078	063	.191	5.234
	TP2 Blame for causing	083	.080	101	-1.030	.303	241	.075	519	043	035	.120	8.347
	TP2 Responsible for not preventing	.082	.042	.099	1.956	.051	.000	.164	344	.081	.066	.446	2.243
	TP2 Blame for not preventing	127	.076	153	-1.659	.098	276	.023	519	069	056	.135	7.390
	TP2 Obligation	139	.069	156	-2.024	.043*	274	004	494	084	069	.193	5.176

	TP2 Ability	.037	.057	.039	.638	.524	076	.149	420	.027	.022	.301	3.317
6	(Constant)	3.245	.383		8.473	.000*	2.493	3.998					
	Age	011	.003	146	-4.108	.000*	016	006	125	169 -	.139	.902	1.108
	Past FBI experience-yes vs. no	120	.114	047	-1.055	.292	344	.104	.019	044 -	.036	.576	1.736
	Past FBI experience-yes vs. not sure	.141	.168	.034	.842	.400	188	.471	.026	.035	.028	.701	1.427
	FF Past FBI experience-yes vs. no	.378	.116	.145	3.268	.001*	.151	.605	.075	.135	.110	.582	1.717
	FF Past FBI experience-yes vs. not sure	.106	.140	.030	.753	.452	170	.381	008	.031	.025	.708	1.412
	Linkage	.491	.160	.168	3.067	.002*	.176	.805	.475	.127	.104	.383	2.613
	Initial strategy-Denialwo vs. Denialw	.079	.106	.030	.749	.454	129	.288	.012	.031	.025	.735	1.361
	Initial strategy-Denialwo vs. acceptw	.101	.107	.038	.944	.346	109	.311	.057	.039	.032	.722	1.385
	TP2 Responsible for causing	117	.063	145	-1.862	.063	241	.006	500	077 -	.063	.188	5.321
	TP2 Blame for causing	066	.081	080	810	.418	224	.093	519	034 -	.027	.118	8.485
	TP2 Responsible for not preventing	.090	.042	.110	2.155	.032*	.008	.173	344	.090	.073	.441	2.269
	TP2 Blame for not preventing	112	.078	135	-1.436	.152	265	.041	519	060 -	.049	.129	7.782
	TP2 Obligation	141	.069	158	-2.045	.041*	276	006	494	085 -	.069	.192	5.199
	TP2 Ability	.038	.057	.041	.658	.511	075	.150	420	.027	.022	.300	3.329
	TP2 Anger	140	.055	149	-2.533	.012*	249	032	266	105 -	.086	.331	3.025
	TP2 Sadness	.052	.056	.052	.917	.359	059	.162	176	.038	.031	.349	2.867
	TP2 Fright	.044	.063	.048	.707	.480	079	.168	105	.029	.024	.243	4.109
	TP2 Anxiety	.002	.060	.002	.026	.979	116	.119	117	.001	.001	.274	3.644
7	(Constant)	1.311	.323		4.061	.000*	.677	1.945					
	Age	006	.002	083	-2.920	.004*	010	002	125	121 -	.079	.889	1.125
	Past FBI experience-yes vs. no	160	.091	062	-1.761	.079	338	.018	.019	073 -	.047	.576	1.737
	Past FBI experience-yes vs. not sure	.271	.134	.065	2.027	.043*	.008	.534	.026	.084	.055	.699	1.431
	FF Past FBI experience-yes vs. no	.241	.092	.092	2.613	.009*	.060	.422	.075	.108	.070	.578	1.729
	FF Past FBI experience-yes vs. not sure	124	.112	035	-1.100	.272	344	.097	008	046 -	.030	.700	1.430
	Linkage	.151	.129	.052	1.175	.241	102	.404	.475	.049	.032	.375	2.669

Initial strategy-Denialwo vs. Denialw	.046	.084	.017	.540	.590	120	.211	.012	.023 .015	.734	1.362
Initial strategy-Denialwo vs. acceptw	042	.086	016	490	.624	210	.126	.057	020013	.716	1.397
TP2 Responsible for causing	113	.050	140	-2.249	.025*	211	014	500	093060	.188	5.321
TP2 Blame for causing	.026	.065	.032	.403	.687	101	.153	519	.017 .011	.117	8.536
TP2 Responsible for not preventing	.033	.034	.041	.998	.319	032	.099	344	.042 .027	.437	2.288
TP2 Blame for not preventing	117	.062	141	-1.878	.061	239	.005	519	078050	.129	7.782
TP2 Obligation	.019	.055	.022	.350	.727	090	.128	494	.015 .009	.188	5.333
TP2 Ability	.030	.046	.032	.652	.515	060	.119	420	.027 .018	.300	3.329
TP2 Anger	057	.044	060	-1.277	.202	144	.030	266	053034	.327	3.057
TP2 Sadness	.000	.045	.000	005	.996	088	.088	176	.000 .000	.347	2.878
TP2 Fright	.067	.050	.073	1.336	.182	031	.165	105	.056 .036	.243	4.111
TP2 Anxiety	021	.048	023	442	.659	115	.073	117	018012	.274	3.647
TP2 Post-crisis attitude	.579	.032	.611	18.264	.000*	.517	.642	.725	.606 .491	.646	1.548

a. Dependent Variable: TP2Intention

Mode	R	R	Adjusted R	Std. Error of			Durbin-			
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	Watson
					Change	Change			Change	
1	.236 ^a	.056	.046	1.16198	.056	5.438	5	460	.000*	
2	.359 ^b	.129	.115	1.11860	.073	19.188	2	458	.000*	
3	.362 ^c	.131	.114	1.11954	.002	.614	2	456	.542	
4	.454 ^d	.206	.183	1.07484	.075	10.679	4	452	.000*	
5	.484 ^e	.235	.209	1.05768	.029	8.393	2	450	.000*	
6	$.488^{\mathrm{f}}$.238	.206	1.06003	.003	.502	4	446	.735	
7	.740 ^g	.548	.527	.81772	.310	304.492	1	445	.000*	1.912

Table 2.13. Model summary of hierarchical regression analysis assessing predictors of TP3 behavioral intention

a. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends)

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of Responsibility and blame (4 items)

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of Responsibility and blame (4 items), TP3 Obligation and ability (2 items)

f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of Responsibility and blame (4 items), TP3 Obligation and ability (2 items), TP3 Emotions (4 items)

g. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3

Attribution of Responsibility and blame (4 items), TP3 Obligation and ability (2 items), TP3 Emotions (4 items), TP3 Post-crisis attitude

h. Dependent Variable: TP3Intention

i. * p<.05

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.713	5	7.343	5.438	.000 ^b
	Residual	621.095	460	1.350		
	Total	657.808	465			
2	Regression	84.731	7	12.104	9.674	.000 ^c
	Residual	573.077	458	1.251		
	Total	657.808	465			
3	Regression	86.270	9	9.586	7.648	$.000^{d}$
	Residual	571.538	456	1.253		
	Total	657.808	465			
4	Regression	135.618	13	10.432	9.030	.000 ^e
	Residual	522.190	452	1.155		
	Total	657.808	465			
5	Regression	154.396	15	10.293	9.201	$.000^{\mathrm{f}}$
	Residual	503.412	450	1.119		
	Total	657.808	465			
6	Regression	156.651	19	8.245	7.337	.000 ^g
	Residual	501.157	446	1.124		
	Total	657.808	465			
7	Regression	360.253	20	18.013	26.938	$.000^{h}$
	Residual	297.555	445	.669		
	Total	657.808	465			

Table 2.14. ANOVA of hierarchical regression analysis assessing predictors of TP3 behavioral intention

a. Dependent Variable: TP3Intention

b. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends)

c. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type

d. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy

e. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of responsibility and blame (4 items)

f. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of responsibility and blame (4 items), TP3 Obligation and ability (2 items)

g. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of responsibility and blame (4 items), TP3 Obligation and ability (2 items), TP3 Emotions (4 items)

h. Predictors: (Constant), Age, Past foodborne illness experience (self and family/friends), Crisis type, Initial strategy, TP3 Attribution of responsibility and blame (4 items), TP3 Obligation and ability (2 items), TP3 Emotions (4 items), TP3 Post-crisis attitude

Mod	lel	Unstand	lardize	Standardized	t	Sig.	95.0% C	onfidence	Co	rrelations		Collinea	rity
		d Coeff	icients	Coefficients			Interv	al for B				Statisti	cs
		В	Std.	Beta			Lower	Upper	Zero-	Partial	Part	Tolerance	VIF
			Error				Bound	Bound	order				
1	(Constant)	2.416	.168		14.364	.000*	2.085	2.746					
	Age	014	.003	204	-4.349	.000*	021	008	173	199	197	.936	1.069
	Past FBI experience-yes vs. no	123	.142	051	866	.387	401	.156	.051	040	039	.592	1.690
	Past FBI experience-yes vs. not sure	024	.218	006	110	.912	452	.404	026	005	005	.688	1.454
	FF Past FBI experience-yes vs. no	.475	.143	.195	3.329	.001*	.195	.756	.123	.153	.151	.596	1.679
	FF Past FBI experience-yes vs. not sure	.278	.179	.084	1.554	.121	074	.631	012	.072	.070	.698	1.432
2	(Constant)	2.893	.179		16.135	.000*	2.541	3.246					
	Age	015	.003	211	-4.664	.000*	021	008	173	213	203	.933	1.072
	Past FBI experience-yes vs. no	093	.137	038	678	.498	361	.176	.051	032	030	.591	1.692
	Past FBI experience-yes vs. not sure	.039	.210	.010	.184	.854	374	.451	026	.009	.008	.686	1.458
	FF Past FBI experience-yes vs. no	.424	.138	.174	3.073	.002*	.153	.694	.123	.142	.134	.593	1.687
	FF Past FBI experience-yes vs. not sure	.233	.173	.071	1.348	.178	107	.573	012	.063	.059	.694	1.440
	Crisis type-Accidental vs. omission	619	.128	246	-4.857	.000*	870	369	106	221	212	.745	1.343
	Crisis type-Accidental vs. commission	733	.127	291	-5.754	.000*	984	483	165	260	251	.741	1.349
3	(Constant)	2.925	.191		15.312	.000*	2.549	3.300					
	Age	015	.003	211	-4.655	.000*	021	008	173	213	203	.930	1.075
	Past FBI experience-yes vs. no	094	.137	039	688	.492	363	.175	.051	032	030	.591	1.693
	Past FBI experience-yes vs. not sure	.038	.210	.010	.182	.856	374	.451	026	.009	.008	.686	1.458
	FF Past FBI experience-yes vs. no	.423	.138	.174	3.064	.002*	.152	.694	.123	.142	.134	.593	1.687
	FF Past FBI experience-yes vs. not sure	.235	.173	.071	1.355	.176	106	.575	012	.063	.059	.694	1.441
	Crisis type-Accidental vs. omission	620	.128	246	-4.855	.000*	871	369	106	222	212	.744	1.343

 Table 2.15. Coefficients of hierarchical regression analysis assessing predictors of TP3 behavioral intention

	Crisis type-Accidental vs. commission	734	.128	292	-5.753	.000*	985	483	165	260	251	.741	1.349
	Initial strategy-Denialwo vs. Denialw	110	.127	044	869	.385	360	.139	050	041	038	.749	1.335
	Initial strategy-Denialwo vs. acceptw	.020	.127	.008	.160	.873	230	.271	.022	.008	.007	.747	1.338
4	(Constant)	3.698	.228		16.226	.000*	3.250	4.145					
	Age	014	.003	198	-4.552	.000*	020	008	173	209	191	.926	1.080
	Past FBI experience-yes vs. no	084	.132	035	634	.527	344	.176	.051	030	027	.583	1.716
	Past FBI experience-yes vs. not sure	.100	.202	.025	.495	.621	297	.497	026	.023	.021	.684	1.463
	FF Past FBI experience-yes vs. no	.393	.133	.161	2.955	.003*	.132	.654	.123	.138	.124	.588	1.699
	FF Past FBI experience-yes vs. not sure	.190	.167	.058	1.140	.255	138	.518	012	.054	.048	.689	1.451
	Crisis type-Accidental vs. omission	084	.148	033	569	.569	376	.207	106	027	024	.509	1.966
	Crisis type-Accidental vs. commission	163	.154	065	-1.062	.289	465	.139	165	050	045	.471	2.124
	Initial strategy-Denialwo vs. Denialw	124	.122	049	-1.011	.312	364	.117	050	048	042	.746	1.340
	Initial strategy-Denialwo vs. acceptw	029	.123	011	233	.816	270	.213	.022	011	010	.741	1.349
	TP3 Responsible for causing	047	.069	056	682	.496	183	.089	340	032	029	.259	3.855
	TP3 Blame for causing	234	.093	277	-2.519	.012*	417	051	384	118	106	.145	6.873
	TP3 Responsible for not preventing	.082	.057	.100	1.449	.148	029	.194	257	.068	.061	.369	2.712
	TP3 Blame for not preventing	092	.087	107	-1.052	.294	263	.080	365	049	044	.170	5.881
5	(Constant)	4.015	.237		16.924	.000*	3.548	4.481					
	Age	012	.003	177	-4.095	.000*	018	006	173	190	169	.911	1.097
	Past FBI experience-yes vs. no	081	.130	034	621	.535	337	.175	.051	029	026	.580	1.725
	Past FBI experience-yes vs. not sure	.170	.199	.043	.852	.395	222	.562	026	.040	.035	.679	1.474
	FF Past FBI experience-yes vs. no	.387	.131	.159	2.950	.003*	.129	.644	.123	.138	.122	.586	1.707
	FF Past FBI experience-yes vs. not sure	.147	.165	.045	.894	.372	176	.471	012	.042	.037	.685	1.459
	Crisis type-Accidental vs. omission	090	.146	036	614	.540	378	.198	106	029	025	.505	1.981
	Crisis type-Accidental vs. commission	189	.151	075	-1.248	.213	486	.109	165	059	051	.470	2.128
	Initial strategy-Denialwo vs. Denialw	174	.121	069	-1.435	.152	411	.064	050	068	059	.738	1.355
	Initial strategy-Denialwo vs. acceptw	064	.121	025	528	.598	303	.174	.022	025	022	.735	1.361
	TP3 Responsible for causing	017	.069	020	251	.802	152	.118	340	012	010	.256	3.899

	TP3 Blame for causing	138	.095	164	-1.465	.144	324	.047	384	069	060	.136	7.346
	TP3 Responsible for not preventing	.073	.057	.089	1.288	.198	038	.185	257	.061	.053	.358	2.796
	TP3 Blame for not preventing	.031	.091	.036	.336	.737	148	.209	365	.016	.014	.151	6.625
	TP3 Obligation	238	.087	243	-2.726	.007*	410	066	418	127	112	.214	4.682
	TP3 Ability	078	.088	084	883	.378	252	.096	394	042	036	.187	5.346
6	(Constant)	4.080	.265		15.378	.000*	3.559	4.601					
	Age	012	.003	174	-3.997	.000*	018	006	173	186	165	.898	1.114
	Past FBI experience-yes vs. no	083	.131	034	633	.527	340	.174	.051	030	026	.577	1.732
	Past FBI experience-yes vs. not sure	.194	.201	.049	.965	.335	201	.589	026	.046	.040	.672	1.489
	FF Past FBI experience-yes vs. no	.383	.132	.158	2.903	.004*	.124	.643	.123	.136	.120	.580	1.724
	FF Past FBI experience-yes vs. not sure	.139	.166	.042	.841	.401	186	.465	012	.040	.035	.680	1.471
	Crisis type-Accidental vs. omission	078	.148	031	527	.598	370	.213	106	025	022	.494	2.025
	Crisis type-Accidental vs. commission	174	.154	069	-1.135	.257	476	.128	165	054	047	.458	2.184
	Initial strategy-Denialwo vs. Denialw	177	.121	070	-1.457	.146	415	.062	050	069	060	.736	1.358
	Initial strategy-Denialwo vs. acceptw	076	.122	030	619	.536	316	.165	.022	029	026	.728	1.374
	TP3 Responsible for causing	025	.069	029	357	.721	160	.111	340	017	015	.254	3.932
	TP3 Blame for causing	127	.096	150	-1.320	.188	316	.062	384	062	055	.132	7.562
	TP3 Responsible for not preventing	.071	.057	.086	1.248	.213	041	.183	257	.059	.052	.356	2.805
	TP3 Blame for not preventing	.046	.093	.054	.495	.621	136	.228	365	.023	.020	.146	6.872
	TP3 Obligation	236	.088	241	-2.677	.008*	409	063	418	126	111	.211	4.738
	TP3 Ability	080	.090	086	887	.375	256	.097	394	042	037	.183	5.478
	TP3 Anger	072	.071	073	-1.021	.308	211	.067	227	048	042	.331	3.025
	TP3 Sadness	005	.066	005	069	.945	135	.126	147	003	003	.335	2.981
	TP3 Fright	031	.073	036	419	.676	175	.114	078	020	017	.228	4.382
	TP3 Anxiety	.075	.074	.089	1.010	.313	071	.221	068	.048	.042	.221	4.528
7	(Constant)	1.181	.264		4.479	.000*	.663	1.699					
	Age	006	.002	093	-2.728	.007*	011	002	173	128	087	.881	1.136
	Past FBI experience-yes vs. no	143	.101	060	-1.418	.157	342	.055	.051	067	045	.577	1.734

Past FBI experience-yes vs. not sure	.057	.155	.014	.366	.715	248	.362	026	.017	.012	.670	1.493
FF Past FBI experience-yes vs. no	.244	.102	.100	2.388	.017*	.043	.445	.123	.112	.076	.577	1.734
FF Past FBI experience-yes vs. not sure	.155	.128	.047	1.213	.226	096	.406	012	.057	.039	.680	1.471
Crisis type-Accidental vs. omission	.092	.115	.036	.797	.426	134	.317	106	.038	.025	.490	2.039
Crisis type-Accidental vs. commission	021	.119	008	177	.860	255	.213	165	008	006	.455	2.196
Initial strategy-Denialwo vs. Denialw	054	.094	022	579	.563	239	.130	050	027	018	.732	1.366
Initial strategy-Denialwo vs. acceptw	066	.094	026	704	.482	252	.119	.022	033	022	.728	1.374
TP3 Responsible for causing	022	.053	026	413	.680	127	.083	340	020	013	.254	3.932
TP3 Blame for causing	043	.074	051	580	.562	189	.103	384	027	018	.132	7.594
TP3 Responsible for not preventing	.052	.044	.063	1.174	.241	035	.138	257	.056	.037	.356	2.807
TP3 Blame for not preventing	.040	.072	.047	.560	.576	101	.181	365	.027	.018	.146	6.872
TP3 Obligation	056	.069	057	813	.416	191	.079	418	039	026	.206	4.847
TP3 Ability	024	.069	026	351	.726	160	.112	394	017	011	.182	5.489
TP3 Anger	.026	.055	.027	.477	.633	081	.134	227	.023	.015	.327	3.057
TP3 Sadness	030	.051	032	588	.557	131	.070	147	028	019	.335	2.984
TP3 Fright	071	.057	084	-1.258	.209	183	.040	078	060	040	.228	4.389
TP3 Anxiety	.050	.057	.059	.867	.387	063	.163	068	.041	.028	.221	4.531
TP3 Post-crisis attitude	.607	.035	.682	17.450	.000*	.538	.675	.725	.637	.556	.665	1.504

a. Dependent Variable: TP3Intention

b. * p<.05



Figure 2.3. Effects of initial strategy on TP1 behavioral intention



Figure 2.4. Interaction effects of initial strategy and linkage on TP2 behavioral intention



Figure 2.5. Interaction effects of initial strategy and linkage on TP2 behavioral intention



Figure 2.6. Effects of crisis type and initial strategy on TP3 behavioral intention

Figure 2.7. Effects of initial strategy on TP1 post-crisis attitude



Figure 2.8. Effects of initial strategy and crisis type on TP3 "responsible manager should be sent to jail" question



Table 2.16. TP1 correlation

	1	2	3	4	5	6	7	8	9	10	11	12
1. TP1 Post-crisis attitude	1											
2. TP1 Responsibility for	052	1										
causing		1										
3. TP1 Blame for causing	227**	.637**	1									
4. TP1 Responsibility for not	064	.462**	.498**	1								
preventing												
5. TP1 Blame for not preventing	264**	.553**	$.768^{**}$.579**	1							
6. TP1 Obligation	191**	.432**	$.568^{**}$.470***	.644**	1						
7. TP1 Ability	188**	.412**	.499**	.360**	.539**	.653**	1					
8. TP1 Anger	242**	.349**	.486**	.307**	.545**	.424**	.387**	1				
9. TP1 Sadness	098^{*}	.299**	.381**	.248**	.445**	.299**	.266***	.666***	1			
10. TP1 Fright	143**	.235**	.326**	.200**	.392**	.344**	.329**	.696**	$.687^{**}$	1		
11. TP1 Anxiety	153**	.223**	.369**	.203**	.449**	.334**	.281**	.669**	.673**	.801**	1	
12. TP1 Behavioral Intentions	.510**	011	123**	049	172**	178**	125***	197**	101*	121**	150**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
Table 2.17. TP1 partial correlation

Control Var	riables	2	3	4	5	6	7	8	9	10	11	12
1. TP1	2. TP1 Responsible for causing	1										
Post-crisis	3. TP1 Blame for causing	.623**	1									
attitude	4. TP1 Responsible for not	.468**	.520**	1								
	preventing											
	5. TP1 Blame for not preventing	.547**	.750**	.572**	1							
	6. TP1 Obligation	.439**	.550**	.487**	.591**	1						
	7. TP1 Ability	.429**	.486**	.420***	.496**	.657***	1					
	8. TP1 Anger	.312**	.443**	.276**	.469**	.393**	.364**	1				
	9. TP1 Sadness	.265**	.353**	.252**	.416**	.342**	.297**	.662**	1			
	10. TP1 Fright	.224**	.318**	.176***	.346**	.284**	.278**	.666***	.689**	1		
	11. TP1 Anxiety	$.205^{**}$.336**	.165**	.394**	.269**	.256**	.665**	.649**	.756**	1	
	12. TP1 Behavioral intentions	.024	013	.002	024	105*	055	060	114*	055	073	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2.18. TP2 partial correlation

Control Variables			3	4	5	6	7	8	9	10	11	12
1. TP2 Post-	2. TP2 Responsible for causing											
crisis attitude	3. TP2 Blame for causing	.872**	1									
	4. TP2 Responsible for not		(2 4 ^{**}	1								
	preventing	.043	.034	1								
	5. TP2 Blame for not preventing	.824**	.884**	.665***	1							
	6. TP2 Obligation	.711**	.777***	.594**	.787**	1						
	7. TP2 Ability	.628**	.674**	.520**	.678**	.784**	1					
	8. TP2 Anger	$.298^{**}$.360**	.286**	.391**	.346**	.322**	1				
	9. TP2 Sadness	.222**	.293**	.183**	.328**	.287**	.270**	.726***	1			
	10. TP2 Fright	.149**	.208**	.164**	.263**	.202**	.188**	.689**	.685**	1		
	11. TP2 Anxiety	.163**	.220**	.145**	.256**	.175**	.171**	.644**	.680**	.824**	1	
	12. TP2 Behavioral intentions	262**	262**	141**	274**	202**	171**	109**	084	026	060	1

Table 2.19. TP3 correlation

	1	2	3	4	5	6	7	8	9	10	11	12
1. TP3 Post-crisis attitude	1											
2. TP3 Responsible for causing	434**	1										
3. TP3 Blame for causing	491**	.842**	1									
4. TP3 Responsible for not	262**	720**	711**	1								
preventing	303	.729	./44	1								
5. TP3 Blame for not preventing	476**	.797**	.896**	.762**	1							
6. TP3 Obligation	518**	$.708^{**}$	$.788^{**}$.606**	.790***	1						
7. TP3 Ability	498**	.732**	.815**	$.679^{**}$.819**	.865**	1					
8. TP3 Anger	275***	.411**	.509**	.385**	.518**	.398**	.414**	1				
9. TP3 Sadness	139**	.267**	.353**	.253**	.353**	.260**	.237**	.739**	1			
10. TP3 Fright	045	.191**	.254**	$.206^{**}$.257**	$.158^{**}$.186**	.654**	$.700^{**}$	1		
11. TP3 Anxiety	052	.215**	.261**	.208**	.264**	.161**	.184**	.650**	.718***	.864**	1	
12. TP3 Behavioral Intentions	.725**	340**	384**	257**	365**	418**	394**	227**	147**	078	068	1

**. Correlation is significant at the 0.01 level (2-tailed).

Outcome Variables		TP1						Т	ТРЗ									
		Initial Strategy				Initial Strategy Linkage Inter-					Inter-	Initial Strategy Crisis Type In						
		Denial	vs.	No rec	all vs.	Denial	Denial	Accept	Linked	Not	action	Denial	Denial	Accept	Α	0	С	action
		Accept		Recall		w/o	w/	w/		linked		w/o recall	w/	w/ recall				
		Denial	Accept	No	Recall	recall	recall	recall					recall					
				recall														
Behavioral	Intention	-	1	-	1	-	^	^	-	↑	Yes				1	-	-	
						1	-	$\mathbf{\Lambda}$			Linked							
						-	$\uparrow \uparrow$	^		Ν	ot linked							
Perceived h	nealth																	
consequence	ce																	
Post-crisis	attitude	-	1	-	1	-	^	1	-	1					1	-	-	
Responsi	Res for		-		-		-	-	♠	-					_	♠	♠	
bility and	causing								-							-	-	
Blame	Blame for								^	-					-	♠	♠	
(4)	causing								-							-	-	
	Res for not								^	-					-	♠	♠	
	preventing								-							-	A	
	Blame for not								^	-					_	♠	•	
	prevent								-							-	-	
Obligatio	Obligation					1		-	^	-					-	♠	♠	
n and	U					-			-							-	-	
ability	Ability					1	-	-	1	-					_	♠	♠	
(2)	2					-			-							-	-	
Emotion	Anger								1	-					-	↑	↑	
(4)	Sadness								^	-					-	1	1	
	Fright																-	
	Anxiety								^	-								
Legal	Company -						$\overline{\mathbf{\nabla}}$		$\dot{\}$						-	•		
outcome	fine	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$	$\left \right\rangle$					•	•	
perceptio	Manager -	\bigtriangledown		\land		$\overline{}$	\wedge	\wedge	\smallsetminus						_	♠	♠	
n (5)	fine	\searrow	\searrow		\searrow	\nearrow		\searrow	\nearrow	\searrow	\nearrow					•	-	
	Employee -		$\overline{\mathbf{N}}$	$\overline{\mathbf{N}}$	\sim	\sim	$\overline{\mathbf{N}}$	\sim	\sim	\sim	\sim				-	↑	1	
	fine	\searrow			\searrow	\searrow		\searrow	\searrow	\searrow	\searrow							
	Manager - jail	\sim	\sim	\sim	\sim	\sim	$\overline{\mathbf{N}}$	\sim	\searrow	\sim	\sim				-	1	1	
		\searrow		\bigvee	\searrow				\searrow	\searrow	\square						↑	
	Employee -	\sim		\mathbb{N}	\bigtriangledown	\sim	\sim	\bigtriangledown	\sim	\bigtriangledown	\searrow				-	↑	↑	
	jail	\searrow	\square		\searrow	\searrow	ert	\square	\searrow	\searrow	\searrow						1	

Table 2.20. Master results table of Experiment 1 ANOVAs

Notes: Grey shaded cells: no significant difference detected "−": the lowest value "↑": higher than the lowest value "↑↑ ": higher than "↑"

CHAPTER THREE Effects of Follow-up Communication Strategy and Framing on Public Responses toward Food Safety Crisis: A Theory-based Experimental Study

1. Introduction

Food safety problems are a major concern for both the American public and for the US government (W. K. Hallman & Cuite, 2009). The US Centers for Disease Control and Prevention (CDC) estimates that about 1 in 6 Americans (48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases each year (Scallan et al., 2011). Food allergens can also result in severe or even lifethreatening anaphylactic reactions (Gendel, 2012). Therefore, the discovery of accidental or purposeful contamination, adulteration, or mislabeling of foods containing pathogens or allergens represents a condition that may pose a serious threat to public health.

When foodborne illness outbreaks occur, or products are suspected to contain pathogens or allergens likely to cause serious illness or death, it is extremely important to identify the affected products as quickly as possible and to warn the public not to consume them. Thus, such events are likely to trigger a Class 1 recall of the implicated products to prevent consumer exposure to the contaminants. As such, the term "food safety crisis" in this study refers to such incidents involving food contamination, food adulteration, foodborne illness outbreaks, mislabeling involving allergens, and other incidents that would represent a threat to public health and would likely result in major food recalls and other actions designed to reduce that threat.

In addition to the potential threats to public health, food safety crises can also represent major threats to the economic and reputational viability of the companies held responsible (Benjamin Onyango, 2010; Powell et al., 2011; Verbeke, 2001; Wansink, 2005). The former Peanut Corporation of America filed bankruptcy after being held responsible for a Salmonella outbreak which led to nine death and 714 sickness across the U.S. and in Canada (Goetz, 2013; "Multistate Outbreak of Salmonella Typhimurium Infections Linked to Peanut Butter, 2008-2009 (FINAL UPDATE)," 2009; Powell et al., 2011). Chipotle, the Mexican Grill chain, reported to suffer from a 6.8% (\$72.78 million) decrease of revenue and a 44.0% (\$53.35 million) decrease of net income due to multiple outbreaks linked to it in 2015 ("Chipotle Mexican Grill, Inc. Announces Fourth Quarter and Full Year 2015 Results; CDC Investigation Over; Chipotle Welcomes Customers Back to Restaurants," 2016). Aside from the impacts on the food companies, food safety crises also pose major threats to the credibility of the government agencies tasked with ensuring the safety of the food supply (Benjamin Onyango, 2010; Verbeke, 2001; Wansink, 2005). For example, the Food and Drug Administration (FDA) was criticized by the tomato industry and the media for initially pointing tomatoes as the source of a Salmonella outbreak in 2008, while the culprit was later identified as jalapeno and serrano peppers grown in Mexico (Irlbeck & Akers, 2010).

Effective crisis communication is crucial to respond to food safety crises. However, the systematic study of crisis communications related to food safety is still in its infancy (W. K. Hallman & Cuite, 2009). While many of the rules of general crisis communications apply to food safety crises, their very real threat to public health, and the special place that food holds in society and within individual psychology, makes food safety crisis communication unique in several ways (Gaspar et al., 2014; W. Hallman et al., 2009; W. K. Hallman & Cuite, 2009; Kumar & Budin, 2006).

The central problem is that while the priority of any food safety crisis communication must be to protect public health, doing so often creates important challenges for the companies that manufacture and market food products, and for the government agencies that regulate them. Governments are faced with the need to effectively warn people without unnecessarily frightening them (W. K. Hallman & Cuite, 2009), and companies must appropriately cooperate with the government to issue food recalls when necessary to protect public health, while also minimizing unnecessary economic and reputational damage to themselves.

2.2. Crisis and Crisis Communication

A crisis is "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes." (W Timothy Coombs, 2014) The negative outcomes caused by a crisis can impact two major groups - various stakeholders directly or indirectly affected by the crisis and the organization(s) responsible, or perceived to be responsible for the crisis.

To protect the public from the potential threats posed by a crisis, timely communication is required to provide "instructing information" (telling stakeholders how to react to the crisis both physically and financially) and "adjusting information" (to reduce uncertainty and stress to help people cope with the crisis psychologically) (Sturges, 1994). On the other hand, to minimize the threats posed to the organization by a crisis, communication containing "reputation management information" (information that people will use to formulate an image about the organization) is essential and has received most attention (Sturges, 1994). Moreover, researchers also point out that despite the immediate threats and potential damage caused by a crisis, with appropriate communications and responses, the responsible organization can create opportunities to improve its reputation and future development (Ulmer et al., 2011). Thus, effective crisis communication is crucial not only to protect the public

and other stakeholders who are threatened, but also to minimize organizational damage.

2.3. Crisis Communication Theory

In this investigation, Situational Crisis Communication Theory (SCCT) was used to guide the study design and implementation. SCCT is a well-accepted and widely used theory in crisis communication research with several advantages.⁴⁴ Derived from Attribution Theory (Weiner, 1985, 1986), Situational Crisis Communication Theory (SCCT) draws upon experimental methods (instead of case studies) and social-psychological theory (W. Timothy Coombs, 2007; W Timothy Coombs, 2007, 2009, 2013, 2014; W Timothy Coombs & Holladay, 2002). SCCT identifies key factors likely to affect attributions about the crisis; how organizations can adopt the most effective crisis communication strategies to suit the specific crisis situation; and most importantly, how the public/stakeholders will respond to different crisis communication strategies (Figure 1).

Coombs points out that an organizational crisis would not only disrupt operations and pose financial threats, but also put the organization under reputational threats that may endanger its ultimate survival. To protect organizational reputation, it is important to understand the factors that can affect reputations during crises. SCCT proposes that when an organizational crisis happens, initial crisis responsibility and crisis response strategies will shape public perceptions of that crisis and affect organizational reputation. Crisis history (whether or not an organization has had a similar crisis in the past) and prior relationship reputation (the relationship between stakeholders and the company before the crisis) are two intensifying factors that also play important roles in organizational reputation threat. SCCT identifies three clusters of crises, based upon attributions of crisis responsibility: (1) the victim cluster, (2) the accidental cluster, and (3) the intentional cluster. Organizations involved in "victim cluster" crises are considered to be victims of the crisis themselves, rather than the cause of the crisis and therefore, the organizations have very little attribution of crisis responsibility in this case. Examples for this cluster are natural disasters ("acts of God", such as earthquakes and hurricanes) and rumor (damaging but false information about organizations). Since the organizations are also considered to be victims of crises, they typically experience only mild reputational threat.

Organizations involved in "accidental cluster" crises have low/minimal attributions of crisis responsibility. In such cases, organizations are considered to lack control over the event(s) that cause the crisis, or the crisis is triggered by the organization's unintentional actions. Examples of crises belonging to this cluster are challenges (stakeholders claim/consider that an organization is operating in an inappropriate manner) and technical-error accidents (an industrial accident caused by a technology or equipment failure). This type of crises is thought to pose a moderate reputational threat to organizations.

Organizations involved in "preventable cluster" crises are seen as having intentionally taken inappropriate or unlawful actions, which caused the crisis that put stakeholders at risk. Examples of crises that belong in this cluster are human-error accidents (an industrial accident caused by human-error) and human-error product harm (a product recall due to human errors). Crises in this cluster happen due to intentional organizational misconduct and sometimes cause injuries, thus, the organizations involved have both strong attribution of crisis responsibility and will experience severe reputational threat. According to SCCT, when a crisis happens, the organization first needs to evaluate the reputational threat by identifying the crisis type (initial crisis responsibility). The organization should also take the two intensifying factors (crisis history and prior relationship reputation) into consideration. An organization with no crisis history and a favorable prior relationship reputation will experience less reputational threat than an organization with a history of crises and/or an unfavorable prior relationship reputation, even when experiencing the same type of crisis.

Based on the results of the crisis type evaluation, the organization should then identify the crisis communication strategies most appropriate to respond to the specific type of crisis in which they are involved. SCCT identifies the three primary crisis response strategies as: denial, diminish, and rebuild.

Denial strategies try to disconnect the organization from the crisis. To apply denial strategies, an organization could "attack the accuser" (confronting the person or group that claims that a crisis exists), engage in "denial" (stating that no crisis exists), or employ "scapegoating" (maintaining that some other person or group outside of the organization is to blame for the crisis).

Diminish strategies attempt to make people believe that the crisis is not as bad as they think, or that the organization lacked control over the crisis. To apply diminish strategies, an organization could use "excusing" (minimizing the organization's responsibility for the crisis by claiming the crisis is unintentional or that the organization has no control over it) or "justification" (minimizing the perceived damage associated with the crisis).

Rebuild strategies aim at improving the organization's reputation through certain actions. To apply rebuild strategies, an organization could offer "compensation" (providing money or other gifts to the victims) or "apology" (publicly taking full responsibility, apologizing for the crisis, and asking for forgiveness).

SCCT also suggests that in addition to employing a primary crisis response strategy, organizations can also use a secondary/bolstering crisis response strategies to achieve better outcomes. Thus, elements of the principal strategies may be combined, and new strategies may be used at different stages of the crisis as it unfolds.

SCCT also touches on the role of emotion with regard to crises. Both crisis responsibility and crisis communication strategies can trigger emotional reactions. Perceptions of greater responsibility for a crisis can lead to an increase in anger and a decrease in sympathy for the organization; while particular crisis communication strategies used under varying circumstances (different crisis types) may ameliorate or exacerbate those emotions, or perhaps trigger different emotions as well. Lazarus suggests that there are six negative emotions elicited by a crisis, namely: anger, fright, anxiety, guilt, shame, and sadness (Lazarus, 1991). Jin et al. has further identified four of the six emotions (anger, fright, anxiety, and sadness) as the dominant negative emotions in ICM. Thus, in this study, we examine the role of these four emotions in food safety crisis communication (Jin et al., 2007).

2.4. Stages of Crisis

In addition to crisis type and crisis communication strategy, another important concept to consider regarding a crisis is its stages. There are many different ways to divide a crisis into different stages. Coombs divides a crisis into three macro stages: precrisis (encompasses all crisis preparation), crisis (includes all crisis action events), and postcrisis (reflects time after the crisis) (W Timothy Coombs, 2014). Jordan-Meier divides crisis into four stages: stage one – fact-finding (confirmation of basic

details of a crisis), stage two – the unfolding drama (the initial facts about the incident are available for discussion), stage three – finger-pointing stage (attribution of blame, key question at this stage is "why"), and stage four – resolution and fallout (marks the end of a crisis) (Jordan-Meier, 2011). While the ways of dividing crisis stages are different, the reasoning for doing so is essentially the same, that is – the crisis communication strategy adopted should be responsive to the ongoing crisis as it evolves. For crisis communications to be effective, one needs to react to the stages of crisis and the public perceptions at each stage differently (W Timothy Coombs, 2014; B. S. Reynolds et al., 2004; Sturges, 1994). As Coombs states, "The demands of the crisis stage dictate what crisis managers can and should be doing at any particular time." (W Timothy Coombs, 2014)

In this study, we use Jordan-Meier's four-stage model to guide our experimental design, mainly for two reasons: First, the main focus of this study is the actual crisis stage and its sub-stages, rather than the precrisis and postcrisis stages. Secondly, in the attempt to manipulate our independent variables (crisis type and initial communication strategies) as a crisis unfolds, we use news reports at different time points as manipulations. Thus, Jordan-Meier's four-stage model, which addresses stages of crisis and media reports at each stage, is ideal for such purposes.

1.4. Crisis Communication Strategies

According to SCCT, managers of organizations should adopt "appropriate" crisis communication strategies after examining the crisis types/responsibility, crisis history, and prior relationship reputation, which together determine reputational threats posed by the crisis (W Timothy Coombs, 2007). In other words, crisis communication strategies adopted by organizations should match the reputational threats, especially the crisis type.

Claeys et al. tested this hypothesis in their experimental study with 316 participants (Claeys et al., 2010). They presented combinations of three crisis types (victim crisis, accidental crisis, preventable crisis) and three crisis response strategies (deny, diminish, and rebuild) to the participants and assessed perceptions of organizational reputation after the experiment. The results showed that, as proposed by SCCT, preventable crises are associated with the most severe reputational threat. However, the reputational perceptions were not significantly different between the accidental cluster crises and the victim cluster crises. They also found that in terms of reputation restoration, rebuild strategies are the most effective strategy for preventable crises, compared with diminish strategies. Noticeably, this should be applied to all organizational crises, regardless of the theory/theories being used to assess crises.

Dutta and Pullig categorized brand crises as two major types: 1) performancerelated (crises involve defective products) and 2) value-related (crises don't involve defective products but social or ethical issues) (Dutta & Pullig, 2011). They also analyzed the relationship between crisis type and crisis communication/response strategy by adopting three of Benoit's typology of response types (denial, reductionof-offensiveness, and corrective action). The results confirmed that the effectiveness of crisis response strategies is associated with the type of crisis. Specifically, they found that: 1) corrective action is the most effective response strategy for performance-related crises; 2) reduction-of-offensiveness and corrective action are equally effective for value-related crises in most cases, with the exception that corrective action is more effective for crises involving internal values (i.e., psychological risk perception); and 3) denial is not effective in either crisis type.

1.5. Framing of Crisis Communication Message

Framing is another important topic in crisis communication studies. According to Entman, framing means telling a story by selecting certain elements to "promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." (Entman, 1993)

Researchers have proposed different ways of categorizing framing. Druckman proposes that there are two levels of frames: frames in communication and frames in thought (Druckman, 2001). Frames in communication is the way information is framed and presented to an audience (words, phrases, images, etc.), while frames in thought refers to the cognitive structure of information which people use to interpret meaning (scripts and schema). Hallahan proposes "seven models of framing", namely: (1) situational framing (framing of situations; provides a structure for examining communication), (2) attributes framing (focusing on positive or negative attributes), (3) choice framing (providing alternative choices when uncertainty is involved), (4) action framing (information is framed in a way that certain desired actions might be undertaken by individuals), (5) issue framing (providing alternative terms preferred by different parties which are disputed with respect to certain issues, with the goal of better presenting the issue), (6) responsibility framing (framing an event in a way of identifying attribution of responsibility), and (7) news framing (how stories are portrayed by the media) (Hallahan, 1999). Pan and Kosicki suggest four structural dimensions of news frames: (1) syntactical (messages are arranged in a certain sequence); (2) script (messages provide a description of certain event); (3) thematic (different themes involved in messages); and (4) rhetorical structures (different writing styles of messages) (Pan & Kosicki, 1993).

In summary, there are various ways to "frame"/describe a crisis, which may serve particular purposes for the presenter of the crisis. While the crisis itself influences how the public perceives and responses to it, how the crisis is described/framed is also crucial in affecting public's perception. A growing body of literature shows that different framing of crises have different impacts on the way stakeholders perceive crises.

It has been shown that the way information is framed (i.e., emotional versus rational framing) will affect individuals' willingness to examine the information and affect consumers' evaluation of organizational messages (McKay-Nesbitt et al., 2011; Yoo & MacInnis, 2005). Claeys and Cauberghe examined the effects of framing (emotional or rational) on respondents' attitude toward the organization in crisis and showed differences in these two framings (Claeys & Cauberghe, 2014). The researchers tested the effect of framing under two circumstances: 1) the crisis response strategy matches the crisis type, and 2) the crisis response strategy does not match the crisis type. In their study, there was no difference in respondents' attitude toward the organization under either condition (match or mismatch) when respondents received emotional framed crisis communication information. However, in the case of rational framing, the respondents had higher positive attitudes toward the organization when the communication strategy matched the crisis type.

An tested the effects of different types of framing on stakeholders' emotion (anger) and blame (An, 2011). She found that in an internal crisis (i.e. resulting from poor operational procedures), episodic framing (emphasizes individual responsibility, e.g., blame one worker) led to higher blame and anger in stakeholders than thematic framing (emphasizing organizational responsibility). Furthermore, immorality framing (emphasizing an organization's immoral behaviors in a crisis) generated higher blame and anger in stakeholders than framing that did not focus on immorality. Cho and Gower propose that there is a relationship between the framing of a crisis, emotion, and the perception of and response to a crisis, in that: different crisis framings can lead to different emotions, which will result in different perceptions of and responses to a crisis (Cho & Gower, 2006). They examined the hypothesis in an experimental study, and found that human interest framing (which "puts a human face and emotional angle to the presentation of an event") can significantly influence people's emotions during a crisis. For both preventable and accidental crises, participants exposed to human-interest framing showed more empathy about the crisis. The difference is that the participants' emotional response generated by human-interest framing did not lead to negative evaluations of the company in an accidental crisis. In contrast, in a preventable crisis, the participants' emotional response generated by human-interest framing led participants to blame the company.

Kim and Cameron found that anger-inducing framing of a crisis elicited heuristic processing and led to more negative attitudes toward the company, while sadness-inducing framing of crisis elicited systematic processing and led to less negative attitudes toward the company. Furthermore, they also found that relieffocused corporate response to the crisis was more effective in rebuilding organizational reputation in both anger-inducing framing and sadness-inducing framing groups (H. J. Kim & Cameron, 2011).

According to Cerulo et al., discursive style, sequential structure, social interaction factors, and sequencing all play important roles in public's forgiveness in response to apologies. They also found that victim-centered framed atonement is associated with greater public forgiveness, compared to victim-free framed atonement (Cerulo & Ruane, 2014).

To sum up, all of these studies suggest that framing plays an important role in crisis and crisis communication, possibly by affecting stakeholders' emotions, attributions of responsibility, and perceptions of and responses to a crisis.

1.6. Food Safety Crisis and Rational of This Study

As already stated, "food safety crises" in this study refers to incidents such as food contamination, foodborne illness outbreaks, food adulterations, etc., which might eventually result in major food recalls or other actions designed to reduce or prevent threats to public health. Effective crisis communication is extremely important when such incidents happen. As discussed in Chapter 1, although food safety crisis shares common features with general crisis communication, its communication is unique in several aspects, and thus needed to be examined on its own. Despite the importance of food safety crisis and crisis communication, there is very limited research (theory-based experimental research in particular) in this specific filed.

This study serves as a continuum of our previous theory-based experimental study on food safety crisis and crisis communication (Chapter 2). In our previous study, we proposed that one should take crisis stage into consideration and make a distinction between the crisis communication strategies commonly to be adopted at the early stage of a crisis and those adopted at the later stages of such crisis. We proposed that at the initial stage of a crisis (stage one - "fact-finding" of Jordan-Meier's four-stage model), the communication strategies (referred to as "initial communication strategies (denial, diminish, and rebuild from SCCT). At stage one, a company might be pointed to as the potential cause of a food safety crisis (e.g. a foodborne illness outbreak). However, a great deal of uncertainty exists at this stage

of a food safety crisis because information is often so limited that the real cause is still unclear. Thus, making apologies (the main component of a rebuild strategy) at the initial "fact-finding" stage is not necessary or recommended. Yet, due to the potential public health impacts of a food safety crisis, actions such as issuing a recall can be warranted to prevent exposures to affected products. Based on empirical evidence, at the initial stage of a crisis, three main strategies are adopted by food companies -(1) denial without a recall (the company denies its association with the food safety crisis and thus issues no recall); (2) denial with a recall (the company denies its association with the food safety crisis but issues a recall as a precautionary measure); and (3) accept with a recall (the company accepts the potential association with the food safety crisis and thus issues a recall). We then tested the effects of these three major initial communication strategies on public responses to an on-going food safety crisis, during its different stages in our previous study (reported as Chapter 2). We found that at the initial stage of a food safety crisis, having a recall as part of the initial strategy generated significant higher post-crisis attitude and behavioral intentions among participants, and that having an "accept responsibility" component in the initial strategy generated significant better results in participants' post-crisis attitude and behavioral intentions, compared to having a "denial responsibility" component. Furthermore, we found that the positive impact of having a recall on post-crisis attitude and behavioral intention lasted to the next stage of the food safety crisis (Time Point 2, when the food company was confirmed to be linked or not linked to the food safety crisis), but did not last to Time Point 3 (when the actual cause and type of crisis was revealed). These results highlighted the importance of having a recall as part of the initial strategy at the early stage of a food safety crisis,

as well as the importance of having follow-up crisis communication strategy as the crisis unfolds.

For this study, we proposed that at the later stage of an ongoing food safety crisis, a company should adopt a follow-up crisis communication strategy (referred as "follow-up strategy" in this dissertation) to respond to the public and its other stakeholders. The follow-up strategies a company could use are the ones indicated in SSCT - denial, diminish, and rebuild (W Timothy Coombs, 2007). Furthermore, it is also important to note that it is often difficult for organizations to take full responsibility and offer an apology because of concerns about liability and compensation claims (Claevs & Cauberghe, 2012; W. Timothy Coombs & Holladay, 2008). This is also true for food safety crises. In order to address these concerns, Peter Sandman suggests that companies may choose not to admit their responsibility but rather to take appropriate actions as if they are responsible nonetheless (Peter M Sandman, 1993; Peter M. Sandman, 2006). Thus, the "follow-up strategies" we aimed to examine in this study are – "denial (with scapegoating)", "diminish", "rebuild with responsibility and apology" (referred as "rebuild with responsibility" for the rest of the dissertation), and "rebuild without responsibility and apology" (referred as "rebuild without responsibility" for the rest of the dissertation".

We also intended to test the role of message framing during the process of food safety crisis communication, as research suggests that different framings of stories have different effects on the public's response to the story (W Timothy Coombs, 2013; Druckman, 2001; Entman, 1993; Hallahan, 1999; Weiner, 1985). We aimed to test the effect of two pairs of framing on public responses to a food safety crisis: (1) thematic framing (focuses on organizational responsibility) versus episodic framing (focuses on individual responsibility) (An, 2011); and (2) victim-centered framing (focuses on the victims) versus victim-free framing (focuses on involved organization) (Cerulo & Ruane, 2014).

To our knowledge, no study has yet systematically examined the effects of the aforementioned follow-up communication strategies and framing on public responses, using an experimental design embedded in a serious of unfolding events. Thus, we expect to get a better understanding of the effects and interactions of food safety crisis type, crisis communication strategy at different crisis stages, and message framing, within the context of public's response to such crisis.

1.7. Research Questions

As a food safety crisis unfolds and reach Time Point 4 (Stage 4: resolution and fallout according to Jordan-Meier) (Jordan-Meier, 2011):

Q3. What are the effects of follow-up communication strategies on behavioral intentions and other public responses to an ongoing food safety crisis?

Q3.1. What are the effects of follow-up strategies on behavioral intentions and other public responses to an ongoing food safety crisis?

As described in previous section, we intended to examine the effect of followup strategies - "denial (with scapegoating)", "diminish", "rebuild with responsibility", and "rebuild without responsibility" – on public responses to an ongoing food safety crisis.

Q3.2. Are there any interaction among initial crisis communication strategy, crisis type, and follow-up crisis communication strategy?

Since we kept the same multiple time-point experimental design of our previous study (reported in Chapter 2), we are able to also examine the effect of selected initial strategy ("denial with recall" and "accept with recall"), selected crisis type ("accidental" and "omission preventable"), and their interaction with

follow-up strategy. The rationale for selecting the aforementioned initial strategy and crisis type is reported in Material and Methods section.

Q3.3. What are the predictors of post-crisis behavioral intentions at this stage of an ongoing food safety crisis?

According to Coombs, the SCCT model ultimately connects the effects of a crisis to behavior intention (W Timothy Coombs, 2007). All the main concepts discussed in SCCT (such as crisis responsibility, crisis response strategies, organizational reputation, and emotions) would have effects on the public's behavioral intentions. Thus, same as in Experiment 1, we intended to examine what are the predictors of post-crisis behavioral intentions (e.g. purchase intention) at Time Point 4.

Q4. What are the effects of framing of crisis communication message on behavioral intentions and other public responses to an ongoing food safety crisis?

We attempted to examine the hypothesis that even under the same condition (same food safety crisis type and same crisis communication strategy), different ways of message framing can lead to different public responses to the crisis (Cho & Gower, 2006; Claeys & Cauberghe, 2014). The two sets of framing we tested are: (1) thematic framing (focuses on organizational responsibility) versus episodic framing (focuses on individual responsibility) (An, 2011); and (2) victim-centered framing (focuses on the victims) versus victim-free framing (focuses on involved organization) (Cerulo & Ruane, 2014).

2. Material and Methods

2.1. Design and Stimuli

In order to keep the experiment consistent with our previous study, and also to keep the experiment reflective of the process of an actual food safety crisis, we decided to still incorporate the different stages of a crisis. We kept Time Point 1 to 3, the same set up as in our previous study, and extend the study also to Time Point 4, when the company issued a statement, adopting different follow-up strategies, to the public. We examined our research questions Q3 (follow-up strategy) and Q4 (framing) in one experiment. The structure and scenario of this experiment was kept the same as Experiment 1. The story (consistent with Experiment 1) depicted an ongoing food safety crisis of a recent *Salmonella* outbreak, which later was linked to a fictitious food company - Goodman's Creameries. Four time points were incorporated into a factorial experimental design to test our hypotheses. The first three time points were consistent with the first experiment (Time Point 1/TP1 - breaking out of a food safety crisis, Time Point 2/TP2 - confirmation of the company's linkage to the food safety crisis, and Time Point 3/TP3 – identification of the cause of the food safety crisis). A fourth time point (Time Point 4/TP4) was added to this experiment and served as the following stage of Time Point 3, during which the company issued a statement using its follow-up crisis communication strategy. As a result, there were 20 groups in total for this experiment – Group 1 to 16 were for Q3 (follow-up strategy) and Group 17 to 20 were for Q4 (framing). The group assignment is shown in Figure 2 (Q3), Figure 3 (Q4), and Table 1.

For Q3 (Group 1 to 16), the independent variables include: (1) follow-up crisis communication strategy ("denial with scapegoating", "diminish", "accept with responsibility", and "accept without responsibility"); (2) selected food safety crisis initial response strategy at TP1 ("denial with recall" and "accept with recall"); and (3) selected food safety crisis type at TP3 ("accidental" and "omission preventable"). One plan was to keep the experimental design and independent variables of the first three time points to be exactly the same as in Study 1, and expand the experiment to TP4

independent variables. However, that would require 48 different groups and a very big sample size. Thus, we decided to pick the key variances for each independent variable for TP1-3 instead. At TP1, we adopted only "denial with recall" and "accept with recall" as the two initial response strategies (dropped "denial without recall"), because the results from Study 1 indicated that "denial without recall" generated least favorable public responses and thus should not be used during a food safety crisis. At TP2, the information regard to whether the company is linked or not linked to the food safety crisis was revealed. We only included the "linked" condition for TP2, as the "linked" condition is more common in real life and is the focus of our study. At TP3, the cause of the food safety crisis became available. For this time point, we only included "accidental" and "omission preventable" conditions (dropped "commission preventable" condition), since these two types of food safety crisis are more common in the United States.

For Q4 (Group 17 to 20), the independent variable is framing of message (including two sets) - "thematic" vs. "episodic" and "victim-centered" vs. "victim-free". All four groups used the same scenario, with a combination of "accept with recall" initial strategy at TP1, "linked" condition at TP2, "omission preventable" type of crisis at TP3, and "rebuild with responsibility" follow-up strategy at TP4. The variations of this independent variable were manipulated by company statements at TP4. While the four statements all used "rebuild with responsibility" strategy, they were written with the four different framing strategies, respectively.

At Time Point 1 (TP1), the participants read one news article. We used the same hypothetical scenarios in Experiment 1, to manipulate the two initial food safety crisis communication strategies we included in this experiment. The news article reported on a recent food illness outbreak caused by *Salmonella*. It provided basic

information about the *Salmonella* outbreak, pointed out that Centers for Disease Control and Prevention (CDC) was considering Goodman's creameries' (a fictitious brand) ice cream products as the potential source. The two variations of this scenario were the description on the company's reaction to the food safety crisis (manipulation of initial communication strategy): "denial with recall" (the company denied to be the source of the outbreak but issued a recall as a precautionary measure) or "accept with recall"(the company accepted its potential association with the outbreak hence issued a recall).

At Time Point 2 (TP2), the participants read one breaking news article of this food safety crisis. Two variations of the hypothetical scenario were developed to manipulate the company's linkage to the food safety crisis. The articles stated that the CDC has confirmed Goodman's Creameries' products were the source of the ongoing outbreak ("linked"). Each article also provided a short recapitulation of the initial strategy the company adopted at TP1 (two variations).

At Time Point 3 (TP3), the participants read a follow-up news article of the food safety crisis. Four variations of the hypothetical scenario were developed to manipulate the two types of food safety crisis we included in this experiment. In the reports, investigation by authorities has identified the cause of the outbreak to be either (two variations): "accidental" (the company didn't know the products were contaminated, because faulty test kits led to false negative results) or "omission preventable" (the company didn't know the products were contaminated due to failure to perform regular tests). Each scenario also provided a short recapitulation of the initial strategy the company adopted at TP1 (two variations) and the confirmation of linkage at TP2.

At Time Point 4 (TP4), the participants first read a company statement coming from Goodman's Creameries' CEO. Variations of the hypothetical statement were developed to manipulate the four different follow-up communication strategies for Q3, and the four different framing methods for Q4. For Group 1 to 16 (Q3), the statements varied by the follow-up strategy the company used ("denial with scapegoating", "diminish", "accept with responsibility", and "accept without responsibility"). For Group 17 to 20 (Q4), the statements all used "accept with responsibility" strategy, while differed in the framing methods the company used ("thematic", "episodic", "victim-centered", and "victim-free"). The participants also read a short commentary after the company used in its statement.

All scenarios were written in the language used by actual news reports of foodborne illness outbreaks and recalls. Great efforts have been made to make all scenarios consistent except for the parts of variations. Scenarios have also been reviewed by food safety experts so that they are realistic and good representations of real-life cases. All scenarios are attached in Appendices.

2.2. Measures

As an extension of Experiment 1, we measured the same dependent variables using the same questions. Same as Experiment 1, we have also kept an "I don't know enough to decide" option to most of the question scales (including questions on public perception of the severity of the health consequence, post-crisis attitude, attribution of responsibility and blame, emotional responses, behavioral intentions, and perception of appropriate legal consequences). One main difference from Experiment 1 is that we only measured our dependent variables once at TP4, instead of measuring them repeatedly at each time point. The reasoning for doing so is that we don't need to replicate what have been done in Experiment 1, and that we can reduce participants' response burden in this way.

The dependent variables and measures are listed as following:

Manipulation check questions: To check the manipulation of initial communication strategies at TP1, the participants answered the following two questions after reading TP1 news article: 1. "Which of the following best describes the message you took from the news article?" (A. The company is denying responsibility. B. The company is acting as if it's responsible. C. Neither A nor B.) 2. "Which of the following best describes the message you took from the news article?" (A. The company is issuing a recall. B. The company is NOT issuing a recall.) To check the manipulation of the company's involvement in the outbreak at TP2, the participants answered the following question after reading TP2 news article: "Which of the following best describes the message you took from the news article?" (A. The CDC confirmed that ice cream products from Goodman's Creameries are the source of the outbreak. B. The CDC confirmed that ice cream products from Goodman's Creameries are NOT the source of the outbreak. C. Neither A nor B.) To check the manipulation of the types of food safety crisis at TP3, the following question was asked after TP3 news article: "No company wants to make their customers sick. However, when an outbreak does happen, it could be caused due to the following reasons. Which of these best describes the situation you have read in the news article earlier? (Choose only one)" (A. Pure accident. The outbreak was caused by something out of the company's control. B. The company did not do what they were supposed to do, which ultimately caused the outbreak. C. The company intentionally did something wrong, which ultimately caused the outbreak. D. None of the above.) To check the manipulation of the follow-up communication strategies at TP4, the participants answered the following three questions after reading the company statement and the short commentary: 1. "Which of the following best describes the message you took from the company's statement?" (A. The company is denying responsibility. B. The company is accepting responsibility. C. The company is both denying and accepting responsibility at the same time. D. The company is not talking about responsibility.) 2. "Which of the following best describes the message you took from the company's statement?" (A. The company is blaming someone/something else for the outbreak. B. The company is not blaming someone/something else for the outbreak. B. The company is apologizing. B. The company is not apologizing.) For participants in Group 17 to 20, an additional question was added to check the manipulation of the framing: "Which of the following best describes the responsibility of the focus of the organizational statement?" (A. Emphasizing the responsibility of the entire company. B. Emphasizing the responsibility of individuals in the company. C. Neither A nor B.)

To measure public perception of the severity of the health consequence of the crisis, a single 5-point Likert scale item "In your opinion, how serious are the health consequences of this foodborne illness outbreak?" was used (e.g. 1 for "not at all serious" and 5 for "extremely serious"). In order, an option of "I don't know enough to decide" was added to the end of the 5-point Likert scale. The participants answer this measure only at TP4.

To measure post-crisis organizational reputation, a single 5-point Likert scale item "How would you describe your attitude/feeling toward Goodman's Creameries after the outbreak?" was used (e.g. 1 for "very negative" and 5 for "very positive"). This item was revised based on MacKenzie et al. and Mitchell et al.'s work (Cronbach's α =.86) (MacKenzie & Lutz, 1989; Mitchell, 1986). Same as previous measure, an option of "I don't know enough to decide" was added to the right of the 5-point Likert scale to measure uncertainty. The participants answer this measure only at TP4.

To measure attribution of responsibility and blame, a 4-item 5-point Likert scale was developed based on Griffin et al.'s work (Cronbach's α =.92) (Griffin et al., 1992). The questions asked how responsible was Goodman's Creameries for "causing" and "not preventing" the outbreak, and how much do the participants blame Goodman's Creameries for "causing" and "not preventing" the outbreak, and "not preventing" the outbreak, respectively (e.g. 1 for "not at all responsible" or "not at all to blame" and 5 for "completely responsible" or "completely to blame"). An option of "I don't know enough to decide" was added to the right of each item to measure uncertainty. The participants answer this measure only at TP4.

To measure public perception of the company's obligation and ability of preventing the food safety crisis, a 2-item 5-point Likert scale was used (Chituc et al., 2016). Two statements were provided (one about obligation and the other about ability), each asking the participant to rate whether the participant disagree or agree with the statement (e.g. 1 for "completely disagree" and 5 for "completely agree"). The participants answer this measure only at TP4.

To measure the emotional responses to the food safety crisis, a 4-item 5-point Likert scale was adopted to measure anger, sadness, fright, and anxiety, respectively (e.g. 1 for "not at all" and 5 for "extremely") (Malhotra & Kuo, 2009). An option of "I don't know enough to decide" was added to the right of each item to measure uncertainty. The participants answer this measure only at TP4. To measure behavioral intentions, a 5-item 5-point Likert scale was developed based on previous work (Jorgensen, 1996; Sen et al., 2006). The five items ask the likelihood of participants' intention to purchase Goodman's ice cream products (short-term and long-term), intention to purchase Goodman's other products, intention to invest in Goodman's Creameries, and intention to recommend Goodman's products to a friend, respectively (e.g. 1 for "very unlikely" and 5 for "very likely"). An option of "I don't know enough to decide" was added to the right of each item to measure uncertainty. The participants answer this measure only at TP4.

To measure public perceptions of legal outcomes, a 5-item 5-point Likert scale was created. Participants were provided with the five statements and were asked to rate how much they agree with each statement (from 1 - strongly disagree to 5 - strongly agree). The statements were as follows: (1) The company (Goodman's Creameries) itself should be fined; (2) The company manager(s) responsible for overseeing product testing and distribution should be fined; (3) Individual employee(s) of the company responsible for testing and distributing contaminated products should be fined; (4) The company manager(s) responsible for overseeing product testing and distribution should be sent to jail; and (5) Individual employee(s) of the company responsible for testing and distributing contaminated products should be sent to jail. An option of "I don't know enough to decide" was added to the right of each item to measure uncertainty. The participants answer these measures only at TP 4.

To measure the participants' demographic information, 13 questions on age, gender, education, income, household condition, marital status, grocery shopping,

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ethnicity, language, past foodborne illness experience, information source, ice cream consumption were provided to the participants.

2.3. Cognitive Interviews and Pilot Tests

The cognitive interviews and pilot tests results of our scenarios and survey questions have been described in Study 1. The scenarios and survey questions were modified based on the feedbacks and re-tested until no further concerns were raised. It is worth to mention that our cognitive interview and pilot tests revealed that participants' perception of our manipulation of follow-up strategy and framing varied. For example, one might perceive a "rebuild without responsibility" strategy statement as a "rebuild with responsibility" strategy statement. This is not surprising, considering the public's perception is subjective and does vary in reality. In order to improve the manipulation of our independent variables, we added a short commentary piece after the statement, to highlight the follow-up strategy and/or the framing the company adopted in its statement.

2.4. Participants and procedure

Data was collect via the Internet from 1890 participants recruited through Qualtrics Panel, in January 2017. Qualtrics, Inc. is a company that provides online survey software and participant pool service for research purpose. The Qualtrics Panel participant pool consists of more than 4 million members, and is designed to be statistically representative of the U.S. population (Cataldo, 2016; McKeever et al., 2016; Wright & Skagerberg, 2012). The Panel members 'opt-in' to participate in Qualtrics Panel, and participants for studies are invited by emails, which are designed to avoid self-selection bias ("ESOMAR 28: 28 Questions to help research buyers of online samples," 2014). Qualtrics, as well as its online panel, have been used widely in recent research and are considered comparable to other traditional recruiting methods (Brandon et al., 2013; McKeever et al., 2016). All procedures and protocols were approved by the Institutional Review Board at Rutgers University prior to data collection.

Once recruited, participants were randomly assigned to one (and only one) of the 20 experimental groups. Upon their agreement to the consent, participants completed the survey with the following parts in the following sequence: (1) answered three screening questions (state, age, and gender); (2) read TP1 scenario, a news article reporting Goodman's Creameries' ice cream products as the potential source of a recent Salmonella outbreak, and the company's reaction to the food safety crisis ("denial with recall" or "accept with recall"); (3) answered two manipulation check questions; (4) read TP2 scenario, a short breaking news article confirming Goodman's creameries were linked to the Salmonella outbreak; (5) answered one manipulation check question; (6) read TP3 scenario, a follow-up news article on the food safety crisis which identified the cause of the outbreak ("accidental" or "omission preventable"); (7) answered one manipulation check question; (8) read TP4 scenarios, a statement from Goodman's Creameries and a short commentary about the statement (Group 1 to 16: "denial with scapegoating", "diminish", "rebuild with responsibility", or "rebuild without responsibility"; Group 17-20: "accept with responsibility" statements with different framing - "thematic", "episodic", "victimcentered", or "victim-free"); (9) completed a survey with three (Group 1 to 16) or four (Group 17 to 20) manipulation check questions and a 22-item 5 or 6-point Likert scale; (10) answered 13 demographic questions.

Four attention check questions were added at different places through out the survey. Participants failed any one of the attention check questions were excluded from the sample.

3. Results

3.1. Demographics

1890 participants recruited through Qualtrics Panel completed the online survey, of which 1888 are included in the final analysis (two were excluded because they are under age of 18 years). There were 94-95 participants in each of the 20 groups.

The demographic characteristics of participants in this experiment are shown in Table 2. The participants' region information was national representative, with 22%, 18%, 37%, 23% of the participants were from Midwest, Northeast, South, and West, respectively. Overall mean age was 45.70 years (range from 18 to 85 years). The gender ratio of participants was 1:1 (49.9% male and 50.1% female). Most of the participants had at least high school diploma or GED (18.6% with high school diploma or GED, 36.3% with some college education, 30.3% with bachelor's degree, and 13.6% with post graduate degree). In terms of race, the majority of the participants identified themselves as White (81.8%). Almost all participants (96.6%) said English was their native language. For household income, 17.2% of the participants had an annual household income less than \$25,000, 27.9% with \$25,000 to \$49,999, 36.1% with \$50,000 to \$99,999, and 15.4% with \$100,000 or more. Almost a half of the participants were married (46.8%) and 33.0% of the participants had at least one child under 18. When it comes to grocery shopping, half of the participants claimed they "do all of it" (54.9%). The preferred information source was TV (43.4%), followed by web-based news report (32.9%) and social media (12.9%). For foodborne illness experience, 41.4% and 55.9% of the participants said themselves and their family or friends have had foodborne illness experience,

respectively. Most of the participants (79.1%) and their family (83.9%) consumed ice cream "sometimes" or "often". All demographic information is shown in Table 2. 3.2. Manipulation Check (Q3 and Q4 reported together for TP1-TP3)

To test the manipulation of our independent variables, crosstabs and chisquare analyses were performed, using SPSS (Version 21). The crosstabs results of initial communication strategy at TP1 show that 80% of the participants in the "denial with a recall" groups (Group 1 to Group 8) chose "deny" or "act as responsible" as the answer to the question asking the company's stand on responsibility, and 94% chose "recall" to the question asking if a recall was issued. Out of the 1133 participants in the "accept with a recall" groups (Group 9 to Group 16, and Group 17 to Group 20), 93% chose "act as responsible" or "neither deny or acting as responsible" as the answer to the question asking the company's stand on responsibility (only approximately 7% of them chose "deny" as the answer to the question), and 95% chose "recall" to the question asking if a recall was issued.

At TP2, 80% of the participants chose "confirmed linked" as the answer to the manipulation question asking whether the company is linked to the foodborne illness outbreak.

The crosstabs results of different types of food safety crisis at TP3 show that 82% of the participants in "accidental" groups (Group 1-4 and Group 9-12) chose "accident" as the answer to the crisis type manipulation question, 86% of the participants in "omission" groups (Group 5-8 and Group 13-20) chose "omission" as the answer to the manipulation question.

At TP4, we first looked at the manipulation of follow up strategies (Group 1-16). In "denial with scapegoating" group, 48% of the participants chose "deny responsibility" and 34% of the participants chose "both deny and accept responsibility" (a total of 82% of the participants) as the answer to the manipulation question asking the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 78% of the participants chose "blame" as the answer. When being asked whether the company has offered an apology in the statement, 62% of the participants answered "no".

In "diminish" group, 32% of the participants chose "both deny and accept" and 36% chose "not talking about responsibility" (a total of 68%) as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 83% of the participants chose "not blame" as the answer. When being asked whether the company has offered an apology in the statement, 55% of the participants answered "no".

In "rebuild with responsibility" group, 89% of the participants chose "accept responsibility" as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 91% of the participants chose "not blame" as the answer. When being asked whether the company has offered an apology in the statement, 97% of the participants answered "yes".

In "rebuild without responsibility" group, 52% of the participants chose "both deny and accept responsibility" and 26% of the participants chose "deny responsibility" as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 59% of the participants chose "not blame" as the answer while 41% chose "blame". When being asked whether the

company has offered an apology in the statement, 53% of the participants answered "no".

We then looked at the manipulation of framing (Group 17-18 and Group 19-20). In "thematic" group, 94% of the participants chose "accept responsibility" as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 91% of the participants chose "not blame" as the answer. When being asked whether the company has offered an apology in the statement, 96% of the participants answered "yes". Furthermore, 88% of the participants considered the company's statement emphasized company responsibility. In "episodic" group, 69% of the participants chose "accept responsibility" as the answer to the manipulation question about the company's stand on responsibility while 27% chose "both deny and accept". When it comes to the question asking about whether the company is blaming someone/something else in the statement, 53% of the participants chose "not blame" as the answer while 47% chose "blame". When being asked whether the company has offered an apology in the statement, 93% of the participants answered "yes". Furthermore, 59% of the participants considered the company's statement emphasized responsibility of individuals worked in the company.

In "victim-centered" group, 93% of the participants chose "accept responsibility" as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 95% of the participants chose "not blame" as the answer. When being asked whether the company has offered an
apology in the statement, 97% of the participants answered "yes". Furthermore, 90% of the participants considered the company's statement as "victim-centered".

In "victim-free" group, 91% of the participants chose "accept responsibility" as the answer to the manipulation question about the company's stand on responsibility. When it comes to the question asking about whether the company is blaming someone/something else in the statement, 94% of the participants chose "not blame" as the answer. When being asked whether the company has offered an apology in the statement, 94% of the participants answered "yes". Furthermore, 36% of the participants considered the company's statement as "victim-free".

In conclusion, the analyses show effective manipulations of all independent variables with some mixed results, which we will discuss in the discussion section.

3.3. Report on DK option

In order to explore the pattern of how participants used the DK ("I don't know enough to decide") option for the scale questions, we counted (using SPSS, Version 21) how many participants answered DK for each question at TP4. Out of the 1888 participants included in our final analyses, the percentages of participants who answered DK for each of the following questions are: 0.6% for the perceived health consequence question, 1.8% for the post-crisis attitude question, 5.7% for at least one out of the four attribution of responsibility and blame questions, 2.4% for at least one out of the four emotion questions, 5.8% for at least one out of the five behavioral intention questions, and 12.8% for at least one out of the five perceived legal outcome questions. The percentage of participants answered DK for the questions are as expected and similar to what we had at TP3 in Experiment 1.

We also conducted chi-square tests (using SPSS, Version 21) on TP4 outcome measurements to examine the relationship between answering DKs for questions and groups. No significant difference was detected, suggesting DKs are evenly distributed among groups. We further performed hierarchical regression analyses on the TP4 outcome measurements, in the attempt to explore whether there are any demographic predictors of choosing DK. No strong predictors were found.

3.4. Exploratory factor analysis

We conducted an exploratory factor analysis (using SPSS, Version 21) first to identify the proper clusters of dependent variables to include in our following analyses. The principal axis factor analysis was conducted on the 22 items at TP4 with oblique rotation (promax). The Kaiser-Meyer-Olkin measure of sampling adequacy was .918, above the commonly recommended .5 and can be considered as "meritorious" according to Hutcheson & Sofroniou (Hutcheson & Sofroniou, 1999). Bartlett's test of sphericity was significant (X^2 (231)=29674.05, p<.001), suggesting the correlations between variables are (overall) significantly different from zero (Field, 2009). Table 3 shows the factor loading after rotation. The items loaded on 4 main factors as we expected. Factor 1 represents the four items related to attribution of responsibility and blame and the two items measuring perception of obligation and ability to prevent the outbreak. Three of the items measuring perception of appropriate legal consequences also loaded on Factor 1, showing correlation between attribution of responsibility and blame and perception of appropriate legal consequences. Factor 2 represents the items measuring post-crisis behavioral intentions. The item measuring post-crisis attitude also loaded on this factor, showing correlation between post-crisis attitude and post-crisis behavioral intentions. Factor 3 represents the items related to emotions, and the item measuring perception of health outcome also loaded on this factor. Factor 4 represents the items measuring perception of appropriate legal consequences.

Because the loadings for the five behavioral intention questions have big sizes of their factor loadings (mostly are greater than .87), we ran correlation analyses on those questions. The significant results of these analyses suggest that these five questions are highly correlated (Pearson Correlation over .8). Thus, we decided to take the average of the five behavioral intention questions and compute it into one new dependent variable named "behavioral intention". Therefore, based on the factor analysis results and our research questions, we later performed analyses on TP4 measurements in 7 clusters: perceived health consequence (one item), post-crisis attitude (one item), attribution of responsibility and blame (four items), obligation and ability (2 items), emotions (four items), post-crisis behavioral intention (one item), and perceived legal outcomes (five items).

3.5. What are the predictors of post-crisis behavioral intention?

In order to explore the predictors of post-crisis behavioral intention, hierarchical regression analyses were conducted. All categorical variables were recoded into dummy variables.

We first conducted a hierarchical regression to explore if there is any demographic predictor of TP4 behavioral intention. According to the model summary (Table 4), the demographic variables together contributed to only 5.5% of the variability in T4 behavioral intention (R^2 =.055). Among all the demographic variables – gender, age, education, race, number of people living in household, child under 18, household income, grocery shopping, marital status, information source, native language, past foodborne illness experience (self and family) and friends), ice cream consumption (self and family) – only age and gender cluster; marital status, information source, and native language cluster; ice cream consumption (self and family) cluster are adding significant F changes to R^2 . We further performed another

hierarchical regression by entering only the variables turned out to add significant F changes to R^2 in our last model. As the model summary (Table 5) shown, age, gender, marital status, information source, and ice cream consumption (self) are adding significant F changes to R^2 in this model. Therefore, we are only including age, gender, marital status, information source, and ice cream consumption (self) as demographic predictors in the following regression analyses.

We then performed a hierarchical regression to examine the predictors of behavioral intention at TP4 for Group 1 to 16 (with a total of 1,510 participants for those groups). Demographics (age, gender, marital status, information source, and ice cream consumption), follow-up strategy, crisis type, initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), and TP4 post-crisis attitude - were entered in block 1, 2, 3, 4, 5, 6, 7, and 8, respectively. Missing values were excluded pair-wise. The numbers of responses included in the regression for each predictor range from 1,419 to 1,510. As shown in Table 6 and 7, all 8 models find significant regression equations for TP4 behavior intention. Adding demographics (age, gender, marital status, information source, and ice cream consumption), follow-up strategy, crisis type, initial strategy, TP4 attribution of responsibility and blame, TP4 obligation and ability, TP4 emotions, and TP4 post-crisis attitude into the model leads to significant F changes. Model 8 - with all aforementioned independent variables entered – has the greatest predicting power $(F (31, 1342) = 30.781, p < .001, R^2 = .416)$. Table 8 reveals that, in Model 8, significant predictors of participants behavior intention at TP3 are gender (b=-.139, p=.002), marital status (single vs. married) (b=.139, p=.009), ice cream consumption (never vs. sometimes) (b=.545, p=.001), ice cream consumption (never vs. often) (b=.573, p=.001), TP4 follow-up strategy (denial with scapegoating vs. rebuild with

responsibility) (b=.179, p=.004), TP4 obligation (b=-.082, p=.008), TP4 anxiety (b=-.061, p=.026), TP4 post-crisis attitude (b=.390, p<.001). Crisis type (accidental vs. omission), initial strategy (denial with recall vs. accept with recall), TP4 responsibility and blame, and TP4 anger were significant predictors in earlier models, but are not significant predictors of behavioral intention in model 8 (with post-crisis attitude added into the model). Additionally, adding post-crisis attitude into the model leads to the greatest increases of predicting power of the model (the R^2 change from model 7 to 8 is .149). The predictors included in Model 8 at TP4 can explain 41.6% of the variance in TP4 behavioral intention.

We further conducted a hierarchical regression to examine the predictors of behavioral intention at TP4 for Group 17 to 18 (with a total of 189 participants for those groups). Demographics (age, gender, marital status, information source, and ice cream consumption), framing (thematic and episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), and TP4 post-crisis attitude - were entered in block 1, 2, 3, 4, 5, and 6, respectively. Missing values were excluded pair-wise. The numbers of responses included in the regression for each predictor range from 180 to 189. As shown in Table 9 and 10, model 3 to 6 find significant regression equations for TP4 behavior intention. Adding TP4 attribution of responsibility and blame, TP4 emotions, and TP4 post-crisis attitude into the model leads to significant F changes. Similar as Group 1 to 16, Model 6 - with all aforementioned independent variables entered – has the greatest predicting power (F (26, 151) = 4.567, p < .001, R²= .440). However, framing (thematic and episodic) is not a significant predictor in any of the models (data not shown).

Similarly, we also performed a hierarchical regression to examine the predictors of behavioral intention at TP4 for Group 19 to 20 (with a total of 189 participants for those groups). Demographics (age, gender, marital status, information source, and ice cream consumption), framing (victim-centered and victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), and TP4 post-crisis attitude - were entered in block 1, 2, 3, 4, 5, and 6, respectively. Missing values were excluded pair-wise. The numbers of responses included in the regression for each predictor range from 179 to 189. As shown in Table 11 and 12, all sixe models find significant regression equations for TP4 behavior intention. Adding demographics, TP4 attribution of responsibility and blame, and TP4 post-crisis attitude into the model leads to significant F changes. Similar as Group 1 to 16 and Group 17 to 18, Model 6 - with all aforementioned independent variables entered – has the greatest predicting power (F (26, 149) = 4.226, p < .001, R²= .424). However, framing (victim-centered and victim-free) is not a significant predictor in any of the models either (data not shown).

In summary, the selected demographic variables (age etc.), post-crisis attitude, follow-up strategy, obligation, and anxiety are significant predictors of TP4 behavioral intention, with post-crisis attitude being the strongest predictor of all. Moreover, the other two experimental manipulations (initial strategy and crisis type) and some key outcome variables (responsibility and blame, and TP4 anger, etc.) were all predictors of behavioral intention when post-crisis attitude was not included in the model. Since our manipulations are designed to be the driven force of all the outcome variables, the next question we asked is "what are the effects of our manipulations on behavioral intentions and its predictors"?

3.6. What are the effects of our manipulations (independent variables – initial strategy, crisis type, follow-up strategy, and framing) on behavioral intentions and its predictors?

Same as Experiment 1 (Chapter 2), we conducted a serious of multivariate analyses of variance (MANOVAs) and analyses of variance (ANOVAs) in this section. The results and corresponding tables and figures are discussed and shown separately in the following part. We also provide a master table for all these ANOVA results at the end (Table 13), to make reading and comprehending the results easier.

3.6.1. What are the effects of our manipulations (independent variables – initial strategy, crisis type, follow-up strategy, and framing) on behavioral intentions?

For Q3 (Group 1 to 16), we performed a two-way ANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 behavioral intention(Figure 3 and Figure 4). The total sample size in this two-way ANOVA is 1,419 (participants answered DK for TP4 behavioral intentions are excluded, total number of participants in Group 1 to 16 is 1,510). There is a significant main effect of initial strategy on TP4 behavioral intention, F (1, 1403) = 8.204, p =.004, suggesting that "denial with recall" initial strategy (M = 2.014, SD =.035) generated lower behavioral intention than "accept with recall" initial strategy (M = 2.158, SD =.036). There is also a significant main effect of crisis type on TP4 behavioral intention, F (1, 1403) = 116.515, p <.001, indicating that "accidental" type of food safety crisis (M = 2.357, SD =.036) generated higher behavioral intention than "omission preventable" type of food safety crisis (M = 1.814, SD =.035). Lastly, there

is a significant main effect of follow-up strategy on TP4 behavioral intention as well, F (3, 1403) = 12.352, p <.001. Further Tukey HSD post-hoc tests revealed that the behavioral intention in "rebuild with responsibility" group (M = 2.341, SD =.051) was significantly higher than "denial with scapegoating" group (M = 1.931, SD =.050, p<.001), "diminish" group (M = 2.010, SD =.050, p<.001), and "rebuild without responsibility" group (M = 2.062, SD =.050, p=.001). No significant difference was detected between other groups. However, we did not detect any significant interaction between initial strategy and follow-up strategy, or between crisis type and follow-up strategy.

For Q4 (G17 to 18 and G19 to 20), we performed two separate t-tests to examine the effects of framing ("thematic" vs. "episodic" and "victim-centered" vs. "victim-free"). However, no significant difference was detected in either comparison.

3.6.2. What are the effects of our manipulations (independent variables – initial strategy, crisis type, follow-up strategy, and framing) on other dependent variables?
3.6.2.1. For Q3 – Follow-up Strategy (Group 1 to 16)

We first performed a two-way ANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 perceived health consequence (N = 1501). The results suggest that participants in "accidental" groups (M = 4.217, SD = .031) perceived the health consequence of the food safety crisis to be less severe than participants in "omission" groups (M = 4.368, SD = .031), F (1, 1485) = 12.072, p = .001. No significant effect was detected for initial strategy or follow-up strategy.

We then conducted a two-way ANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 post-crisis attitude. The total sample size in this two-way ANOVA is 1,482 (participants answered DK for TP4 post-crisis attitude are excluded, total number of participants in Group 1 to 16 is 1,510). There is a significant main effect of initial strategy on TP4 post-crisis attitude, F (1, 1466) = 68.250, p < .001, suggesting that "denial with recall" initial strategy (M = 2.542, SD = .040) generated lower post-crisis attitude score than "accept with recall" initial strategy (M = 3.007, SD = .040). There is also a significant main effect of crisis type on TP4 post-crisis attitude, F(1, 1466) =229.145, p <.001, indicating that "accidental" type of food safety crisis (M = 3.200, SD =.040) generated higher post-crisis attitude score than "omission preventable" type of food safety crisis (M =2.348, SD =.040). Lastly, there is a significant main effect of follow-up strategy on TP4 post-crisis attitude as well, F(3, 1466) = 30.853, p <.001. Further Tukey HSD post-hoc tests revealed that the post-crisis attitude score in "rebuild with responsibility" group (M = 3.239, SD = .057) was significantly higher than "denial with scapegoating" group (M = 2.549, SD = .056, p<.001), "diminish" group (M = 2.646, SD = .056, p<.001), and "rebuild without responsibility" group (M = 2.663, SD = .056, p<.001). However, there's no significant difference among "denial with scapegoating", "diminish", and "rebuild without responsibility". We also found a significant interaction between crisis type and follow-up strategy, on TP4 post-crisis attitude, F (3, 1466) = 4.737, p=.003. Specifically, "denial with scapegoating" followup strategy generated the most negative post-crisis attitude in "omission" type of food

Next, we performed a MANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 attribution of responsibility and blame outcome variables (N = 1,416). Results indicate that there are significant main effects of initial strategy (Pillai's trace, V = .013, F (4, 1397) = 4.675, p =.001), crisis type (Pillai's trace, V =.436, F (4, 1397) = 269.527, p <.001), and follow-up strategy (Pillai's trace, V = .035, F (12, 4197) = 4.115, p < .001) on TP4 attribution of responsibility and blame outcome variables, respectively. There is no significant interaction between the three independent variables. We then conducted separate ANOVAs on the four attribution of responsibility and blame outcome variables: (1) responsibility for causing (the outbreak); (2) blame for causing (the outbreak); (3) responsibility for not preventing (the outbreak from happening); and (4) blame for not preventing (the outbreak from happening). The ANOVA on TP4 responsibility for causing (Figure 7 and 8) reveals a significant main effect on initial strategy, F (1, 1455) = 4.865, p = .028, suggesting that the company is perceived as more responsible for causing the food safety crisis if it used "denial with recall" initial strategy (M = 3.695, SD = .043) than "accept with recall" initial strategy (M = 3.562, SD = .043). Not surprisingly, there is a significant main effect on crisis type, F (1, 1455) = 554.800, p <.001, indicating that the company is perceived as more responsible for causing the food safety crisis if it is involved in an "omission preventable" food safety crisis (M = 4.339, SD = .043) than an "accidental" one (M =2.919, SD = .043). There is also a significant main effect on follow-up strategy, F (3,

1455) = 13.994, p <.001. Tukey HSD post-hoc tests suggest that the company is perceived less responsible for causing the food safety crisis when using "denial with scapegoating" (M = 3.348, SD = .061) and "rebuild without responsibility" (M = 3.440, SD =.060) follow-up strategies, compared to "diminish" (MD = 3.753, SD =.060) and "rebuild with responsibility" (M = 3.885, SD = .060) follow-up strategies, ps <.001. There's no significant difference between "denial with scapegoating" and " rebuild without responsibility", or between "diminish" and "rebuild with responsibility". The ANOVA on "TP4 blame for causing" reveals similar results as "TP4 responsibility for causing" outcome variable (data not shown). The ANOVA on "TP4 responsibility for not preventing" suggests no significant main effect on initial strategy, but a significant main effect on crisis type (F (1, 1435) = 503.038, p <.001) same trend as the previous two attribution of responsibility and blame outcome variables). There's also a significant main effect on follow-up strategy (F (3, 1435) =2.822, p =.038), but only between "diminish" (M = 3.564, SD =.066) and "rebuild without responsibility" (M = 3.328, SD = .067), p = .044. The ANOVA on "TP4 blame for not preventing" suggests same significant main effects on initial strategy and crisis type, as shown for "TP4 responsibility for causing" outcome variable, however, there's no significant main effect on follow-up strategy (data not shown).

Followed we performed a MANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 obligation and ability outcome variables (N = 1,510). Results indicate that there are significant main effects of initial strategy (Pillai's trace, V =.009, F (2, 1493) = 6.858, p =.001), crisis type (Pillai's trace, V =.392, F (2, 1493) = 481.518, p <.001), and follow-up

strategy (Pillai's trace, V = .012, F (6, 2988) = 3.036, p = .006) on TP4 obligation and ability outcome variables, respectively. However, there's no significant interaction among initial strategy, crisis type, and follow-up strategy. We then conducted separate ANOVAs on obligation and ability variables. The ANOVA on obligation (Figure 9 and 10) shows that there's a significant main effect on initial strategy, F (1, 1494) = 5.916, p = .015, suggesting that the company is perceived to have more obligation to prevent the food safety crisis if it used "denial with recall" initial strategy (M = 3.807, SD = .039) than "accept with recall" initial strategy (M = 3.672, SD =.039). There is also a significant main effect on crisis type, F (1, 1455) = 749.411, p < .001, indicating that the company is perceived to have more obligation to prevent the food safety crisis if it is involved in an "omission preventable" food safety crisis (M = 4.503, SD = .039) than an "accidental" one (M = 2.976, SD = .039). There is also a significant main effect on follow-up strategy, F (3, 1494) = 4.813, p =.002. Tukey HSD post-hoc tests suggest that the company is perceived to have more obligation to prevent the food safety crisis if it used "diminish" follow-up strategy (M = 3.885, SD = .056), compared to "rebuild without responsibility" (M = 3.586, SD =.056). However, no significant difference is detected between other follow-up strategy groups. The ANOVA on ability variable shows similar results as obligation (data not shown).

We then performed a MANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 emotion outcome variables (N = 1,472). Results indicate that there are significant main effects of initial strategy (Pillai's trace, V =.013, F (4, 1453) = 4.664, p =.001) and crisis type

(Pillai's trace, V = .113, F (4, 1453) = 46.058, p < .001) on TP4 emotion outcome variables. However, there's no significant main effect on follow-up strategy, and there's no significant interaction among the three independent variables. We then conducted separate ANOVAs on the four emotion outcome variables: anger, sadness, fright, and anxiety. The ANOVA on anger reveled same results as the MANOVA test - significant main effects of initial strategy (F (1, 1470) = 14.569, p <.001) and crisis type (F (1, 1470) = 138.281, p <.001), but not follow-up strategy or interaction among independent variables. The results indicate that participants gave higher anger scores when the company used "denial with recall" initial strategy (M = 3.196, SD = .045), compared to "accept with recall" (M = 2.951, SD = .046). Participants also gave higher anger scores when the company was involved in an "omission" type of food safety crisis (M = 3.452, SD = .045), compared to an "accidental" one (M = 2.695, SD=.046). The same pattern is observed for sadness and anxiety as well (data not shown). For fright, only a significant main effect of crisis type is detected (F (1, 1483)) = 12.229, p < .001), indicating that participants gave higher sadness scores when the company was involved in an "omission" type of food safety crisis (M = 3.089, SD =.049) than an "accidental" one (M = 2.849, SD = .048).

Lastly we performed a MANOVA to examine the effects of initial strategy ("denial with recall" and "accept with recall"), crisis type ("accidental" and "omission preventable), and follow-up strategy ("denial with scapegoating", "diminish", "rebuild with responsibility", and "rebuild without responsibility") on TP4 perceived legal outcomes variables (N = 1,316). Results indicate that there are significant main effects of initial strategy (Pillai's trace, V =.014, F (5, 1296) = 3.594, p =.003) and crisis type (Pillai's trace, V =.314, F (5, 1296) = 118.560, p <.001) on TP4 perceived legal outcome variables. However, there's no significant main effect on follow-up

strategy, and there's no significant interaction among the three independent variables. We further conducted separate two-way ANOVAs on those five outcome variables: (1) "the company should be fined"; (2) "the responsible manager should be fined"; (3) "the responsible employee should be fined"; (4) "the responsible manager should be sent to jail"; and (5) "the responsible employee should be sent to jail", respectively. The ANOVA on "the company should be fined" reveled same results as the MANOVA test - significant main effects of initial strategy (F (1, 1416) = 14.574, p <.001) and crisis type (F (1, 1416) = 470.416, p <.001), but not follow-up strategy or interaction among independent variables. The results indicate that the scores of "the company should be fined" are higher when the company used "denial with recall" initial strategy (M = 3.585, SD = .041), compared to "accept with recall" (M = 3.360, SD = .042). The scores of "the company should be fined" are also higher when the company was involved in an "omission" type of food safety crisis (M = 4.111, SD =.042), compared to an "accidental" one (M = 2.834, SD =.042). The same pattern is observed for "the responsible manager should be fined" and "the responsible manager should be sent to jail" (data not shown). For "the responsible employee should be fined" and "the responsible employee should be sent to jail", only a significant main effect of crisis type is detected (ps <.001) – the scores for those two outcome variables are higher when the company was involved in an "omission" type of food safety crisis (M = 3.706, SD = .044, and M = 2.685, SD = .042, respectively) compared to an "accidental" one (M = 2.374, SD = .044, and M = 1.850, SD = .042, respectively).

<u>3.6.2.2. For Q4 – Framing (G17 to 18 and G19 to 20)</u>

For Group 17 and 18, independent-samples t-tests were performed to examine the effect of framing ("thematic" vs. "episodic") on the answers to our outcome variables (perceived health consequence, post-crisis attitude, attribution of responsibility and blame, obligation and ability, emotion, and perceived legal outcome). Significant differences are detected for post-crisis attitude (t(184) = 2.267, p = .025) and "the responsible manager should be fined" outcome variables (t(178) = -2.129, p = .035). These results suggest that thematic framing led to higher post-crisis attitude scores (M = 3.24, SD = 1.268) than episodic framing (M = 2.83, SD = 1.200), and that participants gave lower scores for "the responsible manager should be fined" item when the company used thematic framing (M = 3.81, SD = 1.075) than episodic framing (M = 4.13, SD = .957).

For Group 19 and 20, independent-samples t-tests were performed to examine the effect of framing ("victim-centered" vs. "victim-free") on the answers to our outcome variables (perceived health consequence, post-crisis attitude, attribution of responsibility and blame, obligation and ability, emotion, and perceived legal outcome). However, no significant result is detected.

4. Discussion and Conclusions

4.1. General Discussion

4.1.1. Initial Strategy and Crisis Type

The results of this experiment support what we have found in Experiment 1. We found that initial crisis communication strategy and crisis type have significant effects on our measures of public responses to a food safety crisis. Same as Experiment 1, "accept with recall" initial strategy generates better outcomes than "denial with recall" strategy, and that "accidental" type of food safety crisis is linked to better outcomes than "omission preventable" type of crisis.

4.1.2. Q3: Follow-up Strategy

Our manipulation checks have shown effective manipulations of almost all independent variables with some mixed results. There's not much variation for the manipulation of "initial strategy" and "crisis type", however, while participants' answers to the manipulation questions for "follow-up strategy" are still considered acceptable and effective manipulation, the answers participants gave out varied. Our scenarios were all written in the language used by actual news reports of food safety crises, and were revised several times after experts' examination and pretests. Key words for each variation and condition were implanted into the news articles and statements, and for "follow-up strategy" scenarios, a short commentary was added to highlight the type of "follow-up strategy" the company was using. As such, we consider the variation of participants' answers to manipulation questions actually reflects the reality – that different people perceive the same strategy or situation differently (Y. Kim, 2016).

Same as Experiment 1, we had a DK option for most of the scales measuring the outcome variables of this experiment (Experiment 2) to keep the outcome variables consistent and comparable. For this experiment, the participants answered our scale questions only for one time, at TP4, when sufficient information of the crisis had been provided to them. As a result, the DK counts for our outcome variables are very low, less than 6% for most questions. When comparing the DK counts for the outcome variables, we found that 12.8% of the participants chose DK for at least one out of the five perceived legal outcome questions, suggesting that participants tend to be more cautious when giving opinions on legal outcomes.

The hierarchical regressions to examine the predictors of behavioral intentions reveal several interesting results. First, demographic variables including age, gender, marital status, information source, and ice cream consumption are significant predictors of TP4 behavioral intention. The demographic predictors of TP4 behavioral intention are similar but slightly different from the ones we found for TP1 to 3 behavioral intentions in Experiment 1 (age, past foodborne illness experience, and post-crisis attitude). Same as Experiment 1, the demographic predictors only count for very small portion of the variability in behavioral intention (8% for Experiment 1 and 5.5% for Experiment 2). Secondly, our final model explains 41.6% of the variance in TP4 behavioral intention. This is higher than the predicting power of our final model for TP1 behavioral intention in Experiment 1 (31.5%), but slightly lower than the predicting power of the final models for TP2 and TP3 behavioral intention in Experiment 1 (58.5% for TP2 behavioral intention and 54.8% TP3 behavioral intention), suggesting that it is possible that more factors play in a role of post-crisis behavioral intention as the crisis unfolds. Thirdly, same as what we found in Experiment 1, among all the predictors for behavioral intentions, post-crisis attitude is the strongest. While follow-up strategy remains a significant predictor of behavioral intention in all models, some of our experimental manipulations (initial strategy and crisis type) and some key outcome variables (attribution of responsibility and blame and anger) were all predictors of behavioral intentions when post-crisis attitude was not included in the model. As we learned in Experiment 1, this suggests the potential interaction between these outcome variables, post-crisis attitude, and behavioral intentions.

While exploring the effects of our manipulations (initial strategy, crisis type, and follow-up strategy) on behavioral intentions and other outcome variables at TP4, there are several important things need to be noted. To start with, we found significant main effects of initial strategy, crisis type, and follow-up strategy on TP4 behavioral intentions and post-crisis attitude. The effects of the three manipulations on TP4 behavioral intentions and post-crisis attitude are the same. In summary, participants expressed lower behavioral intentions and lower post-crisis attitude toward the company which used "denial with recall" initial strategy than company used "accept with recall" initial strategy; participants also expressed lower behavioral intentions and lower post-crisis attitude toward the company which is involved in an "omission preventable" type of food safety crisis than the company involved in an "accidental" food safety crisis. In regard to follow-up strategies, the company adopted "rebuild with responsibility" received the highest behavioral intentions and post-crisis attitude among all four follow-up strategies, and no the behavioral intentions and post-crisis attitude are not different among the other three follow-up strategies ("denial with scapegoating", "diminish", and "rebuild without responsibility). We also found a significant interaction effect between crisis type and follow-up strategy on post-crisis attitude, suggesting "denial with scapegoating" results in lowest post-crisis attitude in "omission" type food safety crisis while "diminish" results in lowest post-crisis attitude in "accidental" type food safety crisis. These results highlight the importance of having a "rebuild with responsibility" follow-up strategy as companies approach to later stages of a food safety crisis. Regardless of the initial food safety crisis communication strategy and the type and reason of the food safety crisis, "rebuild with responsibility" strategy can help the involved food company the most, in terms of improving post-crisis attitude and behavioral intentions. Moreover, we found significant main effects of initial strategy, crisis type, and follow-up strategy on the attribution of responsibility and blame outcomes and company's obligation and ability to prevent the food safety crisis outcomes. As expected, "denial with recall" initial strategy and "omission" type of food safety crisis are associated with higher scores for attribution of responsibility and blame, and obligation and ability, compared to "accept with recall" initial strategy and "accidental" food safety crisis. Interestingly, "rebuild with responsibility" and "diminish" follow-up strategy led to higher scores for attribution of responsibility and blame compared to "rebuild without responsibility" and "denial with scapegoating". Furthermore, "diminish" follow-up strategy led to higher scores for obligation and ability items compared to "rebuild without responsibility" strategy. These results indicate that "rebuild without responsibility" strategy can indeed result in less attribution of responsibility among participants, thus does have some advantages in terms of affecting public perception on responsibility and blame toward the involved company (Peter M Sandman, 1993; Peter M. Sandman, 2006). Lastly, we detected significant main effects of initial strategy and crisis type on emotion and perceived legal outcomes outcome variables. In general, "denial with recall" initial strategy and "omission preventable" food safety crisis generate higher scores for emotions and more severe perceived legal outcomes than "accept with recall" initial strategy and "accidental" type of crisis. However, we didn't find significant main effect of follow-up strategy on emotions and perceived legal outcomes. These results suggest the importance of having proper initial food safety crisis communication strategy at the early stage of a food safety crisis, as follow-up strategy at later stages might not have much impacts on public's emotion responses and perception related to legal issues.

4.1.2. Q4: Framing

In the attempt to examine the effects of different framing strategies (thematic vs. episodic and victim-centered vs. victim-free) on behavioral intentions and other outcome variables at TP4, we found very few significant results. We found that thematic framing led to significant higher scores for post-crisis attitude and lower

scores for perceived legal outcome on "responsible manager should be fined" item than episodic framing. This result suggests that thematic framing might result in more favorable public perception than episodic framing in terms of post-crisis attitude. However, no significant results were found between victim-centered and victim-free framing strategies. One of the reasons for failing to detect significant difference between these two groups might be the less successful manipulation for this particular pair. While 97% of the participants in "victim-centered" group correctly identified the framing strategy, only 36% of the participants in "victim-free" group considered the company's statement as "victim-free". Even the statement for "victim-free" group didn't even mention the company's consumer and the victims of the food safety crisis, and that the followed commentary also emphasized this point, participants were still having difficulties to identify the statement to be "victim-free". This might be due to the fact that the different framings were developed and written for a company statement using "rebuild with responsibility" follow-up strategy. It could be challenging for participants to identify the "victim-free" component while the company is actually taking responsibility and apologizing. Our experiment was not able to examining different framing strategies under different crisis communication strategies because of constraints of participants. Thus future research on this topic is warranted.

4.2. Strengths and Limitations

In this study, we used a theory-based experimental design to test the applicability of SCCT to food safety crisis. This experiment (Experiment 2) serves as a continuation of our first study (Experiment 1), by examining the effects of followup food safety crisis communication strategy and framing on public responses to at a later stage (TP4) of an on-going food safety crisis. We also tested the interaction among initial crisis communication strategy, crisis type, and follow-up strategy.

Despite all the strength this study holds, as all other studies, there are several limitations need to be noted. First of all, same as Experiment 1, the experimental setting was well controlled to examine the effects of our manipulations, but it cannot completely represent what happens in reality during a food safety crisis. The information was provided to participants in the form of news articles and only news articles. While in today's world, the public receives information from various channels - particularly new media (such as social media), which adds complexity to crisis communication (Capozzi, 2013; Holmes, 2011; Schwarz, 2012). Secondly, even the sample we obtained from Qualtrics Panel is designed to be statistically representative of the U.S. population, the fact that the data was collected online limits our participants to only those who have Internet access. Thirdly, for the purpose of our study, our scenarios depict a multi-state foodborne illness outbreak with hundreds of sickened and 2 deaths. Food safety crises in reality various in all different ways, especially in terms of the scale of the event. While interpreting the results of this study, one should note that we designed our scenarios as a typical foodborne illness outbreak that captures noticeable public attentions, and that it might be different when the scale and nature of the food safety crisis is different from the one we described here. Lastly, as noted in 4.1., the manipulation for "victim-free" condition is not as successful as we expected. Thus, the interpretation of that part of results should take this into consideration.

4.3. Implications and suggestions for food safety crisis communication practice

Our results from this study highlighted the importance of having an appropriate follow-up communication strategy at the later stages of a food safety crisis. As mentioned in our first experiment, having proper crisis communication strategies at different stages during a food safety crisis is essential to restore organizational reputation and public's purchase intention and other behavioral intentions (W Timothy Coombs, 2014). Our first experiment successfully demonstrated the role of initial crisis communication strategy, and this experiment further supported the importance of follow-up strategy. According to our results, "rebuild with responsibility" follow-up strategy, during which the involved company takes responsibility for the food safety crisis and apologizes to the public, works the best in terms of public's behavioral intention and post-crisis attitude, regardless of the initial strategy the company adopted, and the type of food safety crisis the company is involved in. Another interesting finding is that as Sandman suggested (Peter M Sandman, 1993; Peter M. Sandman, 2006), "rebuild without responsibility" strategy (when the company claims to "act as responsible" by taking actions to fix problems and protecting the public without actually admitting being responsible and apologizing) can indeed result in less attribution of responsibility among the public. Therefore, this strategy does have some advantages in terms of affecting public perception on responsibility and blame toward the involved company. However, taken into consideration of our other results, especially the ones with behavioral intentions and post-crisis attitude, we would not recommend this strategy as the first choice for a given food safety crisis. Even though public perceives the company to be less responsible and less blamable when the company adopts "rebuild without responsibility" follow-up strategy, this strategy also generates less favorable results for public's behavioral intentions and post-crisis attitudes - which are vital to a company's post-crisis reputation and survival. We would not recommend "denial with scapegoating" and "diminish" follow-up strategies either, as they generated less

favorable results for most of our measures for public responses to a food safety crisis, no matter what types of crisis the company is involved, or what initial strategy the company used at the early stage. Noticeably, our study also suggests that thematic framing, which emphasizing organizational responsibility, leads to better post-crisis attitude, and is preferred during a food safety crisis. Thus, based on our results, we would strongly recommend companies to take "rebuild with responsibility" follow-up strategy with a "thematic" framing to respond to a food safety crisis at the later stages of such crisis, to protect public health, and to also help the company survive and restore from the crisis.

4.4. Conclusions

In summary, the results of this study highlight the importance of having an appropriate follow-up crisis communication strategy at the later stage of a food safety crisis. As a continuation of Experiment 1, this study again supports that "accept with recall" is the more superior initial strategy to adopt at the early stage of a food safety crisis, and again reveals that the public perceives accidental and preventable food safety crises differently and that the public appears to be more lenient toward accidental crises. Moreover, our study demonstrates that "rebuild with responsibility" follow-up strategy is the best strategy to adopt at the later stage of a food safety crisis, and that this strategy coupled with "thematic" framing can generate more favorable public responses to a food safety crisis.

Figure 3.1. Flowchart of experimental design – Q3 (Group 1 to 16)

Outbreak started in April, 2015



Figure 3.2. Flowchart of experimental design - Q4 (Group 17 to 20)

Outbreak started in April, 2015



Table 3.1. Group assignment

Group	Time Point 1	Time Point 2	Time Point 3	Time Poir	nt 4
	Initial Strategy	Linkage	Crisis Type	Follow-up Strategy	Framing of follow-up
					strategy
1	Denial with recall	Linked	Accidental	Denial with scapegoating	N/A
2	Denial with recall	Linked	Accidental	Diminish	N/A
3	Denial with recall	Linked	Accidental	Rebuild with responsibility	N/A
4	Denial with recall	Linked	Accidental	Rebuild without responsibility	N/A
5	Denial with recall	Linked	Omission	Denial with scapegoating	N/A
6	Denial with recall	Linked	Omission	Diminish	N/A
7	Denial with recall	Linked	Omission	Rebuild with responsibility	N/A
8	Denial with recall	Linked	Omission	Rebuild without responsibility	N/A
9	Accept with recall	Linked	Accidental	Denial with scapegoating	N/A
10	Accept with recall	Linked	Accidental	Diminish	N/A
11	Accept with recall	Linked	Accidental	Rebuild with responsibility	N/A
12	Accept with recall	Linked	Accidental	Rebuild without responsibility	N/A
13	Accept with recall	Linked	Omission	Denial with scapegoating	N/A
14	Accept with recall	Linked	Omission	Diminish	N/A
15	Accept with recall	Linked	Omission	Rebuild with responsibility	N/A
16	Accept with recall	Linked	Omission	Rebuild without responsibility	N/A
17	Accept with recall	Linked	Omission	Rebuild with responsibility	Thematic
18	Accept with recall	Linked	Omission	Rebuild with responsibility	Episodic
19	Accept with recall	Linked	Omission	Rebuild with responsibility	Victim-centered
20	Accept with recall	Linked	Omission	Rebuild with responsibility	Victim-free

	Number of	Percentage
	participants	(%)
Participants, n	1888	_
Gender		
Male	943	49.9
Female	945	50.1
Education		
Less than high school	19	1.0
High school diploma or GED	351	18.6
Some college	686	36.3
Bachelor's degree	573	30.4
Post graduate	256	13.6
Race/ethnicity		
White	1545	81.8
Hispanic, Latino, or Spanish origin	107	5.7
Black or African Am.	149	7.9
Asian	92	4.9
American Indian or Alaska Native	28	1.5
Middle Eastern or North African	8	0.4
Native Hawaiian or Other Pacific Islander	5	0.3
Some other race, ethnicity, or origin	19	1.0
Child under 18		
Yes	632	33.0
No	1265	67.0
Household income		
Less than \$25,000	325	17.2
\$25,000 to \$49,999	526	27.9
\$50,000 to \$99,999	681	36.1
\$100,000 or more	291	15.4
Marital status		
Single, never married	503	26.6
Married	883	46.8
Widowed	98	5.2
Divorced	210	11.1
Separated	29	1.5
Living with partner	161	8.5
Grocery shopping		
You do all of it	1035	54.8
You do most of it	444	23.5
You do about half of it	278	14.7
Someone else does mot of it, you do some	101	5.3
Someone else does all of it	27	1.4
Preferred information source		
Paper-based	125	6.6
TŶ	820	43.4
Web-based news reports	622	32.9
Social media	244	12.9

Table 3.2. Demographic characteristics of participants

Radio	66	3.5
Other	11	0.6
Personal foodborne illness experience		
Yes	781	41.4
No	873	46.2
Not sure	234	12.4
Family or friends foodborne illness		
experience	1056	55.9
Yes	551	29.2
No	281	14.9
Not sure		
Native language		
English	1823	96.6
Spanish	35	1.9
Other	30	1.6
Personal ice cream consumption		
Never	29	1.5
Rarely	366	19.4
Sometimes	991	52.5
Often	502	26.6
Family ice cream consumption		
Never	17	0.9
Rarely	287	15.2
Sometimes	964	51.1
Often	620	32.8

		Fact	or	
	1	2	3	4
TP4. Perceived health consequence			.482	
TP4. Post-crisis attitude		.541		
TP4. Responsible for causing the outbreak	.880			
TP4. Blame for causing the outbreak	.952			
TP4. Responsible for not preventing the outbreak	.764			
TP4. Blame for not preventing the outbreak	.956			
TP4. Obligation to prevent the outbreak	.871			
TP4. Ability to prevent the outbreak	.860			
TP4. Anger			.672	
TP4. Sadness			.763	
TP4. Fright			.903	
TP4. Anxiety			.838	
TP4. Purchase intention, next 3 moths		.901		
TP4. Purchase intention, next 12 moths		.878		
TP4. Purchase intention, other products		.873		
TP4. Invest intention		.794		
TP4. Recommend intention		.891		
TP4. The company should be fined	.586			
TP4. The responsible manager should be fined	.425			.429
TP4. The responsible employee should be fined	.312			.564
TP4. The responsible manger should be sent to jail				.889
TP4. The responsible employee should be sent to jail				.984

Table 3.3. Factor loadings based on a principal factor analysis with oblique rotation for 22 items from Time Point 4 scale (N=1752-1888)

Note:

a. The N differs because answers with DK were counted as missing data

b. Factor loadings <.3 are suppressed

Mode	R	R	Adjusted R	Std. Error of		Chan	Durbin-Watson			
1		Square	Square	the Estimate	R Square	e F df1 df2		Sig. F		
					Change	Change			Change	
1	$.088^{a}$.008	.006	.99696	.008	5.479	2	1403	.004*	
2	.096 ^b	.009	.005	.99763	.001	.528	4	1399	.715	
3	.132 ^c	.018	.008	.99629	.008	1.470	8	1391	.163	
4	.138 ^d	.019	.008	.99623	.002	1.087	2	1389	.337	
5	.143 ^e	.020	.007	.99664	.001	.620	3	1386	.602	
6	$.158^{\mathrm{f}}$.025	.009	.99577	.005	1.603	4	1382	.171	
7	.201 ^g	.041	.016	.99206	.016	1.864	12	1370	.035*	
8	.205 ^h	.042	.015	.99267	.002	.574	4	1366	.682	
9	.234 ⁱ	.055	.023	.98832	.013	3.010	6	1360	.006*	1.837

Table 3.4. Model summary of hierarchical regression analysis assessing demographic variables as predictors of TP4 behavioral intention

a. Predictors: (Constant), Gender, Age

b. Predictors: (Constant), Gender, Age, Education

c. Predictors: (Constant), Gender, Age, Education, Race

d. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18

e. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income

f. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping

g. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status, Information source, Native language

h. Predictors: (Constant), Gender, Age, Education, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status, Information source, Native language, Past foodborne illness experience (self and family/friends)

i. Predictors: (Constant), Gender, Age, Race, Number of people living in household, Child under 18, Household income, Grocery shopping, Marital status,

Information source, Native language, Past foodborne illness experience (self and family/friends), Ice cream consumption (self and family)

j. Dependent Variable: TP4 Behavioral Intention

k. * p<.05

Mode	R	R	Adjusted R	Std. Error of		Chan		Durbin-Watson		
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	
					Change	Change			Change	
1	.067 ^a	.005	.004	.99815	.005	8.050	1	1776	.005*	
2	.088 ^b	.008	.007	.99681	.003	5.792	1	1775	.016*	
3	.122 ^c	.015	.011	.99466	.007	2.532	5	1770	.027*	
4	.145 ^d	.021	.014	.99294	.006	2.228	5	1765	.049*	
5	.149 ^e	.022	.015	.99284	.001	1.188	2	1763	.305	
6	$.184^{\mathrm{f}}$.034	.025	.98779	.012	7.017	3	1760	.000*	
7	.187 ^g	.035	.024	.98805	.001	.699	3	1757	.553	1.799

Table 3.5. Model summary of hierarchical regression analysis assessing selected demographic variables as predictors of TP4 behavioral intention

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Gender

c. Predictors: (Constant), Age, Gender, Marital status

d. Predictors: (Constant), Age, Gender, Marital status, Information source

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Native language

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Native language, Ice cream consumption (self)

g. Predictors: (Constant), Age, Gender, Marital status, Information source, Native language, Ice cream consumption (self), Ice cream consumption (family)

h. Dependent Variable: TP4 Behavioral Intention

i. * p<.05

Mode	R	R	Adjusted R	Std. Error of		Chan	Durbin-Watson			
1		Square	Square	the Estimate	R Square	Square F df1 df2 Sig. F		Sig. F		
					Change	Change			Change	
1	.183 ^a	.033	.023	.98536	.033	3.129	15	1358	.000*	
2	.240 ^b	.057	.045	.97412	.024	11.507	3	1355	.000*	
3	.367	.135	.122	.93379	.077	120.585	1	1354	.000*	
4	.375 ^d	.141	.128	.93084	.006	9.582	1	1353	.002*	
5	.478 ^e	.229	.215	.88309	.088	38.568	4	1349	.000*	
6	.490 ^f	.240	.225	.87727	.011	9.979	2	1347	.000*	
7	.516 ^g	.266	.250	.86341	.026	11.902	4	1343	.000*	
8	.645 ^h	.416	.402	.77076	.149	343.281	1	1342	.000*	1.938

Table 3.6. Model summary of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 1 to 16)

a. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy

c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy

- e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items)
- f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)
- g. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)
- h. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude
- i. Dependent Variable: Behavioral Intention
- j. *p<.05

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.571	15	3.038	3.129	.000 ^b
	Residual	1318.538	1358	.971		
	Total	1364.109	1373			
2	Regression	78.327	18	4.352	4.586	.000 ^c
	Residual	1285.782	1355	.949		
	Total	1364.109	1373			
3	Regression	183.473	19	9.656	11.074	$.000^{d}$
	Residual	1180.636	1354	.872		
	Total	1364.109	1373			
4	Regression	191.775	20	9.589	11.066	.000 ^e
	Residual	1172.334	1353	.866		
	Total	1364.109	1373			
5	Regression	312.085	24	13.004	16.674	$.000^{f}$
	Residual	1052.024	1349	.780		
	Total	1364.109	1373			
6	Regression	327.445	26	12.594	16.364	.000 ^g
	Residual	1036.664	1347	.770		
	Total	1364.109	1373			
7	Regression	362.935	30	12.098	16.228	$.000^{\rm h}$
	Residual	1001.174	1343	.745		
	Total	1364.109	1373			
8	Regression	566.868	31	18.286	30.781	$.000^{i}$
	Residual	797.241	1342	.594		
	Total	1364.109	1373			

Table 3.7. ANOVA of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 1 to 16)

a. Dependent Variable: TP4 Behavioral intention

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items)

g. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)

h. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)

i. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Follow-up strategy, Crisis type, Initial strategy, TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude

Mod	el	Unstan	dardized	Standardized	t	Sig.	95.0% Co	onfidence	Correlations			Collinearity	Statistics	
		Coeff	icients	Coefficients			Interval for B							
		В	Std. Error	Beta			Lower	Upper	Zero-order	Partial	Part	Tolerance	VIF	
							Bound	Bound						
1	(Constant)	1.643	.272		6.038	.000*	1.110	2.177						
	Age	.002	.002	.026	.770	.442	002	.006	.060	.021	.021	.603	1.659	
	Gender	131	.055	066	-2.380	.017*	239	023	077	064	064	.931	1.074	
	Marital status-single vs. married	.057	.068	.029	.838	.402	076	.190	.065	.023	.022	.615	1.626	
	Marital status-single vs. widowed	.081	.140	.018	.581	.561	193	.356	.020	.016	.016	.727	1.375	
	Marital status-single vs. divorced	026	.104	008	248	.804	230	.179	008	007	007	.673	1.487	
	Marital status-single vs. separated	151	.215	019	701	.483	572	.271	014	019	019	.942	1.062	
	Marital status-single vs. living w partner	266	.105	074	-2.531	.011*	471	060	088	069	068	.833	1.200	
	Information source-paper vs. TV	.064	.108	.032	.590	.555	148	.276	.057	.016	.016	.247	4.045	
	Information source-paper vs. web	040	.113	019	355	.723	261	.181	051	010	009	.251	3.987	
	Information source-paper vs. social media	.045	.132	.015	.344	.731	213	.304	012	.009	.009	.359	2.787	
	Information source-paper vs. radio	.100	.170	.019	.588	.557	234	.434	.009	.016	.016	.672	1.488	
	Information source-paper vs. other	529	.380	039	-1.394	.164	-1.274	.216	040	038	037	.930	1.075	
	Ice cream consumption-never vs. rarely	.370	.220	.147	1.677	.094	063	.802	086	.045	.045	.093	10.798	
	Ice cream consumption-never vs. sometimes	.570	.215	.286	2.651	.008*	.148	.993	.024	.072	.071	.061	16.348	
	Ice cream consumption-never vs. often	.629	.218	.279	2.881	.004*	.201	1.057	.068	.078	.077	.076	13.203	
2	(Constant)	1.459	.273		5.333	.000*	.922	1.995						
	Age	.002	.002	.028	.820	.412	002	.006	.060	.022	.022	.603	1.660	
	Gender	134	.055	067	-2.452	.014*	241	027	077	066	065	.929	1.076	
	Marital status-single vs. married	.055	.067	.027	.817	.414	077	.187	.065	.022	.022	.614	1.628	

Table 3.8. Coefficients of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 1 to 16)
Marital status-single vs. widowed	.071	.138	.016	.515	.607	200	.343	.020	.014	.014	.727	1.376
Marital status-single vs. divorced	019	.103	006	180	.857	221	.184	008	005	005	.672	1.488
Marital status-single vs. separated	178	.212	023	837	.403	594	.239	014	023	022	.941	1.063
Marital status-single vs. living w partner	238	.104	066	-2.292	.022*	442	034	088	062	060	.831	1.203
Information source-paper vs. TV	.116	.107	.057	1.078	.281	095	.326	.057	.029	.028	.245	4.074
Information source-paper vs. web	.001	.112	.000	.009	.993	218	.220	051	.000	.000	.250	4.005
Information source-paper vs. social media	.081	.130	.027	.620	.536	175	.337	012	.017	.016	.358	2.795
Information source-paper vs. radio	.180	.169	.034	1.065	.287	151	.511	.009	.029	.028	.668	1.497
Information source-paper vs. other	413	.376	030	-1.099	.272	-1.151	.324	040	030	029	.926	1.079
Ice cream consumption-never vs. rarely	.329	.218	.131	1.507	.132	099	.756	086	.041	.040	.092	10.811
Ice cream consumption-never vs. sometimes	.545	.213	.273	2.560	.011*	.127	.962	.024	.069	.068	.061	16.361
Ice cream consumption-never vs. often	.601	.216	.267	2.787	.005*	.178	1.025	.068	.075	.074	.076	13.215
TP4Followup strategy-denial with scapegoating vs.	111	075	049	1 490	127	025	257	041	040	020	660	1 5 1 5
diminish	.111	.073	.048	1.469	.157	055	.237	041	.040	.039	.000	1.515
TP4Followup strategy-denial with scapegoating vs.	122	075	194	5 620	000*	276	570	147	151	140	656	1 524
rebuild w/	.425	.075	.104	5.039	.000*	.270	.570	.147	.151	.149	.050	1.524
TP4Followup strategy-denial with scapegoating vs.	141	075	061	1 802	050	005	297	012	051	050	661	1 5 1 2
rebuild w/o	.141	.075	.001	1.095	.039	005	.287	012	.051	.050	.001	1.515
(Constant)	2.063	.268		7.700	.000*	1.537	2.588					
Age	.003	.002	.043	1.328	.184	001	.006	.060	.036	.034	.601	1.663
Gender	130	.052	065	-2.485	.013*	232	027	077	067	063	.929	1.076
Marital status-single vs. married	.047	.065	.024	.732	.464	079	.174	.065	.020	.019	.614	1.628
Marital status-single vs. widowed	.028	.133	.006	.208	.836	233	.288	.020	.006	.005	.726	1.377
Marital status-single vs. divorced	008	.099	003	083	.934	202	.186	008	002	002	.672	1.488
Marital status-single vs. separated	215	.204	027	-1.055	.292	614	.185	014	029	027	.941	1.063
Marital status-single vs. living w partner	190	.100	053	-1.902	.057	385	.006	088	052	048	.830	1.205
Information source-paper vs. TV	.195	.103	.097	1.894	.058	007	.398	.057	.051	.048	.244	4.094
Information source-paper vs. web	.082	.107	.039	.768	.442	128	.293	051	.021	.019	.249	4.024

Information source-paper vs. social media	.167	.125	.057	1.336	.182	078	.413	012	.036	.034	.356	2.806
Information source-paper vs. radio	.241	.162	.046	1.492	.136	076	.559	.009	.041	.038	.667	1.499
Information source-paper vs. other	346	.361	025	959	.338	-1.053	.361	040	026	024	.926	1.080
Ice cream consumption-never vs. rarely	.438	.209	.174	2.094	.036*	.028	.848	086	.057	.053	.092	10.836
Ice cream consumption-never vs. sometimes	.651	.204	.326	3.189	.001*	.251	1.052	.024	.086	.081	.061	16.398
Ice cream consumption-never vs. often	.713	.207	.317	3.442	.001*	.307	1.119	.068	.093	.087	.075	13.247
TP4Followup strategy-denial with scapegoating vs.	114	072	050	1 502	111	026	254	041	042	040	(())	1 5 1 5
diminish	.114	.072	.050	1.595	.111	026	.254	041	.043	.040	.000	1.515
TP4Followup strategy-denial with scapegoating vs.	120	072	100	5.062	000*	200	570	147	160	151	(5)	1.504
rebuild w/	.429	.072	.180	5.902	.000*	.200	.370	.147	.100	.131	.030	1.324
TP4Followup strategy-denial with scapegoating vs.	145	071	0(2	2.025	042*	005	295	012	055	051	((1	1 5 1 2
rebuild w/o	.145	.071	.003	2.025	.043*	.005	.285	012	.055	.051	.001	1.515
TP3Crisis type-accidental vs. omission	557	.051	279	-10.981	.000*	656	457	275	286	278	.987	1.013
(Constant)	1.816	.279		6.518	.000*	1.270	2.363					
Age	.003	.002	.043	1.309	.191	001	.006	.060	.036	.033	.601	1.663
Gender	130	.052	065	-2.495	.013*	232	028	077	068	063	.929	1.076
Marital status-single vs. married	.052	.064	.026	.814	.416	074	.179	.065	.022	.021	.614	1.629
Marital status-single vs. widowed	.039	.132	.009	.298	.766	220	.299	.020	.008	.008	.725	1.379
Marital status-single vs. divorced	009	.098	003	087	.930	202	.185	008	002	002	.672	1.488
Marital status-single vs. separated	209	.203	027	-1.031	.303	607	.189	014	028	026	.941	1.063
Marital status-single vs. living w partner	186	.099	052	-1.868	.062	380	.009	088	051	047	.829	1.206
Information source-paper vs. TV	.203	.103	.100	1.970	.049*	.001	.404	.057	.053	.050	.244	4.096
Information source-paper vs. web	.087	.107	.041	.812	.417	123	.297	051	.022	.020	.248	4.025
Information source-paper vs. social media	.169	.125	.057	1.357	.175	076	.415	012	.037	.034	.356	2.806
Information source-paper vs. radio	.248	.161	.047	1.538	.124	068	.565	.009	.042	.039	.667	1.499
Information source-paper vs. other	299	.360	022	830	.407	-1.005	.407	040	023	021	.925	1.082
Ice cream consumption-never vs. rarely	.444	.209	.177	2.129	.033*	.035	.853	086	.058	.054	.092	10.837
Ice cream consumption-never vs. sometimes	.655	.204	.328	3.217	.001*	.256	1.054	.024	.087	.081	.061	16.398

Ice cream consumption-never vs. often	.724	.207	.322	3.506	.000*	.319	1.129	.068	.095	.088	.075	13.251
TP4Followup strategy-denial with scapegoating vs.	114	071	050	1 (01	110	026	254	041	042	040	(())	1 5 1 5
diminish	.114	.071	.050	1.601	.110	026	.254	041	.043	.040	.660	1.515
TP4Followup strategy-denial with scapegoating vs.	420	072	196	5 001	000*	280	570	147	161	151	(5)	1.504
rebuild w/	.429	.072	.180	5.991	.000*	.289	.570	.147	.101	.151	.030	1.524
TP4Followup strategy-denial with scapegoating vs.	146	071	062	2.044	041*	006	295	012	055	052	661	1 5 1 2
rebuild w/o	.140	.071	.005	2.044	.041*	.000	.285	012	.055	.032	.001	1.515
TP3Crisis type-accidental vs. omission	557	.051	280	-11.020	.000*	656	458	275	287	278	.987	1.013
TP1Initial strategy-denial with recall vs. accept with	156	050	078	2 006	002*	057	255	074	084	078	004	1.006
recall	.150	.050	.078	3.090	.002*	.037	.235	.074	.084	.078	.994	1.000
(Constant)	2.129	.267		7.960	.000*	1.604	2.654					
Age	.001	.002	.022	.723	.470	002	.005	.060	.020	.017	.599	1.670
Gender	164	.050	082	-3.315	.001*	261	067	077	090	079	.926	1.080
Marital status-single vs. married	.088	.061	.044	1.439	.150	032	.208	.065	.039	.034	.612	1.633
Marital status-single vs. widowed	.058	.126	.013	.460	.645	189	.305	.020	.013	.011	.724	1.381
Marital status-single vs. divorced	.032	.094	.010	.342	.732	151	.215	008	.009	.008	.670	1.492
Marital status-single vs. separated	211	.194	027	-1.089	.276	591	.169	014	030	026	.930	1.076
Marital status-single vs. living w partner	187	.094	052	-1.977	.048*	372	001	088	054	047	.827	1.209
Information source-paper vs. TV	.227	.098	.112	2.322	.020*	.035	.418	.057	.063	.056	.244	4.104
Information source-paper vs. web	.061	.102	.029	.601	.548	138	.261	051	.016	.014	.247	4.047
Information source-paper vs. social media	.168	.119	.057	1.412	.158	065	.401	012	.038	.034	.355	2.818
Information source-paper vs. radio	.286	.153	.055	1.866	.062	015	.587	.009	.051	.045	.665	1.505
Information source-paper vs. other	143	.342	010	419	.675	814	.528	040	011	010	.921	1.086
Ice cream consumption-never vs. rarely	.434	.198	.173	2.194	.028*	.046	.822	086	.060	.052	.092	10.843
Ice cream consumption-never vs. sometimes	.650	.193	.326	3.362	.001*	.271	1.029	.024	.091	.080	.061	16.419
Ice cream consumption-never vs. often	.722	.196	.321	3.685	.000*	.338	1.107	.068	.100	.088	.075	13.263
TP4Followup strategy-denial with scapegoating vs.												

.077

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-.041 .071 .062

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.068

5

diminish

TP4Followup strategy-denial with scapegoating vs.	/06	069	215	7 221	000*	362	631	147	103	173	642	1 557
rebuild w/	.470	.007	.215	7.221	.000	.302	.051	.147	.175	.175	.042	1.557
TP4Followup strategy-denial with scapegoating vs.	164	068	071	2 125	015*	021	207	012	066	058	660	1 5 1 4
rebuild w/o	.104	.008	.071	2.423	.015	.031	.291	012	.000	.038	.000	1.314
TP3Crisis type-accidental vs. omission	061	.063	031	960	.337	185	.064	275	026	023	.565	1.771
TP1Initial strategy-denial with recall vs. accept with	002	048	046	1.014	056	002	196	074	052	046	082	1 0 1 9
recall	.092	.048	.040	1.914	.030	002	.180	.074	.032	.040	.982	1.018
TP4 Responsible for causing	.019	.032	.026	.588	.557	044	.082	292	.016	.014	.294	3.398
TP4 Blame for causing	159	.041	227	-3.931	.000*	239	080	371	106	094	.171	5.855
TP4 Responsible for not preventing	.035	.024	.052	1.481	.139	011	.082	255	.040	.035	.465	2.149
TP4 Blame for not preventing	162	.037	235	-4.371	.000*	234	089	383	118	105	.198	5.061
(Constant)	2.234	.267		8.374	.000*	1.711	2.758					
Age	.001	.002	.021	.685	.493	002	.005	.060	.019	.016	.599	1.671
Gender	158	.049	080	-3.220	.001*	255	062	077	087	076	.925	1.081
Marital status-single vs. married	.089	.061	.045	1.473	.141	030	.209	.065	.040	.035	.611	1.636
Marital status-single vs. widowed	.058	.125	.013	.462	.644	187	.303	.020	.013	.011	.724	1.381
Marital status-single vs. divorced	.033	.093	.010	.355	.722	149	.215	008	.010	.008	.670	1.493
Marital status-single vs. separated	230	.192	029	-1.195	.232	608	.147	014	033	028	.929	1.076
Marital status-single vs. living w partner	178	.094	050	-1.896	.058	362	.006	088	052	045	.826	1.210
Information source-paper vs. TV	.241	.097	.119	2.479	.013*	.050	.432	.057	.067	.059	.243	4.119
Information source-paper vs. web	.077	.101	.036	.756	.450	122	.276	051	.021	.018	.246	4.073
Information source-paper vs. social media	.190	.118	.064	1.605	.109	042	.422	012	.044	.038	.353	2.831
Information source-paper vs. radio	.287	.152	.055	1.883	.060	012	.586	.009	.051	.045	.664	1.506
Information source-paper vs. other	151	.340	011	444	.657	818	.516	040	012	011	.920	1.087
Ice cream consumption-never vs. rarely	.451	.197	.180	2.295	.022*	.066	.837	086	.062	.055	.092	10.851
Ice cream consumption-never vs. sometimes	.665	.192	.333	3.461	.001*	.288	1.041	.024	.094	.082	.061	16.430
Ice cream consumption-never vs. often	.734	.195	.326	3.769	.000*	.352	1.116	.068	.102	.090	.075	13.266

TP4Followup strategy-denial with scapegoating vs.	174	068	076	2 580	010*	042	307	- 0/1	070	061	653	1 531
diminish	.174	.008	.070	2.380	.010	.042	.507	041	.070	.001	.055	1.551
TP4Followup strategy-denial with scapegoating vs.	173	069	205	6 903	000*	330	607	147	185	164	638	1 567
rebuild w/	.475	.009	.205	0.905	.000	.339	.007	.147	.105	.104	.038	1.507
TP4Followup strategy-denial with scapegoating vs.	1/2	067	062	2 1 1 4	025*	010	275	012	058	050	655	1 5 2 6
rebuild w/o	.145	.007	.002	2.114	.035	.010	.215	012	.058	.050	.055	1.520
TP3Crisis type-accidental vs. omission	017	.064	009	271	.786	144	.109	275	007	006	.542	1.844
TP1Initial strategy-denial with recall vs. accept with	002	048	046	1.020	055	002	196	074	052	046	080	1.020
recall	.092	.048	.040	1.920	.055	002	.180	.074	.052	.040	.980	1.020
TP4 Responsible for causing	.031	.032	.043	.969	.333	032	.094	292	.026	.023	.291	3.431
TP4 Blame for causing	131	.041	187	-3.206	.001*	211	051	371	087	076	.166	6.022
TP4 Responsible for not preventing	.039	.024	.057	1.635	.102	008	.085	255	.044	.039	.465	2.151
TP4 Blame for not preventing	095	.040	138	-2.392	.017*	173	017	383	065	057	.169	5.918
TP4 Obligation	111	.035	148	-3.144	.002*	180	042	382	085	075	.255	3.929
TP4 Ability	043	.034	057	-1.236	.217	110	.025	366	034	029	.265	3.774
(Constant)	2.486	.266		9.346	.000*	1.964	3.008					
Age	.001	.002	.013	.434	.664	003	.004	.060	.012	.010	.583	1.715
Gender	132	.049	066	-2.694	.007*	228	036	077	073	063	.907	1.102
Marital status-single vs. married	.117	.060	.059	1.956	.051	.000	.235	.065	.053	.046	.607	1.648
Marital status-single vs. widowed	.089	.123	.020	.723	.470	153	.331	.020	.020	.017	.720	1.388
Marital status-single vs. divorced	.061	.092	.019	.670	.503	118	.241	008	.018	.016	.666	1.501
Marital status-single vs. separated	201	.190	026	-1.056	.291	574	.172	014	029	025	.921	1.086
Marital status-single vs. living w partner	163	.092	045	-1.762	.078	344	.018	088	048	041	.824	1.213
Information source-paper vs. TV	.223	.096	.111	2.329	.020*	.035	.411	.057	.063	.054	.242	4.130
Information source-paper vs. web	.028	.100	.013	.280	.780	169	.225	051	.008	.007	.243	4.122
Information source-paper vs. social media	.149	.117	.050	1.279	.201	080	.378	012	.035	.030	.352	2.844
Information source-paper vs. radio	.197	.151	.038	1.309	.191	098	.493	.009	.036	.031	.657	1.523
Information source-paper vs. other	227	.336	017	677	.499	885	.431	040	018	016	.914	1.094

Ice cream consumption-never vs. rarely	.451	.194	.180	2.325	.020*	.071	.832	086	.063	.054	.092	10.918
Ice cream consumption-never vs. sometimes	.667	.190	.334	3.516	.000*	.295	1.039	.024	.095	.082	.060	16.556
Ice cream consumption-never vs. often	.767	.193	.341	3.985	.000*	.390	1.145	.068	.108	.093	.075	13.394
TP4Followup strategy-denial with scapegoating vs.	159	0(7	0.00	0 201	017*	028	280	0.41	065	050	(52)	1 522
diminish	.158	.067	.069	2.381	.017*	.028	.289	041	.065	.056	.052	1.555
TP4Followup strategy-denial with scapegoating vs.	155	068	107	6 726	000*	272	500	147	101	157	626	1 572
rebuild w/	.455	.008	.197	0.750	.000	.323	.300	.147	.101	.157	.030	1.375
TP4Followup strategy-denial with scapegoating vs.	150	066	065	2 250	024*	020	280	012	061	052	654	1 5 2 9
rebuild w/o	.150	.000	.005	2.238	.024**	.020	.280	012	.001	.055	.034	1.328
TP3Crisis type-accidental vs. omission	047	.064	024	737	.461	173	.079	275	020	017	.527	1.898
TP1Initial strategy-denial with recall vs. accept with	076	047	038	1 603	100	017	168	074	044	037	074	1.027
recall	.070	.047	.038	1.005	.109	017	.108	.074	.044	.037	.974	1.027
TP4 Responsible for causing	.029	.032	.040	.927	.354	033	.091	292	.025	.022	.291	3.442
TP4 Blame for causing	101	.040	143	-2.486	.013*	180	021	371	068	058	.164	6.096
TP4 Responsible for not preventing	.038	.023	.057	1.648	.099	007	.084	255	.045	.039	.465	2.152
TP4 Blame for not preventing	058	.040	084	-1.461	.144	135	.020	383	040	034	.165	6.057
TP4 Obligation	104	.035	139	-2.990	.003*	173	036	382	081	070	.253	3.958
TP4 Ability	043	.034	058	-1.276	.202	110	.023	366	035	030	.262	3.822
TP4 Anger	112	.029	146	-3.895	.000*	169	056	329	106	091	.389	2.572
TP4 Sadness	.026	.026	.033	1.010	.313	025	.077	170	.028	.024	.515	1.943
TP4 Fright	017	.033	022	511	.610	081	.047	224	014	012	.288	3.466
TP4 Anxiety	047	.031	062	-1.539	.124	108	.013	225	042	036	.336	2.980
(Constant)	1.304	.246		5.305	.000*	.822	1.787					
Age	001	.002	017	629	.529	004	.002	.060	017	013	.581	1.721
Gender	139	.044	070	-3.177	.002*	224	053	077	086	066	.907	1.103
Marital status-single vs. married	.139	.054	.070	2.603	.009*	.034	.245	.065	.071	.054	.607	1.649
Marital status-single vs. widowed	.126	.110	.028	1.149	.251	089	.342	.020	.031	.024	.720	1.388

Marital status-single vs. divorced	.040	.082	.013	.494	.621	120	.201	008	.013	.010	.666	1.501
Marital status-single vs. separated	141	.170	018	831	.406	474	.192	014	023	017	.921	1.086
Marital status-single vs. living w partner	138	.083	038	-1.672	.095	300	.024	088	046	035	.824	1.214
Information source-paper vs. TV	.159	.086	.079	1.858	.063	009	.327	.057	.051	.039	.242	4.137
Information source-paper vs. web	.022	.090	.010	.241	.810	154	.197	051	.007	.005	.243	4.122
Information source-paper vs. social media	.127	.104	.043	1.221	.222	077	.331	012	.033	.025	.352	2.844
Information source-paper vs. radio	.132	.135	.025	.977	.329	133	.396	.009	.027	.020	.656	1.524
Information source-paper vs. other	404	.300	029	-1.349	.178	992	.184	040	037	028	.913	1.095
Ice cream consumption-never vs. rarely	.322	.173	.128	1.855	.064	019	.662	086	.051	.039	.091	10.936
Ice cream consumption-never vs. sometimes	.545	.169	.273	3.216	.001*	.213	.878	.024	.087	.067	.060	16.581
Ice cream consumption-never vs. often	.573	.172	.255	3.326	.001*	.235	.911	.068	.090	.069	.074	13.444
TP4Followup strategy-denial with scapegoating vs.	097	059	042	1.620	103	020	214	041	044	034	650	1 538
diminish	.097	.059	.042	1.029	.105	020	.214	041	.044	.054	.050	1.556
TP4Followup strategy-denial with scapegoating vs.	179	062	077	2 874	004*	057	300	147	078	060	599	1 669
rebuild w/	.172	.002	.077	2.071	.001		.500	,	.070	.000		1.009
TP4Followup strategy-denial with scapegoating vs.	.094	.059	.041	1.576	.115	023	.210	012	.043	.033	.653	1.532
rebuild w/o												
TP3Crisis type-accidental vs. omission	.027	.057	.014	.475	.635	085	.140	275	.013	.010	.524	1.907
TP1Initial strategy-denial with recall vs. accept with	069	.043	035	-1.610	.108	153	.015	.074	044	034	.942	1.062
recall												
TP4 Responsible for causing	012	.028	017	441	.659	068	.043	292	012	009	.289	3.464
TP4 Blame for causing	050	.036	072	-1.391	.164	121	.021	371	038	029	.163	6.131
TP4 Responsible for not preventing	.026	.021	.038	1.252	.211	015	.067	255	.034	.026	.464	2.154
TP4 Blame for not preventing	005	.035	007	136	.892	074	.065	383	004	003	.164	6.097
TP4 Obligation	082	.031	110	-2.648	.008*	144	021	382	072	055	.252	3.963
TP4 Ability	.005	.031	.007	.165	.869	055	.065	366	.005	.003	.260	3.850

TP4 Anger	049	.026	064	-1.901	.058	100	.002	329	052	040	.382	2.617	
TP4 Sadness	.013	.023	.016	.559	.576	032	.058	170	.015	.012	.514	1.945	
TP4 Fright	008	.029	010	259	.796	065	.050	224	007	005	.288	3.467	
TP4 Anxiety	061	.028	080	-2.225	.026*	115	007	225	061	046	.335	2.982	
TP4 Post-crisis attitude	.390	.021	.476	18.528	.000*	.349	.431	.586	.451	.387	.658	1.519	

a. Dependent Variable: Behavioral Intention

b. *p<.05

Mode	R	R	Adjusted R	Std. Error of		Chan		Durbin-Watson		
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	
					Change	Change			Change	
1	.299 ^a	.090	.011	1.01813	.090	1.146	14	163	.322	
2	.308 ^b	.095	.011	1.01834	.005	.934	1	162	.335	
3	.480 ^c	.231	.138	.95063	.136	6.974	4	158	.000	
4	.499 ^d	.249	.148	.94534	.018	1.887	2	156	.155	
5	.554 ^e	.307	.193	.92011	.058	3.169	4	152	.016	
6	.663 ^f	.440	.344	.82948	.134	36.029	1	151	.000	2.153

Table 3.9. Model summary of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 17 to 18)

a. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic)

c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items)

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude

g. Dependent Variable: Behavioral Intention

Mod	lel	Sum of	df	Mean	F	Sig.
_		Squares		Square		
1	Regression	16.631	14	1.188	1.146	.322 ^b
	Residual	168.965	163	1.037		
	Total	185.596	177			
2	Regression	17.600	15	1.173	1.131	.332 ^c
	Residual	167.996	162	1.037		
	Total	185.596	177			
3	Regression	42.811	19	2.253	2.493	.001 ^d
	Residual	142.785	158	.904		
	Total	185.596	177			
4	Regression	46.183	21	2.199	2.461	.001 ^e
	Residual	139.413	156	.894		
	Total	185.596	177			
5	Regression	56.914	25	2.277	2.689	$.000^{\mathrm{f}}$
	Residual	128.682	152	.847		
	Total	185.596	177			
6	Regression	81.703	26	3.142	4.567	.000 ^g
	Residual	103.893	151	.688		
	Total	185.596	177			

Table 3.10. ANOVA of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 17 to 18)

a. Dependent Variable: Behavioral Intention

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic)

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items)

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)

g. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (thematic vs. episodic), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude

Mode	R	R	Adjusted R	Std. Error of		Chan		Durbin-Watson		
1		Square	Square	the Estimate	R Square	F	df1	df2	Sig. F	
					Change	Change			Change	
1	.395 ^a	.156	.082	.96198	.156	2.122	14	161	.013	
2	.404 ^b	.163	.085	.96074	.007	1.416	1	160	.236	
3	.479 ^c	.230	.136	.93341	.067	3.376	4	156	.011	
4	.491 ^d	.241	.138	.93244	.011	1.164	2	154	.315	
5	.502 ^e	.252	.127	.93826	.010	.524	4	150	.718	
6	.651 ^f	.424	.324	.82568	.173	44.693	1	149	.000	2.053

Table 3.11. Model summary of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 19 to 20)

a. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free) c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items)

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free),

TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude

g. Dependent Variable: Behavioral Intention

Mod	del	Sum of	df	Mean	F	Sig.
		Squares		Square		_
1	Regression	27.492	14	1.964	2.122	.013 ^b
	Residual	148.990	161	.925		
	Total	176.481	175			
2	Regression	28.799	15	1.920	2.080	.013 ^c
	Residual	147.683	160	.923		
	Total	176.481	175			
3	Regression	40.564	19	2.135	2.450	.001 ^d
	Residual	135.917	156	.871		
	Total	176.481	175			
4	Regression	42.588	21	2.028	2.333	.002 ^e
	Residual	133.894	154	.869		
	Total	176.481	175			
5	Regression	44.432	25	1.777	2.019	$.005^{\mathrm{f}}$
	Residual	132.049	150	.880		
	Total	176.481	175			
6	Regression	74.901	26	2.881	4.226	.000 ^g
	Residual	101.580	149	.682		
	Total	176.481	175			

Table 3.12. ANOVA of hierarchical regression analysis assessing predictors of TP4 behavioral intention (Group 19 to 20)

a. Dependent Variable: Behavioral Intention

b. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self)

c. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free)

d. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items)

e. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items)

f. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items)

g. Predictors: (Constant), Age, Gender, Marital status, Information source, Ice cream consumption (self), Framing (victim-centered vs. victim-free), TP4 attribution of responsibility and blame (4 items), TP4 obligation and ability (2 items), TP4 emotions (4 items), TP4 post-crisis attitude



Figure 3.3. Effect of initial strategy and follow-up strategy on TP4 behavioral intention



Figure 3.4. Effect of crisis type and follow-up strategy on TP4 behavioral intention



Figure 3.5. Effect of initial strategy and follow-up strategy on TP4 post-crisis attitude



Figure 3.6. Effect of crisis type and follow-up strategy on TP4 post-crisis attitude



Figure 3.7. Effect of initial strategy and follow-up strategy on TP4 responsibility for causing the outbreak



Figure 3.8. Effect of crisis type and follow-up strategy on TP4 responsibility for causing the outbreak



Figure 3.9. Effect of crisis type and follow-up strategy on TP4 obligation



Figure 3.10. Effect of crisis type and follow-up strategy on TP4 ability

Outcome variables		Follow-up Strategy: Group 1 to 16									Framing: Group 17 to 18 & Group 19 to 20			
		Initial Strategy		Crisis Type		Follow-up Strategy				Inter-	G17-18		G19-20	
		Denial w/ recall	Accept w/ recall	А	0	Denial w/scape goating	Diminish	Rebuild w/ responsi bility	Rebuild w/o responsibi lity	action	Thematic	Episodic	Victim- center	Victim- free
Behavioral Intention		-	1	1	-	-	-	↑	-					
Perceived health consequence				-	1									
Post-crisis attitude		-	1	1	-	-	-	1	-	Yes	1	-		
Responsi bility and Blame (4) Obligatio n and Ability (2) Emotion (4)	Res for causing	1	-	-	1	-	1	1	-					
	Blame for causing	1	-	-	1	-	1	1	-					
	Res for not preventing			-	1		1		-					
	Blame for not preventing	1	-	-	1									
	Obligation	1	-	_	1		↑		-					
	Ability	1	-	-	1		1		-					
	Anger	1	-	-	1									
	Sadness	1	-	-	1									
	Fright			-	1									
	Anxiety	1	-	-	1									
Legal outcome perceptio n (5)	Company - fine	1	-	-	1									
	Manager - fine	1	-	-	1						-	↑		
	Employee - fine			-	1									
	Manager - jail	1	-	-	1									
	Employee - jail			_										

Table 3.13. Master results table of Experiment 2 ANOVAs

Grey shaded cells: no significant difference detected "–": the lowest value

"↑": higher than the lowest value "↑↑ ": higher than "↑"

CHAPTER FOUR Conclusions and Implications

1. Food Safety Crisis Communication: What We Found

As stated in Chapter 1, despite the importance of food safety crisis and crisis communication, "the systematic study of effective [food] recall communications is in its infancy." (Benjamin Onyango, 2010) This dissertation aims at investigating food safety crisis and its communication by using newly proposed and well-accepted crisis communication theory concepts, within the context of an ongoing crisis. By innovatively incorporating different crisis stages into the experimental design, we were able to examine key factors of food safety crisis and its communication in a way that is reflective of what would happen in reality. We used Jordan-Meier's (Jordan-Meier, 2011) four stages of crisis model and designated four time points (TP) to add one independent variable at each time point: TP 1 - fact-finding (news of a food safety crisis broke out, potential source and the company involved was identified, and the company's initial communication strategy was reported; independent variable – initial communication strategy), TP 2 – unfolding drama (whether the company was linked or not linked to the crisis was confirmed), TP 3 – finger-pointing (the cause of the food safety crisis identified; independent variable – crisis type), TP 4 – resolution (the company issued a statement as the response to the food safety crisis; independent variable – follow-up communication strategy and framing). The DK ("I don't know enough to decide") option included in our measurement scales enabled us to examine public uncertainty while the food safety crisis unfolded. Our results suggest that public uncertainty peaks at the early stage of a food safety crisis (TP1), when very limited information is available, and gradually decreases as the crisis moves to later stages. The greatest degree of public uncertainty was observed in association with attribution of responsibility and blame measurements at the early stage of a given

food safety crisis (TP1), and for perception of appropriate legal consequences measurements at the later stages of such crisis (TP3 and TP4). Notably, despite the limited information provided at the early stage, most participants still had formed attitudes, behavioral intentions, and attribution of responsibility and blame.

Another key component of crisis and crisis communication is crisis type. Coombs has suggested that there are three main types of crisis – victim, accidental, and preventable (W Timothy Coombs, 2007). We proposed that one could further divide the preventable type of food safety crisis into two sub-categories - omission and commission. We tested the effects of accidental, omission preventable, and commission preventable crisis on public responses to a food safety crisis. Furthermore, in Experiment 1, there were two variations at TP 2 – in one scenario the company was indeed linked to the food safety crisis, while in the other one the company was not linked to the crisis (exonerated). Since the condition of "no linkage" can be considered as Coombs' victim type of crisis (the company was falsely identified as the source of a food safety crisis at TP1 and exonerated at TP2, thus can be considered as the "victim" of the crisis), we were also able to detect the different public responses toward victim type of crisis and non-victim type of crisis (accidental, omission preventable, and commission preventable). In general, compared to the victim type of crisis, the public has more negative responses (behavioral intention, post-crisis attitude, attribution of responsibility and blame, perception of obligation and ability to prevent the crisis, emotions, and perception of appropriate legal consequences) toward the company involved in non-victim type crisis. Similarly, more negative responses were observed in preventable type of crisis than accidental type of crisis. We also found that the public doesn't make a distinction between omission and commission preventable types of crisis when it comes to behavioral intentions (i.e. purchase intention), post-crisis attitude, perception of company's obligation and ability to prevent the crisis, and emotions - the two types of preventable crisis are perceived as equally bad by the public. However, the public does make a distinction between omission and commission crisis as regard to attribution of responsibility and perception of appropriate legal consequences of the crisis – the public thinks that when a company is involved in a commission food safety crisis, the company and responsible individuals are the most responsible and the responsible individuals deserve jail time the most. Interestingly, this perception of appropriate legal consequences in this study is consistent with actual likely legal outcomes in current practice of law. Our results are consistent with previous research using SCCT, which suggests higher organization reputation after accidental crisis than preventable crisis (W Timothy Coombs, 2016; Ma & Zhan, 2016; Roshan, Warren, & Carr, 2016). Our results also added valuable insights into categorization of food safety crisis, as well as how the different types of crisis can affect public perception to such crisis. It is important to point out that we not only examined the outcome that catches the most research attention - post-crisis attitude (a way to measure organizational reputation) - but also other outcomes, including behavioral intentions, attribution of responsibility and blame, emotions, and perception of appropriate legal consequences. As previous studies have largely ignored crisis outcomes such as behavioral intentions and perception related to legal outcomes (Claeys & Cauberghe, 2014; W Timothy Coombs, 2016), our results have added important information.

With regard to crisis communication strategy, we advanced the theory in this dissertation by proposing a distinction between strategies adopted at the early stage of a food safety crisis (initial communication strategy) and strategies adopted at the later stages (follow-up communication strategy). Coombs once pointed out, companies

should also include corrective behaviors that protect the public and prevent future crises in their crisis communication (W Timothy Coombs, 2007). We proposed that in the case of food safety crisis, a corrective action (issuing a recall, to be specific) is one of the key components for an initial communication strategy. Indeed, our results suggest that if the company later turned out to be linked to the food safety crisis, accept responsibility with a recall led to better public responses than deny responsibility with a recall, and deny responsibility without a recall. This is consistent with what Coombs found in a recent study that reputational damage and public anger increased when a company initially denied responsibility but was then found to be responsible (W Timothy Coombs et al., 2016). On the other hand, if the company turned out to be not linked to the food safety crisis, denial of responsibility with a recall generated more favorable public responses than the other two strategies. Thus, having a recall as a component of the company's initial communication strategy is crucial to generating better public responses (especially in terms of behavioral intentions and post-crisis attitude), regardless of whether the company turned out to be linked or not linked to the crisis. When it comes to follow-up communication strategy, we proposed that there are two ways to adopt Coombs' "rebuild" strategy – rebuild with taking responsibility and apologizing and rebuild neither taking responsibility nor apologizing (the company claims to act as if it is responsible to avoid potential liability issues). Our results indicate that among the four follow-up communication strategies we examined (denial with scapegoating, diminish, rebuild with responsibility and apologizing, and rebuild with neither responsibility nor apologizing), rebuild with responsibility and apologizing strategy generated the best results for public behavioral intention and post-crisis attitude. However, interestingly, it also led the public to attribute more responsibility and blame to the company.

Moreover, we found that denial with scapegoating is the least favorable strategy in omission preventable crisis while the diminish strategy is the least favorable in an accidental crisis. While the results of the optimal effects of rebuild with responsibility and apologize strategy echo previous research using SCCT constructs (Claevs & Opgenhaffen, 2016; W Timothy Coombs, 2016; Dean, 2004; Roshan et al., 2016; Sheldon & Sallot, 2008; Turk, Jin, Stewart, Kim, & Hipple, 2012), our study has also shed some light on the current weak association of SCCT-identified crisis communication strategies and organizational reputation. According to a meta-analysis on SCCT research conducted by Ma et al., past studies found positive but weak strategies SCCT-identified crisis communication association between and organizational reputation, that "responding to a crisis according to attributed responsibility was not enough to protect reputation" (Ma & Zhan, 2016). While SCCT suggests that companies should adopt communication strategies according to crisis type (which is categorized according to attribution of responsibility), research found the matching association for accidental crises was moderate while the association for preventable crises was weak (Ma & Zhan, 2016). Our results have shown that there is a matching effect of initial communication strategy and victim and non-victim type of crisis (not linked and linked), but little matching effect of follow-up crisis communication strategy and crisis type. Furthermore, as mentioned previously, the follow-up communication strategy itself might affect attribution of responsibility and blame, but in an opposite way to behavioral intention and post-crisis attitude as one would expect (while "rebuild with responsibility" strategy generates the most positive results for behavioral intentions and post-crisis attitude, it also leads to higher attribution of responsibility and blame). Our results further highlight the importance of having a corrective action in the crisis communication strategy, as well as the

necessity of initiating multiple crisis communications (i.e. multiple press releases and organizational statements etc.) adopting different sets of strategies as a crisis unfolds.

We also examined the relationship between several key SCCT constructs behavioral intention, post-crisis attitude, attribution of responsibility and blame, and emotion, within the context of an ongoing food safety crisis. Our results suggest that while all the key constructs are predictors of behavioral intention, post-crisis attitude is the strongest among all. Consistent with other studies, the results also support SCCT's structure that attribution of responsibility and blame and emotions affect post-crisis attitude, which ultimately impact behavioral intentions (Ma & Zhan, 2016).

We found limited significant results for different framings of the company's follow-up crisis communication message. The significant effect we detected was that thematic framing (focusing on organizational responsibility) led to better post-crisis public attitudes than episodic framing (focusing on individual responsibility).

Another interesting finding from our study is that even though our manipulations and scenarios were in general very successful, the participants still perceived the same manipulation and same message differently. This is particularly important because it reflects what happens in reality, no matter what has been reported by the media or what has been said by the company, people can perceive the same information in different ways and produce great variance in public perception (Y. Kim, 2016).

2. Implications and Suggestions for Practice

Based on the findings of this dissertation, some recommendations for food safety crisis communication practice are:

(1) If a company has been identified as a potential source of a food safety crisis that poses significant public health threat, issuing a recall as part of the initial crisis communication strategy is crucial. Indeed, recalls are expensive. However, our findings have demonstrated that it is not only the right thing to do under such circumstance, but also the most effective strategy to help restore company reputation and public behavioral intentions.

- (2) At the early stage of a food safety crisis, the company involved in the crisis should carefully evaluate all the available information and make a decision on what initial crisis communication strategy would be the best to adopt, taking consideration of the uncertainty. Besides the recall component, a company should also decide whether it should deny or accept responsibility when the actual cause of the crisis is still not clear. One should be extremely cautious of which strategy to go with, because our study has shown that when the company later turns out to be not linked to the crisis, denial with a recall is the most effective initial communication strategy, whereas when the company later turns out to be linked to the crisis, denial becomes a bad choice and accept with a recall becomes the most effective. The only condition in which we would recommend that a company should choose denial with recall as an initial communication strategy is when the company knows for sure that it could not be linked to the food safety crisis, because otherwise, the company runs the risk of even greater reputational damage if later it is identified as linked.
- (3) A company involved in a food safety crisis should respond to the crisis as it unfolds. In other words, the company should adopt appropriate an initial communication strategy when the crisis first breaks out, and adjust and adopt an appropriate follow-up communication strategy when more information becomes available. When choosing the follow-up communication strategy,

one should keep in mind that the rebuild with responsibility and apology strategy has been demonstrated as the best one by our study, as well as previous research (Claeys & Opgenhaffen, 2016; W Timothy Coombs et al., 2016; Dean, 2004; Roshan et al., 2016; Sheldon & Sallot, 2008; Turk et al., 2012). Crisis communication practitioners should avoid denial with scapegoating and diminish strategies as they have been shown to generate less favorable public responses. Another follow-up strategy that might be in the particular interest of practitioners is rebuild without responsibility and apology. This strategy was proposed to companies so that they can take action to protect the public from potential threats posed by the crisis, while not taking responsibility and assuming the potential liability issues related to it. Our research has shown that while this strategy is effective in reducing attribution of responsibility and blame, it does not generate as favorable post-crisis public attitudes and behavioral intentions as rebuild with responsibility and apology. Thus, this strategy should be adopted with extreme caution.

(4) A company involved in a food safety crisis should adopt initial and follow-up communication strategies based on the possibility of being linked to the crisis and what type of crisis it is. It is important that the company not only gather information from its own perspective, but also information on how the crisis is framed in the media and how the crisis is perceived by the public, because our study and previous research have shown that the latter two might be different from the company's own perception (Y. Kim, 2016). Correctly understanding public perception and responding to the crisis in a way that is appropriate to that perception would be the most effective.

- (5) A food company should strictly follow all current regulations and best practices designed to prevent food safety crisis to avoid a crisis at the first place. Once a crisis happens and a company's name is connected with the crisis, the company faces immediate reputational damage and economic loss. Our results show that if the company did everything it is supposed to do and nonetheless gets involved in the crisis (accidental), the public thinks less negatively about the company than when the company did not do something or intentionally did something wrong. Moreover, when it comes to organizational reputation, negligence (omission) is no better than intentional wrongdoing (commission), and the company involved in either type of crises is exposed to an equally high level of reputational damage. The real difference between negligence and intentional wrongdoing is that, in the eyes of the public, the latter needs to be punished more harshly (i.e. jail time in addition to fines).
- (6) During a food safety crisis, the priority of the government agencies (such as CDC and FDA) is to identify the source of crisis as soon as possible and enforce further actions to protect public health. In the attempt to do so, the government agencies sometimes publicly link a company's product with a food safety crisis when there is a lack of definitive evidence. However, it is important to note that there are potential consequences of having public officials link a company with a food safety crisis even when emphasizing the preliminary nature of this association. Our findings indicate that even when there is not sufficient information to definitively assign responsibility or blame, the public tends to consider the company to be responsible once it has been identified as a potential source by government agencies. The company

thus faces reputational damage regardless. If the company, by any chance, later turns out to be not the culprit, the company then has been placed in a very disadvantageous situation. This, even though not common, has happened in the past (the 2008 *Salmonella* Saintpaul outbreak in the U.S., and the 2011 *E.coli* outbreak in Germany) (Barton Behravesh et al., 2011; "Outbreaks of E. coli O104:H4 infection,"). Therefore, extreme caution should be taken when government agencies are making such decisions.

It is also worth mentioning that we are aware of the current gap between academic recommendations and crisis communication practice. As Claeys discovered in the recent study, crisis communication practitioners do have a general understanding of what has been suggested by research and theory (Claeys & Opgenhaffen, 2016). There is also a positive trend of changing from trying to conceal to willingness to take responsibility and to avoid blaming others. However, practitioners have also mentioned that they find it hard to follow some of the recommendations such as steal-thunder (to reveal the crisis by the company itself rather than waiting to be exposed by the media or a third party) and accept responsibility and apologize, because the legal departments and management do not like to accept responsibility (or to apologize, which implies responsibility) due to legal liability concerns (Claeys & Opgenhaffen, 2016). Indeed, it is challenging for a company to decide whether it should recall or accept responsibility because those actions are closely tied with immediate financial loss. But, a company should weigh in the threats if it chooses not to recall or take responsibility, because we have demonstrated that inappropriate action and crisis communication strategy would negatively affect post-crisis attitude and behavior intentions, which are the keys to a company's survival.

3. Future Directions

Our study has initiated the investigation of food safety crisis and crisis communication using SCCT concepts and crisis stages models in experimental conditions. We have proposed important new communication components, crisis categorization, and this study is one of the first to examine food safety crisis extensively with the novel experimental design. Future research using similar concepts and design will add valuable information to the growing body of evidence on food safety crisis communication. Furthermore, while we have proposed a new food safety crisis categorization based on SCCT concepts, other researchers have also suggested new ways to categorize food safety crisis based on its physical manifestation and the mechanism(s) of the crisis (chemical/physical contamination, biological contamination, willful deception, and transparency and awareness issues) (Whitworth et al., 2017). Future research using different food safety categorization to examine food safety crisis communication and public perception would be extremely helpful in terms of testing the effectiveness of different communication strategies and their interaction with other key components of a crisis. Moreover, as mentioned in Chapter 1, "instructing information" and "adjusting information" is extremely important in food safety crisis communication, since individuals need the information to avoid health or economic threats. However, very little research has been conducted to address this topic (W Timothy Coombs, 2016). Thus, more research on how government agencies and companies could incorporate instructing and adjusting information effectively to guide the public through a crisis is warranted.

An interesting observation we made is that relatively few participants used the DK (I don't know enough to decide) option at TP1 (when very limited information was available), suggesting that they formed attitudes, emotions, and behavioral

intentions at the very early stage of the food safety crisis, even under conditions of significant uncertainty, and when many could not decide whether the company was responsible or to be blamed. This suggests that the majority of people are willing to decide how they feel, and how they will act in response to a food safety crisis even before definitive evidence of its cause becomes available. Whether this is due to the unique nature of food safety crises or to other factors is worthy of further investigation.

Our results also suggest that the public perceives a company's obligation and ability to prevent a food safety crisis differently depending on the initial strategy adopted by the company and the type of crisis the company is involved in. How do these two factors affect public perception of obligation and ability? How these effects are connected with blame and responsibility? More research is need to examine these relationships.

Unexpectedly, our study did not show much effect of message framing on public responses to a food safety crisis. As discussed in Chapter 3, the reason might be the specific communication strategy and framing methods we chose did not elicit variations in public responses. Other research using different communication strategies and framing methods can provide some more insights into how message framing works. Additionally, how framing of the crisis by news media and social media platform can affect public perception of a crisis is another interesting area for future research.

An important component we did not address in this dissertation is social media. Social media has provided an efficient channel to interact with the public during crisis, but it has also become the source of crisis (Cheng, 2016). Research suggests that social media is more frequently used than the traditional media during

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Group	T1	Measures	T2	Measures	T3	Measures
G1	T1-1: Denial w/o recall		T2-1. Link		T3-1: Accidental	
G2	T1-1: Denial w/o recall		T2-1: Link		T3-2: Omission	
G3	T1-1: Denial w/o recall		T2-1: Link		T3-3: Commission	
G4	T1-1: Denial w/o recall	w/assumption	T2-1: Link		T3-1: Accidental	
G5	T1-1: Denial w/o recall	w/ assumption	T2-1: Link		T3-2: Omission	
<u>G6</u>	T1-1: Denial w/o recall	w/ assumption	T2-1: Link		T3-3: Commission	
G7	T1-1: Denial w/o recall	w/ ussumption	T2-2: No link		NA	
G8	T1-1: Denial w/o recall	w/assumption	T2-2: No link		NA	
<u>G0</u>	T1-2: Denial with recall	w/ ussumption	T2-2: 100 mink		T3-4: Accidental	
G10	T1-2: Denial with recall		T2-3: Link		T3-5: Omission	
G10 G11	T1-2: Denial with recall		T2-3: Link		T3-6: Commission	
G11 C12	T1-2: Denial with recall	w/ assumption	T_2-3 : Link T_2-3 : Link		T3-4: Accidental	
C13	T1-2: Denial with recall	w/ assumption	T2-3. Link		T3 5: Omission	
G13 C14	T1-2: Denial with recall	w/ assumption	T2-3. Link		T3-5: Onlission	
G14 C15	T1-2. Denial with recall	w/ assumption	T2-3. LIIK		NA	
G15 C16	T1-2. Denial with recall	w/ accumption	T2-4. No link		INA NA	
G10 C17	T1-2: Denial with recall	w/ assumption	T2-4: NO IIIK		INA T2 7: A saidantal	
G1/	T1-3: Accept with recall		12-5: Link		T3-7: Accidental	
GI8	11-3: Accept with recall		12-5: Link		13-8: Omission	
G19	11-3: Accept with recall		T2-5: Link		T3-9: Commission	
G20	T1-3: Accept with recall	w/ assumption	T2-5: Link		T3-7: Accidental	
G21	T1-3: Accept with recall	w/ assumption	T2-5: Link		T3-8: Omission	
G22	T1-3: Accept with recall	w/ assumption	T2-5: Link		T3-9: Commission	
G23	T1-3: Accept with recall		T2-6: No link		NA	
G24	T1-3: Accept with recall	w/ assumption	T2-6: No link		NA	

Table 1. Experiment 1 Group Scenario Arrangement

Group	T1	T2	T3	T4	Framing	Μ	Measures
						С	
1	T1-2: Denial with recall	T2-3: Linked	T3-4: Accidental	T4-1: Denial with scapegoating			
2	T1-2: Denial with recall	T2-3: Linked	T3-4: Accidental	T4-2: Diminish			
3	T1-2: Denial with recall	T2-3: Linked	T3-4: Accidental	T4-3: Rebuild w/ responsibility			
4	T1-2: Denial with recall	T2-3: Linked	T3-4: Accidental	T4-4: Rebuild w/o responsibility			
5	T1-2: Denial with recall	T2-3: Linked	T3-5: Omission	T4-5: Denial with scapegoating			
6	T1-2: Denial with recall	T2-3: Linked	T3-5: Omission	T4-6: Diminish			
7	T1-2: Denial with recall	T2-3: Linked	T3-5: Omission	T4-7: Rebuild w/ responsibility			
8	T1-2: Denial with recall	T2-3: Linked	T3-5: Omission	T4-8: Rebuild w/o responsibility			
9	T1-3: Accept with recall	T2-5: Linked	T3-7: Accidental	T4-9: Denial with scapegoating			
10	T1-3: Accept with recall	T2-5: Linked	T3-7: Accidental	T4-10: Diminish			
11	T1-3: Accept with recall	T2-5: Linked	T3-7: Accidental	T4-11: Rebuild w/ responsibility			
12	T1-3: Accept with recall	T2-5: Linked	T3-7: Accidental	T4-12: Rebuild w/o responsibility			
13	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission	T4-13: Denial with scapegoating			
14	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission	T4-14: Diminish			
15	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission	T4-15: Rebuild w/ responsibility			
16	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission	T4-16: Rebuild w/o responsibility			
17	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission		T4-17: Thematic		
18	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission	T4-16: Rebuild w/ responsibility	T4-18: Episodic		
19	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission		T4-19: Vic-center		
20	T1-3: Accept with recall	T2-5: Linked	T3-8: Omission		T4-20: Victim-free		

Table 2. Experiment 2 Group Scenario Arrangement

Scenario T1-1: Denial without recall

Multistate *Salmonella* **Outbreak may be Linked to Ice Cream Products** By Mitch Eligon, CNN Updated 4:18 PM EST, Tue November 17, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), officials have linked the recent outbreak of foodborne illness to a common strain of *Salmonella*. Since it began this September, the outbreak has sickened at least 220 people across the country (including participant's state), killing one and hospitalizing 70 others.

CDC is collaborating with public health officials in the affected states and with the US Food and Drug Administration (FDA) to investigate this outbreak. All of those affected were sicken by the same strain of *Salmonella*, but the source of the outbreak has not been conclusively identified yet. CDC officials have said that although it's early in their investigation, they suspect that ice cream products produced by Goodman's Creameries may be responsible because "many of those affected reported eating Goodman's ice cream before becoming ill."

Goodman's however, denies that it is responsible for the outbreak. "We are actively working with the CDC, FDA and other public health authorities," Said Nigel Goodman, the CEO of Goodman's Creameries, in a statement on Monday. "We do not believe that our company is cause of this unfortunate outbreak since all of our products are processed under the highest quality and safety standards and we always follow Good Manufacturing Practice (GMP)."

No product recall has been issued at this point.

Fast facts on Salmonella

The CDC reports that people in a normal state of health who ingest *Salmonella*tainted food may experience diarrhea, fever and abdominal cramps, which typically begin within 12 to 72 hours. This may be accompanied by vomiting, chills, headache and muscle pains.

These symptoms may last about four to seven days and then go away without specific treatment, but left unchecked, *Salmonella* infection may spread to the bloodstream and beyond. It can cause death if the person is not treated promptly with antibiotics.

Children, the elderly and people with compromised immune symptoms should practice extreme caution.

Scenario T1-2: Denial with recall

Multistate *Salmonella* **Outbreak may be Linked to Ice Cream Products** By Mitch Eligon, CNN Updated 4:18 PM EST, Tue November 17, 2015

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In the same statement, Mr. Goodman added, "However, because we care about our customers, our company has decided to voluntarily recall our ice cream products out of an abundance of caution."

This recall includes Goodman's individually wrapped ice cream bars, sandwiches and cones, half-gallon, pint, and 3-ounce containers of ice cream. Products are recalled from all retail outlets, including supermarkets, convenience stores, and vending machines. A complete list of products involved in the recall can be found on FDA.gov.

Consumers are advised to dispose of any potentially affected ice cream products and to contact the company directly at 1-800-XXX-XXXX between 8 a.m. and 8 p.m. EST for a replacement or refund.

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Children, the elderly and people with compromised immune symptoms should practice extreme caution.

Scenario T1-3: Accept with recall

Multistate *Salmonella* **Outbreak may be Linked to Ice Cream Products** By Mitch Eligon, CNN Updated 4:18 PM EST, Tue November 17, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), officials have linked the recent outbreak of foodborne illness to a common strain of *Salmonella*. Since it began this September, the outbreak has sickened at least 220 people across the country (including participant's state), killing one and hospitalizing 70 others.

CDC is collaborating with public health officials in the affected states and with the US Food and Drug Administration (FDA) to investigate this outbreak. All of those affected were sicken by the same strain of *Salmonella*, but the source of the outbreak has not been conclusively identified yet. CDC officials have said that although it's early in their investigation, they suspect that ice cream products produced by Goodman's Creameries may be responsible because "many of those affected reported eating Goodman's ice cream before becoming ill."

"We are actively working with the CDC, FDA and other public health authorities," Said Nigel Goodman, the CEO of Goodman's Creameries, in a statement on Monday. "It is still unclear whether any of our products are involved in this unfortunate outbreak." "However, because we care about our customers, our company has decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of an abundance of caution."

This recall includes Goodman's individually wrapped ice cream bars, sandwiches and cones, half-gallon, pint, and 3-ounce containers of ice cream. Products are recalled from all retail outlets, including supermarkets, convenience stores, and vending machines. A complete list of products involved in the recall can be found on FDA.gov.

Consumers are advised to dispose of any potentially affected ice cream products and to contact the company directly at 1-800-XXX-XXXX between 8 a.m. and 8 p.m. EST for a replacement or refund.

Fast facts on Salmonella

The CDC reports that people in a normal state of health who ingest *Salmonella*tainted food may experience diarrhea, fever and abdominal cramps, which typically begin within 12 to 72 hours. This may be accompanied by vomiting, chills, headache and muscle pains.

These symptoms may last about four to seven days and then go away without specific treatment, but left unchecked, *Salmonella* infection may spread to the bloodstream and beyond. It can cause death if the person is not treated promptly with antibiotics.

Children, the elderly and people with compromised immune symptoms should practice extreme caution.

Scenario T2-1: Denial without recall + Linked

Breaking News

Investigation Links *Salmonella* **Outbreak to Goodman's Ice Cream Products** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is an ice cream plant owned by Goodman's Creameries, in Rochester, NJ.

"The same strain of *Salmonella* isolated from samples of ice cream products manufactured at Goodman's Rochester facility matches the strain in samples collected from those made sick," said an official from the US Food and Drug Administration (FDA), "This result is also consistent with the epidemiological evidence, in which many of those affected recalled having eaten Goodman's ice cream products before becoming ill."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO denied that Goodman's is responsible and thus issued no recall.

On Thursday, after evidence confirmed Goodman's products to be the source of the outbreak, Goodman's issued a voluntarily recall of their ice cream products.

This recall includes Goodman's individually wrapped ice cream bars, sandwiches and cones, half-gallon, pint, and 3-ounce containers of ice cream. Products are recalled from all retail outlets, including supermarkets, convenience stores, and vending machines. A complete list of products involved in the recall can be found on FDA.gov.

With the confirmation of the source of this outbreak, health officials warned consumers to check the recall list before eating Goodman's ice cream products. Consumers are advised to dispose of any potentially affected ice cream products and to contact the company directly at 1-800-XXX-XXXX between 8 a.m. and 8 p.m. EST for a replacement or refund.

Scenario T2-2: Denial without recall + Not linked

Breaking News Goodman's Ice Cream Products are NOT Linked to *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is <u>NOT</u> ice cream products produced by Goodman's Creameries.

"No product contamination has been detected at the Goodman's facilities," said an official from the US Food and Drug Administration (FDA), "We are still investigating and trying to identify the source of this outbreak. However, we are confident that Goodman's ice cream is not involved."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO denied that Goodman's is responsible and thus issued no recall.

Scenario T2-3: Denial with recall + Linked

Breaking News

Investigation Links *Salmonella* **Outbreak to Goodman's Ice Cream Products** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is an ice cream plant owned by Goodman's Creameries, in Rochester, NJ.

"The same strain of *Salmonella* isolated from samples of ice cream products manufactured at Goodman's Rochester facility matches the strain in samples collected from those made sick," said an official from the US Food and Drug Administration (FDA), "This result is also consistent with the epidemiological evidence, in which many of those affected recalled having eaten Goodman's ice cream products before becoming ill."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO denied that Goodman's is responsible, but "decided to voluntarily recall their ice cream products out of abundance of caution".

The complete list of products involved in the recall can be found on FDA.gov. With the confirmation of the source of this outbreak, health officials warned consumers to check the list before eating Goodman's ice cream products.

Scenario T2-4: Denial with recall + Not linked

Breaking News Goodman's Ice Cream Products are NOT Linked to *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is <u>NOT</u> ice cream products produced by Goodman's Creameries.

"No product contamination has been detected at the Goodman's facilities," said an official from the US Food and Drug Administration (FDA), "We are still investigating and trying to identify the source of this outbreak. However, we are confident that Goodman's ice cream is not involved."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO denied that Goodman's is responsible, but "decided to voluntarily recall their ice cream products out of abundance of caution".

The company announced that is ending its voluntary recall after its products have been shown to be unrelated to the outbreak.

Scenario T2-5: Accept with recall + Linked

Breaking News

Investigation Links *Salmonella* **Outbreak to Goodman's Ice Cream Products** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is an ice cream plant owned by Goodman's Creameries, in Rochester, NJ.

"The same strain of *Salmonella* isolated from samples of ice cream products manufactured at Goodman's Rochester facility matches the strain in samples collected from those made sick," said an official from the US Food and Drug Administration (FDA), "This result is also consistent with the epidemiological evidence, in which many of those affected recalled having eaten Goodman's ice cream products before becoming ill."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO claimed that although it was unclear whether any of Goodman's products were involved in the outbreak. The company said that because they cared about their customers, they "decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of abundance of caution."

The complete list of products involved in the recall can be found on FDA.gov. With the confirmation of the source of this outbreak, health officials warned consumers to check the list before eating Goodman's ice cream products.

Scenario T2-6: Accept with recall + Not linked

Breaking News Goodman's Ice Cream Products are NOT Linked to *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Fri December 18, 2015

According to an update from the U.S. Centers for Disease Control and Prevention (CDC), the number of people sickened by a recent *Salmonella* outbreak has reached 400, with two deaths and 120 hospitalizations. Health officials confirmed the source of this multistate outbreak (including participant's state) is <u>NOT</u> ice cream products produced by Goodman's Creameries.

"No product contamination has been detected at the Goodman's facilities," said an official from the US Food and Drug Administration (FDA), "We are still investigating and trying to identify the source of this outbreak. However, we are confident that Goodman's ice cream is not involved."

Last month when CDC and FDA first started investigating Goodman's Creameries, the company CEO claimed that although it was unclear whether any of Goodman's products were involved in the outbreak, the company said that because they cared about their customers, they "decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of abundance of caution."

The company announced that is ending its voluntary recall after its products have been shown to be unrelated to the outbreak.

Scenario T3-1: Denial without recall + Linked + Accidental

Goodman's Creameries Recall: Accidental Distribution of Contaminated Ice Cream Due to Faulty Test Kit By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was purely accidental.

The investigation showed that the company conducted all microbiological tests required by law to ensure product safety. Company employees strictly followed industry standard Good Manufacturing Practices (GMP, the minimum standards that food manufacturers must meet to ensure product quality and safety) and distributed the products after all tests came out negative. However, further investigation revealed that the test kits the company was using were faulty and failed to indicate the presence of *Salmonella* in the finished product. Because of this, contaminated ice cream products were accidentally distributed.

"It was clearly an unfortunate accident," said state inspector Rebecca Johnson. "The company and employees ran the tests they were supposed to and had no way of knowing that the test kits were not functioning correctly and that their products were contaminated."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible and took no action. In December 2015, the company issued a voluntarily recall of their ice cream products after the CDC confirmed that they were the source of the outbreak.

Scenario T3-2: Denial without recall + Linked + Omission

Goodman's Creameries Recall: Distribution of Contaminated Ice Cream Due to Absence of Regular Microbiological Testing By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was due to the absence of regular microbiological testing.

Routine microbiological tests are required by law to ensure product safety. However, the investigation revealed that company employees skipped some testing, and failed to test the batches that turned out to have been contaminated with *Salmonella*. These products were then distributed to consumers. The investigators pointed out that this problem could have been prevented had company employees simply tested their products as frequently as required by industry standard Good Manufacturing Practices (GMP). Such practices are the minimum standards that food manufacturers must meet to ensure product quality and safety.

"It was clearly a problem that could have been prevented," said state inspector Rebecca Johnson. "The company and employees should never have skipped routine testing. If they had performed testing as required, they would have known about the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible and took no action. In December 2015, the company issued a voluntarily recall of their ice cream products after the CDC confirmed that they were the source of the outbreak.

Scenario T3-3: Denial without recall + Linked + Commission

Goodman's Creameries Recall: Intentional Distribution of Contaminated Ice Cream

By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was intentional.

Routine microbiological tests are required by law to ensure product safety. Contaminated food products detected by the tests should be destroyed immediately and follow-up investigations should be conducted to pinpoint the source of the problem. However, the investigation revealed that Goodman's Creameries distributed products after tests pointed to their contamination by *Salmonella*.

"It was clearly a problem caused by intentional wrongdoing," said state inspector Rebecca Johnson. "The company and employees should never distribute products when there's even a possibility of contamination. Yet, Goodman's sold the products despite the fact that the company was aware of the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible and took no action. In December 2015, the company issued a voluntarily recall of their ice cream products after the CDC confirmed that they were the source of the outbreak.

Scenario T3-4: Denial with recall + Linked + Accidental

Goodman's Creameries Recall: Accidental Distribution of Contaminated Ice Cream Due to Faulty Test Kit By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was purely accidental.

The investigation showed that the company conducted all microbiological tests required by law to ensure product safety. Company employees strictly followed industry standard Good Manufacturing Practices (GMP, the minimum standards that food manufacturers must meet to ensure product quality and safety) and distributed the products after all tests came out negative. However, further investigation revealed that the test kits the company was using were faulty and failed to indicate the presence of *Salmonella* in the finished product. Because of this, contaminated ice cream products were accidentally distributed.

"It was clearly an unfortunate accident," said state inspector Rebecca Johnson. "The company ran the tests they were supposed to and had no way of knowing that the test kits were not functioning correctly and that their products were contaminated."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible, but did issue a voluntarily recall "out of abundance of caution". In December 2015, Goodman's Creameries ice cream products were confirmed by the CDC to be the source of the outbreak.

Scenario T3-5: Denial with Recall + Linked + Omission

Goodman's Creameries Recall: Distribution of Contaminated Ice Cream Due to Absence of Regular Microbiological Testing By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was due to the absence of regular microbiological testing.

Routine microbiological tests are required by law to ensure product safety. However, the investigation revealed that company employees skipped some testing, and failed to test the batches that turned out to have been contaminated. The investigators pointed out that this problem could have been prevented had company employees simply tested their products as frequently as required by industry standard Good Manufacturing Practices (GMP). Such practices are minimum standards that food manufacturers must meet to ensure product quality and safety.

"It was clearly a problem that could have been prevented," said state inspector Rebecca Johnson. "The company and employees should never have skipped routine testing. If they had performed testing as required, they would have known about the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible, but did issue a voluntarily recall "out of abundance of caution". In December 2015, Goodman's Creameries ice cream products were confirmed by the CDC to be the source of the outbreak.

Scenario T3-6: Denial with recall + Linked + Commission

Goodman's Creameries Recall: Intentional Distribution of Contaminated Ice Cream By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was intentional.

Routine microbiological tests are required by law to ensure product safety. Contaminated food products detected by the tests should be destroyed immediately and follow-up investigations should be conducted to pinpoint the source of the problem. However, the investigation revealed that Goodman's Creameries distributed products after tests pointed to their contamination by *Salmonella*.

"It was clearly a problem caused by intentional wrongdoing," said state inspector Rebecca Johnson. "The company should never distribute products when there's even a possibility of contamination. Yet, Goodman's sold the products despite the fact that the company was aware of the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company denied that it was responsible, but did issue a voluntarily recall "out of abundance of caution". In December 2015, Goodman's Creameries ice cream products were confirmed by the CDC to be the source of the outbreak.

Scenario T3-7: Accept with recall + Linked + Accidental

Goodman's Creameries Recall: Accidental Distribution of Contaminated Ice Cream Due to Faulty Test Kit By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was purely accidental.

The investigation showed that the company conducted all microbiological tests required by law to ensure product safety. Company employees strictly followed industry standard Good Manufacturing Practices (GMP, the minimum standards that food manufacturers must meet to ensure product quality and safety) and distributed the products after all tests came out negative. However, further investigation revealed that the test kits the company was using were faulty and failed to indicate the presence of *Salmonella* in the finished product. Because of this, contaminated ice cream products were accidentally distributed.

"It was clearly an unfortunate accident," said state inspector Rebecca Johnson. "The company ran the tests they were supposed to and had no way of knowing that the test kits were not functioning correctly and that their products were contaminated."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company said that because they cared about their customers, they "decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of abundance of caution." In December 2015, Goodman's Creameries ice cream products were confirmed to be the source of the outbreak.

Scenario T3-8: Accept with recall + Linked + Omission

Goodman's Creameries Recall: Distribution of Contaminated Ice Cream Due to Absence of Regular Microbiological Testing By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was due to the absence of regular microbiological testing.

Routine microbiological tests are required by law to ensure product safety. However, the investigation revealed that company employees skipped some testing, and failed to test the batches that turned out to have been contaminated. The investigators pointed out that this problem could have been prevented had company employees simply tested their products as frequently as required by industry standard Good Manufacturing Practices (GMP). Such practices are minimum standards that food manufacturers must meet to ensure product quality and safety.

"It was clearly a problem that could have been prevented," said state inspector Rebecca Johnson. "The company and employees should never have skipped routine testing. If they had performed testing as required, they would have known about the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company said that because they cared about their customers, they "decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of abundance of caution." In December 2015, Goodman's Creameries ice cream products were confirmed to be the source of the outbreak.

Scenario T3-9: Accept with recall + Linked + Commission

Goodman's Creameries Recall: Intentional Distribution of Contaminated Ice Cream By Mitch Eligon, CNN Updated 1:12 PM EST, Fri January 22, 2016

The FDA's investigation of the recent *Salmonella* outbreak linked to ice cream products produced by Goodman's Creameries' plant in Rochester, NJ has concluded that the distribution of contaminated ice cream was intentional.

Routine microbiological tests are required by law to ensure product safety. Contaminated food products detected by the tests should be destroyed immediately and follow-up investigations should be conducted to pinpoint the source of the problem. However, the investigation revealed that Goodman's Creameries distributed products after tests pointed to their contamination by *Salmonella*.

"It was clearly a problem caused by intentional wrongdoing," said state inspector Rebecca Johnson. "The company should never distribute products when there's even a possibility of contamination. Yet, Goodman's sold the products despite the fact that the company was aware of the problem."

The Salmonella outbreak has sickened almost 500 people around the country (including participant's state) and is linked to 2 deaths.

In November 2015, when the U.S. Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) first pointed to Goodman's ice cream products as a potential source of the outbreak, the company said that because they cared about their customers, they "decided to act as though we are responsible and have decided to voluntarily recall our ice cream products out of abundance of caution." In December 2015, Goodman's Creameries ice cream products were confirmed to be the source of the outbreak.

<u>Scenario T4-1: Denial with recall + Linked + Accidental + Denial with</u> <u>scapegoating</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. We have performed all routine testing as required. All of our products are processed under high quality and safety standards and we always follow Good Manufacturing Practice (GMP). It is not our company or our employees, but rather the faulty test kits, which have caused the unfortunate accident.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal consumers, and we want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Denied to Be Responsible and Blame Faulty Test Kits for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company denied they are responsible for the outbreak and offered no apology, saying that the faulty test kits should be held responsible instead.

Scenario T4-2: Denial with recall + Linked + Accidental + Diminish

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them.

Over the years, Goodman's Creameries has worked hard to earn the trust of our loyal consumers. All of our products are processed under high quality and safety standards, and we always follow Good Manufacturing Practice (GMP) to ensure that our products are as safe as possible. As a result, we are proud that in our 72 years of history, we have never had to recall any of our ice cream products before. However, in response to this incident, we will continue to look for opportunities for improvement. We want to maintain the trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Not Talking about Responsibility for the Recent Salmonella Outbreak By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company did not say whether they or anyone else are responsible for the outbreak, and offered no apology in its statement.

<u>Scenario T4-3: Denial with recall + Linked + Accidental + Rebuild with</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may be affected by this accident. Our company takes full responsibility for the situation and is taking immediate actions to fix the problem. We are switching to new test kits and revising test procedures and protocols.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Apologized for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company accepted full responsibility for the outbreak. The company also apologized to their customers and people who might have been affected.

<u>Scenario T4-4: Denial with recall + Linked + Accidental + Rebuild without</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. Our legal team told us our company should not be held responsible as investigation indicates that we have performed all routine tests and there was no way of knowing that the test kits were not functioning correctly. However, because we care about our customers, our company has decided to take action as if we were responsible. Thus, we are have been voluntarily recalling our ice cream products.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Acted as Responsible for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement claiming that they are not responsible for the outbreak. However, they decided to act as responsible by taking immediate actions. The company did not mention if anyone else should be held responsible and offered no apology in the statement.

Scenario T4-5: Denial with recall + Linked + Omission + Denial with scapegoating

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them, as the real cause is still unclear. We have performed all routine testing as required. Since all of our products are processed under high quality and safety standards and we always follow Good Manufacturing Practice (GMP), it's highly unlikely that this incident is directly related to how we produce our products. However, while neither our company nor the employees were the cause of the unfortunate outbreak, it is possible that inappropriate storage of our products at local stores have caused the contamination of *Salmonella*.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal consumers, and we want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Denied to Be Responsible and Blame Local Stores for the Recent Salmonella Outbreak By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company denied they are responsible for the outbreak and offered no apology. Furthermore, the company mentioned that inappropriate storage of their products at local stores could be held responsible.

Scenario T4-6: Denial with recall + Linked + Omission + Diminish

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to identify the cause of the outbreak.

Over the years, Goodman's Creameries has worked hard to earn the trust of our loyal consumers. All of our products are processed under high quality and safety standards, and we always follow Good Manufacturing Practice (GMP) to ensure that our products are as safe as possible. As a result, we are proud that in our 72 years of history, we have never had to recall any of our ice cream products before. In response to this incident, we will continue to look for opportunities for improvement. We want to maintain the trust of our customers and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Not Talking about Responsibility for the Recent Salmonella Outbreak By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company did not say whether they or anyone else are responsible for the outbreak, and offered no apology in its statement.

<u>Scenario T4-7: Denial with recall + Linked + Omission + Rebuild with</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may be affected by this incident. Our company takes full responsibility for the situation, and we are taking immediate actions to fix the problem. We are upgrading protocols, revising production policies and procedures, and launching employee-training initiatives to strictly enforce the operations and standards of Good Manufacturing Practice (GMP).

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Apologized for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company accepted full responsibility for the outbreak. The company also apologized to their customers and people who might have been affected.

<u>Scenario T4-8: Denial with recall + Linked + Omission + Rebuild without</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. We want to assure our customers it is not our company that has caused the unfortunate incident, as we have performed all routine testing as required. However, because we care about our customers, our company has decided to take action as if we were responsible. Thus, we have been voluntarily recalling our ice cream products.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Acted as Responsible for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company claimed that they are not responsible for the outbreak. However, they decided to act as responsible by taking immediate actions. The company did not mention if anyone else should be held responsible and offered no apology in the statement.
<u>Scenario T4-9: Accept with recall + Linked + Accidental + Denial with</u> <u>scapegoating</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. We have performed all routine testing as required. All of our products are processed under high quality and safety standards and we always follow Good Manufacturing Practice (GMP). It is not our company or our employees, but rather the faulty test kits, which have caused the unfortunate accident.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal consumers, and we want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Denied to Be Responsible and Blame Faulty Test Kits for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company denied they are responsible for the outbreak and offered no apology, saying that the faulty test kits should be held responsible instead.

Scenario T4-10: Accept with recall + Linked + Accidental + Diminish

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them.

Over the years, Goodman's Creameries has worked hard to earn the trust of our loyal consumers. All of our products are processed under high quality and safety standards, and we always follow Good Manufacturing Practice (GMP) to ensure that our products are as safe as possible. As a result, we are proud that in our 72 years of history, we have never had to recall any of our ice cream products before. However, in response to this incident, we will continue to look for opportunities for improvement. We want to maintain the trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Not Talking about Responsibility for the Recent Salmonella Outbreak By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company did not say whether they or anyone else are responsible for the outbreak, and offered no apology in its statement.

<u>Scenario T4-11: Accept with recall + Linked + Accidental + Rebuild with</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may be affected by this accident. Our company takes full responsibility for the situation and is taking immediate actions to fix the problem. We are switching to new test kits and revising test procedures and protocols.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Apologized for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company accepted full responsibility for the outbreak. The company also apologized to their customers and people who might have been affected.

<u>Scenario T4-12: Accept with recall + Linked + Accidental + Rebuild without</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. Our legal team told us our company should not be held responsible as investigation indicates that we have performed all routine tests and there was no way of knowing that the test kits were not functioning correctly. However, because we care about our customers, our company has decided to take action as if we were responsible. Thus, we are have been voluntarily recalling our ice cream products.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Acted as Responsible for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement claiming that they are not responsible for the outbreak. However, they decided to act as responsible by taking immediate actions. The company did not mention if anyone else should be held responsible and offered no apology in the statement.

Scenario T4-13: Accept with recall + Linked + Omission + Denial with scapegoating

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them, as the real cause is still unclear. We have performed all routine testing as required. Since all of our products are processed under high quality and safety standards and we always follow Good Manufacturing Practice (GMP), it's highly unlikely that this incident is directly related to how we produce our products. However, while neither our company nor the employees were the cause of the unfortunate outbreak, it is possible that inappropriate storage of our products at local stores have caused the contamination of *Salmonella*.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal consumers, and we want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Denied to Be Responsible and Blame Local Stores for the Recent Salmonella Outbreak By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company denied they are responsible for the outbreak and offered no apology. Furthermore, the company mentioned that inappropriate storage of their products at local stores could be held responsible.

Scenario T4-14: Accept with recall + Linked + Omission + Diminish

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to identify the cause of the outbreak.

Over the years, Goodman's Creameries has worked hard to earn the trust of our loyal consumers. All of our products are processed under high quality and safety standards, and we always follow Good Manufacturing Practice (GMP) to ensure that our products are as safe as possible. As a result, we are proud that in our 72 years of history, we have never had to recall any of our ice cream products before. In response to this incident, we will continue to look for opportunities for improvement. We want to maintain the trust of our customers and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Not Talking about Responsibility for the Recent Salmonella Outbreak By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company did not say whether they or anyone else are responsible for the outbreak, and offered no apology in its statement.

<u>Scenario T4-15: Accept with recall + Linked + Omission + Rebuild with</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may be affected by this incident. Our company takes full responsibility for the situation, and we are taking immediate actions to fix the problem. We are upgrading protocols, revising production policies and procedures, and launching employee-training initiatives to strictly enforce the operations and standards of Good Manufacturing Practice (GMP).

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Apologized for the Recent *Salmonella* **Outbreak** By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company accepted full responsibility for the outbreak. The company also apologized to their customers and people who might have been affected.

<u>Scenario T4-16: Accept with recall + Linked + Omission + Rebuild without</u> <u>responsibility</u>

Organizational Statement

To our valued customers:

As you might be aware, we have been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them. We want to assure our customers it is not our company that has caused the unfortunate incident, as we have performed all routine testing as required. However, because we care about our customers, our company has decided to take action as if we were responsible. Thus, we are voluntarily recalling our ice cream products.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Acted as Responsible for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which the company claimed that they are not responsible for the outbreak. However, they decided to act as responsible by taking immediate actions. The company did not mention if anyone else should be held responsible and offered no apology in the statement.

<u>Scenario T4-17: Accept with recall + Linked + Omission + Rebuild with</u> <u>responsibility (Thematic)</u>

Organizational Statement

To our valued customers:

As you might be aware, our company has been voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

Our company is very concerned about what has happened. Company management was appalled by the results of the investigation of the recent *Salmonella* outbreak, which found that some of the regular testing of our products were skipped. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may have been affected by these events.

We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. We are also committed to share the results of our actions with the public.

Our company, as a whole, takes full responsibility for the situation, and is taking immediate actions to fix the problem. We are also re-training our staff and strictly enforcing operations of Good Manufacturing Practice (GMP).

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Said the Whole Company Is Responsibility for the Recent Salmonella Outbreak By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement in which <u>Goodman's Creameries accepted</u> full responsibility for the outbreak on a company level, without faulting any individual employees. The company also apologized to its customers and people who might have been affected.

<u>Scenario T4-18: Accept with recall + Linked + Omission + Rebuild with</u> <u>responsibility (Episodic)</u>

Organizational Statement

To our valued customers:

As you might be aware, we are voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are very concerned about what has happened. Company management was appalled by the results of the investigation of the recent *Salmonella* outbreak, which found that our employees skipped some regular testing. <u>We sincerely apologize to our customers</u> for any problems this has caused and to consumers who may have been affected by these events.

We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. We are also committed to share the results of our actions with the public.

Our company management believes this to be an isolated event and <u>that the actions of a</u> <u>few employees are responsible for the incident.</u> We have fired those employees, and are taking immediate actions to fix the problem. We are also re-training our staff and strictly enforcing their following of recommended operations and standards of Good Manufacturing Practice (GMP).

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Said Individual Employees are Responsibility for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a statement. The company apologized to its customers but faulted a few employees, claiming they were responsible for the outbreak and have since been fired.

Consumers are advised to dispose of any potentially affected ice cream products and to contact the company directly at 1-800-XXX-XXXX between 8 a.m. and 8 p.m.

EST for a replacement or refund. This advice is particularly important for consumers at higher risk for foodborne illnesses, including pregnant women, adults 65 and older, and people with weakened immune systems.

<u>Scenario T4-19: Accept with recall + Linked + Omission + Rebuild with</u> <u>responsibility (Victim-centered)</u>

Organizational Statement

To our valued customers:

As you might be aware, we are voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with the U.S. Food and Drug Administration (FDA) to inform our consumers about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are highly concerned about what has happened and want to express our deepest sympathy to the consumers involved. On behalf of Goodman's and its family of employees, we sincerely apologize to our customers for any problems this has caused and to consumers who may be affected by these events.

We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. We are also committed to share the results of our actions with the public.

Our company takes full responsibility for the situation and is taking immediate actions to fix the problem. We are also re-training our staff and strictly enforcing operations of Good Manufacturing Practice (GMP). <u>We will further take appropriate and comprehensive actions to meet our customers' needs</u>.

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to earn the trust of our loyal customers. We want to maintain that trust and pledge to take every action to ensure the safety and quality of our products and to protect our consumers.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News Goodman's Creameries Made a Consumer-centered Statement for the Recent Salmonella Outbreak By Mitch Eligon, CNN

Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a <u>consumer-centered statement</u>, in which the company accepted full responsibility for the outbreak and apologized to its customers and people who might have been affected.

Consumers are advised to dispose of any potentially affected ice cream products and to contact the company directly at 1-800-XXX-XXXX between 8 a.m. and 8 p.m. EST for a replacement or refund. This advice is particularly important for consumers

at higher risk for foodborne illnesses, including pregnant women, adults 65 and older, and people with weakened immune systems.

<u>Scenario T4-20: Accept with recall + Linked + Omission + Rebuild with</u> <u>responsibility (Victim-free)</u>

Organizational Statement

To our valued customers:

As you might be aware, we are voluntarily recalling our ice cream products in response to the recent *Salmonella* outbreak. We are working closely with U.S. Food and Drug Administration (FDA) to inform the public about this recall. Our press release and the full list of the recalled products can be found at FDA.gov.

We are highly concerned about what has happened, as our company has zero tolerance for any actions that compromise food safety. On behalf of Goodman's and its family of employees, we sincerely apologize for any problems this has caused.

We have kept the FDA and other public health authorities fully apprised of our handling of this matter, and we will continue to actively work with them to make sure that this problem never happens again. We are also committed to share the results of our actions.

Our company takes full responsibility for the situation and is taking immediate actions to fix the problem. We are also re-training our staff and strictly enforcing operations of Good Manufacturing Practice (GMP).

Over the past 72 years we have been in business, Goodman's Creameries has worked hard to build our brand and reputation. We want to maintain our reputation and pledge to take every action to ensure the safety and quality of our products.

Sincerely, Nigel Goodman CEO of Goodman's Creameries

Breaking News

Goodman's Creameries Made a Company-centered Statement for the Recent Salmonella Outbreak

By Mitch Eligon, CNN Updated 6:18 PM EST, Sat January 23, 2016

After being pointed to as the source of the recent multistate *Salmonella* outbreak, Goodman's Creameries issued a <u>company-centered statement</u>, in which the company accepted full responsibility for the outbreak and apologized. However, the company did not mention consumers at all.