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Framing food-related salmonella outbreaks in leading U.S. newspapers and TV networks: Attribution of responsibilities and crisis response strategies

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**Framing food-related salmonella outbreaks
in leading U.S. newspapers and TV networks:
Attribution of responsibilities and crisis response strategies**

by

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A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Journalism and Mass Communication

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Abstract

This study examines how three leading U.S. newspapers, *The New York Times*, *The Washington Post*, and *USA Today* and three mainstream TV networks, *ABC*, *CBS*, and *NBC* frame the attribution of responsibility for three recent food-related salmonella outbreaks. By assessing the way in which mass media assign responsibilities for causing and alleviating the three most recent food-borne diseases, content analysis reveals that the U.S. media tend to assign the responsibility for resolving salmonella outbreak to governments rather than food business, which is distinguished to the previous findings that mass media have the bias to over-attribute epidemics to individuals. The attribution of salmonella responsibility has been framed differently across salmonella cases, but uniformly across media outlets. In addition, a distinction between newspaper and television is detected when discussing the government's responsibility. The implications for crisis communication are also discussed, by taking both causal and treatment responsibility into account to select appropriate communication strategies.

Keywords: news frame attribution of responsibility public relations
health risk salmonella

Chapter 1: Introduction

Three national outbreaks of salmonella have sickened thousands of people in recent years: tainted jalapenos poisoned about 1,200 people in 2008 (Schmidt, 2008), contaminated peanut butter produced more than 690 illnesses and 9 deaths in 2009 (Layton, 2009a), and infested eggs caused 1,300 illnesses in the summer of 2010 (Eisler, 2010). It is estimated that about 40,000 cases of salmonella illnesses are reported in U.S. per year. The actual number of patients may be 30 times or more (Layton, 2009a). Salmonella has been ranked among the top 5 pathogens contributing to domestically acquired food borne illnesses in the U.S. and listed as the top food borne illness resulting in death or hospitalization (Centers for Disease Control and Prevention, 2011). This outbreak also brings much inconvenience to people's daily lives, such as the food shortage and increased food prices coming after product recalls (Evensen & Clarke, 2011). For example, wholesale egg prices surged about 40% just 10 days after two Iowan plants started nationwide egg recalls (Schmit & Brasher, 2010).

Salmonella outbreaks, due to its frequent occurrences and remarkable consequences, have often been covered by the news media. The media coverage on infectious epidemics could potentially weaken purchasing intention, worsen evaluation of organizational reputation, damage organizational image, lead negative political-related behavior and arouse negative emotions including doubts, distrusts, and arguments towards food business and government (Bradford & Garrett, 1995; Coombs & Holladay, 2002; Dahlgran & Fairchild, 2002; Evensen & Clarke, 2011; Glik, 2007; Han, Chock & Shoemaker, 2009; Miller & Littlefield, 2010; Ogrizek & Guillery, 1999; Piggott & Marsh,

2004). In addition, salmonella outbreaks are usually followed by decreasing sales, food recalls, legal expenses, shrinking market shares, and even diving stock prices associated with huge losses to the food industry (Evensen & Clarke, 2011; Layton, 2010; Liu, Austin & Jin, 2011; Moore, 1989; Seeger, Sellnow & Ulmer, 2008). For instance, in 2008, FDA tagged tomato as the outbreak source but after six weeks they removed tomato from the potential source list and added jalapenos in. This six-week tomato warning had restaurants and supermarkets pull thousands of tomatoes from the shelves and set off about tens of millions of dollars in losses for the tomato industry (Shin, 2008a). The Peanut Corporation of America, which knowingly shipped the contaminated products to more than 70 firms in all manners of foods including cookies, pet foods, ice creams and cereals, had even applied the bankrupt protection in 2009 for the extensive recall (Miroff & Layton, 2009). Taking all of these negative impacts into account, salmonella outbreak can be regarded as a crisis to the food business and government (Coombs, 2007a; 2012; Ma, 2005; Seeger, Sellnow & Ulmer, 2008; Zaremba, 2010).

To mitigate those negative impacts, communicators should work with mass media in modifying the public perceptions of organizational responsibility (Coombs, 1995; Cohn, 2000; Seeger, Sellnow & Ulmer; 2008; Ogrizek & Guillery, 1999; Zaremba, 2010). That is because while people tend to pay more and more attention to the issues that have increasing media visibility (Ansolabehere, Behr & Iyengar, 1991; Burstein, 1989), they usually cannot understand these health-related issues in all their complexity. Rather, to better understand why these issues happen and what can be done to deal with these situations, people tend to reduce the complexity of the issues by attributing the casual and

treatment responsibilities to a certain agent (Scheudele, 2000; Seeger, 2006). That is, to understand health-related crisis, people try to figure out the *causal responsibility*, “origin of the problem”, as well as the *treatment responsibility*, “who or what has the power to alleviate the problem” (Iyengar, 1991, p.8).

It is not difficult to argue that audiences’ perceived attributions of responsibility for health risks are heavily shaped by mass media (An & Gower, 2009; Page, Shapiro & Dempsey, 1987; Weiner, 1986), as media play an important role in defining and interpreting social issues through framing daily news (Kim & Willis, 2007). By identifying the way mass media frame the organizational responsibility, officials and communicators could quickly select the suitable communication strategies to address crises and repair organizational reputations (Evensen & Clarke, 2011; Prue, Lackey, Swenarski & Gantt, 2003).

Previous studies adopting framing analysis mainly emphasize the framed responsibility of social or political issues such as election, poverty, racial bias, crime, corruption and terrorism (Han, 2007; Hannah & Cafferty, 2006; Iyengar, 1989; Semetko & Valkenburg, 2000), but pay less attention to health issues. Content analyses of media coverage on epidemics mostly focus on their impacts or consequences (Clarke, 2006; Tian, 2005), not the causes or solutions, although the latter may have equally potential influences on health behaviors (Hilton, Hunt, Langan, Bedford & Petticrew, 2010). In the meantime, while a few studies discuss the attribution of responsibility frame regarding health issues or diseases (Kim, 2007; Lawrence, 2004), no framing studies have scrutinized food-borne illness as the subject matter. Moreover, when utilizing the

attribution of responsibility as the guideline to select communication strategies, prior scholars overemphasize the causal responsibility and neglect the other equally important dimension of treatment responsibility (Coombs, 1995; 2007a; Coombs & Holladay, 2002).

This study thus aims to fill these gaps on both the framing analysis in food-borne illness and the relationship between news content and crisis communication, by examining the news frame of attribution of responsibility concerning salmonella outbreaks in 2008 (jalapeno), 2009 (peanut butter), and 2010 (egg). These three outbreaks had national impacts and each of them have drawn considerable media coverage in the U.S. Taking a quantitative approach of framing analysis, this study discusses how three leading newspapers, *The New York Times*, *The Washington Post* and *USA Today*, and three mainstream TV networks, *ABC*, *CBS*, and *NBC*, frame the responsibility for causing and alleviating the nation-wide food-related epidemic, as well as how the attribution frame varies across salmonella cases and between newspaper and television. The practical implications for the selection of response strategies are also discussed.

Chapter 2: Literature Review, hypotheses and research questions

Attribution of responsibility

Attribution is a cognitive process activated to identify the invariant properties of personal behaviors and social environment (Harvey, Ickes & Kidd, 1976; Shaver, 1985). It serves as one of the exploratory behaviors, in order to terminate or prevent negative state of affairs (Weiner, 1985b; 1986). In the face of a crisis that is reported as negative, uncertain, or unexpected in mass media, most people are actively engaged in figuring out which particular parts of the stable environment relate to the event (Coombs, 2007a; Kelley, 1967). Attribution of responsibility thus occurs spontaneously and prominently in people's daily perceptions of social issues (Brickman, Rabinowitz, Karuza, Coates, Cohn & Kidder, 1982; Choi & Lin, 2009; Cima, 2007; Iyengar, 1987, 1991; Scheudele, 2000; Weiner, 1985a, 1985b). Exposure to the concrete instead of abstract messages would well promote the attributing process (Anderson, 1983).

Over this process, people need to know what has happened and what has been done to prevent repeat crises (Coombs, 2007a; Wallack, Woodruff, Dorfman & Diaz, 1999). A distinction therefore exists between attribution of *causal responsibility* and attribution of *treatment responsibility*. *Causal responsibility* means "the responsibility for the origin of a past event, clearly involving the question of deserving and blame"; *treatment responsibility* indicates "the responsibility for the solution to future events, involving an assessment of who might be able to control events" (Brickman et al., 1982, p.369).

Although the way to identify causes would influence the chosen solutions to some degree (Wallack et al., 1999), being responsible for causing a problem is not necessarily

associated to the same level of responsibility for addressing that problem. It is also possible that the causal and treatment responsibility would be allocated to different agents (Brickman et al., 1982).

When the issue is severe, people are more likely to make responsible references to the organization which has eminent market share, bad history and intentional action, especially when the victim images are presented (Cho & Gower, 2006; Claeys, Cauberghe & Vyncke, 2010; Coombs, 2007a; Coombs & Holladay, 2002, 2011; Jeong, 2009; Park, 2008; Weiner, 2006; Zaremba, 2010). The perceived responsibility is likely to elicit a series of negative emotional responses including anger, fear, surprise, worry, contempt, and relief (Choi & Lin, 2009). The more attached responsibility to an organization, the lower the organizational reputation will be (An, Gower & Cho, 2011; Choi & Lin, 2009; Coombs, 1995; 2007a). The product crisis, like the salmonella-tainted food recall, is just the beginning of a long series of crises for an organization, being followed by management crisis, shareholder crisis, regulatory crisis, corporate identity crisis, and labor crisis. The recent changes in social values and economic structure make organizations even more vulnerable to crises (Ogrizek & Guillery, 1999). All negative impacts would make the future crisis more difficult to be managed (Coombs, 2012).

People's negative evaluations of a particular organization, nonetheless, could be discounted by communication strategies (An et al., 2011; Bradford & Garrett, 1995; Ma, 2005). Effective crisis management acts to "protect lives, health, and the environment; reduce the time it takes to complete the crisis life cycle, prevent loss of sales, limit reputation damage, preclude the development of public policy issues and save money"

(Coombs, 2012, p. 17). The best way to save reputation is to influence the public perceptions of the crisis responsibility through modifying the way mass media frame it (Coombs & Holladay, 2002). Communicators usually can not use all kinds of response strategies because of a limited budget, so instead they select one or a few. Picking a strategy appropriately and ethically is so important that it has an impact on the duration and magnitude of the crisis (An et al., 2011). The selection of an inappropriate response strategy is even worse than no response at all (Bradford & Garrett, 1995).

Suggested by situational crisis communication theory (SCCT), the stronger the causal responsibility attached to an organization, the more accommodative strategies must be employed to pacify victims (Coombs, 1998; Coombs & Holladay, 2002). For example, in the crisis where the organizational responsibility is framed very modest by mass media, like a natural disaster, government could just use the *mortification* strategy to help victims to survive in the crisis; whereas in the crisis where the organization responsibility reported by mass media is extremely high, like a product-recall crisis in which the food company intentionally delivers products without any prior bacteria inspection, the communicators should take many accommodative response strategies at one time containing *distance*, *mortification*, and *ingratiation*.

News frames

The selection of response strategies usually starts with the assessment of the level of publics' perceptions of organizational responsibility, which is based on the crisis type, or how the crisis is being framed via mass media. Evaluating the way mass media frame the crisis in terms of attribution of causal responsibility, communicators could anticipate the

degree of reputational damage and make appropriate responses (Coombs, 2007b). By “selecting some aspects of a perceived reality and making them more salient in a communicating text” (Entman, 1993, p. 52), media extract the key attributes of news content and present them in a variety of frames helping reduce the complexity of issues. Media content is made up of a set of frame-centered interpretive packages to assign meanings to issues (Gamson, 1989). Mass media then determine which packages to include and which to exclude and organize them in a certain order (An et al., 2011).

Due to low self-confidence, limited ability, and insufficient prior knowledge (Glik, 2007; Kelley, 1967), most people heavily rely on mass media and assign responsibility to the agent that is visually salient in newspapers or television (An & Gower, 2009; An, Gower & Cho, 2011; Bradford & Garrett, 1995; Cho & Gower, 2006; Gamson, 1989; Gitlin, 2003; Food and Agriculture Organization & World Health Organization; 1998). News frames, as a result, function as the simplified versions of reality and the interpretive shortcuts, guiding audiences to recognize, locate, label, perceive, evaluate, and attribute intentional human actions and events (Coombs, 2007a, 2012; Gitlin, 2003; Guttman, 2000; Han, 2007; Han, Chock & Shoemaker, 2009; Hoffman-Goetz, 1999; Kim, Scheufele & Shanahan, 2002; Lin & Petersen, 2007; Miller & Littlefield, 2010; Moore, 1989; Scheufele, 2000; Wallack et al., 1999). News frames contribute to make sense of so many scientific and medical arguments that they are even described as the second primary source to doctors in guiding health behaviors, enhancing health education, and improving public health (Clarke, 1992; Brown, Zavestoski, McCormick, Mandelbaum & Luebke, 2001; Hilton et al., 2010; Knight, 1999; Ling, 1989). News frames also persistently serve

as the routine for journalists to quickly identify, classify, edit, and deliver the message to audiences (Gitlin, 2003; Scheufele, 1999). In a word, mass media play an important role in defining and interpreting social issues, by shaping the inferences that people make about the message (An & Gower, 2009; Kim & Willis, 2007; Hallahan, 1999; Han et al., 2009; Hilton et al., 2010). Mass media, then not only inform people of the issues, but also influence the way people think about these issues through constantly suggesting meanings and explanations of issues (Clarke, 1992; Gamson, 1989; Ma, 2005).

Mass media are widely known on emphasizing or even exaggerating the seriousness of the personal-related issues, which could magnify people's attributing need (Anderson, 1983; Kanouse & Hanson, 1972; Moore, 1989; Seale, 2003; Ogrizek & Guillery, 1999; Walster, 1966; Zaremba, 2010). The incomplete information would lead to false attribution of responsibility (Bradford & Garrett, 1995).

The framing effect, nevertheless, could be diminished by the high level of personal experiences or the high degree of issue familiarity, because direct experiences and issue familiarity are usually associated to the well developed prior attitudes and perceptions of those events (Gamson, 1989; Han et al., 2009). In the national salmonella outbreaks, although many people are either victims with direct sick experiences or observers of others' sicknesses, most of them have no idea about how those outbreaks happened and which agent should be responsible for coping with them. In this sense, the framing effect of responsibility for salmonella events should be very strong.

Researching the framing effect on health issues, scholars find media attention cluster on Acquired Immune Deficiency Syndrome (AIDS) in the last century and most of them

discuss about news coverage's volume, frequency, and duration from moral perspective (Brown, Chapman & Lupton, 1996; Gwyn, 1999; Singer & Endreny, 1993). Concerning the tobacco-related cancer, Hoffman-Goetz and Marino (1997) blame the amount of media coverage is too modest to promote the public health. Some scholars focus on the media's attention cycle on epidemics such as mad cow disease, West Nile virus, avian flu, and A/H1N1 (Medeiros & Massarani, 2010; Shih & Brossard, 2008). Severe Acute Respiratory Syndrome (SARS) hit the entire world in 2003 and drew much academic attention in the language and metaphors used by news reports (Wallis & Nerlich, 2005), as well as the cultural difference of news coverage among U.S., UK, Canada, Mainland China, and Taiwan (Chan et al., 2002; Fogarty, Holland, Imison, Blood, Chapman & Holding, 2011; Tian, 2005).

Several news frames are so highly visible in mass media that they have been chosen to define or explain the ambiguous situations (Gitlin, 2003; Luther & Zhou, 2005; Prue et al., 2003). The crisis news coverage is more likely to adopt the news frames in the order of predominance: attribution of responsibility, economic, conflict, human interest, and morality (An & Gower, 2009). "*Responsibility* frame presents an issue or problem in such a way as to attribute responsibility for its cause or solution to either the government or to individual or group. *Economic* frame reports an event, problem, or issue in terms of the consequence it will have economically on an individual, group, institution, region or country. *Conflict* frame emphasizes conflict between individuals, groups, or institutions, as a means of capturing audience interest. *Human interest* frame brings a human face or an emotional angle to the presentation of an event, issue, or problem. *Morality* frame puts

the event, problem, or issue in the context of religious tenets or moral prescriptions” (Semetko & Valkenburg, 2000, p. 95).

Among these generic news frames, *Attribution of responsibility* is the one that is most commonly mentioned by mass media in various topics including business crisis (An & Gower, 2009), politically or economically relevant events (e.g., Constantinescu & Tedesco, 2007; Han, 2007; Semetko & Valkenburg, 2000), or social problems (Iyengar, 1991). The personal responsibility of epidemics framed by mass media could fuel individual behavior changes and the governmental responsibility presented in mass media could even spark policy modifications (Brown et. al, 2001). Unlike the prevalent *responsibility* frame, the *conflict* and *economic* frames are more likely to show up in serious media outlets; the *human interest* frame is frequently employed in the crises where organizations are rarely blamed; and *morality* frame is used very often in the crises where organizations are believed to intentionally cause those crises (An & Gower, 2009).

SCCT suggests that, by assessing the way mass media frame the attribution of responsibility of social issues, communicators could classify the crises into three major crisis types: victim cluster suggesting weakest attribution of organizational responsibility, accidental cluster suggesting moderate attribution of responsibility, and intentional cluster suggesting strongest responsibility. When the crisis type implies modest causal responsibility of organization, the defensive strategies should be employed; when the crisis type predicts great responsibility, more efforts are required to accommodate victims (Coombs, 1998; 2007b).

Attribution of responsibility frame about epidemics

Before discussing which communication strategy to be selected or how to apply strategy, identifying which organizations are expected by mass media to take the major responsibility and provide response to salmonella outbreaks is essential. Exploring the media coverage on epidemics' responsibility, many prior scholars pay attention to the health risks that are highly related to lifestyles and individual behaviors, (as in AIDS, lung cancer, breast cancer, alcoholism, cigarette addiction, drug abuse, human papillomavirus and obesity), where mass media primarily attribute individuals to take entire causal and treatment responsibilities but overlook government's powerful role (Albert, 1986; Brown et al., 2001; Hallahan, 1999; Hilton et al., 2010; Hoffman-Goetz, 1999; Lawrence, 2004; Wallack et al., 1999; Guttman, 2000).

For example, mass media place a great amount of AIDS responsibility to victims' behaviors, whereas they place just a few to governments, churches, or hospitals which are supposed to provide the prevention education and affordable access to health care. That is because AIDS is mostly acquired from voluntarily blood transfusions or unsafe sex that needs strong individual guards (Brown, Chapman & Lupton, 1996; Clarke, 1992, 2006; Hoffman-Goetz, Friedman & Clarke, 2005; Markens, 2002; Singer & Endreny, 1993; Wu, 2006). Similarly, obesity's individual causal and treatment responsibility, like unhealthy diet, sedentary lifestyle, and genetic conditions, are mentioned more frequently than governmental attributes in U.S. newspapers and television, although the statements of governmental responsibility in mass media keep increasing in these years (Kim & Willis, 2007; Lawrence, 2004). When it comes to the topic of breast cancer, individual

responsibility such as diet, gene, early check-up, and age at birth of first child are more prevalent than environmental, business, or governmental responsibility (Clarke, 1992; Brown et al., 2001). Heart disease is also immensely attributed to individual characteristics such as smoking, high-cholesterol, diet, obesity, diabetes, mesomorphic type, high blood pressure, or sedentary lifestyle, but rarely to external environment like stress and tension of work (Clarke, 1992).

Unlike these lifestyle-related epidemics, salmonella is usually spread by food and can not be easily controlled by individual behaviors: it exists in insects and rodents that can carry the bacteria into flocks and poultry houses (Weise, 2010). It also spreads via animal feces and contaminates the meat, egg, and bird flocks (Huget, 2009). People can be infected with salmonella if their foods are not washed or completely cooked. Salmonella, a food-borne disease that regularly lasts four to seven days, can cause fever, abdominal cramps, and diarrhea (Szabo, 2010). While healthy adults usually recover very quickly, the illness can be deadly for children, the elderly, and the people with weakened immune systems (Layton, 2009a).

When such a hazards like salmonella is framed in media coverage, U.S. media usually rank business and government as the major agents that should take either causal or treatment responsibility (Food and Agriculture Organization & World Health Organization, 1998; Guttman, 2000; Singer & Endreny; 1993). This business vs. government dichotomy is also relevant to the internal vs. external approaches in discussing attribution of responsibility. The internal attribution occurs when the cause for a certain issue or act is assigned to an inside entity, like an individual or a single entity.

Whereas the external attribution occurs when outside factors, such as social or governmental pressures, are assumed to be the cause (Brickman et al., 1982; Cima, 2007; Wallack et al., 1999; Weiner, 1986). In this study, food business can be considered as the agent for internal attribution because corporations directly produce and deliver the tainted foods, while government is believed to be the agent for external attribution since the insufficient regulation and authority would also engender an outbreak. To follow this line, this study will focus on these two agents, government and business, in the current project to discuss their causal and treatment responsibility for the salmonella epidemic framed by media.

As suggested by the Federal Food and Drug Administration (FDA, 2011), unsanitary condition of a food manufacturer can be the cause of food contamination because piled animal feces, leaking ceilings, or an infestation of rodents or birds can carry salmonella germs to foods. Insufficient salmonella control can not keep bacteria away from a factory, such as modest bacteria tests, zero response to a positive result, or the poor technology that fails to block germs. Slow food recall could also aggravate the spread of salmonella to nation. Food recall can become a hard job if products do not have bar codes (Shin, 2008b). All of these possibilities call for the enhancement of sanitary operations, complete disease surveillances, and traceable delivery systems controlled by food manufacturers. Mass media are prone to cite these indicators of business causal and treatment responsibilities in news reports (Li & Tang, 2009; Moore, 1989).

Although FDA does not suggest the relevant governmental responsibility for failure to protect public security, most failures can be caused by two main factors: lack of effort

and lack of ability (Brinkman et al., 1982; Weiner, 1995; 2006). Specifically, lack of effort means regulators' neglect of duty, such as not being stringent on the bacteria inspection (Layton & Miroff, 2009), the delay to inform the public or the delay to identify the origin (Shin, 2008a). When it comes to the lack of ability, the government does not have enough inspectors, technology, and funding to regularly visit all domestic food production facilities (Clarke, 1996; Layton, 2009b). Additionally, the government lacks the administrative authority to issue mandatory food recall, to inspect all parts of food facilities, and to shut down companies that do not follow regulations (Eisler, 2010). The government is expected to alleviate salmonella by reducing neglect and increasing both resources and administrative authority.

Regarding which responsible agent should be blamed, food business or government, Nathanson (1999) indicates that the outbreaks are more likely to draw the political attention and call for a governmental explanation, as well as policy change if that outbreak has the following four characters: "acquired involuntary"-the victim is innocent rather than culpable, "universal"-put all people not a few of people at risk, "environment origin"-arises from the environment not from within the individual and "real"-knowingly created by others compared to natural disasters (Lawrence's 2004, p. 59). It has been supported by the content research on the global crisis of SARS crisis in 2003. Because SARS has all of these four characters, CNN is more frequently than BBC, and U.S. media are more often than Chinese media, to state that the government or World Health Organization should take the accountability for the SARS spread as well as overseeing treatment providing. The Chinese government is even blamed for hiding the information

from the public. These media, nevertheless, mention very modest individual responsibility (Fogarty et al., 2011; Luther & Zhou, 2005; Ma, 2005; Tian, 2005; Wallis, 2005; Wu, 2006). And, in this sense, salmonella outbreaks, Like SARS, should be attributed to government.

Based on the above literature review, this study proposes the first set of hypotheses to evaluate how the media present the past three salmonella outbreaks through *attribution of responsibility* frame, highlighting whether government or business should be responsible for triggering and fixing outbreaks.

H1: The news coverage will attribute the causal responsibility (H1a) and the treatment responsibility (H1b) of salmonella outbreaks to government, not to business.

With regard to diverse crisis situations, some crises need strong and aggressive communications with stakeholders, whereas others do not need to share too many details to the masses (Coombs, 2007a; Crandall, Parnell & Spillan, 2010; Lin & Petersen, 2007; Miller & Littlefield, 2010). This study here tries to figure out whether it is also necessary to apply different strategies to different salmonella cases, through examining whether the news coverage would vary across the three salmonella cases since researches show that media exhibit a tendency to frame different issues in different ways (Iyengar, 1991; Semetko & Valkenburg, 2000; Shih, Wijaya & Brossard, 2008). In Singer and Endreny's (1993) research, for example, although tobacco and alcohol addictiveness have been classified as the same kind of hazards, media frame victims as the primary responsible agent to resolve tobacco addiction, but frame government as the one to cope with alcohol addiction.

A similar difference across origins is expected in food-related salmonella cases. The foods, jalapeno, peanut butter, and egg, have quite a distinguishing operations and processing systems. They might be very different in how they are contaminated and kept away from salmonella bacteria. In addition, a salmonella epidemic has been covered as an emergency rather than a long-term concern (Swain, 2005). It is hard for mass media to present a general and common attribution of responsibility for these three food-related salmonella outbreaks.

The following two sets of hypotheses are thus proposed to compare the possible differences of attribution of responsibility frame in the news coverage across the three salmonella cases.

H2: The business causal responsibility (H2a) and the business treatment responsibility (H2b) of salmonella outbreaks assigned by news coverage will be different across the three food-related salmonella cases.

H3: The government causal responsibility (H3a) and the government treatment responsibility (H3b) of salmonella outbreaks assigned by news coverage will be different across the three food-related salmonella cases.

When a crisis happens, it is not feasible for communicators to work with all kinds of media. They alternatively have to apply communication strategies to a few mass media. With regard to the possible difference between newspapers and television in framing the responsibility for salmonella outbreaks, the episodic versus thematic dichotomy provides a plausible rationale. Episodic content is event-oriented news, “depicting public issues in terms of concrete instances,” which tends to attribute a social problem to an individual or

a single organization; whereas the thematic content is the issue-oriented news, showing of public issues “in some more general or abstract context,” which is prone to attribute the problem to government (Iyengar, 1991, p.14).

TV journalists usually have limited time slots to broadcast news items and the regular news programs also do not allow many time-costing content. Television is therefore full of episodic news stories and tends to attribute salmonella to food business (Hallahan, 1999; Iyengar, 1991; Medeiros & Massarani, 2010). On the other hand, newspapers give reporters more leeway to prepare in-depth analysis and unlike TV, newspapers have more space to carry longer stories with abundant background knowledge. Newspapers, therefore, are able to present more thematic news stories and have a tendency to attribute salmonella to government. This distinction has been supported by the framing analyses on obesity. Kim and Willis (2007) detect that newspapers attribute more responsibilities than television to external environment, and TV networks assigned more responsibilities to individuals.

This study then raises the following two sets of hypotheses to examine the difference of attribution of responsibility for salmonella outbreaks between newspapers and TV networks. This study also aims to figure out the possible differences across different media outlets by a set of research questions.

H4: Newspapers will focus more on government causal responsibility (H4a) and government treatment responsibility (H4b) than TV networks in framing salmonella outbreaks.

H5: TV networks will focus more on business causal responsibility (H5a) and

business treatment responsibility (H5b) than newspapers in framing salmonella outbreaks.

RQ1: Will the business causal responsibility (RQ1a) and the business treatment responsibility (RQ1b) of salmonella outbreaks assigned by the news coverage be different across the three newspapers?

RQ2: Will the governmental causal responsibility (RQ2a) and the governmental treatment responsibility (RQ2b) of salmonella outbreaks assigned by the news coverage be different across the three newspapers?

RQ3: Will the business causal responsibility (RQ3a) and the business treatment responsibility (RQ3b) of salmonella outbreaks assigned by the news coverage be different across the three TV networks?

RQ4: Will the governmental causal responsibility (RQ4a) and the governmental treatment responsibility (RQ4b) of salmonella outbreaks assigned by the news coverage be different across the three TV networks?

As the level of image damage can be predicted by the level of responsibility framed by mass media (Coombs & Holladay, 2002), many scholars indicate that the best way to save organizational reputation is to influence the public perceptions of that organization's crisis responsibility through modifying the way mass media frame it, in manners of the five most essential response strategies: *Nonexistence*, *distance*, *suffering*, *mortification*, and *ingratiation* (An, Gower & Cho, 2011; Coombs, 1995, 2012; Cohn, 2000).

Nonexistence eliminates causal responsibility claiming that there is no existing crisis at all.

Distance weakens the causal linkage between crisis and organization, keeping negative emotions away from a particular organization. *Suffering* portrays the organization as the

victim instead of the crisis origin, shifting the causal responsibility to other agents.

Mortification treats the crisis through apology, compensation or prevention of future crisis.

Ingratiation connects the organization to some actions positively evaluated by common people (Coombs, 1995). *Nonexistence*, *distance* and *suffering* are considered as the response strategies aims to adjust the public perceptions of organizational causal responsibility; and *mortification* and *ingratiatio*n try to affect perceptions of treatment responsibility.

However, prior researches only pay attention to the causal responsibility as the selecting guideline of response strategies, neglecting the role played by treatment responsibility (Coombs, 1995, 2007a; Coombs & Holladay, 2002). Coombs' (2007a, p.137) SCCT model defines the crisis responsibility as "how much stakeholders believe organizational actions caused the crisis", that is, causal responsibility is only half of attribution of responsibility. This study thus tries to consider the level of both the causal and treatment responsibility framed by mass media to guide the choice of response strategies by accessing the level of framed causal and treatment responsibility in mass media.

Studies discover that 90% of media content primarily discusses the crisis origins and talks about the solution only 10% of the time (Wallack et al., 1999). Nevertheless, Brickman and other scholars (1982) assert that people usually place less concern on problem origins than on the approaches to minimize undesired outcomes (Brickman et al., 1982). News coverage on material hazards (Singer & Endreny, 1993) and on obesity (Kim & Willis, 2007) suggests treatment responsibility may be more salient than causal

responsibility in media, although this difference is not significant. This study then asks two research questions to compare the possible difference between causal responsibility and treatment responsibility in each of the salmonella cases, which could help the strategy selection.

RQ5: Which attribution of responsibility frame about business is more visible in media coverage of salmonella, business causal responsibility or business treatment responsibility?

RQ6: Which attribution of responsibility frame about government is more visible in media coverage of salmonella, government causal responsibility or government treatment responsibility?

Chapter 3: Methods

Data source

This study employs a content analysis as the main method to look at the attribution of responsibility frame underpinning the coverage concerning the three food-related salmonella cases in three major newspapers, *The New York Times*, *The Washington Post*, and *The USA Today*, as well as on three leading TV networks, *ABC*, *NBC*, and *CBS*. The reason this study picks these media outlets is due to the publics' likeliness to accept the crisis responses through traditional media compared to social media, although it is estimated that people spend one in every four and half minutes in social networking sites during their online activities (Liu, Austin & Jin, 2011). The impact of social media on the publics' emotional responses to crisis is also not detected (Liu et al., 2011). In addition, those six media have been included quite often in content analysis research, for their national circulation and modest geographical and political emphasis (An & Gower, 2009; Gamson, 1989; Kim & Willis, 2007).

This study focused on the three outbreaks that occurred in 2008 through 2010. Because of the well archived and searchable news stories in LexisNexis database, this study searched *LexisNexis* database with the keyword, "salmonella", appearing in the whole article and retrieved 651 articles and TV transcripts in total. This study then identified and excluded the abstracts, unrelated items (e.g., the local recall of tainted pistachio in 2009), and the duplicates (e.g., the same article appeared twice as the first edition and the final edition with just a little revision). The final total of 501 news articles (248 news articles and 253 TV networks) include 155 (30.9% of all articles) for the

jalapeno case, 205 (40.9%) for the peanut butter case, and 141 (28.1%) for the egg case. Among all coverage, 66 (13.2%), 113 (22.6%), and 69 (13.8%) are from *The New York Times*, *The Washington Post*, *USA Today*, and 75 (15%), 88 (17.6%), and 90 (18%) are from *NBC*, *ABC*, and *CBS*, respectively.

Coding of frame visibility

The entire text of each article and transcript was examined as the unit of analysis in terms of the following four aspects of the attribution of responsibility frame: business causal responsibility, business treatment responsibility, government causal responsibility, and government treatment responsibility.

Based on the above literature review, this study adopted the deductive approach to frame establishment introduced and supported by previous studies (e.g., Semetko & Valkenburg, 2000) to detect the visibility of news frames embedded in news coverage of salmonella outbreaks. Three indicators were developed to measure each of the four aspects of the proposed responsibility frame. Business causal responsibility: unsanitary operation, loose bacteria control, and untraceable delivery system ($\alpha = .72$). Government causal responsibility: neglect of duty, lack of authority, and lack of resources ($\alpha = .68$). Business treatment responsibility: enhancement of sanitary condition, stricter bacteria control, and traceable delivery system ($\alpha = .69$). Government treatment responsibility: regulation enforcement, more administrative power, and more resources ($\alpha = .82$). The operational definitions of the indicators are included in Appendix).

Within one single news item, as long as one specific indicator was mentioned, no matter how many times, the score of that indicator was coded as 1 (=“yes”); if this

indicator was not discussed at all, the value was coded as 0 (=“no”). For each of the four aspects of responsibility frame, a scale was formed by summing the scores of its own indicators and averaging the summed score by the number of measuring indicators (see Semetoko & Valkenburg, 2000). The values of each scale thus ranged from .00 (frame not present) to 1.00 (frame fully present), different scores show different visibility strength of each aspect of responsibility frame. A score higher than 0 for the government or business causal responsibility, or for government or business treatment responsibility indicated that the story suggests a certain level of responsibility for causing or alleviating the national salmonella outbreaks, respectively.

For example, a news article about the 2010 salmonella outbreak carried by *USA Today* (Weise, 2010, September 23, p.5A) mentions that Iowa egg operations were out of control with live rodents and dead and rotting chickens in cages, but the governmental-authorized audit did not inspect each part of the Iowa egg farms in the past few years; To deal with it, food companies should be required to be able to trace back their products, and the FDA needed more authority to issue mandatory recalls and subpoenas.

For this article, the business causal responsibility was calculated as .33 (Unsanitary operation = 1; Loose bacteria control = 0 ; Untraceable delivery system = 0); Business treatment responsibility was .33 (Enhancement of sanitary condition = 0; Stricter bacteria control = 0; Traceable delivery system = 1); Governmental causal responsibility was .33 (Neglect of duty = 1; Lack of authority = 0; Lack of resource = 0); And governmental treatment responsibility was .33 (Regulation enforcement = 0; More administrative power

= 1; More resources = 0).

Two independent graduate students were recruited as coders, who were first trained and then coded randomly selected subsample (12%) of the data to get an inter-coder reliability of .90 (*Scott's pi*). The *Scott's pi* score for each aspect of attribution of responsibility frame is shown in Appendix.

Data analysis

T-tests and one-way ANOVA were employed to test hypotheses and to answer research questions.

Chapter 4: Results

Difference between business responsibility and government responsibility

H1 tests how the frames on both business and government responsibilities of the three salmonella outbreaks presented in media (Table 1). Although the mean difference between business causal responsibility and government causal responsibility is not statistically significant, the paired-samples t-test ($t = -3.48, p < .05$) reports a significant result about treatment responsibility. That is, these media outlets are more likely to attribute the treatment responsibility to government than to business. H1b is thus supported.

Difference across salmonella cases

H2 and H3 predict the attribution of responsibility frame will differ across cases (Table 2). ANOVA reports significant results regarding business causal responsibility ($F(2, 500) = 33.63, p < .05$), business treatment responsibility ($F(2, 500) = 24.15, p < .05$), government causal responsibility ($F(2, 500) = 3.16, p < .05$) and government treatment responsibility ($F(2, 500) = 4.81, p < .05$) across three food-related salmonella cases.

Therefore, both H2 and H3 are supported.

Difference between newspaper and TV network

As Table 3 shows, newspapers are more likely than TV networks to assign causal ($t = 3.63, p < .05$) and treatment ($t = 5.63, p < .05$) responsibilities to government. H4 is thus supported.

H5 tests whether TV networks will focus more on business responsibility in framing salmonella outbreaks than newspapers (Table 3). No significant difference between

newspapers and TV networks is reported concerning the business causal responsibility. At the same time, opposite to our expectation, newspapers attribute more treatment responsibility to business than TV networks do ($t = 6.51, p < .05$). H5 is not supported.

Difference across media outlets

Research question 1 to 4 compare the four aspects of responsibility frame across media outlets, as shown in Table 4 and Table 5. ANOVA reports no significant difference across three leading newspapers, considering the entire four aspects of attribution of responsibility frame. Zero significant difference across three mainstream TV networks is also found, in terms of the four aspects of attribution of responsibility frame.

Difference between causal responsibility and treatment responsibility

Research questions 5 and 6 compare the causal and treatment responsibility framed by mass media about government and business respectively. Data analysis finds that media tend to mention more business causal responsibility than business treatment responsibility ($t = 3.03, p < .05$). Nevertheless, the significant difference is not found between government causal and government treatment responsibility.

Exploring each salmonella accident (Table 6), in the Jalapeno case, the difference between business causal and treatment responsibility is not significant, but the governmental causal responsibility is significantly greater than governmental treatment responsibility ($t = 4.32, p < .05$). In the peanut butter case, the business causal responsibility is significantly greater than business treatment responsibility ($t = 7.54, p < .05$), the difference between governmental causal and treatment responsibility is not significant. In the egg case, the difference between business causal and treatment

responsibility is not significant; but the governmental causal responsibility is significantly less than governmental treatment responsibility ($t = -2.09, p < .05$).

Chapter 5: Discussion

Major contributions

Employing the quantitative approach of framing analysis, this study evaluates how three leading newspapers and three mainstream TV networks in the U.S. frame the attribution of responsibility for three nation-wide food-related salmonella outbreaks in 2008, 2009, and 2010. Bolstering the previous researches (An & Gower, 2009; Constantinescu & Tedesco, 2007; Han, 2007; Iyengar, 1991; Semetko & Valkenburg, 2000), the news frame of attribution of responsibility is highly visible in this study. Among the total 501 news articles and TV transcripts examined, 75.45% (378) mention this frame.

The contribution of this research is four-fold. First, rather than including different news frames in one project, this study develops the dimensions of one specific generic frame, *attribution of responsibility*, to scrutinize both causal and treatment responsibilities, and how they are assigned to two primary responsible agents, business and government, which have not yet been discussed in prior research. Second, this study applies framing analysis to examine a repeatedly occurred food-borne disease. Third, this study also connects health-related crisis and organization's repair of reputation from public relations perspective with news framing as a theoretical rationale. Forth, this study considers both the causal responsibility and treatment responsibility as the guide to select response strategies, while traditional SCCT only concerns the role of causal responsibility.

Framing salmonella outbreaks

Salmonella, as a foodborne illness, is different from the epidemics that are correlated

with life styles, such as AIDS and obesity, which have been majorly blamed to individual activities (Lawrence, 2004; Nathanson, 1999; Singer & Endreny, 1993). Findings of this study indicate that U.S. media do not frame significantly higher level of causal responsibility for government than for food industry, or the other way round. Media imply that both government and business should take equal responsibility for causing salmonella outbreaks. Examining each indicator, it is interesting to note that the top one indicator of business causal responsibility is *loose bacteria control* ($M = .31$), compared to *unsanitary operation* ($M = .21$) and *untraceable delivery system* ($M = .12$). The highest visible indicator of governmental causal responsibility is *neglect of duty* ($M = .37$), compared to *lack of authority* ($M = .16$) and *lack of resource* ($M = .16$). It is safe to say that the insufficient bacteria monitors in food manufacturing operations is among the most important factors that trigger the wide-ranged outbreaks, which derive from both the business' loose self-inspections and government's negligent regulations.

Meanwhile, the media content detected in this study suggests the government should take the major responsibility to alleviate this problem, via both greater efforts and greater ability to regulate the food industry. That is because salmonella can be brought up on copious types of foods produced by different companies. For example, the improvement of the jalapeno delivery systems may contribute little to the avoidance of future salmonella outbreaks caused by peanut butter, because the packing and delivering systems for both foods are technologically dissimilar. An elimination of the nationwide outbreak demands the government to carry out better regulation of the entire food industry, instead of just on a particular food factory. In particular, evaluating each

indicator of government treatment responsibility, *regulation enforcement* is rated as the top one government solution ($M = .29$), compared to *more administrative power* ($M = .23$) and *more resources* ($M = .13$). This implies that more efforts to improve regulation should be on the top of the governmental agenda. This study also discovers that in the total 501 samples, 62.5% of units mention FDA and 24.2% ones mention CDC as the responsible agents, compared to USDA (4.4%) and state agriculture department (9.2%). That implies FDA and CDC are expected to take some remarkable actions to protect public security.

Media frame on the attribution of responsibility, in terms of business or government cause, and business or government treatment, differs across these salmonella cases. For instance, although jalapenos had been identified as the source in 2008, the government failed to trace it back to its original farm or food manufacturer, which resulted in no responsible agent of business identified. The government was alternatively considered the culprit for its weak tracing system. The presented solution similarly focused on the enhancement of the government's source identification capacity. On the contrary, the peanut butter company who knowingly shipped the contaminated products was criticized far more intensively than the government, because the peanut butter company was believed to deliberately create this event. In the egg-related outbreak in 2010, the responsibility was attributed almost equally to the Iowan egg farms and the government. This implies that communicators and officials should digest each crisis and use different strategies to deal with various salmonella outbreaks (Coombs, 2012).

With regard to the difference of frame visibility between newspaper and television, newspapers make more references to government than television in attributing both

causal and treatment responsibility, due to the great amount of thematic content in newspapers (Kim & Willis, 2007). When discussing business responsibility, TV networks do not attribute more causal responsibility and even attributed significantly less business treatment responsibility than newspapers. It is perhaps that newspapers can present relatively more detailed articles explaining the problem's origins and preventions. TV news, nevertheless, offers mainly a couple of minutes or even seconds to briefly report the amount of illness and the list of recalled foods barely with in-depth analysis. It is not hard to suggest that both government and food business should pay primary attention to newspapers and apply the communication strategies via printed media to repair organizational reputation by adjusting the framed organizational responsibility in a crisis. And when the funding or time is limited, they could release certain attention in the news coverage of TV networks.

With regard to the difference across media outlets, this study finds zero difference of attribution of responsibility frame, either across the three newspapers or the three TV networks. That is because these media have the similar target audiences and they would thus report the salmonella issue from the similar perspective with similar opinions. This finding suggests that crisis communicators do not have to concern the potential difference of news coverage among the mainstream media outlets when considering which media outlet to be picked.

Practical implications

Taking a closer look at each salmonella case, this finding has practical implications for an organization's response strategy based on the evaluation of framed responsibility

level. In the peanut butter case, the causal responsibility is mentioned more often than treatment responsibility, which indicates that the managers of peanut butter companies are expected to choose cause-oriented strategies that primarily attempt to explain the cause, such as *nonexistence*, *distance*, or *suffering*, instead of treatment-oriented strategies offering solutions like *mortification* or *ingratiation* (Coombs, 1995). Due to the firm relationship between salmonella victims and the contaminated peanut butter provided by official lab reports, it is not appropriate to use *nonexistence* to claim that there is no salmonella outbreak at all. Instead, they can adopt *distance* strategy, in order to weaken the linkage between their company and the outbreak: there might be some technological errors in their operating machines that are ordered from other machine companies, the bacteria reports provided by the third-party lab are misleading, or the inspecting manager they hired suffers from ethical problems. They can also use *Suffering* strategy stating that the peanut butter company is also the victim: they even apply the bankrupt protection because of the extensive food recall. In the egg case, cause-oriented and treatment-oriented strategies are equally important to business, due to the no difference between causal and treatment responsibility framed by mass media.

From the perspective of the government, since the governmental causal responsibility is mentioned more often than treatment responsibility in the jalapeno case, the government is expected to adopt cause-oriented strategy to explain why they failed to trace the salmonella origin back to any specific food corporation. They could provide some reasonable practical difficulty such as the trouble to attach bar codes to each tomato or that tomatoes are usually repackaged many times on the way to maintain freshness, via

distance strategy. In the peanut butter case, the government needs to use both types of strategies, whereas in the egg case, the government should primarily use the treatment-oriented responsibility, like *mortification* issuing the egg recall from Iowan egg plant; or *ingratiation* offering the policy revisions, more funding, and more authority.

In this respect, the findings may be useful to risk or crisis communicators of both food business and government who aim to reduce stakeholders' negative emotions and protect an organization's reputations via mediated communication. Future research should take a further step to enhance the situational crisis communication theory proposed by Coombs and Holladay's (2002) by adding treatment responsibility for selecting guides of crisis response strategy.

Limitations and future research

The limitations of this study must be addressed here and be considered for a revisit in future studies. The first concern is the method of content analysis, although it has been widely employed in communication research. The statistical tool used in this study, t-test and ANOVA, has a primary assumption of independent sample, which means the result of any single sample would not influence the results of other samples. Indeed, every journalist takes in charge in a certain field and would publish more than one news articles concerning a same topic. In other words, some sampled news items in this study might come from the same author and could have potentially similar presentation of attribution of salmonella responsibility, although the amount of the sampled news sharing the same author is modest.

This study only samples the newspaper articles and TV transcripts reporting the three

salmonella events, instead of all the news mentioning salmonella issue. In other words, this study might neglect some news articles that do discuss salmonella but do not relate to the national outbreaks. For example, a news article published on *The Washington Post* (Layton, 2011, January 24, p. A01) projects the requirement to renew government's trace system of salmonella-tainted foods to reduce the liability of the further outbreak. This article does not concentrate on any specific salmonella outbreak and can be incorporated into the next research subject.

This study cannot be generalized outside the U.S. due to the sample chosen only from the U.S. media. It can neither be generalized to all kinds of epidemics but just food-bored illnesses. Additionally, this study only samples news articles and TV transcripts from six elite U.S. mass media where financial and business reports are dominate (An & Gower, 2009). Our samples are thus biased due to the economic-oriented news.

Methodologically, although this study gets an acceptable reliability for coding, some hiding messages might be omitted. For example, this study assumes the higher score in each aspect of attribution of responsibility frame indicates the higher level of causal or treatment responsibility of government or business. Actually, some articles that state only one indicator but deeply discuss it in abundant details would have stronger framing effect on audience than those that simply list many indicators without profound analysis. The further research might cope with this question with qualitative analysis.

Salmonella outbreaks do not happen continuously and the event-oriented mass media tend to report this issue only when the wide-scope outbreak happens (Gitlin, 2003; Gwyn, 1999). Because the attributed responsibility differs across each case found in this study,

future research needs to include more news coverage covering a longer time period to provide a fuller picture from a longitudinal perspective. Creating change for a social issue is not a short-term process (Wallack et al., 1999) and it is also interesting to explore whether media coverage of salmonella responsibility has been changing over the years and how the current coverage is different from the past ones.

This content analysis only examines the media coverage and assumes that journalists report news independently of the business and government. Actually, many organizations release their own news via official websites or social media. These pieces of news would more or less influence journalists' attitudes, judgments and evaluations, as well as their further reports. Further study should consider both mass media and organizational news release as the subject matters to evaluate a crisis.

Moreover, building on our findings, further study can also explore how the audience perceives the responsibility for salmonella outbreaks for a better understanding of the correlation between news frame and audience frame.

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Table 1 Paired-sample t-test for the attribution of responsibility

<i>Aspects</i>	<i>Mean (SD)</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Business causal responsibility	.21 (.32)	-.58	500	n.s.
Government causal responsibility	.23 (.32)			
Business treatment responsibility	.16 (.28)	-3.48	500	$p < .05$
Government treatment responsibility	.22 (.35)			

Table 2 One-way ANOVA on each aspect of attribution of responsibility frame across three cases

<i>Aspects</i>	<i>(i)Case</i>	<i>(j)Case</i>	<i>Mean Differ- ence(i-j)</i>	<i>Sig.</i>	<i>F</i>	<i>df</i>	<i>Sig.</i>
Business causal responsibility	Jalapeno	Peanut butter	-.19	.00	33.63	2, 500	<i>p</i> < .05
		Egg	-.12	.05			
	Peanut butter	Egg	.08	.32			
		Jalapeno	Peanut butter	.07			
	Egg		.06	.76			
	Government causal responsibility	Peanut butter	Egg	-.01			
Business treatment responsibility	Jalapeno	Peanut butter	-.03	1.00	24.15	2, 500	<i>p</i> < .05
		Egg	-.32	.00			
	Peanut butter	Egg	-.29	.00			
		Jalapeno	Peanut butter	-.09			
	Egg		-.15	.06			
	Government treatment responsibility	Peanut butter	Egg	-.06			

Table 3 Independent samples t-test for attribution of responsibility framed by mass media

<i>Aspects</i>	Newspaper	TV network	<i>t</i>	<i>df</i>	<i>Sig.</i>
	<i>Mean (SD)</i> (<i>N</i> = 248)	<i>Mean (SD)</i> (<i>N</i> =253)			
Business causal responsibility	.19 (.30)	.23 (.34)	-1.33	499	ns
Government causal responsibility	.28 (.34)	.18 (.28)	3.63	499	$p < .05$
Business treatment responsibility	.24 (.34)	.08 (.17)	6.51	499	$p < .05$
Government treatment responsibility	.30 (.39)	.13 (.28)	5.63	499	$p < .05$

Table 4 One-way ANOVA on each aspect of attribution of responsibility frame across three newspapers

<i>Aspects</i>	<i>F</i>	<i>df</i>	<i>Sig.</i>
Business causal responsibility	.11	2, 247	<i>ns</i>
Government causal responsibility	1.23	2, 247	<i>ns</i>
Business treatment responsibility	1.56	2, 247	<i>ns</i>
Government treatment responsibility	1.92	2, 247	<i>ns</i>

Table 5 One-way ANOVA on each aspect of attribution of responsibility frame across three TV networks

<i>Aspects</i>	<i>F</i>	<i>df</i>	<i>Sig.</i>
Business causal responsibility	.06	2, 252	<i>ns</i>
Government causal responsibility	1.74	2, 252	<i>ns</i>
Business treatment responsibility	3.69	2, 252	<i>ns</i>
Government treatment responsibility	1.06	2, 252	<i>ns</i>

Table 6 Paired-sample t-test for the attribution of responsibility in each case

<i>Cases</i>	<i>Aspects</i>	<i>Mean (SD)</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Jalapeno	Business causal responsibility	.06 (.20)	-1.94	154	n.s.
	Business treatment responsibility	.11 (.22)			
	Government causal responsibility	.27 (.34)	4.31	154	$p < .05$
	Government treatment responsibility	.16 (.33)			
Peanut Butter	Business causal responsibility	.33 (.36)	7.54	204	$p < .05$
	Business treatment responsibility	.11 (.22)			
Egg	Government causal responsibility	.19 (.30)	-1.14	204	n.s.
	Government treatment responsibility	.21 (.35)			
	Business causal responsibility	.22 (.30)	-1.76	140	n.s.
		Business treatment responsibility			
Government causal responsibility	.23 (.32)	-2.09	140	$p < .05$	
	Government treatment responsibility				.29 (.36)

Appendix. Attributions of responsibility (Indicators)

Business causal responsibility (<i>Scott's pi = .89</i>)	Government causal responsibility (<i>Scott's pi = .94</i>)
<p>Unsanitary operation: Filthy conditions, rodents, vermin, piled manure or workers without gloves.</p> <p>Loose bacteria control: Insufficient salmonella test, inability to analysis the test result, poor technology to prevent contamination.</p> <p>Untraceable delivery system: Untraceable product; products contaminated during delivering; shipping without negative test result</p>	<p>Neglect of duty: Infrequent and incompletely inspection of food company, delay to inform the public, delay to identify the origins, fail to carry out the policy, too many paperwork</p> <p>Lack of authority: Lack of the power to demand food recall, to access to test record, to punish the law violated company, or to inspect each part of factory.</p> <p>Lack of resource: Insufficient funding, inspectors, labs or communication tools.</p>
Business treatment responsibility (<i>Scott's pi = .85</i>)	Government treatment responsibility (<i>Scott's pi = .94</i>)
<p>Enhancement of sanitary condition: Clean up the operation, fix the factory.</p> <p>Stricter bacteria control: Schedule more salmonella test; order the latest technology to prevent contamination.</p> <p>Traceable delivery system: Attach bar code to each product, keep the tracking record, recall or pull off the tainted products.</p>	<p>Regulation enforcement: Frequent inspections, speed up origin tracing, decrease bureaucracy, investigate the company, or trace origin.</p> <p>More administrative power: More power to require food recall, access to salmonella test result or shun down food company.</p> <p>More resources: More funding, trained inspectors, labs or communication tools.</p>

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