PREPARING FOR THE MISINFORMATION ATTACK: THE STRATEGIC ROLE OF TIMING OF CORRECTION PLACEMENT AND MESSAGING ON COMBATING ORGANIZATIONAL CRISIS MISINFORMATION

by

XUERONG LU

(Under the Direction of Yan Jin)

ABSTRACT

This dissertation investigated the effect of various correction strategies, including the timing of the correction placement and the detail level of refutation on mitigating the effect of misinformation on the organization and individuals' understanding of the crisis. The dissertation also examined the effectiveness of using narrative to elaborate factual information in the prebunking message in preparing for the misinformation attack, especially when the misinformation is written in the format of blame narrative, as well as its psychological mechanism behind the correction process. Two online experimental studies were conducted separately and sequentially to test the research question and hypotheses proposed. In the first study, an online experiment with 2 (placement of corrective information: prebunking vs. debunking) x 2 (detail level of refutation: simple rebuttal vs. factual elaboration) x 2 (Misinformation attack: victim narrative vs. blame narrative) between-subjects, full-factorial design was conducted with 490 U.S. adults to examine the interaction and main effect of the type of misinformation narrative, and correction elements (i.e., the timing of correction placement and

correction strategy). Results implied that prebunking strategy, especially when combined with factual elaboration, is superior in correcting individuals miserection of crisis responsibility, repairing organizational reputation and limiting the misinformation discussion. Moreover, results also found the difficulty of using factual elaboration to combat organizational misinformation when it was written in the format of blame narrative.

Based on the findings from study 1, an online experiment with 1 (Misinformation: blame narrative) x 4 (Prebunking message: blame narrative vs. victim narrative vs. renewal narrative vs. non-narrative factual elaboration) between-subjects, full-factorial design was conducted with 352 U.S. adults was conducted in study 2. Results reinstated the potential for the narrative to correct misinformation and highlighted the role of individuals' feelings toward the character (i.e., identification, character liking, character trust) in mediating the relationship between the exposure to prebunking narratives and the correction outcomes. Theoretical contributions and practical recommendations were also made based on the findings from study 1 and study 2.

INDEX WORDS: Organizational misinformation, Prebunking, Debunking, Factual elaboration, Crisis Narrative.

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by

XUERONG LU

BS, Jinan University, China, 2014

MS, The Ohio State University, 2016

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2022

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by

XUERONG LU

Major Professor:	Yan Jin
Committee:	Bryan H. Reber
	Jeong-Yeob Han
	Jiaying Liu

Electronic Version Approved:

Ron Walcott
Vice Provost for Graduate Education and Dean of the Graduate School
The University of Georgia
August 2022

DEDICATION

This dissertation is dedicated to my parents, who always give me support and encouragement on every step in my life.

ACKNOWLEDGEMENTS

On my 5-year PhD journey, I have received abundant favors from many individuals. First and foremost, I would like to express my deepest gratitude to Dr. Yan Jin, my wonderful advisor and mentor, for her continuous support of my work, for her wisdom and immense knowledge to help me move forward and grow up. Her enthusiasm for the research as well as for life always inspired me to be myself when I felt lost and encouraged me when I was down. Joining Jin's academic family is the best choice I have made in the past five years. Thanks should also go to Ken, who always gave me advice in both research and life. I know graduation does not mean leaving, but means another journey to extend the impact of Jin's academic family to other future scholars.

I would also like to express my sincere thanks to my committee members, Dr. Bryan H. Reber, Dr. Jeong-Yeob Han and Dr. Jiaying Liu, who have taught me a lot, from designing a rationale for research design, to operating appropriate analysis, to conducting meaningful research. Their knowledge, insightful suggestions, passion and energy in the research showed me how the scholar should look like. I will take what I have learned from them to start my career in academia, supporting and guiding my students in future.

I am also grateful for the opportunities to join Grady College, working and studying with amazing faculty, staff and students here. Many thanks to their warmhearted and supportive work, help me solve all the problems. Grady is my forever academic home.

Lastly, I would be remiss in not mentioning my family, who have always provided unconditional and endless support during the whole PhD journey. Their belief in me has kept spirits and motivation high during this process. I would also like to thank my boyfriend for all

the support and encouragement during the last year in this PhD journey. Thank you for being a beam of light to my hardest year.

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CHAPTER 1

INTRODUCTION

Misinformation and Food Safety Crisis

Misinformation is "explicitly false" information that is not supported by scientific consensus (Tan et al., 2015, p.675), containing inaccurate factual information and/or misleading information (Southwell et al., 2018). The prevalence of misinformation and its continued effect on the public's beliefs, attitudes, and behavior has gained a growing concern among scholars in different areas, including health (Andrade-Rivas & Romero, 2017), science (Scheufele & Krause, 2019) and politics (Thorson, 2016). During the crisis, the appearance and spread of misinformation are characteristic phenomena. Crisis, as "a major occurrence with a potentially negative outcome affecting an organization, company or industry as well as its publics, products or good name" (Fern-Banks, 2007, p.1), is typically an adverse and ambiguous social event. Like other social events, the crisis is surrounded by competitive and conflicting information. Different perspectives twine on identifying crisis severity, responsibility, and potential solutions. In some cases, the emergence and spread of misinformation happen when there is no certainty and much factual information to explain the magnitude, complexity, and rapidity of the unfolding crisis (Weick, 1998). It competes with limited factual information to confuse the publics in understanding the crisis (Keim & Noji, 2011), considering the accusation of the organization (Jin et al., 2020), as well as taking positive actions (Liu & Kim, 2011). Meanwhile, misinformation is not only a feature of crisis but can also be its origin of a crisis (Sellnow et al., 2020; van der Meer & Jin, 2022). Coombs (2014) mentioned that misinformation, if not neutralized timely and

effectively, will put organizations and at-risk publics in a more profound crisis. During the novel coronavirus (COVID-19) pandemic, misinformation regarding unauthorized treatment method such as salt and disinfectant, resulted in increased hospitalization and fatality. Moreover, the public's trust in government and organizations such as World Health Organization and hospital were also eroded by misinformation regarding the responsibility of the pandemic (Swoskin, 2020). Thus, misinformation in crisis is defined as "false information about any aspect of an ongoing crisis or any incorrect information that can lead to a crisis according to factual evidence from a credible source(s)" (van der Meer & Jin, 2022, p131)

In real life, we can see how the public's perception of the government's failure in controlling the spread of the H1N1 influenza virus led to the trust lost in the government of the infected regions (Archer & Ron-Levey, 2020). Nevertheless, the individuals' false accusation of responsibility of the crisis may also challenge the reputation of the organizations and cooperates. In addition, during a public health crisis such as an infectious disease outbreak, the public's perception of crisis severity would also determine the threats they might face (Liu et al., 2016). The misunderstanding of how threatening the situation is could make the at-risk publics either over-worried about the crisis or apathetic to the crisis (Liu et al., 2016). In other words, the false information regarding the crisis severity would shape the public's false perception of the crisis situation, and consequently, put themselves at risk. During some crises, the public's perception of crisis severity and responsibility might work together to influence the development of the crisis. For example, in the 2008 Chinese infant formula scandal, the severity perception led to parental anxiety and organizational responsibility, which caused low trust among consumers toward the entire daily industry (Gong & Jackson, 2012). As a result, the food consumption habits of Chinese parents were altered, switching from domestic and urbanized products to imported

formula and food supplies in rural areas (Gong & Jackson, 2012). In 2010, Salmonella contamination led to the recall of over 500 million eggs and nearly 1939 cases of infection. This most significant egg recall in the US history led to a substantial public health and organizational crisis (Wu, 2017). As illustrated in these food safety crisis cases, public perception of crisis severity and responsibility, which might be influenced by the crisis information they received, matters. In other words, when a crisis is triggered by food safety-related misinformation, the publics' perception of crisis severity and responsibility can persist in their negative response to the affected organizations and even the whole industry if there are no appropriate communication interventions. However, there exists a gap in discussing the role of misinformation in a food safety issue. Thus, this dissertation contextualized the "misinformation-fabricated" food safety crisis where misinformation might mislead the public's perception of crisis severity and crisis responsibility.

The Challenge of Combating Misinformation

The effect of misinformation appears when it reaches the publics and fosters false beliefs and the confidence to hold the false belief among them (Kuklinski et al., 2000). As a result, the publics might fail to protect themselves by not taking protective behavior during public health crises (Liu et al., 2020) or taking risky behavior such as using an e-cigarette and rejecting vaccination (Nan et al., 2021). The difficulty of fighting misinformation has been documented in both cognitive and emotional challenges. Cognitively, the cognitive bias encourages people to keep holding misinformation-induced false beliefs and to resist the corrective information (Nyhan & Reifler, 2010). Emotionally, the emotional memory related to misinformation is easier to be evoked, especially during adverse and ambiguous events (Slangalang et al., 2019). In addition, the prevalence of social media further facilitates the effect of misinformation and

challenges the correction. Although social media allows individuals during the crisis to receive abundant, up-to-date, and unfiltered information and connect with other people, it also complicates news media's crisis coverage by aggravating the informational competition between, for example, misinformation and factual/accurate information. The lack of "gatekeepers" facilitates the posting and spreading of unfiltered information. Meanwhile, users' failure to distinguish between misinformation and factual information due to the lack of knowledge, especially during a crisis when negative emotions predominated and influence individuals' information process situation, further increases the effect and spread of misinformation. it is believed that information posted and shared on Twitter was significantly able to influence daily social media users (i.e., non-expert) judgment on whether the new avian flu virus is contagious to humans or whether there is global warming (Anderegg et al., 2010; Cook et al., 2017). Moreover, misinformation is more likely to be discussed and shared than factual information, especially when it is embedded in a story or involves negative sentiments (Southwell et al., 2018). As a result, the misinformation effect becomes more salient since the false belief is reinforced in one's memory and has more outreach through social networks.

Meanwhile, the evidence on whether communicative interventions such as retracting the misinformation once detected, placing warning labels, and post-correction could effectively mitigate the misinformation effect on individuals is also conflicting. Moreover, the backfire effect of using inappropriate correction to reinforce the effect of misinformation has been documented. Conversely, the moderate effect of corrective communication on combating misinformation has also been calculated. Thus, it is necessary to understand the mechanism behind the competition behind the misinformation and corrective information, and to figure out what communication can do to strategically (1) educate and sensitize individuals to

misinformation, (2) discourage the discussion and sharing of misinformation but encourage the sharing of corrective information, and (3) facility other positive information consumption behavior such as information seeking to promote individuals' effortful analysis in the current highly conflicting informational environment (e.g., Southwell et al., 2018; Schwarz et al., 2016).

Unsolved Problems in Current Misinformation Correction Literature

Theatrical and empirical evidence in corrective communication have suggested several strategies for correcting misinformation, such as emphasizing agreement among experts and scientists regarding a controversial topic (e.g., global warming) and highlighting the credible source when making the correction (Lewandowsky et al., 2012; Nathan & Murphy, 2018). However, unlike these strategies suggested, which are based on consistent empirical findings, some strategies suggested are exclusive to inconsistent empirical findings. For example, the timing of correction placement, whether the corrective information should be placed before the misinformation or after it. The finding regarding the efficacy of prebunking and debunking is mixed in a different context (Walter & Murphy, 2018; Cook et al., 2017). Meanwhile, discussions in crisis management also found inconsistent findings on whether using proactive strategy before or reactive strategy after the crisis to protect organizations from damage in reputation (Wan & Pfau, 2004). Meanwhile, how to strategically message the corrective information, such as using a simple brief argument to refute the myth or framing the refutation with sufficient details, and using emotional appeal or not logical evidence, remains unknown. Previous studies found that when it is embedded in narrative and involves negative sentiment, misinformation is more likely to be selectively viewed and shared by social media users (Southwell et al., 2018). The users' trust in non-expert sources online and absorption in the stories presenting another user's experience (Nan et al., 2021) further facilitate the effect of

misinformation when it is written in the narrative format and is from a lay individual. However, there is a lack of understanding on how to correct misinformation when it exists in an user's daily story posted on social media. Previously, the discussion surrounding the narrative focused on how it can be used as a powerfully persuasive tool to facilitate individuals' attitudes and behavior change, mainly in the health context. However, its dark side has been understudied as the carrier of misinformation shaping individuals' understanding of crisis situations and their other misinformation-related communicative behavior. Thus, this dissertation explored the misinformation narrative and its difficulty in correction and taps the potential to utilize narrative persuasion as a robust corrective strategy.

To close these gaps in misinformation and corrective communication research in the realm of crisis communication, this dissertation investigated the effectiveness of corrective strategies with particular timing of correction placement (i.e., prebunking vs. debunking) and message features (i.e., the detail level of refutation and the potential type of narratives) in lessening the effect of misinformation, which is written in the format of narrative on the affected organization and individuals' communicative behavior, including: (1) the effect of the timing of correction placement (e.g., prebunking vs. debunking) on the correction effectiveness; (2) the supporting role of using different detail levels of refutation, especially when competing with different misinformation narratives; (3) the potential for using a solid persuasive tool-narrative-to combat misinformation narrative; (4) the mechanism behind the competition between misinformation and corrective information. Two online experiments will be conducted to identify the optimal correction strategy for fighting against misinformation when it is a narrative from a lay individual, as well as to provide evidence-based guidance on how to improve the corrective strategy by understanding the mechanism behind the informational competition.

CHAPTER 2

LITERATURE REVIEW

This chapter synthesizes the extant literature in misinformation and correction, analyzing how corrective communication alleviate the unexpected emotional, cognitive, and behavioral effect of misinformation on individuals. The design of this dissertation, exploring the optimal communication strategies to respond to organizational crisis misinformation, is built upon the following synthesis of the theoretical and empirical explanation of how communication strategies combat misinformation in various contexts.

Misinformation and Misinformation Effect

Tan's (2015)'s definition of misinformation, which refers to the "explicit false" information contracting to the expert consensus (p. 675), has been widely used in previous studies. Wardle and Derakhshan (2017) further categorized it under the umbrella of information disorder, along with disinformation and malinformation, and made distinctions among these three types of false information. According to Wardle and Derakhshan (2017), malinformation is the manipulated or fabricated information created based on reality, aiming to harm others, while disinformation is the harmful information that is false and deliberately created. In contrast, misinformation is false information created without any intention to cause harm (Wardle & Derakhshan, 2017). Although misinformation is created with no harmful purpose, other social peers' deliberate promotion or accidental sharing can still "downstream consequences for health, social harmony, and political life" (Southwell et al., 2018, p.2). As a result, misinformation, including its manifestation and effect, has been extensively discussed in various contexts, including health (Nan et al., 2021), science (Cook et al., 2017), and crisis (van der Meer & Jin,

2022). In the health context, it is "a health-related claim of fact that is currently false due to a lack of scientific evidence" (Chou et al., 2018, p.2417). The false claim on health risk would be able to mislead the at-risk public's understanding of the health topic and consequently encourage their risky health behavior such as e-cigarette use and vaccine hesitance (Nan et al., 2021). In the science context, misinformation can be the "distorted and unrepresentative display of data" (Katz, 2013, p1045). It would encourage the public to make uninformed decisions with a negative impact on their lives and even dismiss the importance of science in society (Dahlstrom, 2020). In the crisis context, misinformation is "false information about any aspect of an ongoing crisis or any incorrect information that can lead to a crisis according to factual evidence from a credible source(s) (e.g., the organization, news media, third-party experts, and government agencies, and internal/external witnesses)" (Jin et al., 2020, p.131). It includes not only the completely false information, as suggested by Tan et al.'s (2015) definition, but also partially correct information, including incomplete and unverified information (van der Meer & Jin, 2022). Therefore, during the crisis, the misinformation can be the false identity of the crisis responsibility and the incomplete information regarding the crisis severity, both of which can result in either the public's over-reaction or indifference to the threat (van der Meer & Jin, 2020) or organization's damage in reputation (Coombs, 2007). During the food safety crisis in which both the public health and the organization's reputation are challenged, the at-risk publics' perception of crisis severity and crisis responsibility would work together to influence the development of the crisis.

The effect, discussed mostly in the previous studies, includes but is not limited to the formation of misperception. ***Misperception*** refers to an individual's false belief about a fact due to misinformation exposure (Southwell et al., 2018). It is integrated, stored, and retained in one's

mental model since it is formed with a resistance to change (Johnson & Seifart. 1994). It interferes with an individual's acceptance of impeding factual information (Johnson & Seifart, 1994), as well as encumbers his or her implementation of proactive or protective actions (Nan et al., 2021). In the food industry, the misinformation regarding food safety would cultivate the public's misperception of crisis severity and responsibility. The crisis severity is perceived by individuals as a result of an estimate of loss in finance, emotion, and other factors like the environment due to the crisis. While the crisis responsibility is attributed by individuals as to what extent they believe that the crisis described is caused by the organization's action (Coombs & Holladay, 2007). The perception of both crisis severity and responsibility would predict their negative response to the organizations and even the whole industry (e.g., reputation damage) if there are no appropriate communication interventions. Thus, this dissertation discussed the effect of misinformation in misleading the publics' perception of crisis severity and crisis responsibility in a "misinformation-fabricated" threatening situation.

Moreover, the effect of misinformation would be expanded via individuals' ***discussion*** of misinformation online and offline (e.g., Xu & Guo, 2018; Teoh, 2019). Lewandowsky et al (2020) also emphasized that the widespread of misinformation can dramatically increase the difficulty in correcting it. However, studies have proved the misinformation travels faster and wider than factual and corrective information on social media (Vosoughi et al., 2018) Meanwhile, during the crisis, sharing information through interpersonal channels is the way individuals cope with crises. Utz et al (2013) showed that individuals tended to communicate negatively about the affected organization when the organization is involved in an intentional crisis (rather than victim crisis). Therefore, the ability to drive the spread of misinformation through interpersonal channels is another misinformation effect examined in this dissertation.

The misinformation effect in this dissertation is expanded as the formation of misperception in crisis responsibility and crisis severity and the following effect on organizational reputation, as well as the intention to discuss misinformation.

Misinformation Narrative

The source of misinformation is various. It can come from mass media, online news channels, and social networks (Nan et al., 2021). In some cases, misinformation appears when journalistic media attempts to either balance the coverage of contrarian viewpoints on controversial topics such as global warming (Cook et al., 2017), or to overdramatize and distort scientific evidence such as medication use (Thomas et al., 2018). The diffusion of misinformation is facilitated by the media outlets' dissertation and the public's interpersonal communication. However, due to the emergence of the internet, misinformation starts to diffuse from offline channels to online channels through social networks at a quicker speed and more significant effect. Such phenomenon has been detected in several diffusion of misinformation, such as the HPV vaccine causing mental retardation (Mahoney et al., 2015), and the MMR vaccine causing autism (Carrieri et al., 2019). Some scholars even proposed that the social peers (i.e., everyday users) could facilitate the spread of (mis)information as powerfully as expert sources did on social media through commenting and sharing others' posts. (e.g., Mahoney et al., 2015). For example, Swire and Ecker (2018) pointed out that social peers might influence other social media users' opinions more than expert sources did on social media. Moreover, Nan et al. (2021) reasoned that the users' trust in non-expert on social media and their preference for emotional and self-experience-centered stories would encourage social media users to actively select to read and share (mis)information written in a story. Kata (2012) also found that it is easy for non-experts to spread misinformation when posting their content to empower other users.

That said, misinformation in a narrative (i.e., story) format created by a social peer (i.e., everyday users) has the significant potential to influence social media users' belief in severity and responsibility as well as behaviors during the crisis. Therefore, it is necessary to explore how to correct crisis misinformation when written in various narratives.

According to Seeger and Sellnow (2015), the creation and spread of narratives (or stories) is a unique feature of crisis. Individuals who experience, observe or even hear from other people could create their own narratives about the crisis, which would consequently "carry meaning, encode lessons, and frame larger public and societal understanding of risks, warnings, and potential harm" (Seeger & Sellnow, 2015, p. 5). They also pointed out that the blame and victim narratives are two widely spread narratives during or after the crisis. The ***blame narrative*** focuses on the question of "who is to blame" when looking back on what happened (Seeger & Sellnow, 2015). It also tries to figure out who should be responsible (Liu et al., 2020). Therefore, the accusation of wrongdoing with an expression of contentiousness and anger is a critical theme in blame narratives (Seeger & Sellnow, 2015). At the same time, the ***victim narrative*** focuses on the personal loss resulting from the crisis. It highlights one's innocence and vulnerability during a crisis, which would further evoke other peoples' sadness and empathy (Liu et al., 2020; Seeger & Sellnow, 2015). In the context of a food safety crisis, it is vital to understand how the misinformation framed in either the blame narrative or victim narrative differs in its negative effect on the public's understanding of the crisis situation and behavioral intentions, as well as differs in the difficulties in being corrected.

Considering that the blame narrative, compared to the victim narrative, were more likely to make participants attribute crisis responsibility to a specific organization during a various crisis, such as the role of media in the spread of misinformation regarding measles, mumps, and

rubella (MMR) vaccine with autism (Holton et al., 2012) and the role of government during the infectious disease outbreak (Liu et al., 2020), I hypothesized:

H1(a): The misinformation embedded in the blame narrative will significantly attribute more responsibility to the affected organization than the misinformation embedded in the narrative.

Moreover, according to the Coombs (2007), individuals' perception of responsibility might be negatively associated with their perception of the crisis severity and organizational reputation. Therefore, I further hypothesized:

H2(a): The misinformation embedded in the blame narrative will significantly amplify the perceived crisis severity than the misinformation embedded in the narrative.

H3(a): The misinformation embedded in the blame narrative will significantly lower the organizational reputation of the affected organization than the misinformation embedded in the narrative.

In addition, individuals' communicative behavior might be driven by several factors. For example, Jin et al (2016) observed that the feeling of anger during a disaster would promote individuals' intention to share information. Laato et al. (2020) noted that individual's perception of danger closeness might translate to their communicative behaviors. Therefore, it can be assumed that the blame narrative which might lead to more feeling of anger and higher perceived severity would also lead to the higher intention to share misinformation. Thus, I further hypothesized the following:

H4(a): The misinformation embedded in the blame narrative will significantly result in a greater intention to share misinformation than the misinformation embedded in the narrative.

Corrective Communication

The battle between misinformation and corrective information has been described as a complex situation in previous literature. On the one hand, misinformed belief is hard to be corrected or updated once it is formed (Lewandowsky et al., 2012). The mental model suggests that when people are initially exposed to specific information, they will build a situation model in their mind to connect that information with the information in their memory. Every time when the new information comes, the model will be updated (Bower & Morrow, 1990). If the new information is relevant and consistent with the information in one's memory, the update of the model will be easier by simply adding the new information to the existing model. However, if the new information is non-relevant or inconsistent, the update will be harder to process because the individual has to change the model globally by discarding the old one and building a new one (Kurby & Zacks, 2012). In order words, people need to utilize sufficient cognitive resources to map new information onto their existing mental model. This is also the cognitive challenge scholars (e.g., Lewandowsky et al., 2012; van Oostendorp, 2014) identified in the effort to correct misinformation. Empirical evidence also confirmed the difficulty in correcting individuals' misperceptions. For example, Kuklinkski et al. (2000) found that the mere exposure to factual information would not be able to reduce the public's misperception of the federal welfare programs. Nyhan and Reifler (2010) found that providing individuals with factual information regarding either Iraqi WMD or tax cuts could not change or update their false belief in related issues. Furthermore, they also pointed out that the inclusion of factual contradictions in the correction message would be possible to provoke one's counterarguing attempts toward corrective information, especially among ideological individuals. As a result, their misperception was able to be further strengthened (Nyhan & Reifler, 2010). That said, the correction attempt

when using an inappropriate strategy would be likely to not only fail to correct misperception, but also backfire and even increase misperceptions.

On the other hand, the success of corrective communication attempts has also been documented in tons of previous research. According to a meta-analysis of 25 studies, the misinformation effect on belief could be successfully reduced from its "normal" size to half or even one-third of its size when correction attempts like post-warnings were applied (Blank & Launay, 2014). Another meta-analysis of 65 studies in misinformation correction also confirmed a moderate effect of correction effort on successfully countering misinformation-related beliefs across various contexts, including crime, health, marketing, and politics (Walter & Murphy, 2018). For example, in the context of the public health crisis, van der Meer & Jin (2020) pointed out that the presence of corrective information, no matter how detailed the refutation is to the misinformation, would be able to counter individuals' misperception of crisis severity which was caused by the exposure to misinformation. Bode and Vraga (2018) also suggested that the presence of corrective information could limit individuals' misperception about the Zika virus on social media, even among those with conspiracy beliefs. In the context of organizational crisis, the efficacy of corrective information in reducing individuals' misperception of crisis responsibility was also detected on social media platforms (Jin et al., 2020). Namely, the presence of correction, when appearing appropriately, would be able to lessen the misinformation effect.

In order to identify the appropriate corrective communication strategy, studies have theoretically and empirically explored the mechanism behind the misinformation effect and recommended several strategies from various perspectives. Sample recommendations include the focus correction content (e.g., refutation vs. explanation), the timing of correction placement

(e.g., prebunking vs. debunking), the detail level of corrective information (e.g., simple vs. detailed), and the favorable feature of the correction source (e.g., credibility and likability) (e.g., Chan et al., 2017; Walter & Murphy, 2018). For example, Lewandowsky et al. (2012) recommended directly refuting the misinformation and providing factual information while ignoring existing misinformation. Meanwhile, Wong and Harrison (2014) suggested proactively counterframing the impending health misinformation regarding. In addition, Paynter et al. (2019) called for attention to the source credibility of corrective information. Unlike the agreement on using the credible source and focusing on framing refutation in the corrective message, other questions regarding when to place the correction and how to frame the refutation remained unsolved due to conflict findings in the existing studies. Thus, this dissertation aims to figure out how the timing and message framing influence the effectiveness of refutation-based corrective information in limiting the misinformation effect, including reducing the misperception and organizational reputation and hindering the sharing intention through interpersonal channels.

The Timing of correction Placement: Debunking vs. Prebunking

Where to place the correction message remains contentious in the corrective communication research stream. Some studies, such as Walter and Murphy (2018), suggested that directly refuting the opposing information (i.e., misinformation) is more effective than forewarning the potential existence of misinformation. Wan and Pfau (2014) also proposed that acknowledging the misinformation before the correction process might unexpectedly reinforce the misinformation or put the organization in a crisis if the misinformation does not appear as planned (e.g., Wan & Pfau, 2014). However, van der Linden and Roozenbeek (2020) argued that even the better-developed correction strategy, when placed after the misinformation exposure, is not sufficient in stemming misinformation. They suggested that placing the correction before

individuals' exposure to misinformation would be able to inoculate individuals' psychological reactance to the misinformation (van der Linden & Roozenbeek, 2020). Walter and Tukachinsky (2020) also pointed out that misinformation had its continued influence on individuals' attitude and belief formation even after correction. As a result, they supported that the correction strategies should be developed to prevent the false belief from rooting in individuals' memory (Walter & Tukachinsky, 2020). Given the conflicting suggestions on the time of correction placement, this dissertation examined how timing matters in influencing the effectiveness of corrective information.

Debunking Strategy

Debunking refers to "presenting a corrective message that establishes that the prior message was misinformation" (Chan et al., 2017, p. 1532). As the most discussed strategy in the corrective communication literature, the core of debunking is the direct refutation (i.e., mentioning the misconception is false), which aims to disrupt the previous misinformation after the exposure (Garrett & Poulsen, 2019). The direct refutation of the misinformation has also been theoretically and empirically regarded as the most effective strategy to correct misinformation. For example, Chan et al. (2017) proposed that a direct counterargument to the misinformation would be more effective in reducing misperception than the argument in line with the misinformation. Swire and Ecker (2018) suggested that compared to providing an explanation of why it is false, using refutation (i.e., mentioning the misconception is false) was much more successful in making the correction. Consistently, O'Keefe (2016) also pointed out the key role of refutation in correcting misinformation. He stated that acknowledging the opposing information without refuting it should make advocated information less persuasive, especially in a conflicting informational environment (O'Keefe, 2016). In the crisis literature,

Coombs (2014) contended denial should be the best practice for misinformation crises. Empirically, Bode and Vraga (2015) found that debunking the false information regarding GMOs causing illness would significantly reduce individuals' related misperception on social media. Meanwhile, the positive effect of refutation on correcting misinformation has also been confirmed in various other contexts, including organizational crises and political discussion (Swire-Thompson et al., 2019) and across social media channels (e.g., Facebook and Instagram).

Moreover, the idea that refuting misinformation after exposure to misinformation (i.e., debunking) should perform better than preemptive refuting the misinformation before exposure to misinformation has also been supported by several scholars. For example, Vraga et al. (2020) found that when the correction message tried to refute the misinformation regarding climate change by providing factual information on Instagram, it would be effective in reducing individuals' related misperceptions only when it was placed after the presentation of misinformation. That said, the fact-focused correction only works when it is combined with the debunking strategy. Swire-Thompson et al. (2021) also suggested that presenting the factual information after the misinformation would outperform presenting the factual information before the misinformation in reducing misperception on various topics such as flu, alcohol, and animals after a three-week delay. Kendeou et al. (2014) proposed that the first presentation of misinformation would actively activate individuals' misconception (i.e., the preexisting false belief), which could also coactivate the misinformation and correction in one's memory. Meanwhile, the sequent presentation of factual information would further provoke one's conflict detection. Both co-activation and conflict detection were able to facilitate one's knowledge revision (Kendeou et al., 2014). From the perspective of the recency effect of memory, the recent information stays more salient in one's memory since it is easy to be retrieved (Davelaar et al.,

2005). Ecker et al. (2015) found that when presenting several causes of an event to individuals, the more recent cause would have more effect on their memory and show more resistance to retraction in the earlier cause presented. Similarly, the debunking strategy should also be stronger than the prebunking strategy in influencing individuals' belief change since the factual information is relatively recent to individuals' memory in the debunking strategy.

However, another voice advocating the superiority of preemptive refuting the misinformation before exposure to misinformation (i.e., prebunking) also exists. In contrast to the recency effect, some memory scholars argued that the information presented in an earlier order was primarily encoded in one's memory, which would have a stronger effect on one's belief formation (e.g., Farrell & Lewandowsky, 2002). Meanwhile, presenting the factual information before the misinformation would prepare individuals to encode the expected misinformation more cognitively and carefully, which should also facilitate the individuals' knowledge revision, especially when individuals' preexisting misconceptions oppose the fact (Ecker et al., 2010; Kendeou & O'Brien, 2014). However, limited studies have been conducted to compare debunking strategy and prebunking strategy in an empirical context in their effectiveness in reducing individuals' false beliefs about specific issues and reducing their intention to disseminate misinformation.

Prebunking Strategy

Prebunking, rooted in McGuires's (1964) inoculation theory, is a misinformation correction approach designed "to neutralize potential misinformation before it is encoded" (Cook et al., 2017, p4). Inoculation theory, biologically analogized that the human's immune system could be inoculated against viral attacks, suggested that attitude could also be strengthened to resist the persuasive attacks by giving some kind of inoculation (McGuire,1964). In other words,

the inoculated individuals, if exposed to weak counterarguments which are easily refuted, will strengthen their threatened attitudes. As a result, scholars believed that warning the audience what other opposing arguments might tell them ahead and further refuting those opposing arguments might protect the audience from future persuasive attacks (Compton, 2013). Specifically, the threat (i.e., forewarning the potential challenges to attitude) induced in the inoculation message motivates inoculated publics to resist impeding persuasive attack, while refutational preemption (i.e., proposing and refuting the challenges) induced exemplifies how to defend attitudes (Compton & Pfau, 2005). Empirical studies provide the sufficient evidence of inoculation efficacy in facilitating favorable attitude formation (van der Linden et al., 2017), health behavior promotion (Wong & Harrison, 2014), and policy support (Niederdeppe et al., 2015) by evoking inoculated public' threat level and counterarguing attempt.

When applied in crisis management and crisis misinformation correction, one of the key features of inoculation theory, “forewarning,” has been discussed. It crisis literature, inoculation was considered as an organization’s proactive reaction to a potential crisis (Wan & Pfau, 2004). Compared to bolstering (i.e., supportive treatment) before the crisis, which might lead to the public's overconfidence in the organization's image and vulnerability to subsequent crisis attack, proactively claiming the weakness of the organization ahead and defending the impending attack were more powerful in strengthening individuals' positive attitude (Wan & Pfau, 2004). Wan and Pfau (2004) observed that in the organizational crisis related to a manufacturing safety issue, inoculation-based treatment is more effective in fostering resistance to negative crisis influence than the control group, while as effective as bolstering treatment in conferring resistance in the post-crisis period.

In the misinformation literature, inoculation is reflected in the prebunking strategy., scholars implied that prebunking the potential misinformation attack ahead is necessary for combating misinformation, even when there is a possibility that the proposed misinformation does not appear (e.g., van der Linden & Roozenbeek, 2020). Pfau (1997) noted that the inoculated individuals could be resistant to both "specific counterargument raised in refutational preemption and those counterarguments not raised" (p.137). Based on it, scholars hypothesized that prebunking could build an alerting system for misinformation crises (e.g., Swire & Ecker, 2018; van der Linden & Roozenbeek, 2020). Empirically, Cook et al. (2017) observed that prebunking was effective in highlighting the scientific consensus when media coverage is false-balanced in covering both sides of scientific issues even though one side was falsified by scientific evidence. They found that the media's false-balanced coverage of anthropogenic global warming (AGW) would introduce misinformation regarding AGW when providing contrarian views in equal voice. Misinformation would then confuse the public on perceived scientific consensus and influence their acceptance. However, by prebunking the misleading technique used in false-balance media coverage, the correction message was able to highlight the scientific consensus and neutralize the potential misinformation effect (Cook et al., 2017).

Although empirically evidence has confirmed the potential for proactive preparation (i.e., inoculation and prebunking) to protect the organizational reputation damaged in crisis, as well as the potential for prebunking to reduce individuals' false belief in science, there is a lack of studies examining the potential for prebunking strategy to address the misinformation crisis. Given the lack of comparison between debunking and prebunking strategies, this dissertation explored how the timing of correction placement influences the effectiveness of correction

messages in reducing individuals' misperceptions about the crisis and limiting their intention to disseminate the misinformation during the crisis.

Since existing crisis literature has suggested that organizations could seize the initiative by proactively preparing for it in advance, in comparison with reactively responding to a crisis, which is especially critical in a misinformation crisis, I hypothesized:

H1(b): Prebunking messages will result in significantly lower perceived organizational crisis responsibility than debunking messages.

H2(b): Prebunking messages will result in significantly higher perceived crisis severity than debunking messages.

H3(b): Prebunking messages will result in significantly lower organizational reputation damage for the affected organization than debunking messages.

In addition, van der Linden & Roozenbeek (2020) also suggested that the so-called "prebunking" strategy (or preemptive debunking) was able to stem the onslaught of misinformation. Thurs, I further hypothesize:

H4(b): Prebunking messages will result in significantly lower intention to share crisis misinformation than debunking messages.

The Detail Level of Refutation: Simple Rebuttal vs. Factual Elaboration

Two correction strategies, in terms of the detailed level of refutation, were defined and examined in the previous studies: simple rebuttal and factual elaboration (van der Meer & Jin, 2020). The ***simple rebuttal*** refers to the refutation of misinformation using simple and belief arguments. It is grounded in Lewandowsky et al. (2012) 's argument that "less is more" (p.122). Lewandowsky et al. (2012) also discovered that participants in the health context who were presented with simple rebuttal tended to be skeptical about the misinformation. Meanwhile, due

to the wealth of information on social media, individuals' attention and elaboration of specific information are also limited, especially when that information is irrelevant or impersonal (Goldhaber, 2006; Patalano, 2008). Consequently, compared to a well-established long argument, a simple and brief argument might be easier to be accepted by the users.

While ***factual elaboration*** (or "emphases on fact") is the fact-only framing with sufficient details about the crisis. Paynter et al. (2019) claimed that gauging the abundant supporting evidence would be able to reinforce the corrective information in one's memory. According to the meta-analysis, Chan et al. (2017) also confirmed that elaborating new and detailed information in a debunking message would make the debunking effect stronger. Empirically, van der Meer and Jin (2020) found that during the public health crisis, both simple rebuttal and factual elaboration corrective strategies effectively debunk incorrect beliefs-based health-related misinformation. Furthermore, factual corrective information would lead to a higher intention to take protective actions than simple rebuttal (van der Meer & Jin, 2020). Likewise, during the organizational crisis, Jin et al. (2020) found that factual elaboration would contribute more to perceived message quality and crisis response effectiveness.

Although people are always inadequate in their motivation and ability to comprehend longer messages on social media, previous empirical studies have documented the relative advantage of factual elaboration in correcting various crisis misinformation. Thus, I hypothesized:

H1(c): Correction messages using factual elaboration will result in significantly lower perceived organizational crisis responsibility than the ones using simple rebuttal.

H2(c): Correction messages using factual elaboration will result in significantly higher perceived crisis severity than the ones using simple rebuttal.

H3(c): Correction messages using factual elaboration will result in significantly lower organizational reputation damage for the affected organization than the ones using simple rebuttal.

H4(c): Prebunking messages will result in significantly lower intention to share misinformation than debunking messages.

In addition, existing research has not modeled the effects of timing placement and detailed level of corrective information in tandem. The only comparison of simple rebuttal and factual elaboration has been tested in the debunking strategy (i.e., after the exposure to misinformation). In insomuch as the mechanism behind how prebunking and debunking strategy works is different, as presented above, it is possible that the detail level of correction strategy would have different performance when applied in the prebunking strategy. Meanwhile, Southwell et al. (2018) asserted that the effectiveness of corrective information might be moderated by misinformation features such as the emotional expression in misinformation narratives. It is also important to explore if the type of misinformation narrative would interact with the correction strategies, including the timing and the detail level, in differentially affect the correction effectiveness. Therefore, I asked the following research questions:

Research Questions (RQs) 1-4: How, if existing, do types of misinformation narrative, the timing of placement, and the detail level of refutation jointly influence the (RQ1) crisis responsibility attribution, (RQ2) perceived crisis severity, (RQ3) the organizational reputation, and (RQ4) intention to share crisis misinformation?

Psychological Responses as a Result of Exposure to Competing Information

The cognitive challenge to successfully combat misinformation refers to the lack of motivation and ability to process corrective information among people who should utilize

sufficient cognitive resources to map new information onto their existing mental models, which are structured by misinformation (e.g., Lewandowsky et al., 2012; van Oostendorp, 2014). In order to better conquer the challenge, scholars call for the understanding of how strategic corrective communication switches out false information from people's existing model affectively, cognitively, and behaviorally (e.g., Swire & Ecker, 2018). Thus, besides exploring how corrective strategy could migrate the effect of different misinformation narratives in terms of reducing misperception and limiting the discussion intention, it is also necessary to examine how individuals' cognitive and affective responses to the crisis situation change as a result of exposure to misinformation and corrective information

Meta-cognitive Response

An individual's cognitive process has a second layer, suggested by the meta-cognitive perspective (Petty et al., 2017), in which his or her feelings of certainty, confidence, or validity of the judgment made during the cognitive engagement with information, might influence the way they finally make sense of social issues as well as take related actions (Doll & Ajzen, 1992; Petty et al., 2007). The so-called "thoughts about thoughts" (Petty et al., 2007, p. 254) is measured as one's attitude strength when encountering conflicting situations. Krosnick and Petty (1995) claim that attitudes with resistance to change, stability over time, and influence on cognition and behavior, could be regarded as strong. Features, such as personal relevance and certainty, have been found to relate to attitude strength (Howe & Krosnick, 2017; Krosnick & Petty, 1995). In addition, message features, such as sidedness (i.e., one-sided message vs. two-sided message), might also influence individuals' thoughts about their thoughts (Borah, 2011; Rucker et al., 2008).

Compared to attitude itself, Kiousis and McCombs (2004) posited that attitude strength might be more appropriate to serve as an outcome of salience transfer, mediating the relationship between media salience and public salience. Although tons of discussion on how message strategy influence individuals' attitude formation and/or change related to the social events, little is known about how it influences individuals' attitude strength, especially in the competitive media environment. This dissertation will focus on the discussion surrounding the confidence and ambivalence, two of which are closely related to misinformation and crisis context, where the informational environment is highly conflict-laden.

Thought confidence, by Petty et al. (2002), is "a sense of conviction or validity regarding one's thoughts" (p.724), the high level of which would lead to an individual's resistance to the persuasion attempt. In other words, the confidence in one's misperception evoked by specific misinformation would result in his or her resistance to any correction attempts and consequently determine the difficulty level of successfully correcting this misinformation. Kuklinski et al. (2000) also suggested that the confidence in holding the false belief should also be examined as another outcome of the exposure to misinformation. Furthermore, since the confidence in the belief and attitude would further increase attitude-behavior consistency (Petty et al., 2002), an individual with high confidence in holding his or her false beliefs would be more likely to take risky behavior misled by misinformation. Thus, it is necessary to know more about such inappropriate confidence. Although confidence has been recommended as a crucial element in understanding the effect of the exposure to misinformation (e.g., Pasek et al., 2015), thus far, few studies have discussed how the exposure to various misinformation and different corrective information influence individuals' confidence in holding the false belief.

RQ5.1: How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any direct effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?

RQ5.2: How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any interaction effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?

Ambivalence refers to an individual's simultaneous evaluation of the object's positivity and negativity due to the exposure to inconsistent information, either positivity or negativity (Luttrell et al., 2016). Pan and Kosicki (2005) claimed that this is a condition that could be framed by "coexistence and potential relevance of conflicting cognitions" (p. 177). Scholars defined ambivalence as a kind of subjective feeling of confusion and mixed, which might subsequently influence individuals to follow communicative behavior (McGraw et al., 2003) and recommended behavior (Armitage & Conner, 2000). For example, Borah (2011) explained that the competitive framing of the civil liberties conflict issue would make individuals feel ambivalent and motivate them to talk with other people about the issue. Armitage and Conner (2000) also found that the feeling of ambivalence would promote health-related discussion among individuals. As a potential strong predictor of individuals' intention to discuss misinformation, it is important to realize whether (or not) the exposure to various misinformation and corrective information and whether (or not) the competition between misinformation information and correction information would influence individuals' feeling of ambivalence.

RQ6.1: How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any direct effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?

RQ6.2: How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any interaction effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?

Emotional Responses

Emotional responses always correspond with cognitive responses (Nabi, 2010). Emotion, as an individual's evaluative reaction to the environment (Ortony et al., 1988), is believed to be associated with one's cognition. It is a kind of human's short-lived internal mental state, which can be stimulated by an external source (Nabi, 2010). It is varied in valence and intensity. Based on valence difference, emotions are conceptualized by one's single dimension of feeling (i.e., positive feeling or negative feeling) (Dillard & Peck, 2000). Whereas based on intensity (or arousal) difference, emotions are conceptualized by their categorical characteristics, including their appraisal components and adaptive functions.

Lazarus (1991) posited that each emotion is activated by an individual's consideration of his or her person-environment-relation. He called such a relationship a "core relational theme," which refers to the interpersonal and intrapersonal harm and benefits inherent in each person-environment relationship (Lazarus, 1991). In other words, if an individual detects a change in the environment surrounding him or her, such as an uncertain threat appearing, he or she might feel a specific emotion such as fear or anxiety. This perspective shed light on how the media could influence what people feel about the issue by framing. Lazarus (1991) further argued that the personal, relevant message could lead to a psychological change. For example, studies found that framing a threatening situation could make people perceive severity and susceptibility and then activate their feeling of fear (Nabi, 1999; So et al., 2016). Besides such primary appraisal, Lazarus (1991) also posited that an individual's feeling of specific emotion would further activate

his or her one's cognitive response (i.e., secondary appraisal). For example, Keltner et al. (1993) found employee's perception of unfair evaluation from a supervisor would make her angry, which would then make him or her think of other injustices by that supervisor.

During a crisis where the situation varies in responsibility, severity, and controllability, such a mutual relationship between the public's emotional and cognitive responses has also been found in existing studies. For example, anger might be activated when judging others as responsible for the crisis, while sympathy might be activated when they judge others as not responsible for the crisis (Wilson, 2010). Jin et al. (2010) found that people's perception of responsibility might influence their experience of anger, fright, anxiety, and sadness during a crisis. Conversely, the feeling of stress would motivate individuals to adjust their way of thinking or venting their emotions (Jin, 2009). In the context of misinformation correction, van der Meer and Jin (2020) also found that the emotions such as fear and confusion would mediate the effectiveness of corrective information in reducing individuals' misperception about the crisis severity of an infectious disease outbreak. That said, the competitive framing of a given crisis situation between misinformation and corrective information might also evoke individuals' various discrete emotions. Given that negative emotions predominated in most crisis situations with uncertainty and conflicts (Jin et al., 2012), this dissertation also examined how negative crisis emotions, including anger, sadness, unease, confusion, distrust, and anxiety, were evoked by the exposure to misinformation narratives and corrective strategies. Meanwhile, since the misinformation in this study is modeled in the format of narrative, telling the story of a lay individuals' loss during a crisis, the feeling of empathy is also measured as it is a key emotion aroused by the narrative. Thus, I asked:

RQ7: How, if at all, do individuals' feelings of discrete emotions differ as a function of (a) misinformation narrative, (b) the timing of correction placement, and (c) the detail level of refutation?

Competing Narratives during Crisis

The presence of competing narratives is typical in the crisis, especially in its early stage, where the communication surrounding the crisis situation is unclear due to the limited conclusive information (Seeger et al., 1998). Different parties, including the victims, media, stakeholders, and lay individuals, could identify the problem, attribute the responsibility and provide the solution in terms of their experience or observation of the crisis (Seeger & Sellnow et al., 2015). For example, when facing the food insecurity crisis, Legwegoh and Fraser (2015) observed the competition between narratives identifying food insecurity as the production crisis from the perspective of scientific and aid agencies and narratives linking food insecurity to poverty and low economic development from the perspective of politics. Coombs (1999) also pointed out that the accused organization would defend its action by presenting a favorable case when the media and other stakeholders blamed it. Venette et al. (2003) described this phenomenon as metanarration, suggesting that multi-narrative (i.e., primary narrative and secondary narrative) created during the crisis would compete to influence individuals' meaning-making of a crisis. According to Venette (2003), the primary narrative is "the original crisis story as portrayed in the media" (p. 220), while the secondary narrative is affected company's response used to "reconstruct the initial story of what took place prior to and during a crisis" (p.220). They also inferred that the process of retelling stories would allow companies to mitigate the reputation damage and rebuild the trust with their stakeholders (Venette et al., 2003). However, due to the prevalence of social media, the media is no longer the only source of narrative. On social media,

the voice of lay individuals can also go vial, especially when it is framed in a story format with specific emotional expressions. In line with the concept of metanarration of crisis, this dissertation further investigated the competition of narrative during a misinformation crisis, particularly when the primary narrative is from a lay individual. Meanwhile, the secondary narrative studied in the previous studies is mainly about how organizations could use narrative repair images by using a denial strategy or displaying corrective actions when the organization is involved in a crisis. Yes, how the secondary narrative should be framed to combat misinformation when the company is facing a misinformation crisis has not been examined empirically. Thus, this dissertation also explored the potential for the secondary narrative to compete with the primary narrative when the primary narrative is misinformation to correct individuals' misunderstanding of crisis situations and repair organizational reputation, as well as to limit the misinformation effect via communicative behavior.

Besides the intention to discuss misinformation via interpersonal channels, one of the main effects examined in this dissertation, this dissertation also expanded individual communicative behavior, as a result of exposure to corrective information, to the intention to avoid information regarding the crisis situation and intention to make the social correction. Information avoidance refers to individuals' intention to "prevent or delay the acquisition of available but potentially unwanted information" (Sweeny et al.,2010, p. 341)." It could happen in two formats, passive information avoidance and active information avoidance. The former refers one's avoidance of abstract information which might be linked to one's "long-held and deeply-held beliefs of self and identity that had to be processed cognitively" (p5), while the later reference a short-term coping strategy which would help effectively responding to concrete information (Narayan et al., 2011). The information avoidance discussed in this dissertation is

active information avoidance as one's "motivated decision to remain ignorant" (Howell & Shepperd, 2012, p. 142) as a result of exposure to the information that makes them feel psychologically discomfortable (Kahlor et al., 2006). Although the existing evidence has suggested that the individuals' perception of information sufficiency or message fatigue, as a result of exposure to redundant information, would drive individuals to avoid being exposed to other related information (Hwang & Jeony, 2021; So et al., 2016), little is known about how the information avoidance would be influenced by the exposure to the competing narratives regarding the crisis responsibility and severity. In addition, social correction refers to the correction effort which is conducted by lay individuals (e.g., daily social media users) rather than the expert sources or social media algorithms (Vraga & Bode, 2017). Vraga and Bode (2020) pointed out that individuals' volunteer corrective communication via sharing corrective information or directly refuting the misinformation in their own posts could be one solution to counter misinformation on social media. To date, few studies have attempted to understand one's intention to make the social correction, especially when there is a competition in narrative framing between misinformation and corrective information. Thus, this dissertation included information avoidance and social correction as another two communicative behaviors individuals would engage in combating misinformation.

Crisis Narrative As a Corrective Strategy

Narrative, as a powerful persuasive tool, has been widely discussed in persuasion and communication literature in recent years. Besides the ability to attract lay individuals on social media even if it delivers misinformation, as mentioned above, it also was found to have the potential to present complex information and causal relationships of the social issue to the individuals (Niederdeppe et al., 2014). Nabi and Oliver (2010) explained that the individuals'

processing of narrative was a type of observational learning from the perspective of social cognitive theory (SCT). The narrative could first catch an individual's attention (i.e., attention), and then the individual would translate the symbolic representation of the behavior by the narrative content (i.e., retention and production). Finally, based on the perception and the nature of reinforcement, the individual would be motivated to take the recommended actions (i.e., motivation). Empirically evidence in health communication also confirmed the positive impact of narrative, as a powerful persuasive message, on expected health outcomes, such as increasing the perceived risk and severity of getting alcohol-related cancer (Ma, 2021), reducing the health stigma surrounding obesity, cigarette use and prescription opioid addiction (Heley et al., 2019), and participated in a favorable mother-daughter discussion of sexual health (Moyer-Gusé et al., 2019). In the crisis literature, the narrative is also believed to be able to (1) provide the whole image of the complex even, as well as (2) "fulfill a rhetorical function advocating for specific social. economic and political changes" (Seeger & Sellnow, 2015, p.13). However, the promise of a narrative for combating misinformation when the company is involved in a misinformation crisis has not been explored. Besides the blame narrative and victim narrative, as discussed above about its ability to carry emotions and its prevalence during crisis above, Seeger and Sellow (2016) also highlighted the value of ***renewal narrative*** during the crisis. Renewal narrative is a type of forward-looking or prospective narrative, focusing on the growth and development of an individual or an organization gained from the crisis loss. Thus, this dissertation discussed the potential for different types of crisis narratives (i.e., blame narrative,

victim narrative, and renewal narrative) to strengthen the effectiveness of corrective information (i.e., secondary narrative)[1] in competing with the primary misinformation narrative[2] (footnote).

The existing evidence suggests that the renewal narrative would be more favorable to the organization, such as building a strong relationship between the organization and community (e.g., Xu, 2018), even when it competed with other blame narratives posted by the third-party such as news media (Seeger & Sellnow, 2016), while the victim narrative would be more positively associated with one's communicative behavior such as information seeking and protective action taking due to the arousal of sadness (Liu et al., 2016). Therefore, I hypothesized the positive effect of using renewal narrative in the prebunking message on organizational reputation via reducing misperception about crisis severity and crisis responsibility, and the positive effect of using victim narrative in the prebunking message on individuals' effort to combat misinformation via avoiding related information, limiting the discussion of misinformation and making the social correction.

H8: The prebunking message using the renewal narrative will significantly result in (a) lower responsibility attributed to the affected organization, (b) lower perceived crisis severity, and (c) lower organizational reputation damage than the one using other narratives or using nonnarrative to elaborate fact.

H9: The prebunking message using the victim narrative will significantly result in (a) lower intention to share crisis misinformation, (b) higher intention to avoid information about the crisis, and (c) higher intention to make social correction than the one using other narratives or using nonnarrative to elaborate fact.

[1] Based on results of study 1, all the corrective strategies further tested in the study 2 was grounded in the prebunking strategies.

[2] Based on results of study 1, all the misinformation modeled in the study 2 was written in blame narrative.

Meanwhile, given that individuals' meta-cognitive responses (i.e., thought confidence and attitudinal ambivalence) have been suggested by misinformation scholars as one of the correction outcomes as discussed above, this dissertation also examined the effect of competing narratives on individuals' meta-cognitive responses to crisis responsibility and severity.

RQ10: How, if at all, does the type of narratives (and nonnarrative) used in the prebunking message to elaborate facts exert any effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?

RQ11: How, if at all, does the type of narratives (and nonnarrative) used in the prebunking message to elaborate fact exert any effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?

In addition, as suggested by meta-cognitive scholars, confidence was a strong predictor of one's future behavior (Petty et al., 2002). The level of confidence would be able to predict one's communicative behavior. Griffin et al. (2012) noted that individuals' lack of confidence in having enough accurate understanding of the risk topic due to the gap between what individuals acknowledged and what individuals think they should acknowledge about the topic would motivate them to seek and process risk information. In contrast, a high level of confidence might inhabit individuals' intention to acquire information. Kim et al. (2020) found that during the COVID-19 pandemic, the exposure to misinformation would reduce individuals' feeling of informational gap and make them feel confident in understanding the issue, which would consequently result in greater information avoidance. However, little is known about whether (or not) the confidence as a result of being exposed to competing narratives would also mediate the relationship between exposure and information avoidance. Meanwhile, whether (or not) the information avoidance would sequentially influence other communicative behavior is also

understudied in the current research. Hence, this dissertation further examined the sequential mediation role of confidence and information avoidance on the relationship between exposure and other communicative behaviors (i.e., misinformation discussion and social correction).

RQ12: How, if existing, does the belief confidence in crisis responsibility and information avoidance sequentially mediate the relationship between the narrative type and (RQ12.1) intention to share misinformation) and the relationship between the narrative type and (RQ12.2) intention to make the social correction?

Psychological Mechanism behind Narrative Correction

Identification

When it comes to the psychological mechanism behind narrative persuasion, Slater and Rouner (2002) extended Petty and Cacioppo's (1986) elaboration likelihood model (ELM) to the context of narrative persuasion, theorizing that individuals' "engagement or absorption in the narrative" and "identification with characters" would determine one's involvement with the narrative storyline (Slater & Rouner, 2002). They claimed that one's involvement with the storyline should be more powerful than involvement with the topic and issue in influencing the extent individuals engage with the narrative, which would consequently influence their acceptance of the narrative message.

Absorption, by Slater and Rouner (2002), refers to an individual's vicarious experiences of the characters' emotions and personality. Green (2006) argued that based on the setting, characters, and situations represented in the narrative, an individual might combine the information from the text and his or her own knowledge and engage in the life of the narrative. Once absorbed in the storyline, an individual might temporarily leave the reality and experience another (Green & Brock, 2000). Such loss of self-awareness could reduce one's motivation to

generate counterarguing (Moyer-Gusé et al., 2011; Slater & Rouner, 2002). In addition, the complex storyline might make people fail to detect persuasion intent, which would prevent one's motivation of couteraguing from being activated (Moyer-Gusé & Nabi, 2010). However, according to a meta-analysis of 25 studies in health narratives, Shen et al. (2015) pointed out that the short text narratives were limited in enticing people into the story word (i.e., revoking one's transportation with the storyline). They also noted that the length of video- or audio-based narratives tested in the previous studies, which had produced significant transportation, ranged from 72 seconds to 11 minutes. That is more complex than text narratives in the storyline settings (Shen et al., 2015). Since the scenario modeled in this dissertation was the social media post, in which all the narratives were presented in the text format, I did not examine the effect of narrative types on transportation.

Identification, from the perspective of social cognitive theory, is a "continuous process in which new responses are acquired, and existing repertoires of behavior are modified to some extent as a function of both direct and vicarious experiences with a wide variety of actual or symbolic models, whose attitudes, values, and social responses are exemplified behaviorally or in verbally coded forms" (Bandura, 1969, p. 225). Cohen (2001) implied that identification is a kind of vicarious experience in which viewers would experience the emotions and perspectives that the character shares with them. Consequently, the shared perspective and emotional experience would motivate individuals to engage in the expected behavior change. Existing empirical studies have confirmed that one's motivation and ability to counterargue the persuasive message would be inhabited by their identification with the narrative character since the identification would (1) promote one's transportation in the episode story (Murphy et l., 2011), and (2) evoke one's affective responses to the characters such as empathy (Raney, 2004).

Empathy, by Hoffman (1985), is the sharing of another's feelings. Lazarus (1991) regarded empathy as the shared emotion, which is an emotional process depending on the emotion expressed by others. It is consistent with Cohen (2001) 's idea of identification as a shared process of the character's emotions. In other words, various emotions expressed by the narrative's character might lead to different levels of identification. In the crisis narrative literature, Liu et al. (2020) found that the victim narrative was able to evoke individuals' higher level of sadness, while the blame narrative was able to evoke individuals' high level of anger. However, little is known about how different emotional expressions in the crisis narrative influence individuals' identification with the character. Thus, we ask:

H13: Using narrative to elaborate factual information in the prebunking message will significantly lead to higher identification with character (i.e., spokesperson) therein than using nonnarrative.

RQ13: How, if at all, do individuals' identification with the spokesman (i.e., the character in the prebunking narrative) differ as a function of the type of narrative (and nonnarrative) used in the prebunking message?

Character Liking and Character Trust

Slater and Rouner (2002) noted that the identification, discussed in the narrative literature, is the concept related to one's expectation of the character. It is associated with how people evaluate and connect to the characters in the story (Slater & Rouner, 2002). Raney (2004) assumed that in addition to feeling empathy towards the character, individuals' perceived similarity between themselves and the character could also be featured as one's identification with a character. The perception of similarity can be explained as a result of self-awareness loss, which could reduce one's motivation to generate counterarguments toward the persuasive

message (Slater & Rouner, 2002). Slater and Rouner (2002) contended that the more one perceives the closeness with the character, the more likely the one to engage with the narrative and further to stand with the persuasive message. Empirically, Andsager et al. (2006) found that college students perceiving more similarities between themselves and exemplars in alcohol consumption and social situations were less likely to drink alcohol when they realized the experience of the exemplar portrayed in the anti-alcohol message. de Graaf (2014) also observed that one's perceived risk and self-efficacy to deal with cancer would be expectedly increased as a similar protagonist.

However, besides perceived similarity, some other concepts, such as liking and trust, might also influence individuals' involvement with the narrative character (Moyer-Gusé, 2008). Although many studies have examined the effect of similarity on the identification and persuasive effectiveness, less research has examined the role of character liking and character trust with respect to narrative persuasion and misinformation correction. ***Liking*** is simply defined as "positive evaluations of a character" (Moyer-Gusé, 2008, p. 411). Raney (2004) explained that one's feelings toward the character could also be assessed from extremely positive to indifference to extremely negative, and it further influences one's enjoyment and acceptance of the would influence persuasive message. Moyer-Gusé (2008) proposed that individuals' positive judgment about the character would reduce their reactance to the persuasive argument carried by the narrative. In the misinformation correction literature, source likability was also found to positively facilitate the effectiveness of factual correction (e.g., Meinert & Krämer, 2022; Walther & Tukachinsky, 2020). However, few studies have integrated the narrative persuasion and misinformation correction literature to investigate the role of character liking when using narrative to elaborate factual-based corrective information.

Social credibility is another key element when designing corrective information and has been extensively discussed in the misinformation correction literature. O'keefe (2016) defined source credibility as a relative scale that is accessed by an individual's subjective perception of whether the source could know the truth (i.e., expertise) and tell the truth (i.e., trustworthiness). Factors like the source's educational background, occupation, experience, and the way he or she delivers the speech could influence an individual's perception. McGnnes and Ward (1980) suggested that when combating inaccurate information, trustworthiness was more powerful than expertise. Bode and Vraga (2018) also argued that individuals' overall evaluation of the credibility of the algorithm and Facebook users would influence correction effectiveness when combating the misinformation about the Zika virus on Facebook. Thus, there is a need to further explore how individuals' specific feelings towards the source, going beyond the credibility, influence the correction outcomes. Although trustworthiness might contribute to credibility, its function in influencing the correction outcomes is different from credibility. Scholars noted that the public might not trust credible sources such as doctors and scientists when acquiring information about controversial issues such as vaccines and climate change (e.g., Fiske & Dupree, 2014; Benegal, 2008). Therefore, this dissertation focuses on trust, exploring the role of trust in the character in correcting misinformation when using narrative to elaborate factual information. In the misinformation literature, ***trust*** in the source means individuals' feeling of security and comfort when relying on the specific source for the information. During the crisis, the loss of trust would lead to serious social problems, threatening individuals and society. For example, Fridman et al. (2020) found that the relatively low trust in government leads to the lack of accurate health-related knowledge and appropriate behaviors among the non-White and younger population. Other problems such as vaccine hesitancy (Jennings et al., 2021) and under-

immunization (e.g., Freed et al., 2011) have also been found to be associated with the public's low trust in credible expert sources. Moreover, Woskie and Fallah (2019) implied that the mistrust contributed to the development of Ebola epidemics. In the narrative literature, individuals' judgment of if the character is a knowledgeable source for information (i.e., Character trust) would also facilitate their learning from the character (Schlesinger et al., 2014). By integrating misinformation literature and narrative persuasion, this dissertation extended the role of trust in the misinformation literature, investigating the effect of character trust on correction effectiveness when using narrative to elaborate factual information. I asked:

> **H14**: Using narrative to elaborate factual information in the prebunking message will significantly increase the (a) liking of the spokesman (i.e., the character in the prebunking narrative) and (b) trust in the spokesman than using nonnarrative.
>
> **RQ14**: How, if at all, do individuals' (14.1) liking of the spokesman (i.e., the character in the prebunking narrative) and (14.2) trust in the spokesman differ as a function of the type of narrative (nonnarrative) used in the prebunking message?

Perceived Information Quality

As suggested by Slater and Rouner (2002), identification should be positively related to transportation. By testing several structural equation models, Murphy et al. (2011) confirmed the equation with the sequence of from identification to transportation would be more fit than one with a parallel sequence or with the reversed sequence in predicting the persuasive outcome. They argued that identification with the character in the cancer-related episode could promote one's transportation in the episode story, which might be able to predict the favorable change in one's cancer-related knowledge and attitudes (Murphy et al., 2011). One potential explanation was that the individuals' identification with the character would make them evaluate his or her

description of the event as credible and trustworthy. Slater et al. (2003) found that individuals' identification with sources in the message would favor their assessment of the message as believability, clarity, and useful. As a result, the effectiveness of narrative messages in health intervention would be maximized. That said, individuals' connection with the character influences their perception of the information quality. ***Perceived information quality*** refers to one's perception of message effectiveness in terms of how logical and believability is (Dillard et al., 2007; Appelman & Sundar, 2015). It is an important construct in the communication literature, which can lead to the expected attitude and behavior change (e.g., Krakow et al., 2018). Slater et al. (2003) found that narrative messages about nutrition received more positive evaluation on the information quality than the didactic messages did. Liu et al. (2020) also found that during the crisis, the renewal narrative would be perceived as more credible than other narratives. Although the advanced perceived information quality has been found when using narrative to frame the health or crisis issues, little is known to date about how individuals will evaluate the information quality of two competing narratives. Hence, I asked:

H15: Using narrative to elaborate factual information in the prebunking message will significantly lead to higher perceived information quality of corrective information than using nonnarrative.

RQ15: How, if at all, do individuals' (a) perceived information quality of the prebunking narrative and (b) perceived information quality of the misinformation narrative differ as a function of the type of narrative (nonnarrative) used in the prebunking message?

Besides identification, individuals' feeling about the source would also influence their evaluations of the information quality. Reinhard and Sporer (2010) pointed out that the source cure, such as source attractiveness and trustworthiness is the only predictor of perceived

credibility of the information among individuals with low involvement. Trivedi et al. (2020) observed that when being exposed to a large amount of health information on social media, individuals tended to report higher message believability to the information which was from the source they trusted, such as government agencies and health organizations. Similarity, source liking would also facilitate individuals' evaluation of information as persuasive (O'Keefe, 2002). However, how the liking of and the trust in character in the narrative influence the perceived information quality has not been studied, though the positive impact of individuals' perception of source on the perceived quality of information has been confirmed in previous literature (e.g., Jung et al., 2016). Meanwhile, due to the lack of research in understanding whether (or not) individuals' feelings of character would contribute to their involvement with the character in the narrative, with the only exception being perceived similarity, this dissertation further examined how character liking and character trust contribute to the identification with the character. To put together, this dissertation examined the sequential mediation model of character liking/character trust and identification of the relationship between the use of narrative in the prebunking message and individuals' perceived information quality of corrective information.

RQ16.1: How, if existing, do individuals' character trust and identification sequentially mediate the relationship between prebunking narrative and perceived information quality of corrective information?

RQ16.2: How, if existing, do individuals' character liking and identification sequentially mediate the relationship between prebunking narrative and perceived information quality of corrective information?

Moreover, in line with the narrative scholars' hypothesis that the identification would directly influence the persuasive effect of the narrative, as well as indirectly influence the

persuasion through transportation, this dissertation also examined its dual role in influencing the effectiveness of corrective information. Due to the nonsignificant effect of text narrative on transportation, this dissertation used perceived information quality instead as the positive perceived information quality was regarded as the antecedent of transportation (Krakow et al., 2018). Hence, I asked:

> **RQ17:** How, if existing, do individuals' identification with the spokesperson (i.e., the character in the prebunking narrative) and perceived information quality (of the prebunking message) sequentially mediate the relationship between the exposure to the prebunking narrative and corrective outcomes as measured as organizational reputation (RQ17.1), misinformation discussion intention (RQ17.2), and social correction intention (RQ17.3)?

Research Questions and Hypotheses for Study 1 and Study 2

In sum, this dissertation aims to identify an optimized corrective strategy, which can effectively mitigate the effect of misinformation on the organization and individuals' understanding of the crisis as a result of the exposure to misinformation in the context of "misinformation-fabricated" food safety crisis. This dissertation also aims to map the mechanism behind the competition between misinformation narrative and corrective narrative, understanding how the competing narratives shape individuals' understanding of a crisis situation and influence their communicative behavior on social media. In order to answer all these research questions, a two-phase research design was applied with the first study focusing on the overarching question: How timing of placement and detail level work independently and interactively to combat various misinformation narratives. The goal of study 1 is to identify the best combination of timing placement and detail level which could be used to design optimal corrective messages, as

well as to figure out whether misinformation written in different narratives have different difficulty in being corrected. Based on the result of study 1, study 2 further investigated how to improve the corrective message by using narrative to elaborate factual information. The research questions and hypotheses for study 1 and study 2 has been summarized in Table 1.

CHAPTER 3

METHOD

Two online experimental studies were conducted separately and sequentially to explore the effect of various communication strategies on managing misinformation crises. The main online experimental study 1 examined the effect of correction messaging using different timing of correction placement and introducing different levels of factual information detail on combating various misinformation narratives. Based on the findings from the study 1, which identified the prebunking message with the factual elaboration as the most powerful correction strategy to misinformation, the main online experimental study 2 further examined the effectiveness of using narrative to elaborate factual information in the prebunking message in preparing for the misinformation attack, especially when the misinformation is written in the format of blame narrative. Furthermore, study 2 also mapped out the psychological mechanism behind effectiveness of different prebunking narratives in repairing organizational reputation and combating misinformation. Study 2 examined several sequential mediation models to understand the mediating role of metacognitive variables, individuals' connection with and feeling of characters and perceived information quality in the correction process when using narrative to elaborate factual information. This dissertation, including study 1 and study 2, was approved by the Institutional Review Board at University of Georgia.

Main Online Experimental Study 1

An online experiment with 2 (placement of corrective information: prebunking vs. debunking) x 2 (detail level of refutation: simple rebuttal vs. factual elaboration) x 2

(Misinformation attack: victim narrative vs. blame narrative) between-subjects, full-factorial design was conducted to examine the interaction and main effect of the type of misinformation narrative, and correction elements (i.e., timing of correction placement and correction strategy).

Participant and Procedure

A total of 490 U.S. adults were recruited by Qualtrics panel, a leading professional research panel, to participate in the online experiment in April of 2021. The recruitment process used proportional quota sampling method to match the age, gender, and race distributions of U.S. population. Since the stimuli were designed in the format of visual Facebook posts, the recruitment process also set the screening question to ensure that all participants had a Facebook account. Among final participants who have an active Facebook account, there are 239 (48.8%) females and 251 (51.2%) males. Age-wise, 12.2% (n=60) were18-24, 18.4% (n=90) were 25-34, 21.0% (n=103) were 35-44. 11.2% (n=55) were 45-54, and 37.1% (n=182) were above 55-year-old. Regarding the race and ethnicity, the majority were White (n=308, 62.9%), with the remaining being Hispanic (n=86, 17.6%), Black (n=53, 11.0%), Asian (n=25, 5.1%), and more than non-Hispanic races (n=17, 3.5%). In terms of the education background, 1.2% (n=6) had less than high school degree, 15.9% (n=78) had high school graduate degree, 21% (n=103) had some college but no degree, 12.0% (n=59) had associate degree in 2-year college, 25.9% (n=127) had bachelor's degree in 4-year college, 17.1% (n=84) had master's degree, 2.7% (n=13) had doctoral degree, and 4.1% (n=20) had professional degree (JD, MD). With regard to the household income, 37.5% (n=184) were under $50,000, 29.4% (n=144) were $50,000 to $99,999, and 33.1% (n=162) were above $100,000.

After reading and agreeing with informed consent, all participants proceeded to read an introduction statement that asked them to imagine themselves were browsing updates from a

news website and saw the news about a new study of gene modification. The introduction statement was linked with a screenshot of online news about a new longitudinal study on the correlation between GMO food and childhood cancer and mentioned GM rice is widely used in baby food, like INNO's baby food (See the stimuli development for the details of the news article). After reading the news, participants were randomly assigned to one of 8 experimental conditions. Among them, four conditions were prebunking condition, and four conditions were debunking conditions. Participants in the prebunking conditions firstly read INNO's post about forewarning and refuting the potential misinformation attack on the safety concern of baby food using GM. They were randomly assigned to read the prebunking message using simple rebuttal corrective strategy or the one using factual elaboration corrective strategy (See the stimuli development for the details of prebunking and corrective strategy). After reading the news page and subsequent prebunking message by INNO, participants were then led to a Facebook post from a social media user, Heath Corley. In this post, Heath shared the news and falsely accused INNO's baby food of directly causing her boy's sickness using her story. She also declared that the company needs to take a full responsibility for what happened and its consequences. Participants were randomly assigned to the post in which the social media user expressed her anger and blamed INNO, or to the post in which the social media user expressed her sadness to her victim experience. (See the stimuli development for the details of misinformation narrative). Meanwhile, participants in the debunking conditions were presented with the social media user's accusation post first. Like what participants in the prebunking conditions saw, participants in the debunking conditions were also randomly assigned to read blame narrative and victim narrative. Then, participants were led to the INNO's debunking message, refuting the accusation by using simple rebuttal corrective strategy or factual elaboration corrective strategy (See the stimuli

development for the details of debunking and corrective strategy). After reading 3 manipulated stimuli (i.e., news article, prebunking or debunking message, and misinformation narrative), participants were then asked to answer a series of questions assessing their perceived company's reputation, crisis responsibility, crisis severity, as well as their intention to discuss the misinformed post and other cognitive, affective and behavioral intention related questions.

Stimuli Development

News Article. The news article served as a cover story for the experimental context and was read by all participants. It was adapted from a real news article collected from an online news outlet, Reuters, reporting a new scientific study about the relationship between genetically modified food and child cancer. Meanwhile, in order to ensure the new article is overall neutral in tone, another study supporting the safety of genetically modified food was also mentioned in the news article. In addition, in order to connect gene modification with the U.S. food industry, which is the industrial context discussed in the study, the news article also highlighted that wide use of GM crops in the U.S. food industry. There is no personal story or lay audience testimony included (See Appendix B, Figure 1).

Misinformation Narrative. Two misinformation Facebook posts were created, consisting of the social media user source (i.e., the main character of misinformation narrative), key poster content (i.e., narrative), headline, and like, comment, and share response icons. Each participant was randomly assigned to blame focus narrative or victim focus narrative. Both text-based narratives, adapted from real stories collected from online forums, were written in the first-person, telling the story of a mom (i.e., Heath Corley) whose 5-year child died due to acute myeloid leukemia. In the story, Heath accused the INNO's baby food for directly causing her son's disease and even death and alleged that the company took full responsibility for what

happened. In the *blame narrative*, the mom stressed the wrongdoing of INNO, and expressed her anger to the company which had caused her son's sickness. In the *victim narrative,* the mom portrays her powerlessness about her son's sickness, and expresses her sadness to her son's sickness (See Appendix B, Figure 2).

Correcting Strategy. Four correction Facebook posts, including (1) prebunking message with simple rebuttal, (2) prebunking message with factual elaboration, (3) debunking message with simple rebuttal, and (4) debunking message with factual elaboration, were created. Similar to the misinformation Facebook post, the correction Facebook post also consisted of the baby food company source (i.e., INNO company name and its logo), key poster content (i.e., correction strategy), and like, comment, and share response icons. Before being randomly assigned to one of the above four conditions, all participants were presented with a transition page, introducing the leading role of INNO company in the baby food industry. This introduction paragraph would serve as the baseline for the organizational reputation, suggested by previous literature in organizational reputation. Prebunking messages include two elements: forewarning the impending misinformation attack and refutation of the misinformation. They are stated as the following: "Some people warn of unforeseen health consequences caused by GM food and argue that the ingredient in our baby food is also linked to childhood cancers. However, there is no scientific evidence showing that GM food causes childhood cancer." When the prebunking message was combined with simple rebuttal, the correction message further refused the alleged safety concern and responsibility in a brief and direct way, by stating "INNO does not admit any liability or wrongdoing." While when the prebunking message was combined with the factual elaboration, the correction message provided detailed counterargument and scientific evidence point-by-point. Compared to prebunking messages, debunking messages with either simple

rebuttal or factual elaboration, eliminated the element of forewarning, directly starting with the refutation, and kept the other counterargument elements (See Appendix B, Figure 3).

Independent Variables

Study 1 included three sets of manipulation check items to determine whether the participants perceived the timing of the correction placement, the correction strategy, and the types of misinformation narrative as successfully manipulated in the stimuli.

Timing of Correction Placement. Participants were asked to describe whether they saw the INNO's Facebook post before or after Heath's Facebook post. The result from the two-way contingency table analysis shows there was a significant difference in the identification of timing of placement in each condition, Pearson χ^2 (2, N = 490) = 192.08, $p < .001$, Cramér's V = .63. Therefore, the manipulation of the timing of correction placement was successful.

Detail Level of Refutation. Participants were asked to respond to "based on your reading, how detailed was the information provided in the Facebook post from INNO company" with "1= Not detailed at all' and "7=very detail". An ANOVA result found a significant difference between simple rebuttal and factual elaboration strategy, $F(1,488) = 22.68$, $p < .001$. Participants in two factual elaboration conditions (M = 4.67, SE = .12) perceived the INNO's correction message as significantly more detailed than participants in simple rebuttal conditions (M = 3.86, SE = .12) did, no matter the timing of the correction placement.

Misinformation Narrative. Participants were asked to respond to the question asking what the Heath's Facebook they just read portrayed, using the nominal scale: 1= expressed anger and blamed INNO, and 2= expressed sadness for the victim's (her son) experience. According to the two-way contingency table analysis, there was a significant difference in the identification of

narrative type in each condition, Pearson χ^2 (1, N = 490) = 25.72, p < .001, Cramér's V = .23. Therefore, the manipulation of the type of misinformation narrative was successful.

Dependent Variables

Crisis Responsibility Attribution. Crisis responsibility was measured by a 5-item on a 7-point Likert-type scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". Items were adapted from Brown and Ki (2013), focusing on attribution and intentionality. Sample items include "INNO had the capability to stop the crisis (i.e., childhood leukemia) from occurring", "the crisis (i.e., childhood leukemia) was preventable by INNO", and "INNO has the resources to prevent the crisis (i.e., childhood leukemia) from occurring". An index was created for perceived crisis responsibility (M =4.13, SD =1.56; Cronbach's α =.95).

Perceived Crisis Severity. Participants were asked to rate their agreement, from "1 = Strongly disagree" to "7 = Strongly agree", with two statements, adapted from van der Meer and Jin's (2016). Items include "Baby food using GMO crops is a severe threat" and "Baby food using GMO crops causing sickness is likely" (M =4.38, SD =1.56; r = .84, p < .001).

Organizational Reputation. A 5-item measure of organizational reputation was adapted from Coombs and Holladay's (2009) study. Participants were asked to indicate their extent of agreement with the statements such as "INNO is concerned with the well-being of its publics." and "Under most circumstances, I would be likely to believe what INNO says" on a 7-point Likert scale, ranging from "1 = Strongly disagree" to "7 = Strongly agree". Items such as "INNO is basically dishonesty" and "I do not trust INNO to tell the truth about the incident" were reverse coded. Thus, the higher number refers to a higher reputation (M =3.92, SD =1.22; Cronbach's α =.82).

Intention to Discuss Misinformation. Participants' intention to share misinformation was captured by asking them about how likely, from 1 (extremely unlikely) to 7 (extremely likely), they would like to talk baby food causing childhood leukemia with (a) family, (b) friends, (c) neighbors, (d) colleagues or co-workers, and (e) doctors or other medical professionals. These items were suggested by (Austin et al., 2012). An index was created by calculating the mean scores of all 5 items (M =4.66, SD =1.67; Cronbach's α =.93).

Belief Confidence. Participants' belief confidence in perceived crisis responsibility and severity was measured to by asking them how confident they are, from 1 (not confident at all) to 7 (very confident), in validity of the judgement they just made on the crisis responsibility (M = 5.13, SD = 1.45) and severity (M = 5.32, SD = 1.41), separately. The item was adapted from Petty's (2002) study.

Attitudinal Ambivalence. Attitudinal Ambivalence was gauged by asking participants about their feeling of ambivalence when thinking of if the INNO baby food using crisis is a severe threat (i.e., severity) and if INNO should be responsible for childhood leukemia (i.e., responsibility), on a 7-point Likert-type scale, ranging from 1 = "Not at all" to 7 = "Very much". Suggested by Priester (2007), ambivalence was manifested in feeling "conflicted, mixed, and indecisive" and assessed on participants' perception of crisis responsibility (M = 4.00, SD = .76; Cronbach's α =.91) and severity (M = 3.96, SD = .76; Cronbach's α =.93)

Discrete Emotions. Participants were asked to indicate their experience of several discrete emotions[3], adapted from (Dillard & Peck, 2000; Jin et al., 2014) after reading two Facebook posts, ranging from 1 = "Not at all" to 7 = "Very much". Emotions measured in the study 1 include: anger (Angry, irritated, frustrated) (M = 4.29, SD = 1.79); sadness (sad,

[3] In order to control the survey length due to the budge limitation, seven discrete emotions were selected from previous crisis and emotion related literature for their relevance to this dissertation.

downhearted, unhappy) (*M* = 4.98, *SD* = 1.71); fear (scared, fearful, afraid) (*M* = 3.86, *SD* = 1.93); sympathy (empathy, concern, compassion) for Heath (*M* = 5.38, *SD* = 1.56); unease (Uneasy, apprehensive, restless) (*M* = 4.09, *SD* = 1.86); confusion (confused, perplexed, bewildered) (*M* = 3.58, *SD* = 1.85); cynical (skeptical, distrustful) (*M* = 4.17, *SD* = 1.73); and anxiety (nervous anxious, worried) (*M* = 3.66, *SD* = 1.87);

Main Online Experimental Study 2

In Study 1, prebunking messages was confirmed to be superior to debunking messages in correcting various misinformation narratives. Moreover, prebunking messages with factual elaboration were also proved to be the most effective correction message in repairing organizational reputation as well as reducing individuals' misperception of crisis responsibility and inhabiting individuals' discussion of misinformation through the interpersonal channel. Thus, I aimed to further understand how to optimize the effectiveness of prebunking messages with factual elaboration by using the persuasive message strategy (i.e., narrative persuasion) to elaborate facts in study 2. In addition, the results of study 1 also showed that when the misinformation was written in the format of blame narrative, factual elaboration would have limited ability to correct it. Hence, study 2 further uses blame as the format of misinformation message tested. In sum, an online experiment with 1 (Misinformation: blame narrative) x 4 (Prebunking message: blame narrative vs. victim narrative vs. renewal narrative vs. non-narrative factual elaboration) between-subjects, full-factorial design was conducted to examine the effectiveness of different narratives used in the prebunking corrective message when elaborating the facts. Moreover, study 2 conducted sequential mediation models to map the psychological mechanism behind the correction effect of different correction narratives.

Participant and Procedure

A total of 352 U.S. adults were recruited via a random national sample, using proportional quota sampling method to match the age, gender, and race distributions of U.S. population. Ugam[4], the partnership analytics and technology services company with Qualtrics panel, was hired to administrate the participant recruitment and online experiment in May of 2022. A screening question was set to ensure that all participants had a Facebook account, which could make participants more involved in the stimuli of visual Facebook posted designed in the study 2. Among final participants who have an active Facebook account, there are 182 (51.7%) females and 170 (48.3%) males. Age-wise, 13.4% (n=47) were18-24, 17.3% (n=61) were 25-34, 17.6% (n=62) were 35-44. 18.2% (n=64) were 45-54, and 33.5% (n=118) were above 55-year-old. With regard to race and ethnicity, the majority were White (n=216, 61.4%), with the remaining being Hispanic (n=49, 13.9%), Black (n=40, 11.4%), Asian (n=22, 6.3%), and more than two non-Hispanic races (n=25, 37.1%). As of education background, 1.7% (n=6) had less than high school degree, 20.7% (n=73) had high school graduate degree, 23.3% (n=82) had some college but no degree, 12.5% (n=44) had associate degree in 2-year college, 23.3% (n=82) had bachelor's degree in 4-year college, 13.4% (n=47) had master's degree, 2.8% (n=10) had doctoral degree, and 2.3% (n=8) had professional degree (JD, MD). In view of household income, 43.2% (n=187) were under $50,000, 27.6% (n=97) were $50,000 to $99,999, and 19.3% (n=68) were above $100,000.

All participants were instructed to read an online news article introducing the basic crisis situation, the prebunking message posted on Facebook from the affected organization, and a

[4] Starting from January, 2022, Qualtrics has increased its minimal project cost to $3,000, which is higher than the budget of study 2. Suggested by Qualtics, study 2 of this dissertation collected data from Ugam, which is a partner firm affiliated with Qualtrics, sharing the same participant pool with Qualtrics.

misinformation induced Facebook post from a daily social media user sequentially, after reading the informed consent. Before reading the online news, all participants were asked to imagine themselves were browsing updates from a news website and saw the news about a new study of gene modification. Then they were directed to the screenshot of an online news article regarding a new longitudinal study on the correlation between GMO food and childhood cancer and mentioned GM rice is widely used in baby food, like INNO's baby food (see the stimuli development for the details of the news article). Next, all participants were introduced to the brief background of the affected company, including the company size and its dominance in the baby food industry. Then they were randomly assigned to one of 4 experimental conditions. Each condition includes one prebunking message from the affected company, INNO, forewarning and refuting the potential misinformation attack on the safety concern of baby food using GM ingredients. However four prebunking messages were written in different narrative types: blame narrative, victim narrative, renewal narrative, and non-narrative (See the stimuli development for the details of prebunking strategy). After reading the news page and subsequent prebunking message by INNO, participants were then exposed to a Facebook post from a social media user. In this post, the user shared the news and falsely accused INNO's baby food of directly causing her boy's sickness. In the post, the user expressed her anger and blamed INNO (See the stimuli development for the details of misinformation narrative). After reading all these stimuli, participants were asked to answer a series of questions assessing their perceived company's reputation, crisis responsibility, crisis severity, as well as their intention to discuss and correct the misinformed post. Their responses to other cognitive and affective questions were also collected.

Stimuli Development

News Article. The news article, as a cover story for the experimental context, remained largely unchanged from study 1. The news article still covered a new scientific study about the relationship between genetically modified food and child cancer and another study supporting the safety of genetically modified food. and highlighted the wide use of GM crops in the U.S. food industry. No personal story or lay audience testimony was included (See Appendix B, Figure 1).

Prebunking message. Four prebunking messages were modeled, including (1) prebunking message using blame narrative, (2) prebunking message using victim narrative, (3) prebunking message using renewal narrative, and (4) prebunking message with factual elaboration (i.e., non-narrative condition) were created. Similar to the INNO's correction Facebook post modeled in study 1, the one in study 2 also consisted of the post source (i.e., INNO company name and its logo), key poster content (i.e., prebunking message), and like, comment, and share response icons. In the prebunking message, the spokesperson of INNO alerted the impending misinformation attack and meanwhile refuted it. She started with "Some people warn of unforeseen health consequences caused by GM food and argue that the ingredient in our baby food is also linked to childhood cancers. However, there is no scientific evidence showing that GM food causes childhood cancer." In the non-narrative condition, the spokesman further provided detailed counterargument and scientific evidence point-by-point, which is similar to the design of prebunking messages with factual elaboration in study 1. In three narrative conditions, besides arguing that INNO's baby food is a good choice for the baby to have a good childhood immune system, which could help them being prevented from leukemias, the spokesman presented her story, as a mom of a 4-year-old boy with acute myeloid leukemia.

Following Seeger and Sellnow's (2006) typology, the spokesman expressed her anger towards herself and blame herself of not preparing for and protect her baby at early stage (i.e., blame narrative), or expressed her sadness and hopeless about her baby's sickness (i.e., victim narrative), or presented how her baby's sickness inspired her to do more and protect other babies (i.e., renewal narrative) (See Appendix C, Figure 4).

Misinformation Narrative. The misinformation message presented in study 2 is modeled in blame narrative. Similar to study 1, it consisted of the social media user source (i.e., the main character of misinformation narrative), key poster content (i.e., narrative), headline, and like, comment, and share response icons. Meanwhile, the text-based narrative was also adapted from real stories collected from online forums, and were written in the first-person, telling the story of a mom whose 5-year child died due to acute myeloid leukemia. In the story, the mom stressed the wrongdoing of INNO, and expressed her anger to the company which had caused her son's sickness. She accused the INNO's baby food for directly causing her son's disease and even death and alleged that the company took full responsibility for what happened See Appendix B, Figure 2).

Independent Variables

Study 2 included two sets of manipulation check items to determine whether the participants perceived the types of misinformation narrative and prebunking narrative (or non-narrative) as successfully manipulated in the stimuli.

Prebunking message. Participants were asked to respond to the question asking what the INNO's spokesperson's Facebook post they just read presented, using the nominal scale: 1= "expressed anger and blamed herself not protecting her boy", 2= "expressed sadness towards her boy and felt upset about herself", 3= "presented how her experience inspired her to join INNO

and find the meaning of life", and 4= "listed scientific evidence regarding GM foods with sharing any personal experience". According to the two-way contingency table analysis, there was a significant difference in the identification of narrative type in each condition, Pearson χ^2 (9, N = 352) = 343.13, p < .001, Cramér's V = .57. Therefore, the manipulation of the type of prebunking narrative was successful.

Misinformation Narrative. Participants were asked to respond to the question asking what the Heath's Facebook they just read portrayed, using the nominal scale: 1= "expressed anger and blamed INNO", and 2= "expressed sadness for the victim's (her son) experience". According to the two-way contingency table analysis, there was a significant difference in the identification of narrative type in each condition, Pearson χ^2 (6, N = 352) = 17.90 p = .006, Cramér's V = .22. Therefore, the manipulation of the type of misinformation narrative was successful.

Dependent Variables

Crisis Responsibility Attribution. Participants were asked to rate their agreement, from "1 = Strongly disagree" to "7 = Strongly agree" with five statements focusing on attribution and intentionality of the crisis situation described in the stimuli, adapted from Brown and Ki (2013). Sample items include "INNO had the capability to stop the crisis (i.e., childhood leukemia) from occurring", "the crisis (i.e., childhood leukemia) was preventable by INNO", and "INNO has the resources to prevent the crisis (i.e., childhood leukemia) from occurring". (M =4.32, SD =1.49; Cronbach's α =.95).

Perceived Crisis Severity. Perceived crisis severity measured by a 2-item on a 7-point Likert-type scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". Items, adapted from van der Meer and Jin's (2019), include "Baby food using GMO crops is a severe threat"

and “Baby food using GMO crops causing sickness is likely” (M =4.57, SD =1.48; Pearson’s r = .80, $p < .001$).

Organizational Reputation. Adapted from Coombs and Holladay’s (2009) study, organizational reputation was measured by asking participants to indicate their extent of agreement with five statements such as “INNO is concerned with the well-being of its publics.” and “Under most circumstances, I would be likely to believe what INNO says” on a 7-point Likert scale, ranging from “1 = Strongly disagree” to “7 = Strongly agree”. Items of “INNO is basically dishonesty”, “I do not trust INNO to tell the truth about the incident” and “INNO is NOT concerned with the well-being of its publics” were reversely coded. Thus, the higher number refers to a higher reputation (M =3.93, SD =1.18; Cronbach’s α =.82).

Intention to Discuss Misinformation. Participants were asked about their likelihood, from 1 (extremely unlikely) to 7 (extremely likely), to talk baby food causing childhood leukemia with (a) family, (b) friends, (c) neighbors, (d) colleagues or co-workers, and (e) doctors or other medical professionals (Austin et al., 2012) An index for individuals’ intention to share misinformation was created by calculating the mean scores of all 5 items (M =4.79, SD =1.66; Cronbach’s α =.93).

Intention for Social Correction. Participants were asked to indicate their likelihood, from 1 (extremely unlikely) to 7 (extremely likely), to make social correction by (a) positing a comment saying it is wrong, (b) messaging the person who posted it to say that the post is wrong, and (c) posting correction on my own social media account (Sun et al., 2021). An index for individuals’ intention to make social corrections was created by calculating the mean scores of all 3 items (M =3.49, SD =1.57; Cronbach’s α =.88).

Information Avoidance. A five-item 7-point Likert-type scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree", was applied to measure participants' information avoidance after reading two narratives (adapted from Howell and Shepperd (2016)). Sample items include "I would rather not know about the issue", "I would avoid learning about the issue", and "when it comes to the issue, sometimes ignorance is bliss" (M =3.04, SD =1.37; Cronbach's α =.90).

Belief Confidence. Participants were asked to rate their confidence in the validity of the judgement they just made on the crisis responsibility (M = 5.35, SD = 1.36) and severity (M = 5.25, SD = 1.45), ranging from 1 (not confident at all) to 7 (very confident). The item was adapted from Petty's (2002) study.

Attitudinal Ambivalence. participants were asked to rate their feeling of ambivalence when thinking of if the INNO baby food using crisis is a severe threat (i.e., severity) and if INNO should be responsible for childhood leukemia (i.e., responsibility), ranging from 1 = "Not at all" to 7 = "Very much". Suggested by Priester (2007), ambivalence was manifested in feeling "conflicted, mixed, and indecisive" and assessed on participants' perception of crisis responsibility (M = 4.18, SD = .81; Cronbach's α =.86) and severity (M = 4.14, SD = .79; Cronbach's α =.91) separately.

Identification. Four items of character identification, suggested by Watts and Slater (2021), was used to assess participants' character identification. They are "I think I have a good understanding of INNO's spokesperson." "While reading the story, I could feel the emotions INNO's spokesperson portrayed," "During reading, I felt I could really get inside INNO's spokesperson's head," and "At key moments, I knew exactly what INNO's spokesperson was

going through." Items were asked on a 7-point Likert scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree" (M = 4.46, SD = 1.18; Cronbach's α =.86)

Character Liking. Participants' extent of liking the characters in the prebunking narrative was measured, using a two-item, 7-point Likert scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". Two items, adapted from Krakowiak and Tsay-Vogel (2013), are "I like [the character]" and "I would like to be friends with someone who is like [the character]". An index of information quality was created for Emily, the spokesperson in prebunking messages (M = 4.42, SD = 1.26; Pearson's $r = .81$, $p < .001$).

Character Trust. Participants' trust in the characters in the prebunking narrative was measured by asking participants to evaluate the character in terms of "incompetent/competent", "untrustworthy/trustworthy" and "dishonest/honest" on a 7-point sematic scale (adapted from Jensen and Hurley (2012)). An index of Character Trust was created for Emily, the spokesperson in prebunking messages (M = 4.54, SD = 1.50; Cronbach's α =.80).

Perceived Information Quality. Participants were instructed to evaluate information quality of prebunking messages and misinformation messages, separately, in terms of if the message they just read is "accurate", "authentic", "believable", "logical" "plausible" and "sound". Items, adapted from Dillard and Ye (2008) and Appelman and Sundar (2015), were measured on a 7-point Likert-type scale, ranging from 1 = "Not at all" to 7 = "Very much". An index of information quality was created for misinformation narrative (M = 4.35, SD = 1.36; Cronbach's α =.95) and prebunking message (M = 4.50, SD = 1.26; Cronbach's α =.94), separately.

CHAPTER 4

RESULTS

In both studies, analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA) tests were conducted to examine the effects of correction strategies as developed to combat misinformation and repair the organizational reputation. In study 2, several mediation models as post-hoc analysis were also operated to map the mechanism behind the correction process, exploring how it competed with misinformation narrative on influencing individuals' understanding of the crisis situation and their communicative behavior. The PROCESS macro was used to analyze the multiple regression models (Hayes, 2017, 2018). Table 1 offers a summary of the results and the location of relevant statistical analysis in the table of each Research question and hypothesis.

Main Online Experimental Study 1

The first set of hypotheses (H1) postulated that different misinformation narrative types, timing of correction placement and correction strategy would significantly influence the organizational reputation in their own ways. The Analysis of Variance (ANOVA) results showed that there was no significant difference in the organizational reputation, as perceived by individuals who were exposed to either misinformation narrative embedded in blame narrative or the one embedded in victim narrative [$F(1, 482) = .081$, $p = .81$, partial $\eta^2 = .00$], failing to support H1a. However, the reputation of the accused company was significantly better when the organization used prebunking strategy ($M = 4.01$, $SE = .08$), compared to when it used debunking strategy ($M = 3.76$, $SE = .08$; $F(1, 482) = 9{,}03$, $p = .003$, partial $\eta^2 = .02$). Meanwhile,

the reputation of the accused company was also significantly better when the correction strategy was factual elaboration (M = 4.07, SE = .08), compared to when the one was simple rebuttal (M = 3.77, SE = .08; $F(1, 482) = 7.20$, p =.008, partial η^2 = .01). Therefore, H1b and H1c were supported.

RQ1 further questioned how timing and correction strategy interactively influence the effectiveness of the responding strategy in repairing the organizational reputation when being attacked by different misinformation narratives. The ANOVA results illustrated no significant three-way interaction effect [$F(1, 482) = .002$, p =.97, partial η^2 = .00] on organizational reputation. Meanwhile, the results also showed that there is no significant two-way interaction effect between timing of correction placement and correction strategy [$F(1, 482) = .44$, p =.51, partial η^2 = .00], no significant two-way interaction effect between misinformation narrative types and correction strategy [$F(1, 482) = .01$, p =.91, partial η^2 = .00], and no significant two-way interaction effect between misinformation narrative types and timing of correction placement [$F(1, 482) = .12$, p =.73, partial η^2 = .00] on the organizational reputation.

H2a-c posited that different misinformation narrative types, timing of correction placement and correction strategy would significantly influence the perceived crisis responsibility attribution in their own ways. The ANOVA results revealed neither significant main effect of misinformation narratives [$F(1, 482) = .40$, p =.53, partial η^2 = .00], nor significant effect of two corrective response elements, timing of correction placement [$F(1, 482) = 3.49$, p =.06, partial η^2 = .01] and correction strategy[$F(1, 482) = 1.38$, p =.24, partial η^2 = .00] on organization's responsibility as perceived by individuals. Thus, H2a-c was not supported.

RQ2 asked how the perceived crisis responsibility attribution differs, as a joint function of misinformation narratives, timing and correction strategy. The ANOVA results revealed no

significant three-way interaction effect [$F(1, 482) = .21$, $p = .65$, partial $\eta^2 = .00$] on organizational reputation. In addition, there is no significant two-way interaction effect between misinformation narrative types and timing of correction placement [$F(1, 482) = .35$, $p = .56$, partial $\eta^2 = .00$], and no significant two-way interaction effect between misinformation narrative types and timing of correction placement [$F(1, 482) = .45$, $p = .50$, partial $\eta^2 = .00$] on the organizational reputation. However, there is a significant two-way interaction effect between timing of correction placement and correction strategy [$F(1, 482) = 4.95$, $p = .03$, partial $\eta^2 = .01$]. People read prebunking message using factual elaboration ($M = 3.76$, $SE = .14$) attributed less responsibility to the company than people read debunking message using simple rebuttal ($M = 4.19$, $SE = .14$), prebunking message with simple rebuttal ($M = 4.23$, $SE = .14$) and debunking message with factual elaboration ($M = 4.33$, $SE = .14$).

H3a-c contended that different misinformation narrative types, timing of correction placement and correction strategy would significantly influence the perception of crisis severity in their own ways. The ANOVA results demonstrated neither significant main effect of misinformation narratives [$F(1, 482) = .15$, $p = .69$, partial $\eta^2 = .00$], nor significant effect of two corrective response elements, timing of correction placement [$F(1, 482) = 24$, $p = .03$, partial $\eta^2 = .00$] and correction strategy[$F(1, 482) = 1.86$, $p = .17$, partial $\eta^2 = .00$] on crisis severity as perceived by individuals. Thus, H3a-c was not supported.

RQ3 examined how misinformation narrative, timing of correction placement and correction strategy jointly influence the perception of crisis severity. The ANOVA results showed no significant three-way interaction effect [$F(1, 482) = .015$, $p = .90$, partial $\eta^2 = .00$] on perceived crisis severity. The results also revealed that there is no significant two-way interaction effect between timing of correction placement and correction strategy [$F(1, 482) = 1.90$, $p = .17$,

partial η^2 = .00], no significant two-way interaction effect between misinformation narrative types and correction strategy [F(1, 482) = .64, p =.42, partial η^2 = .00], and no significant two-way interaction effect between misinformation narrative types and timing of correction placement [F(1, 482) = .50, p =.48, partial η^2 = .00] on the perceived crisis severity.

H4a-c were anticipated to see that the intention to share misinformation would stem from the main effect of misinformation narrative, timing of correction placement and correction strategy, separately. The ANOVA results disclosed neither main effect of misinformation narrative [F(1, 482) = .70, p =.40, partial η^2 = .00], nor main effect of correction strategy on the intention to share misinformation [F(1, 482) = .02, p =.91, partial η^2 = .00], failing to support H1a and H1c. However, the results confirmed that the company's prebunking response (M = 4.47, SE = .11) would make individuals significantly less likely to share misinformation than the company's debunking response (M = 4.87, SE = .11) did, F(1, 482) = 7.17, p =.01, partial η^2 = .015. Therefore, H1b was supported.

RQ4 explored the joint impact of misinformation narrative, timing of correction placement and correction strategy on the intention to share misinformation. Neither significant three-way interaction effect [F(1, 482) = .78, p =.38, partial η^2 = .002], nor significant two-way interaction effect between timing of correction placement and correction strategy [F(1, 482) = 1.75, p =.19, partial η^2 = .004], and between misinformation narrative and correction strategy [F(1, 482) = 1.76, p =.18, partial η^2 = .004] were detected via ANOVA analysis. However, a significant two-way interaction effect between misinformation narrative and correction strategy was found [F(1, 482) = 6.53, p =.01, partial η^2 = .013]. The company using simple rebuttal to argue against the misinformation embedded with blame narrative led to the least intention to share misinformation (M = 4.42, SE = .15), followed by using factual elaboration to argue

against the misinformation embedded with victim narrative (M = 4.53, SE = .15), using factual elaboration to argue against the misinformation embedded with blame narrative (M = 4.79, SE = .15), and using simple rebuttal to argue against the misinformation embedded with victim narrative (M = 4.93, SE = .15).

RQ5.1 and RQ5.2 sought to investigate how misinformation narrative, timing of correction placement and correction strategy independently and interactively influence individuals' confidence in the belief they hold about the crisis responsibility and severity. Multivariate Analysis of Variance (MANOVA) results showed no significant multivariate interaction or main effects of the misinformation features and correction features, including timing and strategy, on the belief confidence for the overall test. Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA at the .025 level[5]. The ANOVA on neither belief confidence in crisis responsibility nor belief confidence in crisis severity was significant.

RQ6.1 and RQ6.2 sought to examine how misinformation narrative, timing of correction placement and correction strategy independently and interactively influence individuals' attitudinal ambivalence regarding crisis responsibility and severity. MANOVA results suggested the significant two-way interaction effect between timing of correction placement and correction strategy on attitudinal ambivalence [Wilks's λ = .99, $F(2, 481) = 3.20$, p = .04], though no other significant two-way interaction effects, three-way interaction effect and main effect were detected for the overall test. Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA at the .025 level[6]. The ANOVA on the attitudinal

[5] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

[6] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

ambivalence regarding crisis severity was significant [$F(1, 482) = 5.89$, $p = .02$, partial $\eta^2 = .012$], whereas the ANOVA on the attitudinal ambivalence regarding crisis responsibility were nonsignificant [$F(1, 482) = 3.37$, $p = .07$, partial $\eta^2 = .007$]. Specifically, participants reading the company's prebunking message with factual elaboration perceived the crisis as described by the misinformation as least ambivalent regarding its severity ($M = 3.84$, $SE = .07$), followed by those reading company's debunking message with simple rebuttal ($M = 3.91$, $SE = .07$), debunking message with factual elaboration ($M = 4.02$, $SE = .07$), prebunking message with simple rebuttal ($M = 4.07$, $SE = .07$)

RQ7 sought to investigate the effect of misinformation narrative, timing of correction placement and correction strategy on individuals' emotional responses. The MANOVA results indicated a significant two-way interaction effects between the timing of correction placement and correction strategy on discrete emotions for the overall test [Wilks' $\lambda = .98$, $F(3, 480) = 2.82$, $p = .04$, partial $\eta^2 = .017$]. Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA at the .017 level[7]. The results confirmed the significant interaction effect on between the timing of correction placement and correction strategy on individuals' feeling of unease [$F(1, 482) = 7.90$, $p = .005$, partial $\eta^2 = .016$]. Participants exposed to the company's prebunking response with factual elaboration reported to experience least unease ($M = 3.74$, $SE = .17$), followed by those exposed to the company's debunking response with simple rebuttal ($M = 3.99$, $SE = .17$), prebunking response with simple rebuttal ($M = 4.33$, $SE = .17$), and debunking with factual elaboration ($M = 4.34$, $SE = .17$). Meanwhile, a significant main effect of timing of correction placement was detected for the overall test, based on MANOVA results [Wilks' $\lambda = .98$, $F(3, 480) = 3.28$, $p = .03$, partial η^2

[7] In order to control the type I error, an adjusted alpha level of .017 (overall α/number of tests = .05/3 = .017) was used for follow-up ANOVA tests.

= .02]. The follow-up ANOVA on individuals feeling of cynicism is also significant. Participants reported to feel less cynical (skeptical, and distrustful) when they were exposed to the company's prebunking response (M = 3.94, SE = .11), compared to when they were exposed to the company's debunking response (M = 4.40, SE = .11). In addition, although the MANOVA results suggested no two-way interaction effect between misinformation narrative and correction strategy on individuals' emotional responses for the omnibus test [Wilks' λ = .98, $F(3, 480)$ = 2.28, p = .08, partial η^2 = .014], the follow-up ANOVA analysis, at the .017 level, presented the significant interaction effect between misinformation narrative and correction strategy on individuals' feeling of confusion [$F(1, 482) = 6.58$, p =.011, partial η^2 = .013]. Specifically, when facing the misinformation using blame narrative, the company's response using simple rebuttal (M = 3.36, SE = .16) would make individuals less confused than the one using factual elaboration (M = 3.79, SE = .19). Whereas, when facing the misinformation using victim narrative, the company's response using factual elaboration (M = 3.38, SE = .16) would make individuals less confused than the one using simple rebuttal (M = 3.80, SE = .17).

RQ8 sought to understand how individuals' perceived argument strength of misinformation and the company's response differs as a result of misinformation narrative, timing of correction placement and correction strategy. The MANOVA results indicated a significant main effect of correction strategy on the perception of argument strength for overall tests [Wilks' λ = .97, $F(2, 481) = 2.82$, $p < .001$, partial η^2 = .032]. Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA at the .025 level[8]. The ANOVAs on both perceived argument strength of misinformation [$F(1, 482)$ = 5.16, p =.024, partial η^2 = .011] and perceived argument strength of the company's response

[8] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

[$F(1, 482) = 14.18$, $p < .001$, partial $\eta^2 = .029$] were significant. Compared to the simple rebuttal, the factual elaboration used in the company's response would make participants perceive misinformation as a weaker argument (simple rebuttal: $M = 4.53$, $SE = .05$; factual elaboration: $M = 4.36$, $SE = .05$). and perceived the company's response as a strong argument (simple rebuttal: $M = 3.77$, $SE = .07$; factual elaboration: $M = 4.16$, $SE = .07$). In addition, although the MANOVA results suggested no significant main effect of timing of correction placement on individuals' perception of argument strength overall [Wilks' $\lambda = .99$, $F(2, 481) = 2.55$, $p = .08$, partial $\eta^2 = .010$], the follow-up ANOVA analysis, at the .025 level, presented the indicated the main effect of timing on the perceived argument strength of the company's response [$F(1, 482) = 5/09$, $p = .024$, partial $\eta^2 = .010$]. Participants reading the company's prebunking response ($M = 4.08$, $SE = .07$) would evaluate it as a stronger argument than those reading the company's debunking response ($M = 3.84$, $SE = .07$).

Main Online Experimental Study 2

The first set of hypotheses (H8) of study 2 assumed that using renewal narrative in the prebunking would be in favor of individuals' understanding of crisis situation in terms of crisis responsibility and crisis severity as well as in favor of repairing organizational reputation. The Analysis of Variance (ANOVA) results revealed that using renewal narrative and using other types of narrative (and non-narrative) in the prebunking message showed no significant difference on the crisis responsibility individuals [$F(3, 348) = 1.01$, $p = .39$, partial $\eta^2 = .009$], crisis severity [$F(3, 348) = .70$, $p = .55$, partial $\eta^2 = .006$] and organizational reputation [$F(3, 348) = 1.29$, $p = .28$, partial $\eta^2 = .011$], as perceived by individuals. Thus, H8a-c was not supported.

H9a-c anticipated the advance of using the victim in the prebunking message in influencing individuals' communicative behavior in combating misinformation. Results from

three ANOVA analysis indicated no significant effect of elaborating the factual information from the perspective of victim in the prebunking message on inhabiting individuals' intention to share information via interpersonal channel [$F(3, 348) = 1.03$, $p = .38$, partial $\eta^2 = .009$] and promoting individuals' intention to correct misinformation on social media [$F(3, 348) = 1.08$, $p = .36$, partial $\eta^2 = .009$]. Thus, H9a and H9b were not supported. Meanwhile, a significant difference between using victim narrative and using other framing in promoting individuals' information avoidance were confirmed [$F(3, 348) = 3.38$, $p = .02$, partial $\eta^2 = .028$], supporting H9c. Specifically, participants were more likely to avoid crisis related information when they were prebunked with a victim narrative ($M = 3.34$, $SE = .15$), followed by those who were prebunked with a blame narrative ($M = 3.14$, $SE = .14$), renewal narrative ($M = 3.02$, $SE = .14$) and non-narrative ($M = 2.71$, $SE = .14$).

RQ10 asked how the type of narrative (and non-narrative) used in the prebunking message influenced individuals' confidence in the belief they hold about the crisis responsibility and severity. Multivariate Analysis of Variance (MANOVA) results detected the significant difference among four narrative types on the dependent measures, Wilks' $\lambda = .95$, $F(6, 694) = 2.83$, $p = .01$, partial $\eta^2 = .024$. Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA at the .025 level[9]. However, the ANOVA on belief confidence in crisis responsibility was nonsignificant [$F(3, 348) = 2.42$, $p = .066$, partial $\eta^2 = .020$] and the ANOVA on the belief confidence in crisis severity was also nonsignificant [$F(3, 348) = 2.67$, $p = .046$, partial $\eta^2 = .022$]

RQ11 asked about the effect of narrative type used in the prebunking message on individuals' attitudinal ambivalence regarding crisis responsibility and severity. MANOVA

[9] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

results showed no significant multivariate effects of the narrative type on the attitudinal ambivalence for the overall test, Wilks' $\lambda = .99$, $F(6, 694) = .71$, $p = .64$, partial $\eta^2 = .006$. ANOVA on the dependent variables were conducted as follow-up tests to the MANOVA at the .025 level[10]. The ANOVA on neither attitudinal ambivalence in crisis responsibility [$F(3, 348) = 1.00$, $p = .39$, partial $\eta^2 = .009$] nor attitudinal ambivalence in crisis severity was significant [$F(3, 348) = .40$, $p = .39$, partial $\eta^2 = .003$].

Through the post-hoc analyses, RQ12 sought to examine if individuals' belief confidence in crisis responsibility and information avoidance sequentially mediated the relationship between narrative type and communicative behavior on social media. The mediation models were analyzed using serial linear regression with PROCESS macro model 6.

First, since the type of narrative (i.e., independent variable) examined in the prebunking message was a categorical variable with four level: blame narrative, victim narrative and renewal narrative and nonnarrative, three dummy coded variables (N1, N2 and N3) were created as the comparison between narrative groups and nonnarrative group for the mediation analysis. N1 represents the comparison between using blame narrative and using nonnarrative to elaborate factual information in the prebunking message; N2 represents the comparison between using victim narrative and using nonnarrative; and N3 represents the comparison between using renewal narrative and using nonnarrative. All analyses examined how the dummy-coded narrative type (N1, N2 and N3) influence individuals' communicative behaviors including (RQ12.1) intention to discuss misinformation and (RQ12.2) make social correction through two mediators, belief confidence in crisis responsibility and information avoidance.

[10] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA test

When dependent variable is the intention to discuss misinformation (RQ12.1), the serial mediation effect of belief confidence in crisis responsibility and information avoidance was nonsignificant on N1 comparison [point estimate = -.0052, SE = .0079, 95% CI = (-.03, .01)], N2 comparison [point estimate = -.0012, SE = .0071, 95% CI = (-.02, .01)], and N3 comparison [point estimate = .0094, SE = .0084, 95% CI = (-.00, .03)]. However, the indirect effect of blame narrative [point estimate = -.09, SE = .06, 95% CI = (-.22, -.00)], and victim narrative [point estimate = -.14, SE = .07, 95% CI = (-.29, -.03)] on misinformation discussion intention though information avoidance were significant. First, the model explained 2.0% of the variance in belief confidence in crisis responsibility. The prebunking message using blame narrative, blame narrative or renewal narrative, compared to using nonnarrative, was not a significant predictor to increase individuals' confidence in crisis responsibility. Second, the model explained 4.2% of the variance in information avoidance, the prebunking message use blame narrative (b=.41, p =.04) or victim narrative (b=.62, p =.002) was significantly able to motivate the information avoidance, and meanwhile, the belief confidence in crisis responsibility is also a significant predictor (b=-.12, p =.03). Finally, the model explained 8.4% of the variance in intention to discuss misinformation. The narrative used in the prebunking message was not a potential predictor, while the belief confidence in crisis responsibility (b=.22, p < .001) and information avoidance (b=-.23, p < .001) were significant predictors for the intention to discuss misinformation. In sum, the findings implied that the relationship between the exposure to prebunking message and misinformation sharing via interpersonal networks was mediated by information avoidance when the prebunking message used blame narrative or victim narrative to elaborate factual information. (See Figure 9a)

When dependent variable is the intention to make social correction (RQ12.2), the serial mediation effect of belief confidence in crisis responsibility and information avoidance was nonsignificant on N1 comparison [point estimate = .0049, *SE* = .0064, 95% CI = (-.00, .01)], N2 comparison [point estimate = .0011, *SE* = .0062, 95% CI = (-.01, .01)], and N3 comparison [point estimate = -.0088, *SE* = .0070, 95% CI = (-.03, .00)]. However, the indirect effect of blame narrative [point estimate = .09, *SE* = .05, 95% CI = (.00, .20)], and victim narrative [point estimate = .13, *SE* = .06, 95% CI = (.03, .26)] on the intention to make social correction though information avoidance were significant. First, the model explained 2.0% of the variance in belief confidence in crisis responsibility. The prebunking message using blame narrative, blame narrative or renewal narrative, compared to using nonnarrative, was not a significant predictor to increase individuals' confidence in crisis responsibility. Second, the model explained 4.2% of the variance in information avoidance, the prebunking message use blame narrative (b=.41, p =.04) or victim narrative (b=.62, p =.002) was significantly able to motivate the information avoidance, and the belief confidence in crisis responsibility was also a significant predictor (b=-.12, p =.03). Finally, the model explained 9.0 % of the variance in intention to discuss misinformation. The narrative used in the prebunking message was not a potential predictor, while the belief confidence in crisis responsibility (b=.28, p < .001) and information avoidance (b=.22, p < .001) were significant predictors for the intention to discuss misinformation. In sum, the findings implied that the relationship between the exposure to prebunking message and intention to make social correction was mediated by information avoidance the prebunking message used blame narrative or victim narrative to elaborate factual information. (See Figure 9b)

H13 proposed that using narrative to elaborate factual information would elicit individuals' identification with the character (i.e., spokesman) therein than using non-narrative.

The ANOVA results revealed the significant effect of using narrative on identification, $F(3, 348) = 11.25$, $p < .001$, partial $\eta^2 = .09$], supporting H13

RQ13 sought to examine how different narratives used in the prebunking message elicit individuals' identification with the character therein. The pairwise comparisons at level of .0125 showed that using victim narrative ($M = 4.80$ $SE = .12$), renewal narrative ($M = 4.68$, $SE = .12$), and blame narrative ($M = 4.50$, $SE = .12$) to elaborate factual information would be significantly superior in eliciting individuals' identification with the character(spokesman) than using nonnarrative ($M = 3.90$, $SE = .12$). The victim narrative, renewal narrative, and blame narrative were not significantly different from each other.

H14a-b posited that using narrative to elaborate factual information would increase individuals' liking of and trust in the spokesman (i.e., the character in the prebunking message). MANOVA results revealed the significant effect of using narrative on individuals' feeling toward the spokesman, Wilks' $\lambda = .88$, $F(6, 694) = 7.50$, $p < .001$, partial $\eta^2 = .061$. With a significant level of .025 level[11], the follow-up ANOVA on the character liking [$F(3, 348) = 15.35$, $p < .001$, partial $\eta^2 = .117$], and character trust [$F(3, 348) = 3.20$, $p = .024$, partial $\eta^2 = .027$] were significant. Therefore, H14a and H14b were supported

To answer RQ14 regarding which narrative affected individuals' liking of and trust in the spokesman most strongly. Each pairwise comparison was tested at the .006 (.025 divided by 4) level. In terms of character liking, victim narrative ($M = 4.77$ $SE = .14$), blame narrative ($M = 4.67$, $SE = .14$) and renewal narrative ($M = 4.64$, $SE = .14$) would increase individuals' liking of the spokesperson compared with nonnarrative ($M = 3.64$, $SE = .14$). Whereas the victim narrative, blame narrative and renewal narrative were not significantly different from each other.

[11] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

In terms of character trust, no significant difference among different narrative groups were detected at the .006 level.

H15 hypothesized that using narrative to elaborate factual information would increase individuals' perceived information quality of corrective information. ANOVA results illustrated the significant difference in perceived information quality between nonnarrative and narrative conditions, $F(3, 348) = 5.16$, $p = .002$, partial $\eta^2 = .043$, support H15. The information quality, as perceived by individuals, was highest when using renewal narrative ($M = 4.80$, $SE = .13$), followed by when using victim narrative ($M = 4.59$, $SE = .13$), blame narrative ($M = 4.55$, $SE = .13$), and nonnarrative ($M = 4.10$, $SE = .13$).

RQ15 inquired how individuals perceived information quality of misinformation and corrective information differ as a function of exposure to different narratives used in the corrective information. MANOVA results demonstrated the significant difference among four narrative types on perceived information quality, Wilks' $\lambda = .95$, $F(6, 694) = 3.27$, $p = .004$, partial $\eta^2 = .027$. With a significant level of .025 level[12], the follow-up ANOVA on the perceived information quality of misinformation was nonsignificant [$F(3, 348) = .74$, $p = .53$, partial $\eta^2 = .006$], whereas the ANOVA on the perceived information quality of corrective information was significant [$F(3, 348) = 5.16$, $p = .002$, partial $\eta^2 = .043$]. Post hoc analyses to the univariate ANOVA for the perceived information quality of corrective information consisted of conducting pairwise comparisons to find which narrative affected the perception most strongly. Each pairwise comparison was tested at the 006 (.025 divided by 4) level. The renewal narrative group ($M = 4.80$, $SE = .13$) led to significantly higher perception of information quality of corrective information in comparison with the nonnarrative group ($M = 4.10$, $SE = .13$).

[12] In order to control the type I error, an adjusted alpha level of .025 (overall α/number of tests = .05/2 = .025) was used for follow-up ANOVA tests.

Though the post-hoc analyses, RQ16 examined whether individuals' feeling towards the spokesperson (i.e., the character in the prebunking narrative) and identification sequentially mediated the relationship between narrative type and the perceived information quality of the corrective information. The mediation models were analyzed using serial linear regression with PROCESS macro model 80. After dummy codes for narrative comparison (N1=blame narrative vs. nonnarrative; N2=victim narrative vs. nonnarrative; and N3=renewal narrative vs. nonnarrative) was created, a mediation analysis was conducted, including character liking, character trust and identification as three mediators. A significant serial mediation model was detected, in which the character liking and identification would sequentially mediate the relationship between the exposure to blame narrative [point estimate = .10, *SE* = .04, 95% CI = (.03, .19)], victim narrative [point estimate = .11, *SE* = .05, 95% CI = (.03, .21)], or renewal narrative [point estimate = .10, *SE* = .04, 95% CI = (.03, .19)] and the perceived information quality of the corrective information (RQ16.1). Whereas the serial mediation of character trust and character liking on the relationship was nonsignificant, no matter what narrative was used to elaborate factual information in the prebunking message (RQ16.2). Moreover, the mediation effect of character liking on the relationship between the exposure to the prebunking message and perceived information quality was significant when the prebunking message use blame narrative [point estimate = .33, *SE* = .09, 95% CI = (.17, .52)], victim narrative [point estimate = .36, *SE* = .09, 95% CI = (.20, .55)], and renewal narrative [point estimate = .32, *SE* = .08, 95% CI = (.17, .50)], to elaborate factual information. The mediation effect of character trust on the relationship between the exposure to the prebunking message and perceived information quality was also significant when the prebunking message use victim narrative [point estimate = .16, *SE* = .07, 95% CI = (.04, .32)] and renewal narrative [point estimate = .14, *SE* = .7, 95% CI =

(.23, .29)]. First, the model explained 11.69% of the variance in the character liking and 2.68% of variance in the character trust. The results suggested that using narratives, compared to using nonnarrative, to elaborate factual information in the prebunking message would lead to higher character liking (blame narrative: b=1.0, p < .001; victim narrative: b=1,1, p < .001; renewal narrative: b=1.0, p < .001), and higher character trust (blame narrative: b=.45, p =.04; victim narrative: b=.63, p =.005; renewal narrative: b=.55, p < .01). Second, the model explained 44.19% of the variance in the identification with the spokesperson (character) therein, and the result illustrated the significant predictive effect of using victim narrative (b=.28, p =.04) and character liking (b=.51, p < .001) on eliciting identification. Finally, the model explained 47.66% of the variance in perceived information quality, and the character liking (b=.32, p < .001), character trust (b=.26, p < .001) and identification (b=.19, p < .001) were significant predictors for the perceived information quality. In sum, the relationship between the exposure to prebunking message with various narrative and the perceived information quality was fully mediated by the character liking and then the identification. Meanwhile, this relationship was also mediated by individuals' liking of the spokesperson (i.e., the character in the prebunking narrative) and their trust in the spokesperson separately. (See Figure 10)

RQ17 further examined how identification and perceived information quality, as a result of exposure to prebunking messages, sequentially influence the effect of narrative type on correction outcomes. The serial linear regression with PROCESS macro model 6 was used to analyze how the dummy-coded narrative (N1=blame narrative vs. nonnarrative; N2=victim narrative vs. nonnarrative; and N3=renewal narrative vs. nonnarrative) influence the organizational reputation (RQ17.1), misinformation discussion intention (RQ17.2), and social

correction intention (RQ17.3) through two mediators: identification and perceived information quality.

Regarding the organizational reputation (RQ17.1), A significant serial mediation model was confirmed in which the identification and perceived information quality of prebunking message would sequentially mediate the relationship between the exposure to blame narrative [point estimate = .09, *SE* = .04, 95% CI = (.03, .18)], victim narrative [point estimate = .15, *SE* = .05, 95% CI = (.06, .25)], or renewal narrative [point estimate = .12, *SE* = .04, 95% CI = (.05, .22)] and the organizational reputation. First, the model explained 8.84% of the variance in the identification with the spokesperson, and using the blame narrative (b=.59, $p < .001$), victim narrative (b=.90, $p < .001$), and renewal narrative (b=.78, $p < .001$) to elaborate factual information in the prebunking message would significantly elicit the identification with the character therein, in comparison with using nonnarrative. Second, the model explained 27.58% of the variance in perceived quality of the corrective information, and the identification with the character therein was the only significant predictor (b=.54, $p < .001$). Finally, the model explained 11.35% of the variance in the organizational reputation, and the perceived information quality was the only significant predictor (b=.29, $p < .001$). In sum, the findings confirmed that the relationship between the exposure to the prebunking message with various narratives and the organizational reputation was fully mediated by the identification with the spokesperson (the character in the prebunking narrative) and then the perceived information quality. (See Figure 11a)

As of the potential effect on intention to discuss misinformation via interpersonal networks (RQ17.2), the serial mediation model of identification and perceived information quality was nonsignificant on N1 comparison [point estimate = -.03, *SE* = .03, 95% CI =

(-.10, .03)], N2 comparison [point estimate = -.05, *SE* = .05, 95% CI = (-.15, .04)], and N3 comparison [point estimate = 0.04, *SE* = .04, 95% CI = (-.13, .04)]. However, the mediation effect of identification between the relationship of the exposure to blame narrative [point estimate = .21, *SE* = .09, 95% CI = (.06, .40)], victim narrative [point estimate = .32, *SE* = .11, 95% CI = (.13, .54)], or renewal narrative [point estimate = .27, *SE* = .09, 95% CI = (.12, .46)] and the misinformation discussion intention was significant. Similar to the model analysis for RQ17.1, the model explained 8.84% of the variance in the identification with the spokesperson and 27.58% of the variance in perceived quality of the corrective information with the same predictors on both constructs. Meanwhile, the model explained 5.38% of the variance in the misinformation discussion. The result suggested the significant predictive role of the blame narrative (*b*= -.49, *p* = .049), victim narrative (*b*= -.68, *p* = .01), and the identification (*b*=.35, *p* < .001). (See Figure 11b)

When it comes the social correction intention (RQ17.3), results from the serial mediation analysis illustrated the same patten as the one analyzed on the misinformation discussion intention, with nonsignificant serial mediation effect of identification and perceived information quality on N1 comparison [point estimate = .03, *SE* = .03, 95% CI = (-.02, .10)], N2 comparison [point estimate = .05, *SE* = .04, 95% CI = (-.04, .14)], and N3 comparison [point estimate = 0.04, *SE* = .04, 95% CI = (-.04, .12)]. Whereas the mediation effect identification was detected on N1 comparison [point estimate = .28, *SE* = .10, 95% CI = (.10, .50)], N2 comparison [point estimate = .42, *SE* = .13, 95% CI = (.20, .70)], and N3 comparison [point estimate = .37, *SE* = .011, 95% CI = (.17, .61)]. Similarly, the model explained 8.84% of the variance in the identification with the spokesperson and 27.58% of the variance in perceived quality of the corrective information with the same predictors on both constructs. Meanwhile, the model explained 15.71% of the

variance in the social correction intention, and the identification with the spokesperson was the only significant predictor. In sum, the findings illustrated that the identification with the spokesperson (the character in the prebunking narrative) would mediate the relationship between the exposure to prebunking information with various narratives and the following communicative behavior, such as misinformation discussion and social correction. (See Figure 11c)

CHAPTER 5

DISCUSSION

As the prevalence of misinformation continues to grow, its impact on our daily life, from threatening individuals' security, to damaging an organization's reputation, to influencing political decisions, becomes more vigorous. Although the lay publics' awareness of misinformation increased in the past two years, their engagement with misinformation online also increased. Research shows that Internet users were 2.5 times more likely to engage with information from unreliable sources today than in 2019 (Brahmy, 2021). Unlike the attention on correcting misinformation surrounding health and politics, how companies should face the misinformation challenge through strategic communication has been overlooked. The crux of this dissertation, contextualized in a misinformation crisis, was to (1) identify the optimal corrective strategy that companies, could use in future when facing the misinformation attack on the severity and responsibility, and (2) understand the psychological mechanism behind the competition between the misinformation and corrective information, especially when both of them were written in narrative. Two online experiments with a U.S. adult sample were conducted to examine the effect of timing of correction placement, the detail level of refutation, and various types of narrative on reducing individuals' misunderstanding of the crisis situation and limiting misinformation-related communicative behavior as a result of exposure to the misinformation narrative. It was expected that the finding of this dissertation would provide evidence-based guidance on messaging to help companies respond to the misinformation crisis.

Summary of Findings from Study 1

Study 1 investigated the effect of timing of correction placement (i.e., prebunking vs. debunking) and detail level of refutation (i.e., simple rebuttal vs. factual elaboration) on correcting misinformation when it was written in different narratives. Among all 4 sets of hypotheses (12 hypotheses in total) proposed for the main effect of the misinformation narrative, timing of correction placement and detail level of refutation, 2 of the hypotheses regarding the advance of using prebunking strategy, and 1 of hypotheses regarding the superior in using factual elaboration were supported. Meanwhile, 3 interaction effects between the timing and the refutation detail and 3 interaction effects between the misinformation narrative and refutation detail were detected. Overall, study 1 confirmed the potential for combining the prebunking strategy and factual elaboration to lessen the effect of misinformation on individuals and companies. It also provided the foundation for study 2 to explore further the psychological mechanism behind two competing narratives (i.e., misinformation narrative and correction narrative).

The Benefit of Using Prebunking Strategy

Grounded in inoculation theory, prebunking message, which warns individuals about the potential false information exposure and meanwhile preemptively refutes it, was assumed to be able to inoculate an individual's psychological reactance towards misinformation (van der Linden & Roozenbeek, 2020). Moreover, Pfau (1997) noted that the prebunking message could enable individuals to resist the misinformation raised in the prebunking message and the one not raised in the message. As expected, the result from study 1 confirmed that the prebunking message, compared to the debunking message, would lead to less reputation loss due to exposure to misinformation regarding its products' safety and quality. Hence, when the misinformation

attacks a company from a lay individual, no matter what type of narrative he or she uses, prebunking the potential misinformation can save the organizational reputation more than debunking it after other users have already read it.

Meanwhile, although the effectiveness of using prebunking strategy to correct individuals' misperception of controversial technology (Wood, 2017) and anthropogenic global warming (Cook et al., 2017) has been found in previous studies, using prebunking strategy was not more effective than debunking strategy in correcting individuals' false beliefs related to crisis severity and crisis responsibility. One potential explanation is that the debunking strategy has as a strong ability as a prebunking message to correct false beliefs as many studies have suggested that the presence of post-correction (i.e., debunking message) would effectively reduce individuals' false understanding of crisis situation (e.g., Jin et al., 2020; van der Meer & Jin, 2019). It is also possible that the nonnarrative based corrective message in study 1 is recruitment to change individuals' perception of crisis responsibility which is generated after being exposed to narrative-based misinformation. Studies, such as Liu et al., (2020) and Lee and Jahng (2020), proved that the narrative could have more impact on individuals' perception of crisis responsibility compared to nonnarrative. Hence it is hard for nonnarrative corrective information to compete with narrative-based misinformation to influence individuals' false belief in responsibility.

In addition, Compton and Pfau (2009) assumed that the inoculation message would motivate its receivers to discuss the message content via word-of-mouth communication (WOMC). As a result, the inoculation effect would be amplified. Similarly, the results of study 1 also suggested the amplification of correction effort through interpersonal discussion when using the inoculation message as a corrective strategy (i.e., prebunking). However, the difference is

that the pathway illustrated in this study is the limited interpersonal discussion about misinformation. It is consistent with Compton and Pfau's (2009) assumption that the inoculation message would motivate the talking of the newly-strengthened information, rather than the potential opposing information (i.e., misinformation).

Be Careful to Use Factual Elaboration

Findings of study 1 regarding the effect of using factual elaboration are a little complex. On the one hand, it illustrates the benefit of using factual elaboration to repair organizational reputation. In order to save the organizational reputation when involved in a misinformation crisis, the company should use factual elaboration to respond to the misinformation, providing sufficient factual evidence in addition to refuting the false information. It is in agreement with misinformation scholars' recommendation that providing sufficient information allowing individuals to fill the knowledge gap or remove the false information is a crucial step in the correction process (e.g., Swire & Ecker, 2018).

On the other hand, the results also demonstrate some unexpected effects of using factual elaboration when combined with other strategies or used to correct a specific type of misinformation narrative. First, when using factual elaboration in the prebunking message, it shows the powerful potential in reducing individuals' false belief in responsibility. However, factual elaboration in the debunking message surprisingly increases individuals' perception of responsibility. One potential explanation is that presenting a complex explanation, stating why the existing misinformation is false might increase individuals' resistance to the corrective information and even reject it (Lewandowsky et al., 2012). Instead, individuals would turn to a simpler one or the one that involves them more. Since the misinformation modeled in study 1 is in the format of narrative, which is superior in involving individuals, it is possible that the

complex and detailed debunking message would make individuals stick to the previous misinformation narrative. It is also possible that compared to the misinformation written in the narrative, the factual elaboration in nonnarrative was not persuasive since the narrative has been proved to be more attractive among social media users. As a result, the lack of unequivocal corrective information makes individuals feel more confused and cynical about the crisis information. However, warning the misinformation exposure can lead to individuals' skepticism of the misinformation, rather than the crisis situation. This point is also supported by the interaction effect of the timing of correction placement and the detail level of refutation on individuals' feelings of confusion and ambivalence about the crisis responsibility detected in the study 1, with the highest feeling of confusion and ambivalence being reported by individuals in the condition of debunking message with factual elaboration. Meanwhile, compared to the prebunking message with factual elaboration, the debunking message with factual elaboration also evokes more anxiety among its receivers. As a strong predictor of individuals' exposure and stickiness in misinformation, the higher level of anxiety due to exposure to the misinformation narrative and debunking message with factual elaboration might also lead to the failure of correct misinformation.

Second, when the misinformation is written in the blame narrative, rather than the victim narrative, the ability of factual elaboration to inhabit individuals' discussion about it is also limited. It might also be because of the arousal of individuals' negative emotions such as anxiety and confusion. Given that both factual elaboration and blame narrative are strong arguments on assigning or denying the responsibility for a crisis, the contradictory framing would make information receivers feel a high level of certainty, and the certainty would further evoke their anxiety about the crisis situation. In order to cope with the uncertainty and anxiety, individuals

tended to discuss the misinformation with their family members and even the stranger (e.g., Lu et al., 2021). Thus, the anxiety and confusion, evoked as the exposure to the misinformation in the blame narrative and the correction in the factual elaboration, would limit the ability of factual elaboration to stop misinformation discussion.

However, study 1 also unexpectedly illustrated that blame narrative and victim narrative had no significant difference in influencing participants' perception of crisis severity and responsibility. In other words, participants would attribute the responsibility to the company when they learnt about another person's story no matter in what type of the narrative it was told. One of the possible explanations is the presence of responsibility allocation in both blame narrative and victim narrative. Although the core theme of victim narrative is the personal hopelessness during crisis and the expression of sadness, the responsibility allocation is another core in the post-crisis narrative, especially during the organizational crisis. People experiencing or observing the crisis tend to have a strong desire to know who should be responsible for the crisis. As a result, the discussion surrounding the responsibility allocation is inevitable. Since the responsibility allocation is always interplayed with blame (Hargie et al., 2010), which has some overlapped elements with the blame narrative, it is possible that some responses of the participants, as a result of exposure to the blame narrative or victim narrative, might have shared some commonality even though they could distinguish the difference in the predominated theme between these two narratives (as evidenced in the successful manipulations according to the results of manipulation checks). This might also explain why participants' feeling of anger did not differ between the exposure to blame narrative and victim narrative. Participants reading victim narrative showed the same level of anger as those reading blame narrative, even though the core emotional expression in victim is sadness while the one in blame narrative is anger.

Therefore, future studies are needed to understand how each element in a relatively complex crisis storyline, rather than the predominated theme only, might individually and jointly influence individuals' emotional and cognitive responses.

Summary of Findings from Study 2

Based on the results of a study that suggests the benefits of using a prebunking strategy with factual elaboration and the limitation of using factual elaboration to correct misinformation when it is written in blame narrative, Study 2 further investigated whether using narrative to elaborate factual information in the prebunking could improve the information quality, making it competent enough to misinformation narrative influencing individuals' perception of crisis. Study 2 also examined the psychological mechanism behind how competing narratives between misinformation and corrective information mitigate the effect of misinformation on the organizational reputation and individuals' communicative behavior.

Among 11 hypotheses proposed, 3 hypotheses for the benefit of using narrative to improve individuals' connection with the character and perceived information quality were supported. Meanwhile,1 hypothesis for the potential for victim narrative to influence individuals' information avoidance was also supported. However, the hypothesis regarding the superiority of using renewal narrative in reducing individuals' misperception of the crisis situation and repairing organizational reputation, and the one regarding using victim narrative in shaping individuals' other communicative behavior such as misinformation discussion and social correction were not supported.

The Role of Information Avoidance Behind Narrative Competition

As shown in Figure 9, the exposure to the blame narrative and victim narrative, compared to the nonnarrative, were more likely to motivate the intention of avoiding information. It implies

that if the crisis-affected companies use a blame narrative or victim narrative to elaborate facts when prebunking the potential misinformation, it will lead to individuals' active information avoidance after further exposure to the misinformation accusing the company of the responsibility and blaming it. The finding is consistent with the previous understanding of individuals' information avoidance behaviors. Kahlor et al. (2006) noted that the psychologically disconformable as a result of exposure to specific information would motivate individuals' ignorance or delay in the acquisition of available information. In other words, the exposure to a blame narrative, followed by another contradictory blame narrative, and the exposure to a victim narrative, followed by another contradictory blame narrative would arouse one's negative emotions, consequently facilitating information avoidance. Studies in coping behaviors also suggested that individuals might engage in cognitive coping behaviors such as avoidance and denial when experiencing high uncertainty or negative emotions. However, empirical studies pointed out that people in sadness were more likely to undergo cognitive coping with less engagement. In contrast, people in anger were more likely to engage with the message and undergo conative coping (Jin et al., 2012). The potential explanation could be the impact of information order on human memory. Existing studies in human memory contended that the earlier presentation of information, compared to the latter, was more solidly encoded in the human's memory and should have a more substantial impact (e.g., Farrell & Lewandowsky, 2002). Thus, it is possible that the earlier presentation of prebunking messages with victim narrative aroused more emotions such as sadness than the later presentation of misinformation with blame narrative on anger. As a result, sadness over anger influences individuals' choice of coping behavior. Meanwhile, the competition between two blame narratives with contractionary factual information and argument would evoke feelings of uncertainty in addition to anger. As a

result, the feeling of uncertainty will further motivate information avoidance. Savolainen (2014) pointed out that the low level of uncertainty would motivate individuals to seek more information, while the high level of uncertainty would stop them from information seeking because the high level of uncertainty would further evoke one's discomfortable feelings such as anxiety.

Previous studies also assumed that individuals would not avoid information when they perceived the information insufficiency of an issue (i.e., I don't have enough information to help me understand the issues) because such insufficiency would make them feel uncertain and unconfident (Hwang & Jeony, 2021). However, Figure 9 suggested a negative association between thought confidence and information avoidance. Individuals with lower confidence in their belief in the crisis responsibility would be more likely to avoid information, while individuals with higher confidence were less likely to avoid acquiring more information through exposure and discussion. It is consistent with the last assumption that the feeling of inconfidence in and uncertainty about the issue would motivate individuals to avoid information actively. On the other hand, it is also consistent with the previous discussion surrounding the role of thought confidence in influencing individuals' behavioral intentions. Thought confidence refers to how sure individuals validate the judgment they make on specific issues. It is regarded as a key determinant to predict behaviors from attitude. Scholars believed that individuals with higher confidence in a specific thought would tend to behave following that thought (e.g., Petty et al. 2002). That said, if individuals feel confident about one belief, they will be motivated not to avoid reading other related information even though it would make them feel mixed. Furthermore, they will also be motivated to discuss and share related information no matter if it is the contradictory information (i.e., misinformation in this case) or the consistent information

(i.e., corrective information in this case). Since both the (un)willingness to know about the issue and the one to discuss the issue with others were operationalized in information avoidance measures, it is explained the negative relationship between the confidence and information avoidance. Meanwhile, the positive relationship between confidence and misinformation discussion, and the positive relationship between confidence and social correction, as presented above, were also detected in Figure 9.

In addition, Figure 9 also described the negative association between information avoidance and misinformation discussion, and a positive correlation between information avoidance and the social correction was detected. It assumes that individuals with higher intention to avoid information regarding the crisis situation as described in the competing narratives also tend to avoid discussing one of the information. In comparison, individuals with a higher intention to avoid information would be more likely to make social corrections with others based on their understanding of the crisis. It is possible that the emotions aroused by the exposure to competing narrative makes people feel psychologically stressed and hope to avoid being exposed to and discussing the topic on their end. However, the emotional attachment to the narrative content makes them believe that the misinformation would affect themselves and other people. As a result, we would like to protect other family members and friends by speaking up about the falsehood of misinformation. Tandoc et al. (2022) explained that the emotional attachment to the topic and the perceived harm of misinformation to the people surrounding would motivate individuals to make the social correction. Future studies are needed to examine further the drivers of information avoidance and social correction, as well as the different mechanisms behind the engagement in these two communicative behaviors.

The Mediating Role of Character Connection and Perceived Quality

The results from study 2 supported that using narrative, compared to nonnarrative, to elaborate factual information would increase individuals' assessment of information quality. It is in agreement with the previous examination of narrative in various contexts (e.g., Krakow et al., 2018; Slater et al., 2003). Study 2 also suggested that individuals would report higher scores in information quality when exposed to the prebunking message using a renewal narrative.

In line with the previous empirical evidence on the mediating role of individuals' evaluation of information, if it is believable and persuasive, in influencing individual' acceptance of information (e.g., Jin et al., 2020), Figure 11 also suggested that individuals' perceived information would impact how they perceive the organizational reputation when the company was attacked by the misinformation. Moreover, Figure 11 further detected the significant sequential mediating effect of identification and perceived information quality on the relationship between the exposure to prebunking narrative and reputation perception through the serial mediation analysis. It implies that the perceived information quality could be improved by increasing individuals' identification with the character in the narrative used to elaborate factual information. It, on the one hand, confirms my initial hypothesis that individuals' identification with the spokesperson (i.e., the character in the prebunking narrative) would be activated by the exposure to the prebunking message when using narrative and then favor individuals' positive evaluation of the prebunking message, which would consequently facilitate the effect of corrective information on repairing the organizational reputation. On the other hand, it sheds light on facilitating individuals' connection with the character in the narrative might be a successful path to improve the information quality, which would further benefit the correction effectiveness.

As expected, Figure 10 demonstrated that individuals' liking of character could positively contribute to their identification, while their trust in the character could not. However, individuals' trust in character could directly lead to individuals' positive perception of information quality. It might account for the difference in the nature of liking and trust. Liking refers to if one "would like to be friends with this person" (Moyer-Gusé,2008, p411), while trust refers to if one would like to rely on this person for information. As a kind of emotional attachment, liking is more likely to facilitate the individuals' experience of the emotions and perspective shared by the character (i.e., identification) as perceived similarity did. However, trust is more a cognitive evaluation of if it is a good source for information in terms of the expertise, background, or other features illustrated by the character. As a result, trust can directly influence the perceived information quality without going through the identification. Whereas liking can indirectly influence the perceived information quality through the identification, as well as directly influence the perceived information quality since individuals' liking of source would also make them evaluate the information as persuasive (O'Keefe, 2002). Another important note here is that the mediating role of character liking is significant when using all three types of narrative (i.e., victim narrative, blame narrative, and renewal narrative) to compete with the misinformation blame narrative, while the mediating role of character trust is significant only when using victim narrative and renewal narrative to compete with the misinformation narrative. It is possible that the narrator's (organization's spokesperson) anger expression in the blame narrative might make him or her lose the trust in honesty (Callister et al., 2017), while the anger expression, sadness expression, and renewal disclosure would facilitate individuals' positive feeling or empathic feeling towards the narrator who had experienced loss in the crisis (Seeger & Sellnow, 2015), which would contribute to the liking of the narrator.

Another interesting finding regarding identification, perceived information quality and correction outcome is that identification has more impact than perceived information quality on individuals' communicative behaviors (i.e., misinformation discussion and social correction), while perceived information quality has more impact than identification on individuals' perception of organizational reputation. Figure 11a described the organization's reputation could be repaired by using narratives in the prebunking message through the identification with the spokesperson (the character in the prebunking narrative) and then the perceived information quality. While Figure 11b and 11c illustrated individuals' misinformation discussion and social correction could only be facilitated by using narrative in the prebunking message through the identification. One of the explanations could be the difference in the organizational reputation and communicative behavior conceptualized in the dissertation. Organization reputation is one's cognitive evaluation of whether the company can provide valued outcomes, which is a kind of attitude towards the company. However, the discussion or social correction is one's action planned to take to communicate the issue. The gap between attitude and behavioral intention has been documented in several previous research in communication and social psychology. Thus, it is not surprising that the quality of information, as perceived by individuals, could only predict attitude, rather than behavioral intentions. Meanwhile, the positive impact of identification due to the exposure to a narrative on the interpersonal discussion surrounding the topic has also been found in previous studies (e.g., Moyer-Gusé et al., 2011). People identifying with the character would imagine that they and their friends were in the same situation. As a result, they would be motivated to take actions, such as speaking up about the falsehood of misinformation, to protect themselves and others. In the case of this dissertation, the identification leads to misinformation discussion and social correction.

Theoretical and Practical Implications

This dissertation, turning the attention to the misinformation regarding organizations during the food safety crisis, provides important implications for correcting organizational misinformation on social media, where the distance between the lay publics and organizations is closer. Everyone can post their thoughts or share with others regarding the organizations on social media. It raised the question to both communication scholars and practitioners on how to monitor and strategically respond to misinformation in terms of timing, messaging, choice of spokesperson and other potential factors. This dissertation focuses on the timing and messaging, identifying cause and effect relationships among variables of interest.

Theoretically, this dissertation, firstly, extended the format of misinformation from plain text to narrative. Although many scholars have noted the prevalence of misinformation that is carried by narratives, there is a lack of empirical studies modeling the misinformation in the narrative and exploring how to correct it. The findings of this study suggested that when the blame narrative and victim time carry the misinformation, their difficulty of being corrected might be different. When the misinformation is in the blame narrative, the corrective information using factual elaboration might not be able to limit individuals' discussion about it. Moreover, it might also increase individuals' feelings of anxiety and confusion as a result of exposure to both misinformation and corrective information. Thus, further studies are needed to understand how to limit individuals' discussion behavior or motivate voluntary social correction. Although study 2 of this dissertation attempted to use narrative persuasion combing with the prebunking strategy to reach the correction goal through increased information quality and the audience's identification, more future studies are needed to further identify the best practice for competing with the blame narrative.

Second, this dissertation compared the effect of prebunking strategy and debunking strategy on correcting misinformation narrative and also how the refutation detail moderates the effect of timing of placement. Although the previous discussion surrounding the advance of prebunking and debunking, the empirical comparison between the effectiveness of prebunking and debunking strategy in one context is limited, let alone in the context of organizational crisis. On the one hand, the findings from this dissertation confirmed that the prebunking strategy, like other proactive strategies suggested by crisis management, is favorable to the organizational reputation when the company is under the attack of misinformation. Given the data deluge on social media, which makes it impossible to correct each misinformation, the prebunking strategy, inoculating individuals' resistance to misinformation, has confirmed its potential to combat the onslaught of misinformation. On the other hand, the findings also raised the question of using factual elaboration. In previous literature, using factual elaboration to debunk misinformation has been found to advance in reducing individuals' false beliefs in the context of organizational and public health crises. However, in this dissertation, factual elaboration has the same performance as a simple rebuttal in reducing the individuals' misunderstanding of crisis, as well as limiting the discussion of misinformation. Moreover, although its advantage in reducing individuals' false belief in crisis responsibility was found when it is used in the prebunking message, its risk in facilitating individuals' misperception was also found when it is used in the debunking message. Therefore, future studies are needed to figure out the reason behind it. Does the format of misinformation (narrative vs. nonnarrative) matter? Is there any context that might limit the superiority of using factual elaboration in the corrective information?

Finally, the results of this dissertation also reinstate the potential for the narrative to correct misinformation and reveal the psychological mechanism behind narrative competition

and conflict. In line with the theoretical framework and empirical evidence in narrative persuasion, this dissertation confirmed that using certain narratives to elaborate factual information would increase individuals' identification with the character therein (i.e., the spokesperson), which would consequently contribute to the correction effort. Meanwhile, the information quality of the corrective information, as perceived by individuals, would be favored by their increased identification with the character (i.e., the spokesperson) in the prebunking narrative. Furthermore, this dissertation also migrates the idea of using source that is liked and trusted by the public would increase the individual's evaluation of the corrective information to the narrative-centered corrective communication, exploring how to improve the quality of corrective information through evoking individuals' liking of and trust in the character (the spokesperson) in the prebunking narrative. The finding confirmed the possibility of improving the correction effort by facilitating individuals' liking and trust in the character through narratives. For example, using victim narrative to elaborate factual information would make individuals like and trust the narrator (i.e., the spokesperson) and then increase their perceived quality of corrective information. Although the mediating roles of character evaluation, connection, and the perceived information quality in the relationship between exposure to competitive narratives and their effects on individuals and organizations have been highlighted in this dissertation, more studies are need to further explore other potential mediators, as a result of exposure to competitive narratives and to map how they influence each other while mediating the relationship, extending the mechanism model of narrative persuasion.

However, the potential of using narrative to correct misinformation has not been fully explored. Besides the role of identification, the mechanism behind the narrative competition needs to be further mapped. Current studies only discuss the situation that misinformation is

written in a blame narrative. How the competition between various narratives influences individuals' understanding of the crisis and their communicative behavior also needs to be further explored since the narratives created and spread during the crisis are highly diverse.

Practically, the results from this dissertation provided rigorous and evidence-based guidance on how to combat misinformation when it attacks the organization in the format of a narrative, which might attract more attention from other lay publics. If using the organizational reputations, individuals' intention to discuss misinformation, and to voluntarily correct it on social media as the parameter for corrective communication effectiveness, it is strongly recommended that (1) the organization should proactively prepare for the misinformation attack by using prebunking; (2) using factual elaboration with prebunking strategy is less risky than using it with debunking strategy in limiting correction effectiveness; (3) If possible, the spokesperson could share related personal experience when elaborating the factual information in the prebunking message. The principle to correct misinformation when it is carried in a narrative is proactively refuting it ahead by providing detailed information. Suppose there is a need to improve further the persuasiveness of corrective information (i.e., perceived information quality). In that case, the organization could share the employee's experience, which might be related to misinformation content, to involve other lay publics in the organization's corrective message.

Limitations and Future Directions

As the primary purpose of this dissertation was to identify the optimal corrective strategy to correct organizational misinformation and to understand the narrative competition during the crisis, this dissertation is limited in several points, directing to future research. First, the findings are limited to one context (i.e., Food safety crisis) with the fictitious scenario. There is a lack of

understanding of how other elements of crisis such as the organizational crisis history, crisis context features, and industry reputation influence the effect of corrective strategy as proposed. Since the crisis, in reality, is fueled by uncertainty and complexity, future studies should conduct research contextualized on several real crises to enhance ecological validity. Second, the informational competition modeled and tested in this dissertation was only between two narratives at a single point in time. However, the informational environment on social media is far more complex in the information sentiment, content, modality, social media cues, and other features. As well, the development of crisis is always fast and unpredictable over time. Future studies need to include some complexity in the information design to understand the limitation of the corrective strategy proposed when it is used in the real world. A longitudinal study can also be considered to better understand corrective information's continued effect. Third, as mentioned above, the narrative that appears during the crisis is diverse. Besides the blame narrative, victim narrative, and renewal narrative, there is also the hero narrative and memorial narrative. If budget permits, future studies should be conducted to thoroughly compare each narrative with the other, better understanding the competition between narratives.

REFERENCE

Andrade-Rivas F., & Romero M. (2017). Misinformation about HIV and negative attitudes toward homosexuality and same-sex couples' rights: The case of Colombia. *International Journal of Public Opinion Research*, *29* (3), 426–448. https://doi.org/10.1093/ijpor/edw011

Anderegg W. R. L., Prall J. W., Harold, J., & Schneider, S.H. (2010) Expert credibility in climate change. *Proceedings of the National Academy of Sciences of the United States of America (PNAS*), *107*(27), 12107-12109. https://doi.org/10.1073/pnas.1003187107

Andsager, J. L., Bemker, V., Choi, H.-L., & Torwel, V. (2006). Perceived similarity of exemplar traits and behavior: Effects on message evaluation. *Communication Research, 33*(1), 3–18. https://doi.org/10.1177/0093650205283099

Appelman, A., & Sundar, S. S. (2015). Measuring Message Credibility: Construction and Validation of an Exclusive Scale. *Journalism & Mass Communication Quarterly, 93(*1), 59–79. https://doi.org/10.1177/1077699015606057

Armitage, C, & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin. 26*(11), 1421-1432. https://doi.org/10.1177/0146167200263009

Bandura, A. (1969). Social-learning theory of identificatory processes. In D. Goslin (Ed.), Handbook of socialization theory and research (pp. 213–262). Chicago, IL: Rand McNally.

Benegal, S. (2018). Overconfidence and the discounting of expertise: A commentary. *Social Science & Medicin*e, 213, 95–97. https://doi.org/10.1016/j.socscimed.2018.07.039

Blank, H., & Launay, C. (2014). How to protect eyewitness memory against the misinformation effect: A meta-analysis of post-warning studies. *Journal of Applied Research in Memory and Cognition*, *3*(2), 77–88. https://doi.org/10.1016/j.jarmac.2014.03.005

Bode, L., & Vraga, E. K. (2015). In related news, that was wrong: The correction of misinformation through related stories functionality in social media. *Journal of Communication, 65*(4), 619-638. https://doi.org/10.1111/jcom.12166

Bode, L., & Vraga, E. K. (2018). See something, say something: Correction of global health misinformation on social media. *Health Communication, 33*(9), 1131–1140. https://doi.org/10.1080/10410236.2017.1331312

Bode, L., & Vraga, E. K. (2020). Americans are fighting coronavirus misinformation on social media. The Washington Post. https://www.washingtonpost.com/politics/2020/05/07/americans-are-fighting-coronavirus-misinformation-social-media/

Borah, P. (2011). Seeking more information and conversations: Influence of competitive frames and motivated processing. *Communication Research, 38*(3), 303–325. https://doi.org/10.1177/0093650210376190

Bower, G. H., & Morrow, D. G. (1990). Mental models in narrative comprehension. *Science, 247*(4938), 44–48. https://doi.org/10.1126/science.2403694

Carrieri, V., Madio, L., & Principe, F. (2019). Vaccine hesitancy and (fake) news: Quasiexperimental evidence from Italy. *Health Economics, 28*(11), 1377–1382. https://doi.org/10.1002/hec.3937

Chan, M. S., Jones, C. R., Hall Jamieson, K., & Albarracín, D. (2017). Debunking: A Meta-Analysis of the Psychological Efficacy of Messages Countering Misinformation. *Psychological Science*, *28*(11), 1531–1546. https://doi.org/10.1177/0956797617714579

Chen, M., & Bell, R. A. (2022). A meta-analysis of the impact of point of view on narrative processing and persuasion in health messaging. *Psychology & Health*, *37*(5), 545–562. https://doi.org/10.1080/08870446.2021.1894331

Chou, W. Y. S., Oh, A., & Klein, W. M. (2018). Addressing health-related misinformation on social media. *JAMA, 320*, 2417–2418. http://doi.org/10.1001/jama.2018.16865

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication & Society, 4*, 245–264. https://doi:10.1207/S15327825MCS0403_01

Compton, J. (2013). Inoculation theory. In J. P. Dillard & L. Shen (Eds.), The SAGE handbook of persuasion: Developments in theory and practice (pp. 220–236). Sage Publications, Inc.

Compton, J. A., & Pfau, M. W. (2005). Inoculation Theory of Resistance to Influence at Maturity: Recent Progress in Theory Development and Application and Suggestions for Future Research. In P. J. Kalbfleisch (Ed.), Communication yearbook 29 (pp. 97–145). Lawrence Erlbaum Associates Publishers.

Compton, J., & Pfau, M. (2009). Spreading inoculation: Inoculation, resistance to influence, and word-of-mouth communication. *Communication Theory, 19*(1), 9–28. https://doi.org/10.1111/j.1468-2885.2008.01330.x

Cook, J., Lewandowsky, S., & Ecker, U. K. H. (2017). Neutralizing misinformation through inoculation: Exposing misleading argumentation techniques reduces their influence. *PloS One, 12*(5), e0175799. https://doi.org/10.1371/journal.pone.0175799

Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development andapplication of situational crisis communication theory. *Corporate Reputation Review, 10*(3), 163–176. https://doi.org/10.1057/palgrave.crr.1550049

Coombs, W. T. (2014). State of Crisis Communication: Evidence and the Bleeding Edge. *Research Journal of Institute of Public Relations, 1*(1), 1-12.

de Graaf, A. (2014). The effectiveness of adaptation of the protagonist in narrative impact: Similarity influences health beliefs through self-referencing. *Human Communication Research, 40*, 73–90. https://doi:10.1111/hcre.12015

Dahlstrom M. F. (2021). The narrative truth about scientific misinformation. *Proceedings of the National Academy of Sciences of the United States of America, 118*(15), e1914085117. https://doi.org/10.1073/pnas.1914085117

Dillard, J. P., & Peck, E. (2000). Affect and Persuasion: Emotional Responses to Public Service Announcements. *Communication Research*, (4), 461. https://doi.org/10.1177%2F009365000027004003

Dillard JP, Weber KM, & Vail RG (2007). The relationship between the perceived and actual effectiveness of persuasive messages: A meta-analysis with implications for formative campaign research. *Journal of Communication, 57*, 613–631. https://doi.org/10.1111/j.1460-2466.2007.00360.x

Doll, J., & Ajzen, I. (1992). Accessibility and stability of predictors in the theory of planned behavior. *Journal of Personality & Social Psychology, 63*(5), 754–765.

Ecker, U.K.H., Lewandowsky, S., & Tang, D.T.W. (2010). Explicit warnings reduce but do not eliminate the continued influence of misinformation. *Memory & Cognition, 38*,1087–1100. https://doi.org/10.3758/MC.38.8.1087

Fearn-Banks, K. (2002). Crisis Communications: A Casebook Approach. Lawrence Erlbaum.

Fiske, S. T., & Dupree, C. (2014). Gaining trust as well as respect in communicating to motivated audiences about science topics. *Proceedings of the National Academy of Sciences of the United States of America*, *111*, 13593–13597. https://doi.org/10.1073/pnas.1317505111

Freed, G. L., Clark, S. J., Butchart, A. T., Singer, D. C., & Davis, M. M. (2011). Sources and perceived credibility of vaccine-safety information for parents. *Pediatrics*, *127*(1), S107–S112. https://doi.org/10.1542/peds.2010-1722P

Fridman I, Lucas N, Henke D, Zigler CK (2020). Association Between Public Knowledge About COVID-19, Trust in Information Sources, and Adherence to Social Distancing: Cross-Sectional Survey. *JMIR Public Health Surveill*, *6*(3), e22060, https://doi.org/10.2196/22060

Garrett, R. K., & Poulsen, S. (2019). Flagging Facebook Falsehoods: Self-Identified Humor Warnings Outperform Fact Checker and Peer Warnings. *Journal of Computer-Mediated Communication*, *24*(5), 240–258. https://doi.org/10.1093/jcmc/zmz012

Gong, Q., & Jackson, P. (2012) Consuming Anxiety?, *Food, Culture & Society, 15*(4), 557-578 https://doi.org/10.2752/175174412X13414122382764

Green, M. C. (2006). Narratives and Cancer Communication. *Journal of Communication, 56*, S163-S183. https://doi:10.1111/j.1460-2466.2006.00288.x

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*(5), 701. https://doi:10.1037/0022-3514.79.5.701

Griffin, R. J., Dunwoody, S., & Yang, Z. J. (2012). Linking risk messages to information seeking and processing. In C. T. Salmon (Ed.), Communication yearbook 36 (pp. 323–362). Taylor and Francis.

Hargie, O., Stapleton, K., & Tourish, D. (2010, January 1). Interpretations of CEO public apologies for the banking crisis: attributions of blame and avoidance of responsibility. *Organization, 17*(6), 721–742. http://doi.org/ 10.1177/1350508410367840

Heley, K., Kennedy-Hendricks, A., Niederdeppe, J., & Barry, C. L. (2020). Reducing Health-Related Stigma Through Narrative Messages. *Health Communication, 35*(7), 849–860. https://doi.org/10.1080/10410236.2019.1598614

Hoffman, M. L. (1985). Affect, motivation, and cognition. In E. T. Higgins, & R. M. Sorrention (Eds.),Handbook of motivation and cognition: Foundations of social behavior (pp. 47–80). New York: Guilford Press.

Howe, L. C., & Krosnick, J. A. (2017). Attitude Strength. *Annual Review of Psychology, 68*(1), 327-351. https://doi.org/10.1146/annurev-psych-122414-033600

Howell, J. L., & Shepperd, J. A. (2012). Reducing information avoidancethrough affirmation. *Psychological Science, 23*(2), 141–145. https://doi.org/10.1177/0956797611424164

Hwang, Y., & Jeong, S.-H. (2021). Misinformation Exposure and Acceptance: The Role of Information Seeking and Processing. *Health Communication*. https://doi.org/10.1080/10410236.2021.1964187

Jennings, W., Stoker, G, Wills, H., Valgardsson, V., Gaskell, J., Devine, D., McKay, L., & Mills, M. C. (2021). Lack of Trust, Conspiracy Beliefs, and Social Media Use Predict COVID-19 Vaccine Hesitancy. *Vaccines*, *9*(6), 593. https://doi.org/10.3390/vaccines9060593

Jin, Y. (2010). Making Sense Sensibly in Crisis Communication: How Publics' Crisis Appraisals Influence Their Negative Emotions, Coping Strategy Preferences, and Crisis Response Acceptance. *Communication Research, 37*(4), 522-552. https://doi.org/10.1177/0093650210368256

Jin, Y., Liu, B. F., Anagondahalli, D., & Austin, L. (2014). Scale development for measuring publics' emotions in organizational crises. *Public Relations Review*, *40*(3), 509–518. https://doi.org/10.1016/j.pubrev.2014.04.007

Jin, Y., Pang, A., & Cameron, G. T. (2012). Toward a Publics-Driven, Emotion-Based Conceptualization in Crisis Communication: Unearthing Dominant Emotions in Multi-Staged Testing of the Integrated Crisis Mapping (ICM) Model. *Journal of Public Relations Research, 24*(3), 266-298. https://doi.org/10.1080/1062726X.2012.676747

Jin, Y., Van der Meer, T. G. L. A., Lee, Y.-I., & Lu, X. (2020). The effects of corrective communication and employee backup on the effectiveness of fighting crisis misinformation. *Public Relations Review, 46*(3), 101910. https://doi.org/10.1016/j.pubrev.2020.101910

Johnson, H. M., & Seifart, C. M. (1994). Sources of the continued influence effect: When misinformation in memory affects later inferences. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 20*, 1420–1436. https://doi.org/10.1037/0278-7393.20.6.1420

Jung, E.H., Walsh-Childers, K., & Kim, H.S. (2016). Factors influencing the perceived credibility of diet-nutrition information web sites. *Computers in Human Behavior, 58*,37–47. https://doi.org/10.1016/j.chb.2015.11.044

Kahlor, L. A., Dunwoody, S., Griffin, R. J., & Neuwirth, K. (2006). Seeking and processing information about impersonal risk. *Science Communication*, *28*(2), 163–194. https://doi.org/10.1177/ 1075547006293916

Kata, A. (2012). Anti-vaccine activists, Web 2.0, and the postmodern paradigm – An overview of tactics and tropes used online by the anti-vaccination movement. *Vaccine, 30*(25), 3778–3789. https://doi.org/10.1016/j.vaccine.2011.11.112

Katz, Y. (2013). Against storytelling of scientific results. *Nature Methods*, *10*, 1045 https://doi.org/10.1038/nmeth.2699

Keim, M. E., & Noji, E. (2011). Emergent use of social media: A new age of opportunity for disaster resilience. *American Journal of Disaster Medicine, 6*(1), 47–54 https://doi.org/10.5055/ajdm.2010.0000

Keltner, D., Ellsworth, P. C., & Edwards, K. (1993). Beyond simple pessimism: effects of sadness and anger on social perception. *Journal of personality and social psychology, 64*(5), 740–752. https://doi.org/10.1037//0022-3514.64.5.740

Kendeou, P., Smith, E. R., & O'Brien, E.J. (2013). Updating during reading comprehension: Why causality matters. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 39*, 854–865. https://psycnet.apa.org/doi/10.1037/a0029468

Kim, H. K., Ahn, J., Atkinson, L., & Kahlor, L. A. (2020). Effects of COVID-19 Misinformation on Information Seeking, Avoidance, and Processing: A Multicountry Comparative Study. *Science Communication, 42*(5), 586–615. https://doi.org/10.1177/1075547020959670

Kiousis, S., & McCombs, M. E. (2004). Agenda setting effects and attitude strength: Political figures during the 1996 presidential election. *Communication Research, 31*, 36–57. https://doi.org/10.1177%2F0093650203260205

Krakow, M. M., Yale, R. N., Jensen, J. D., Carcioppolo, N., & Ratcliff, C. L. (2018). Comparing Mediational Pathways for Narrative- and Argument-Based Messages: Believability, Counterarguing, and Emotional Reaction. *Human Communication Research, 44*(3), 299–321. https://doi.org/10.1093/hcr/hqy002

Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), Attitude strength: Antecedents and consequences. (pp. 1-24). Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc.

Kuklinski, J. H., Quirk, P. J., Jerit, J., Schwieder, D., & Rich, R. F. (2000). Misinformation and the currency of democratic citizenship. *Journal of Politics, 62*, 790–816. https://doi.org/10.1111/0022-3816.00033

Kurby, C.A., & Zacks, J. M. (2012). Starting from scratch and building brick by brick in comprehension. *Memory & Cognition, 40*,812–826. https://doi.org/10.3758/s13421-011-0179-8

Laato, S., A. K. M. N. Islam, M. N. Islam, E. Whelan. 2020. What drives unverified information sharing and cyberchondria during the COVID-19 pandemic? *European Journal of Information Systems, 29* (3):288–305. https://doi.org/10.1080/0960085X.2020.1770632

Lazarus, R. S. (1991). Emotion and adaptation: New York : Oxford University Press, 1991.

Lee, H., & Jahng, M. R. (2020). The Role of Storytelling in Crisis Communication: A Test of Crisis Severity, Crisis Responsibility, and Organizational Trust. *Journalism & Mass Communication Quarterly*, *97*(4), 981–1002. https://doi.org/10.1177/1077699020923607

Legwegoh, A. F., & Fraser, E. D. G. (2015) Food crisis or chronic poverty: Metanarratives of food insecurity in sub-saharan Africa. *Journal of Hunger & Environmental Nutrition, 10*(3), 313-342. https://doi.org/10.1080/19320248.2014.962777

Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformationand its correction: Continued influence and successful debiasing. *Psychological Science in the Public Interest, 13*(3), 106–131. https://doi.org/10.1177/1529100612451018

Link, E. (2021). Information avoidance during health crises: Predictors of avoiding information about the COVID-19 pandemic among german news consumers. *Information Processing and Management, 58*(6). https://doi.org/10.1016/j.ipm.2021.102714

Liu, B.F., Austin, L., Lee, Y., Jin, Y.-I., & Kim, S. (2020). Telling the tale: the role of narratives in helping people respond to crises. *Journal of Applied Communication Research, 48*(3), 328-349. https://doi.org/10.1080/00909882.2020.1756377

Liu, B. F., & Kim, S. (2011). How organizations framed the 2009 H1N1 pandemic via social and traditional media: Implications for U.S. health communicators. *Public Relations Review, 37*(3), 233–244. https://doi.org/10.1016/j.pubrev.2011.03.005

Nan, X., Wang, Y., & Thier, K. (2021). Health misinformation. InT. Thompson& N.Harrington(Eds.),The Routledge Handbook of Health Communication(pp. 318-332). Routledge.

Luttrell, A., Petty, R. E., & Briñol, P. (2016). Ambivalence and certainty can interact to predict attitude stability over time. *Journal of Experimental Social Psychology, 63*, 56-68. https://doi:10.1016/j.jesp.2015.11.008

Ma, T. (Jennifer), & Atkin, D. (2017). User generated content and credibility evaluation of online health information: A meta analytic study. *Telematics and Informatics, 34*(5), 472–486. https://doi.org/10.1016/j.tele.2016.09.009

Ma, Z. (2021). The Role of Narrative Pictorial Warning Labels in Communicating Alcohol-Related Cancer Risks. *Health Communication*. https://doi.org/10.1080/10410236.2021.1888456

Ma, Z., & Nan, X (2019) Positive Facts, Negative Stories: Message Framing as a Moderator of Narrative Persuasion in Antismoking Communication. *Health Communication*, 34:12, 1454-1460, https://doi.org/10.1080/10410236.2018.1499702

Mahoney, L. M., Tang, T., Ji, K., & Ulrich-Schad, J. (2015). The digital distribution of public health news surrounding the human papillomavirus vaccination: A longitudinal infodemiology study. *JMIR Public Health and Surveillance, 1*(1), e2. https://doi.org/10.2196/publichealth.3310

McGraw, K. M., Hasecke, E., & Conger, K. (2003). Ambivalence, uncertainty, and processes of candidate evaluation. *Political Psychology, 24*, 421-448. https://doi.org/10.1111/0162-895X.00335

McGuire, W. J. (1964). Inducing resistance to persuasion: Some contemporary approaches. *Advances in Experimental Social Psychology, 1*, 191–229. https://doi.org/10.1016/S0065-2601(08)60052-0

Meinert, J., & Krämer, NC. (2022). How the expertise heuristic accelerates decision-making and credibility judgments in social media by means of effort reduction. *PLoS ONE, 17*(3), e0264428. https://doi.org/10.1371/journal.pone.0264428

Moyer-Gusé, E. (2008). Toward a Theory of Entertainment Persuasion: Explaining the Persuasive Effects of Entertainment-Education Messages. *Communication Theory, 18(*3), 407–425, https://doi.org/10.1111/j.1468-2885.2008.00328.x

Moyer-Gusé, E., Chung, A., & Jain, P. (2011). Identification with characters and discussion of taboo topics after exposure to an entertainment narrative about sexual health. *Journal of Communication, 61*, 387–406. https://doi:10.1111/j.1460-2466.2011.01551.x

Moyer-Gusé, E., & Nabi, R. L. (2010). Explaining the effects of narrative in an entertainment television program: Overcoming resistance to persuasion. *Human Communication Research, 36*, 26–52. https://doi:10.1111/j.1468-2958.2009.01367.x

Moyer-Gusé, E., Woods, K., Rader, K., & Luong, K. T. (2020). Talking about TV: Mother-Daughter Viewing and Discussion of an Entertainment Narrative about Teen Pregnancy. *Health Communication, 35*(10), 1200–1209. https://doi.org/10.1080/10410236.2019.1623642

Murphy, S. T., Frank, L. B., Moran, M. B., & Patnoe-Woodley, P. (2011). Involved, Transported, or Emotional? Exploring the Determinants of Change in Knowledge, Attitudes, and Behavior in Entertainment-Education. *Journal of Communication,* (3), 407. https://doi.org/10.1111/j.1460-2466.2011.01554.x

Nabi, R. L. (1999). A cognitive-functional model for the effects of discrete negative emotions on information processing, attitude change, and recall. *Communication Theory*, *9*(3), 292–320. https://doi.org/10.1111/j.1468-2885.1999.tb00172.x

Nabi, R. L. A. (2010). The case for emphasizing discrete emotions in communication research. *Communication Monographs, 77*(2)152-159. https://doi.org/10.1080/03637751003790444

Nabi, R. L., & Oliver, M. B. (2010). Mass media effects. In Berger, C. R., Roloff, M. E., & Roskos-Ewoldsen, D. R. (Eds.), The handbook of communication science (pp. 255-271). SAGE Publications, Inc.

Narayan, B., Case, D.O., & Edwards, S.L. (2011). The role of information avoidance in everyday-life information behaviors. *Proceedings of the American Society for Information Science and Technology*. https://doi.org/10.1002/meet.2011.14504801085

Niederdeppe, J., Heley, K., & Barry, C. L. (2015). Inoculation and Narrative Strategies in Competitive Framing of Three Health Policy Issues. *Journal of Communication, 65*(5), 838-862. https://doi.org/10.1111/jcom.12162

Niederdeppe, J., Shapiro, M. A., Kim, H. K., Bartolo, D., & Porticella, N. (2014). Narrative persuasion, causality, complex integration, and support for obesity policy. *Health Communication, 29*(5), 431-444. https://doi.org/10.1080/10410236.2012.761805

Nyhan, B., & Reifler, J. (2010). When corrections fail: The persistence of political misperceptions. *Political Behavior, 32*, 303–330. https://doi.org/10.1007/s11109-010-9112-2

Ortony, A., Collins, A., & Clore, G. L. (1988). The cognitive structure of emotions: Cambridge University Press9.

O'Keefe, D. J. (2002). Guilt as a mechanism of persuasion. In J. P. Dillard & M. Pfau (Eds.), The persuasion handbook: Developments in theory and practice (pp. 329–344). Sage.

O'Keefe, D. J. (2016). Persuasion: Theory and research (3rd ed.). Thousand Oaks, CA: Sage.

Ortega-Sanchez, I.R., Vijayaraghavan, M., Barskey, A.E., & Wallace, G.S. (2014). The economic burden of sixteen measles outbreaks on United States public health

departments in 2011. *Vaccine, 32*, 1311–1317. https://doi.org/10.1016/j.vaccine.2013.10.012

Pan, Z., & Kosicki, G. (2005). Framing and the understanding of citizenship. In S. Dunwoody, L. Backer, D. McLeod, & G. Kosicki (Eds.), The evolution of key mass communication concepts (pp. 165-204). Hampton Press.

Pasek, J., Sood, G., & Krosnick, J. A. (2015). Misinformed about the Affordable Care Act? Leveraging certainty to assess the prevalence of misperceptions. *Journal of Communication, 65*, 660–673. https://doi.org/10.1111/jcom.2015.65.issue-4

Paynter, J., Luskin-Saxby, S., Keen, D., Fordyce, K., Frost, G., Imms, C., Miller, S., Trembath, D., Tucker, M., & Ecker, U. (2019). Evaluation of a template for countering misinformation-Real-world Autism treatment myth debunking. *PloS one, 14*(1), e0210746. https://doi.org/10.1371/journal.pone.0210746

Petty, R. E., Briñol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology, 82*(5), 722–741. https://doi.org/10.1037/0022-3514.82.5.722

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In Communication and persuasion (pp. 1-24). Springer, New York, NY.

Pfau, M. (1997). The inoculation model of resistance to influence. In G. A. Barnett & F. J. Boster (Eds.), Progress in communication sciences: Advances in persuasion (Vol. 13, pp. 133 171). Greenwich.

Raney, A. A. (2004). Expanding Disposition Theory: Reconsidering Character Liking, Moral Evaluations, and Enjoyment. *Communication Theory*, *14*(4), 348–369. https://doi.org/10.1111/j.1468-2885.2004.tb00319.x

Reinhard, M.-A., & Sporer, S. L. (2010). Content Versus Source Cue Information as a Basis for Credibility Judgments: The Impact of Task Involvement. *Social Psychology, 41*(2), 93–104. https://doi.org/10.1027/1864-9335/a000014

Rucker, D. D., Petty, R. E., & Briñol, P. (2008). What's in a frame anyway? A metacognitive analysis of the impact of one versus two sided message framing on attitude certainty. *Journal of Consumer Psychology, 18*(2), 137–149. https://doi.org/10.1016/j.jcps.2008.01.008

Savolainen, R. (2014). Emotions as motivators for information seeking: A conceptual analysis. *Library and Information Science Research*, *36*(1), 59–65. https://doi.org/10.1016/j.lisr.2013.10.004

Sangalang, A., Ophir, Y., & Cappella, J. N. (2019). The potential for narrative correctives to combat misinformation. *Journal of Communication, 69*(3), 298–319. https://doi.org/10.1093/joc/jqz014

Schlesinger, M. A., Flynn, R. M., & Richert, R. A. (2016). US preschoolers' trust of and learning from media characters. *Journal of Children and Media, 10*(3), 321–340. https://doi.org/10.1080/17482798.2016.1162184

Scheufele, D. A., & Krause, N. M. (2019). Science audiences, misinformation, and fake news. *Proceedings of the National Academy of Sciences of the United States, 16*, 7662. https://doi.org/10.1073/pnas.1805871115

Schwarz, N., Newman, E., & Leach, W. (2016). Making the truth stick & the myths fade: Lessons from cognitive psychology. *Behav Sci Pol, 2*(1), 85–95. https://doi.org/10.1353/bsp.2016.0009

Seeger, M. W., & Sellnow, T. L. (2015). Narratives of Crisis: Telling Stories of Ruin and Renewal. Stanford, California: Stanford Business Books.

Sellnow, T. L., Parrish, A., & Semenas L. (2019). From hoax as crisis to crisis as hoax: Fake news and information disorder as disruptions to the discourse of renewal. *Journal of International Crisis and Risk Communication Research, 2*(1), 121-142. https://doi.org/10.30658/jicrcr.2.1.6

Shen, F., Sheer, V. C., & Li, R. (2015). Impact of Narratives on Persuasion in Health Communication: A Meta-Analysis. *Journal of Advertising, 44*(2), 105-113. https://doi:10.1080/00913367.2015.1018467

Slater, M. D., Buller, D. B., Waters, E., Archibeque, M., & LeBlanc, M. (2003). A test of conversational and testimonial messages versus didactic presentations of nutrition information. *Journal of Nutrition Education and Behavior, 35*, 255–259. https://doi:10.1016/s1499-4046(06)60056-0

Slater, M., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication theory, 12*(2), 173. https://doi.org/10.1111/j.1468-2885.2002.tb00265.x

So, J., Kuang, K., & Cho, H. (2016). Reexamining fear appeal models from cognitive appraisal theory and functional emotion theory perspectives. *Communication Monographs*, *83*(1), 120–144. https://doi.org/10.1080/03637751.2015.1044257

Southwell, B. G., Thorson, E. A., & Sheble, L. (2018). Misinformation and mass audiences. University of Texas Press.

Sweeny, K., Melnyk, D., Miller, W., & Shepperd, J. A. (2010). Information avoidance: who, what, when, and why. *Review of General Psychology, 14*(4), 340–353. https://doi.org/10.1037%2Fa0021288

Swire-Thompson, B., & Ecker, U. (2018). Misinformation and its Correction: Cognitive Mechanisms and Recommendations for Mass Communication In. B. Southwell, E. A. Thorson, & L. Sheble. (Eds), Misinformation and Mass Audiences. University of Texas Press.

Swire-Thompson, B., Ecker, U., Lewandowsky, S., & Berinsky, A. J. (2019). They might be a liar but they're my liar: Source evaluation and the prevalence of misinformation. *Political Psychology*, *41*(1), 21-34. https://doi.org/10.1111/POPS.12586

Swire-Thompson, B., John Cook, Lucy H. Butler, Jasmyne A. Sanderson, Stephan Lewandowsky, & Ullrich K. H. Ecker. (2021). Correction format has a limited role when debunking misinformation. *Cognitive Research, 6*(1), 1–15. https://doi.org/10.1186/s41235-021-00346-6

Sun, Y., Oktavianus, J., Wang, S., & Lu, F. (2021). The Role of Influence of Presumed Influence and Anticipated Guilt in Evoking Social Correction of COVID-19 Misinformation. *Health Communication*. https://doi.org/10.1080/10410236.2021.1888452

Tan, A. S., Lee, C. J., & Chae, J. (2015). Exposure to health (mis) information: Lagged effectson young adults' health behaviors and potential pathways. *Journal of Communication,65*(4), 674-698. https://doi.org/10.1111/jcom.12163

Tandoc, E. C., Lim, D., & Ling, R. (2020). Diffusion of disinformation: How social media users respond to fake news and why. *Journalism*, *21*(3), 381–398. https://doi.org/10.1177/1464884919868325

Teoh, D. (2019). The power of social media for HPV vaccination – Not fake news! American Society of Clinical Oncology Educational Book, 39, 75–78. 10.1200/EDBK_239363

Thomas, J., Peterson, G. M., Walker, E., Christenson, J. K., Cowley, M., Kosari, S., Baby, K.E., & Naunton, M. (2018). Fake news: Medicines misinformation by the media. Clinical Pharmacology and Therapeutics, 104(6), 1059–1061. https://doi.org/10.1002/cpt.1199

Thorson, E. (2016). Belief echoes: The persistent effects of corrected misinformation. *Political Communication, 33*, 460–480. https://doi.org/10.1080/10584609.2015.1102187

Trivedi, N., Melinda, Krakow., Katherine, Hyatt, Hawkins., Emily, B. Peterson., & Wen-Ying Sylvia, Chou. (2020). "Well, the Message Is From the Institute of Something": Exploring Source Trust of Cancer-Related Messages on Simulated Facebook Posts. *Frontiers in Communication, 5*. https://doi.org/10.3389/fcomm.2020.00012

Trivedi, N., Lowry, M., Gaysynsky, A., & Chou, W.-Y. S. (2021). Factors Associated with Cancer Message Believability: a Mixed Methods Study on Simulated Facebook Posts. *Journal of Cancer Education*. https://doi.org/10.1007/s13187-021-02054-7

van der Linden, S., & Roozenbeek, J. (2020). Psychological inoculation against fake news. The psychology of fake news: Accepting, sharing, and correcting misinformation, 147-169.

van der Linden, S., Leiserowitz, A., Rosenthal, S., & Maibach, E. (2017). Inoculating the Public against Misinformation about Climate Change. *Global Challenges*, *1*(2), 1600008. https://doi.org/10.1002/gch2.201600008

van der Meer, T. G. L. A., & Jin, Y. (2020). Seeking formula for misinformation treatment in public health crises: The effects of corrective information type and source. *Health Communication, 35*(5), 560-575. https://doi.org/10.1080/10410236.2019.1573295

Van Oostendorp, H. (2014). The ambivalent effect of focus on updating mental representations.In D. N. Rapp & J. L. Braasch (Eds). Processing inaccurate information and applied perspectives from cognitive science and the educational sciences (pp. 223-244). Cambridge.

Venette, S. J., Sellnow, T. L., & Lang, P. A. (2003). Metanarration's role in restructuring perceptions of crisis: NHTSA's failure in the Ford-Firestone crisis. *The Journal of Business Communication, 40*(3), 219-236. https://doi.org/10.1177/002194360304000303

Vosoughi, Soroush., Deb, Roy., & Sinan, Aral. (2018). The spread of true and false news online. *Science, 359* (63801), 146-1151. https://doi.org/10.1126/science.aap9559

Vraga, E. K., & Bode, L. (2017). Using expert sources to correct health misinformation in social media. *Science Communication, 39*(5), 621–645. https://doi.org/10.1177%2F1075547017731776

Vraga, E. K., Kim, S. C., Cook, J., & Bode, L. (2020). Testing the Effectiveness of Correction Placement and Type on Instagram. *The International Journal of Press/Politics, 25*(4), 632–652. https://doi.org/10.1177/1940161220919082

Walter, N., & Murphy, S. T. (2018). How to unring the bell: A meta-analytic approach to correction of misinformation. *Communication Monographs, 85*(3), 423–441. https://doi.org/10.1080/03637751.2018.1467564

Walter, N., & Tukachinsky, R. (2020). A meta-analytic examination of the continued influence of misinformation in the face of correction: How powerful is it, why does it happen, and how to stop it? *Communication Research, 47*(2), 155–177. https://doi.org/10.1177%2F0093650219854600

Wan, H.-H., & Pfau, M. (2004). The relative effectiveness of inoculation, bolstering, and combined approaches in crisis communication. *Journal of Public Relations Research*, 16(3), 301-328.

Wardle, C., & Derakhshan, H. (2017). Information disorder: Toward an interdisciplinary framework for research and policy making (F-67075 Strasbourg Cedex). Council of Europe.

Wilson, S. R. (2010). Seeking and resisting compliance. In C. R. Berger, M. E. Roloff, & D. R., Roskos-Ewoldsen (Eds.), The Handbook of Communication Science (2nd ed.) (pp. 219-235). Los Angeles, CA: Sage.

Wong, N. C., & Harrison, K. J. (2014). Nuances in Inoculation: Protecting positive attitudes toward the HPV vaccine and the practice of vaccinating children. J. Women's Health Issues Care, 3(6).

Wood ML. Rethinking the inoculation analogy: Effects on subjects with differing preexisting attitudes. *Human Communication Research. 33*(3), 357-378. https://doi.org/10.1111/j.1468-2958.2007.00303.x

Woskie, L. R., & Fallah, M. P. (2019). Overcoming distrust to deliver universal health coverage: lessons from Ebola. *BMJ (Clinical research ed.)*, *366*, l5482. https://doi.org/10.1136/bmj.l5482

Xu, Z., & Guo, H. (2018). Using text mining to compare online pro- and anti-vaccine headlines: Word usage, sentiments, and online popularity. *Communication Studies, 69*(1), 103–122. https://doi.org/10.1080/10510974.2017.1414068

APPENDIX A:

SUMMARY TABLE OF RESEARCH QUESTIONS AND HYPOTHESES

Table 1

Summary of Research Questions and Hypotheses

No.	RQs and Hypotheses	Supported?	Location of Relevant Tests
Study 1			
H1a	The misinformation embedded in the blame narrative will significantly attribute more responsibility to the affected organization than the misinformation embedded in the narrative.	No	Table 2
H1b	Prebunking messages will result in significantly lower perceived organizational crisis responsibility than debunking messages.	No	Table 3
H1c	Correction messages using factual elaboration will result in significantly lower perceived organizational crisis responsibility than the one using simple rebuttal.	No	Table 4
RQ1	How, if existing, do types of misinformation narrative, the timing of placement, and the detail level of refutation jointly influence individuals' perception of crisis responsibility attribution?		Table 5 and Figure 6
H2a	The misinformation embedded in the blame narrative will significantly amplify the perceived crisis severity than the misinformation embedded in the narrative.	No	Table 2
H2b	Prebunking messages will result in significantly higher perceived crisis severity than debunking messages.	No	Table 3

H2c	Correction messages using factual elaboration will result in significantly higher perceived crisis severity than the one using simple rebuttal.	No	Table 4
RQ2	How, if existing, do types of misinformation narrative, the timing of placement, and the detail level of refutation jointly influence individuals' perception of crisis severity?		Table 5
H3a	The misinformation embedded in the blame narrative will significantly lower the organizational reputation of the affected organization than the misinformation embedded in the narrative.	No	Table 2
H3b	Prebunking messages will result in significantly lower organizational reputation damage for the affected organization than debunking messages.	Yes	Table 3
H3c	Correction messages using factual elaboration will result in significantly lower organizational reputation damage for the affected organization than the one using simple rebuttal.	Yes	Table 4
RQ3	How, if existing, do types of misinformation narrative, the timing of placement, and the detail level of refutation jointly influence the organizational reputation?		Table 5
H4a	The misinformation embedded in the blame narrative will significantly result in a greater intention to share misinformation than the misinformation embedded in the narrative.	No	Table 2
H4b	Prebunking messages will result in significantly lower intention to share crisis misinformation than debunking messages	Yes	Table 3
H4c	Prebunking messages will result in significantly lower intention to share misinformation than debunking messages.	No	Table 4
RQ4	How, if existing, do types of misinformation narrative, the timing of placement, and the detail level of refutation jointly influence individuals' intention to share crisis misinformation?		Table 5 and Figure 7

RQ5.1	How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any direct effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?		Table 6
RQ5.2	How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any interaction effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?		Table 6
RQ6.1	How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any direct effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?		Table 6
RQ6.2	How, if at all, do misinformation narrative, the timing of correction placement, and the detail level of refutation, exert any interaction effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?		Table 6
RQ7	How, if at all, do individuals' feelings of discrete emotions differ as a function of (a) misinformation narrative, (b) the timing of correction placement, and (c) the detail level of refutation?		Table 7 and Figure 8 & 9
Study 2			
H8a	The prebunking message using the renewal narrative will significantly result in lower responsibility attributed to the affected organization than the one using other narrative or using nonnarrative to elaborate fact.	No	Table 8
H8b	The prebunking message using the renewal narrative will significantly result in lower perceived crisis severity than the one using other narrative or using nonnarrative to elaborate fact.	No	Table 8

H8c	The prebunking message using the renewal narrative will significantly result in lower organizational reputation damage than the one using other narrative or using nonnarrative to elaborate fact.	No	Table 8
H9a	The prebunking message using the victim narrative will significantly result in lower intention to discuss crisis misinformation than the one using other narratives or using nonnarrative to elaborate fact	No	Table 9
H9b	The prebunking message using the victim narrative will significantly result in higher intention to avoid information about the crisis than the one using other narratives or using nonnarrative to elaborate fact	Yes	Table 9
H9c	The prebunking message using the victim narrative will significantly result in higher intention to make social correction than the one using other narratives or using nonnarrative to elaborate fact	No	Table 9
RQ10	How, if at all, does the type of narratives (and nonnarrative) used in the prebunking message to elaborate facts exert any effect on (a) belief confidence in crisis responsibility and (b) belief confidence in crisis severity?		Table 10
RQ11	How, if at all, does the type of narratives (and nonnarrative) used in the prebunking message to elaborate fact exert any effect on (a) attitudinal ambivalence on crisis responsibility and (b) attitudinal ambivalence in crisis severity?		Table 10
RQ12	How, if existing, does the belief confidence in crisis responsibility and information avoidance sequentially mediate the relationship between the narrative type and (RQ12.1) intention to share misinformation) and the relationship between the narrative type and (RQ12.2) intention to make the social correction?		Figure 10
H13	Using narrative to elaborate factual information in the prebunking message will significantly lead to higher identification with character (i.e., spokesperson) therein than using nonnarrative.	Yes	Table 11

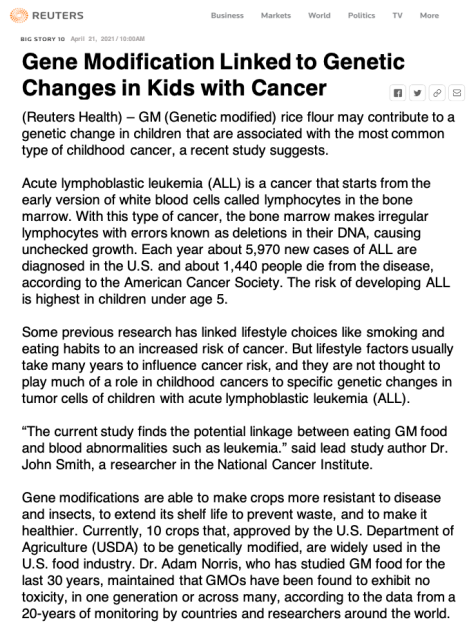
RQ13	How, if at all, do individuals' identification with the spokesman (i.e., the character in the prebunking narrative) differ as a function of the type of narrative (and nonnarrative) used in the prebunking message?		Table 11
H14	Using narrative to elaborate factual information in the prebunking message will significantly increase the (a) liking of the spokesman (i.e., the character in the prebunking narrative) and (b) trust in the spokesman than using nonnarrative.	Yes	Table 11
RQ14	How, if at all, do individuals' (14.1) liking of the spokesman (i.e., the character in the prebunking narrative) and (14.2) trust in the spokesman differ as a function of the type of narrative (nonnarrative) used in the prebunking message?		Table 11
H15	Using narrative to elaborate factual information in the prebunking message will significantly lead to higher perceived information quality of corrective information than using nonnarrative.	Yes	Table 12
RQ15	How, if at all, do individuals' (a) perceived information quality of the prebunking narrative and (b) perceived information quality of the misinformation narrative differ as a function of the type of narrative (nonnarrative) used in the prebunking message?		Table 12
RQ16.1	How, if existing, do individuals' character trust and identification sequentially mediate the relationship between prebunking narrative and perceived information quality of corrective information?		Figure 11
RQ16.2	How, if existing, do individuals' character liking and identification sequentially mediate the relationship between prebunking narrative and perceived information quality of corrective information?		Figure 11

RQ17	How, if existing, do individuals' identification with the spokesperson (i.e., the character in the prebunking narrative) and perceived information quality (of the prebunking message) sequentially mediate the relationship between the exposure to the prebunking narrative and corrective outcomes as measured as organizational reputation (RQ17.1), misinformation discussion intention (RQ17.2), and social correction intention (RQ17.3)?	Figure 12

APPENDIX B EXPERIMENTAL STIMULI – STUDY 1

Figure 1.

News Article, as a cover story for the experimental context.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BIG STORY 10 April 21, 2021 / 10:00AM

Gene Modification Linked to Genetic Changes in Kids with Cancer

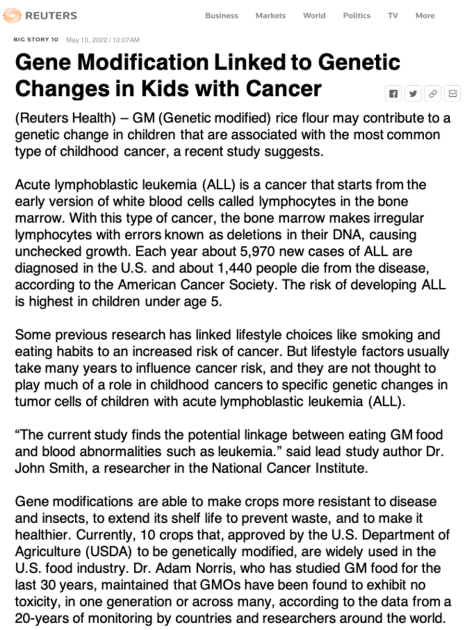
(Reuters Health) – GM (Genetic modified) rice flour may contribute to a genetic change in children that are associated with the most common type of childhood cancer, a recent study suggests.

Acute lymphoblastic leukemia (ALL) is a cancer that starts from the early version of white blood cells called lymphocytes in the bone marrow. With this type of cancer, the bone marrow makes irregular lymphocytes with errors known as deletions in their DNA, causing unchecked growth. Each year about 5,970 new cases of ALL are diagnosed in the U.S. and about 1,440 people die from the disease, according to the American Cancer Society. The risk of developing ALL is highest in children under age 5.

Some previous research has linked lifestyle choices like smoking and eating habits to an increased risk of cancer. But lifestyle factors usually take many years to influence cancer risk, and they are not thought to play much of a role in childhood cancers to specific genetic changes in tumor cells of children with acute lymphoblastic leukemia (ALL).

"The current study finds the potential linkage between eating GM food and blood abnormalities such as leukemia." said lead study author Dr. John Smith, a researcher in the National Cancer Institute.

Gene modifications are able to make crops more resistant to disease and insects, to extend its shelf life to prevent waste, and to make it healthier. Currently, 10 crops that, approved by the U.S. Department of Agriculture (USDA) to be genetically modified, are widely used in the U.S. food industry. Dr. Adam Norris, who has studied GM food for the last 30 years, maintained that GMOs have been found to exhibit no toxicity, in one generation or across many, according to the data from a 20-years of monitoring by countries and researchers around the world.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BIG STORY 10 May 10, 2022 / 10:07AM

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Some previous research has linked lifestyle choices like smoking and eating habits to an increased risk of cancer. But lifestyle factors usually take many years to influence cancer risk, and they are not thought to play much of a role in childhood cancers to specific genetic changes in tumor cells of children with acute lymphoblastic leukemia (ALL).

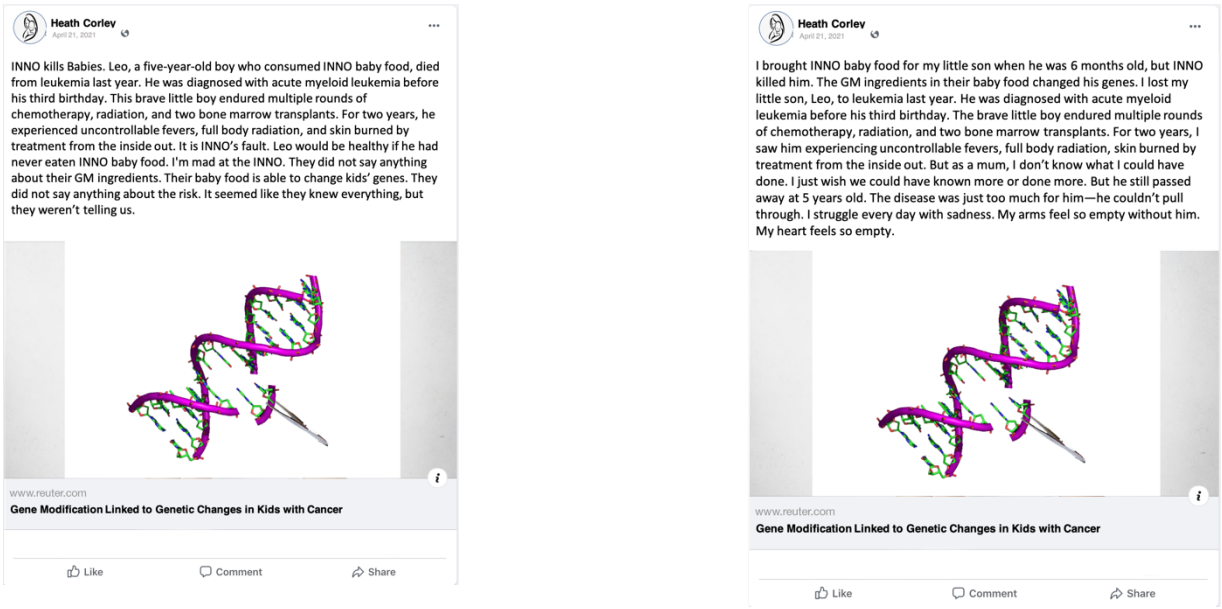
"The current study finds the potential linkage between eating GM food and blood abnormalities such as leukemia." said lead study author Dr. John Smith, a researcher in the National Cancer Institute.

Gene modifications are able to make crops more resistant to disease and insects, to extend its shelf life to prevent waste, and to make it healthier. Currently, 10 crops that, approved by the U.S. Department of Agriculture (USDA) to be genetically modified, are widely used in the U.S. food industry. Dr. Adam Norris, who has studied GM food for the last 30 years, maintained that GMOs have been found to exhibit no toxicity, in one generation or across many, according to the data from a 20-years of monitoring by countries and researchers around the world.

Note: The news article presented in the study 1 (Left); The news article presented in the study 2 (Right).

Figure 2.

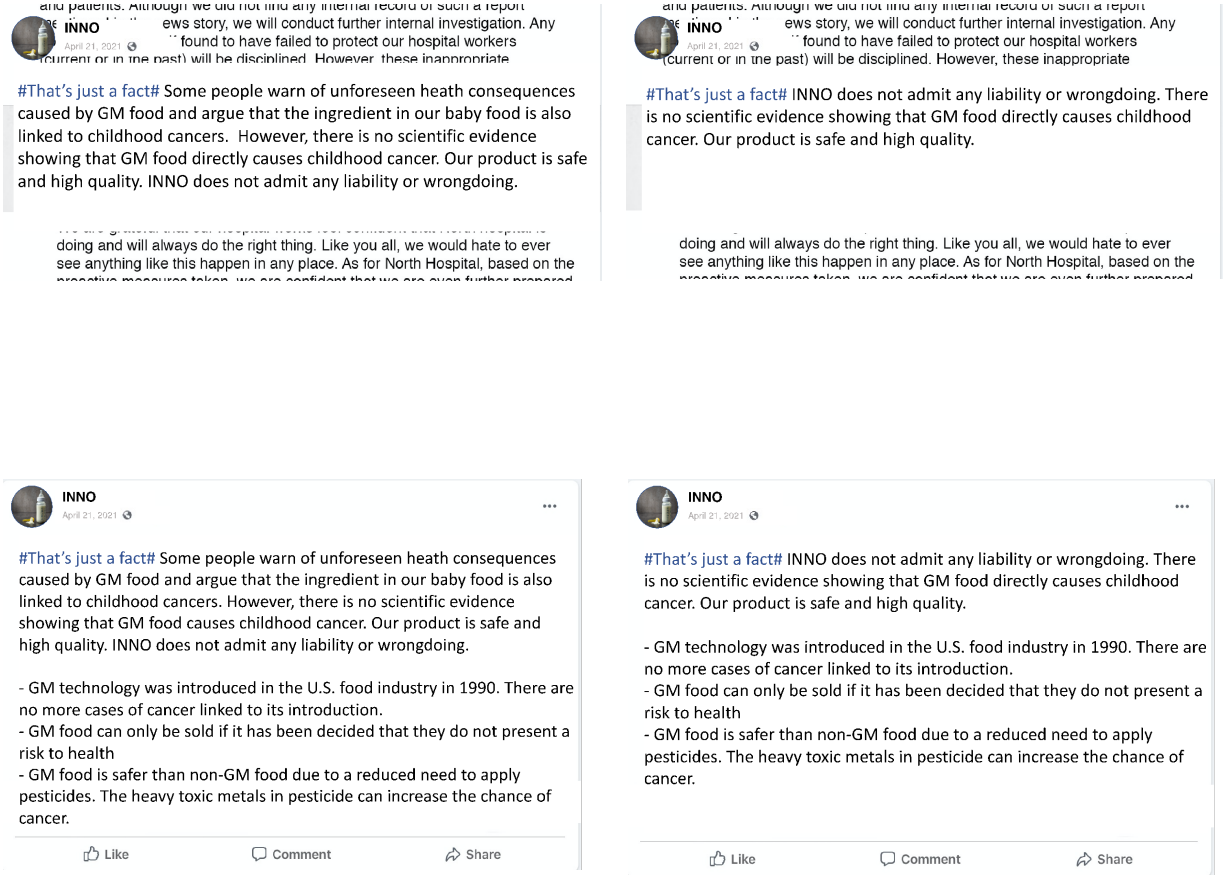
Misinformation narrative with two types of narrative.



Note: Blame narrative (Left); Victim (Right).

Figure 3.

Correction strategy with two timings of correction placement and two detail level of refutation.

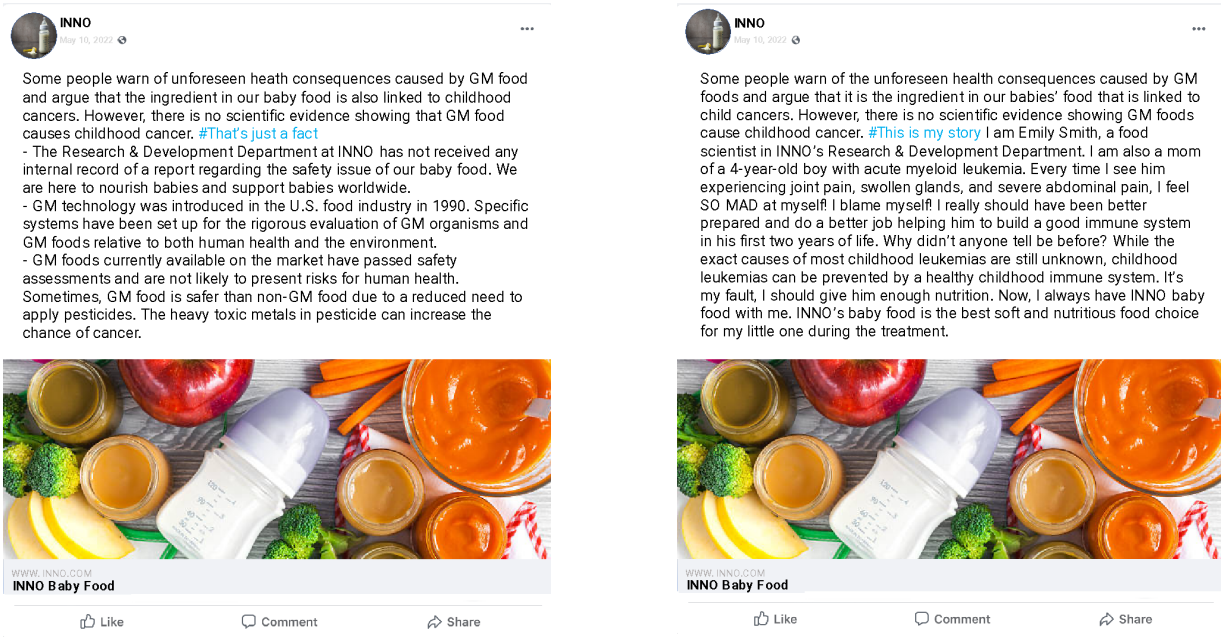


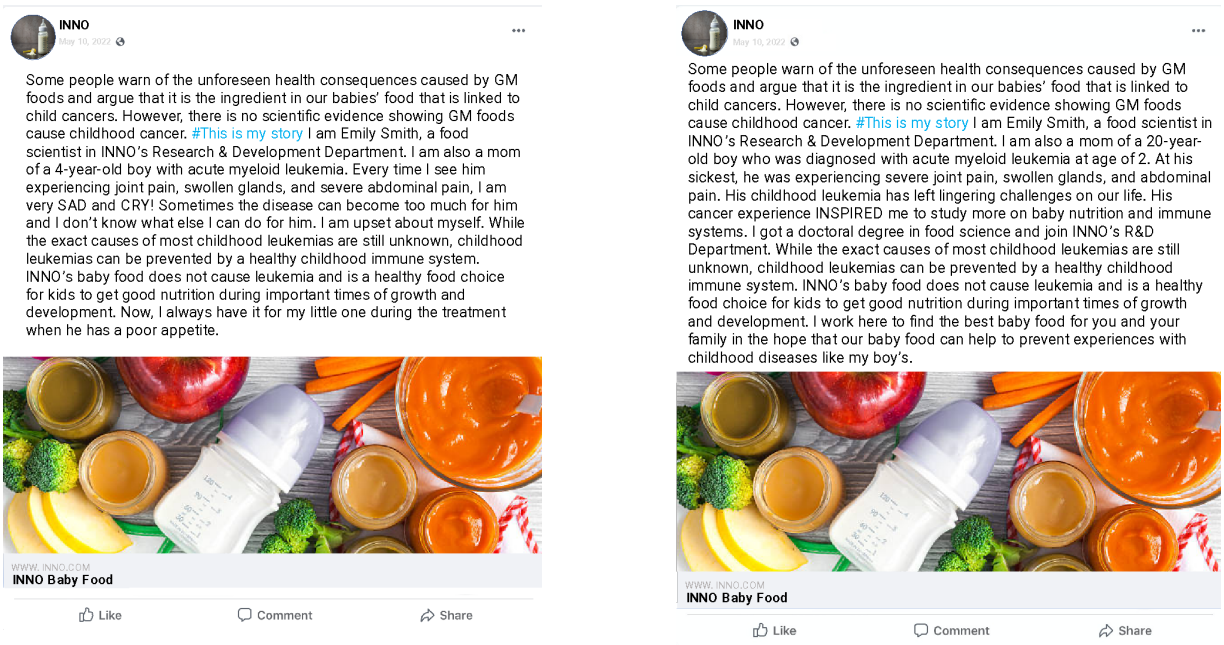
Note: Prebunking message with simple rebuttal (Top left); Debunking message with simple rebuttal (Top right); Prebunking message with factual elaboration (Bottom left); Debunking message with factual elaboration (Bottom right)

APPENDIX C: EXPERIMENTAL STIMULI – STUDY 2

Figure 4.

Corrective message with prebunking strategy using three types of narrative





Note: Prebunking message using nonnarrative (Top left); Prebunking message using blame narrative (Top right); Prebunking message using victim narrative (Bottom left); Prebunking message using renewal narrative.

APPENDIX D: TABLES FOR RESULTS

Table 2

Differences Between Conditions on Main Misinformation Effect

	Misinformation effect Means (SDs)			
	Crisis Responsibility	Crisis Severity	Organizational Reputation	Intention to discuss misinformation
Misinformation Narrative				
Blame Narrative	4.17 (.10)	4.41 (.10)	3.91 (.08)	4.60 (.11)
Victim Narrative	4.09 (.10)	4.30 (.10)	3.93 (.08)	4.73 (.11)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.40	0.15	0.06	0.70
Significance, *p*	0.53	0.70	0.81	0.40

Table 3

Differences Between Conditions on Main Misinformation Effect

	Misinformation effect Means (SDs)			
	Crisis Responsibility	Crisis Severity	Organizational Reputation	Intention to discuss misinformation
Timing of Placement				
Debunking	4.26 (.10)	4.42 (.10)	3.79 (.08)	4.86 (.11)
Prebunking	4.00 (.10)	4.35 (.10)	4.08 (.08)	4.47 (.11)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	3.49	0.24	9.03	7.17
Significance, *p*	0.062	0.63	0.003	0.008

Table 4

Differences Between Conditions on Main Misinformation Effect

	Misinformation effect Means (SDs)			
	Crisis Responsibility	Crisis Severity	Organizational Reputation	Intention to discuss misinformation
Detail of Refutation				
Factual Elaboration	4.05 (.10)	4.28 (.10)	4.07 (.08)	4.66 (.10)
Simple Rebuttal	4.21 (.10)	4.48 (.10)	3.77 (.08)	4.68 (.10)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	1.38	1.86	7.20	0.02
Significance, *p*	0.24	0.17	0.008	0.90

Table 5

Differences Between Conditions on Main Misinformation Effect (RQ1-4)

	Misinformation effect Means (SDs)			
	Crisis Responsibility	Crisis Severity	Organizational Reputation	Intention to discuss misinformation
Timing * Detail				
Debunking *Factual Elaboration	4.33 (.14)	4.42 (.14)	3.87 (.11)	4.96 (.15)
Debunking * Simple Rebuttal	4.19 (.14)	4.41 (.14)	3.65 (.11)	4.78 (.15)
Prebunking *Factual Elaboration	3.76 (.14)	4.15 (.14)	4.27 (.11)	4.36 (.15)
Prebunking * Simple Rebuttal	4.24 (.14)	4.54 (.14)	3.90 (.11)	4.57 (.15)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	4.95	1.91	0.44	1.75
Significance, p	0.027	0.17	0.51	0.19
Timing * Misinformation				
Debunking * Blame Narrative	4.35 (.14)	4.49 (.14)	3.72 (.11)	4.90 (.15)
Debunking * Victim Narrative	4.18 (.14)	4.34 (.14)	3.79 (.11)	4.83 (.15)
Prebunking * Blame Narrative	4.00 (.14)	4.32 (.14)	4.09 (.11)	4.30 (.15)
Prebunking * Victim Narrative	4.00 (.14)	4.37 (.14)	4.08 (.11)	4.63 (.15)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.35	0.5	0.12	1.76
Significance, p	0.56	0.48	0.73	0.19
Detail * Misinformation				
Factual Elaboration * Blame Narrative	4.14 (.14)	4.37 (.14)	4.05 (.11)	4.79 (.15)
Factual Elaboration * Blame Narrative	3.96 (.14)	4.20 (.14)	4.08 (.11)	4.53 (.15)
Simple Rebuttal * Blame Narrative	4.21 (.14)	4.45 (.14)	3.77 (.11)	4.42 (.15)

Simple Rebuttal * Victim Narrative	4.22 (.14)	4.51 (.14)	3.78 (.11)	4.93 (.15)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.45	0.64	0.01	6.59
Significance, p	0.5	0.42	0.91	0.01
Misinformation*Time*Detail				
Blame Narrative * Debunking * Factual Elaboration	4.50 (.20)	4.54 (.20)	3.83 (.15)	5.25 (.21)
Blame Narrative * Debunking * Simple Rebuttal	4.19 (.20)	4.44 (.20)	3.62 (.15)	4.56 (.21)
Blame Narrative * Prebunking * Factual Elaboration	3.78 (.20)	4.20 (.20)	4.27 (.16)	4.32 (.22)
Blame Narrative * Prebunking * Simple Rebuttal	4.23 (.20)	4.45 (.20)	3.91 (.15)	4.29 (.21)
Victim Narrative * Debunking * Factual Elaboration	4.17 (.20)	4.29 (.20)	3.91 (.15)	4.66 (.21)
Victim Narrative * Debunking * Simple Rebuttal	4.18 (.20)	4.38 (.20)	3.67 (.16)	5.00 (.21)
Victim Narrative * Prebunking * Factual Elaboration	3.75 (.19)	4.11 (.20)	4.26 (.15)	4.39 (.21)
Victim Narrative * Prebunking * Simple Rebuttal	4.25 (.20)	4.63 (.20)	3.89 (.16)	4.86 (.22)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.21	0.02	0.002	0.78
Significance, p	0.65	0.9	0.97	0.38

Table 6
Differences Between Conditions on Metacognitive Responses (RQ5-6)

	Metacognitive Responses Means (SDs)			
	Ambivalence in crisis responsibility	Ambivalence in crisis severity	Confidence in crisis responsibility	Confidence in crisis severity
Misinformation Narrative				
Blame Narrative	4.03 (.05)	3.95 (.05)	5.24 (.09)	5.08 (.09)
Victim Narrative	3.96 (.05)	3.97 (.05)	5.41 (.09)	5.17 (.09)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	1.01	0.15	1.75	0.51
Significance, p	0.32	0.7	0.19	0.48
Timing of Placement				
Debunking	4.03 (.05)	3.97 (.05)	5.30 (.09)	5.18 (.09)
Prebunking	3.97 (.05)	3.95 (.05)	5.34 (.09)	5.08 (.09)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.73	0.04	0.1	0.55
Significance, p	0.4	0.85	0.75	0.46
Detail of Refutation				
Factual Elaboration	3.97 (.05)	3.93 (.05)	5.37 (.09)	5.25 (.09)
Simple Rebuttal	4.02 (.05)	3.99 (.05)	5.27 (.09)	5.01 (.09)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.49	0.73	0.59	0.37
Significance, p	0.49	0.39	0.44	0.07

Table 6 Continued

	Ambivalence in crisis responsibility	Ambivalence in crisis severity	Confidence in crisis responsibility	Confidence in crisis severity
Timing * Detail				
Debunking *Factual Elaboration	4.07 (.07)	4.02 (.07)	5.33 (.13)	5.30 (.13)
Debunking * Simple Rebuttal	3.99 (.07)	3.91 (.07)	5.28 (.13)	5.05 (.13)
Prebunking *Factual Elaboration	3.88 (.07)	3.84 (.07)	5.42 (.13)	5.19 (.13)
Prebunking * Simple Rebuttal	4.06 (.07)	4.07 (.07)	5.27 (.13)	4.96 (.13)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	3.37	5.89	4.95	0.006
Significance, p	0.07	0.016	0.03	0.94
Timing * Misinformation				
Debunking * Blame Narrative	4.02 (.07)	3.94(.07)	5.24 (.13)	5.17 (.13)
Debunking *Victim Narrative	4.03 (.07)	3.99 (.07)	5.36 (.13)	5.18 (.13)
Prebunking * Blame Narrative	4.04 (.07)	3.95 (.07)	5.23 (.13)	4.99 (.13)
Prebunking *Victim Narrative	3.89 (.07)	3.95 (.07)	5.45 (.13)	5.17 (.13)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	1.44	0.15	0.35	0.43
Significance, p	0.23	0.7	0.56	0.51
Detail * Misinformation				
Factual Elaboration * Blame Narrative	4.04 (.07)	3.95 (.07)	5.38 (.13)	5.29 (.13)
Factual Elaboration * Victim Narrative	4.03 (.07)	3.95 (.07)	5.37 (.13)	5.21 (.13)
Simple Rebuttal *Blame Narrative	3.91 (.07)	3.91 (.07)	5.10 (.13)	4.87 (.13)

Simple Rebuttal *Victim Narrative	4.01 (.07)	4.03 (.07)	5.44 (.13)	5.14 (.13)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.62	0.73	0.45	1.82
Significance, p	0.43	0.4	0.5	0.18
Misinformation*Time*Detail				
Blame Narrative * Debunking * Factual Elaboration	4.12 (.10)	4.07 (.10)	5.39 (.18)	5.41 (.18)
Blame Narrative * Debunking * Simple Rebuttal	3.93 (.10)	3.81 (.10)	5.10 (.18)	4.94 (.18)
Blame Narrative * Prebunking * Factual Elaboration	3.96 (.10)	3.83 (.10)	5.36 (.18)	5.17 (.18)
Blame Narrative * Prebunking * Simple Rebuttal	4.13 (.10)	4.08 (.10)	5.11 (.18)	5.22 (.18)
Victim Narrative * Debunking * Factual Elaboration	4.02 (.10)	3.97 (.10)	5.26 (.18)	5.19 (.18)
Victim Narrative * Debunking * Simple Rebuttal	4.05 (.10)	4.01 (.10)	5.47 (.18)	5.17 (.18)
Victim Narrative * Prebunking * Factual Elaboration	3.81 (.10)	3.85 (.10)	5.48 (.18)	5.22 (.18)
Victim Narrative * Prebunking * Simple Rebuttal	3.98 (.10)	4.05 (.10)	5.42 (.18)	5.12 (.18)
df	(1, 482)	(1, 482)	(1, 482)	(1, 482)
F	0.71	1.62	0.21	0.13
Significance, p	0.4	0.2	0.65	0.72

Table 7

Differences Between Conditions on Emotional Responses (RQ7)

	Emotional Responses Means (SDs)		
	Uneasy / Apprehensive / Restless	Confused / Perplexed / bewildered	Cynical / skeptical / distrustful
Misinformation Narrative			
Blame Narrative	4.15 (.12)	3.58 (.12)	4.14 (.11)
Victim Narrative	4.05(.12)	3.59 (.12)	4.20 (.11)
df	(1, 482)	(1, 482)	(1, 482)
F	0.39	0.008	0.17
Significance, p	0.54	0.93	0.68
Timing of Placement			
Debunking	4.17 (.12)	3.65 (.12)	4.40 (.11)
Prebunking	4.03 (.12)	3.51 (.12)	3.94 (.11)
df	(1, 482)	(1, 482)	(1, 482)
F	0.66	0.75	8.96
Significance, p	0.42	0.39	0.003
Detail of Refutation			
Factual Elaboration	4.04 (.12)	3.59 (.12)	4.05 (.11)
Simple Rebuttal	4.16 (.12)	3.58 (.12)	4.29 (.11)
df	(1, 482)	(1, 482)	(1, 482)
F	0.51	0.001	2.47
Significance, p	0.48	0.98	0.12

Table 7 Continued

	Uneasy / Apprehensive / Restless	Confused / Perplexed / bewildered	Cynical / skeptical / distrustful
Timing * Detail			
Debunking *Factual Elaboration	4.34 (.17)	3.85 (.17)	4.40 (.16)
Debunking * Simple Rebuttal	3.99 (.17)	3.46 (.17)	4.40 (.16)
Prebunking *Factual Elaboration	3.74 (.17)	3.32 (.17)	3.70 (.16)
Prebunking * Simple Rebuttal	4.33 (.17)	3.70 (.17)	4.18 (.16)
df	(1, 482)	(1, 482)	(1, 482)
F	7.9	5.23	2.39
Significance, p	0.005	0.02	0.12
Timing * Misinformation			
Debunking * Blame Narrative	4.20 (.17)	3.60 (.17)	4.39 (.16)
Debunking *Victim Narrative	4.14 (.17)	3.71 (.17)	4.41 (.16)
Prebunking * Blame Narrative	4.11 (.17)	3.55 (.17)	3.88 (.16)
Prebunking *Victim Narrative	3.96 (.17)	3.47 (.17)	3.99 (.16)
df	(1, 482)	(1, 482)	(1, 482)
F	0.07	0.37	0.08
Significance, p	0.79	0.54	0.78
Detail * Misinformation			
Factual Elaboration * Blame Narrative	4.26 (.17)	3.79 (.17)	4.13 (.16)
Simple Rebuttal * Blame Narrative	4.05 (.17)	3.36 (.16)	4.15 (.15)
Factual Elaboration *Victim Narrative	3.82 (.17)	3.38 (.16)	3.97 (.15)
Simple Rebuttal *Victim Narrative	4.27 (.17)	3.80 (.17)	4.44 (.16)

df	(1, 482)	(1, 482)	(1, 482)
F	3.85	6.58	2.13
Significance, p	0.05	0.01	0.15
Misinformation*Time*Detail			
Blame Narrative * Debunking * Factual Elaboration	4.44 (.24)	3.90 (.24)	4.48 (.22)
Blame Narrative * Debunking * Simple Rebuttal	3.95 (.24)	3.29 (.23)	4.31 (.22)
Blame Narrative * Prebunking * Factual Elaboration	4.07 (.24)	3.68 (.24)	3.78 (.22)
Blame Narrative * Prebunking * Simple Rebuttal	4.14 (.23)	3.43 (.23)	3.98 (.22)
Victim Narrative * Debunking * Factual Elaboration	4.24 (.24)	3.79 (.23)	4.32 (.22)
Victim Narrative * Debunking * Simple Rebuttal	4.03 (.24)	3.63 (.24)	4.50 (.22)
Victim Narrative * Prebunking * Factual Elaboration	3.41 (.23)	2.97 (.23)	3.61 (.22)
Victim Narrative * Prebunking * Simple Rebuttal	4.51 (.24)	3.97 (.24)	4.37 (.22)
df	(1, 482)	(1, 482)	(1, 482)
F	1.24	1.43	0.12
Significance, p	0.27	0.23	0.73

Table 8

Differences Between Conditions on Main Misinformation Effect

	Crisis Responsibility	Crisis Severity	Organizational Reputation
Prebunking Narrative			
Nonnarrative	4.41 (.16)	4.61 (.15)	3.85 (.12)
Blame Narrative	4.47 (.16)	4.70 (.15)	3.83 (.13)
Victim Narrative	4.29 (.16)	4.58 (.16)	3.89 (.13)
Renewal Narrative	4.11 (.16)	4.39 (.16)	4.14 (.13)
df	(3, 348)	(3, 348)	(3, 348)
F	1.01	0.70	1.29
Significance, p	0.39	0.55	0.28

Table 9

Differences Between Conditions on main misinformation effect

	Misinformation Discussion (Intention)	Information Avoidance (Intention)	Social Correction (Intention)
Prebunking Narrative			
Nonnarrative	5.03 (.17)	2.71 (.14)	3.29 (.16)
Blame Narrative	4.71 (.18)	3.14 (.14)	3.61 (.17)
Victim Narrative	4.61 (.18)	3.34 (.15)	3.66 (.17)
Renewal Narrative	4.80 (.18)	3.03 (.15)	3.43 (.17)
df	(3, 348)	(3, 348)	(3, 348)
F	1.03	3.38	1.09
Significance, p	0.38	0.019	0.36

Table 10

Differences Between Conditions on Metacognitive Responses

	Metacognitive Responses Means (SDs)			
	Ambivalence in crisis responsibility	Ambivalence in crisis severity	Confidence in crisis responsibility	Confidence in crisis severity
Prebunking Narrative				
Nonnarrative	4.15 (.09)	4.20 (.08)	5.33 (.14)	5.30 (.15)
Blame Narrative	4.31 (.09)	4.18 (.09)	5.14 (.14)	4.89 (.15)
Victim Narrative	4.14 (.09)	4.10 (.09)	5.28 (.15)	5.41 (.16)
Renewal Narrative	4.12 (.09)	4.09 (.09)	5.67 (.15)	5.41 (.15)
df	(3, 348)	(3, 348)	(3, 348)	(3, 348)
F	1.00	0.40	2.42	2.67
Significance, p	0.39	0.75	0.07	0.05

Table 11

Differences Between Conditions on Feeling towards Character

	Feeling towards Character Means (SDs)		
	Identification	Character Liking	Character Trust
Prebunking Narrative			
Nonnarrative	3.90 (.12)	3.64 (.13)	4.14 (.16)
Blame Narrative	4.49 (.12)	4.67 (.14)	4.59 (.16)
Victim Narrative	4.80 (.12)	4.77 (.14)	4.77 (.16)
Renewal Narrative	4.68 (.12)	4.64 (.14)	4.69 (.16)
df	(3, 348)	(3, 348)	(3, 348)
F	11.25	15.35	3.20
Significance, p	<.001	<.001	0.02

Table 12

Differences Between Conditions on Perceived Information Quality

	Perceived Information Quality Means (SDs)	
	Perceived Information Quality (Correction)	Perceived Information Quality (Misinformation)
Prebunking Narrative		
Nonnarrative	4.10 (.13)	4.50 (.14)
Blame Narrative	4.55 (.13)	4.39 (.15)
Victim Narrative	4.59 (.13)	4.30 (.15)
Renewal Narrative	4.80 (.13)	4.20 (.15)
df	(3, 348)	(3, 348)
F	5.16	0.74
Significance, p	0.002	0.53

APPENDIX E: FIGURE FOR RESULTS

Figure 5.

Perceived crisis responsibility by correction strategy with different timing and detail level

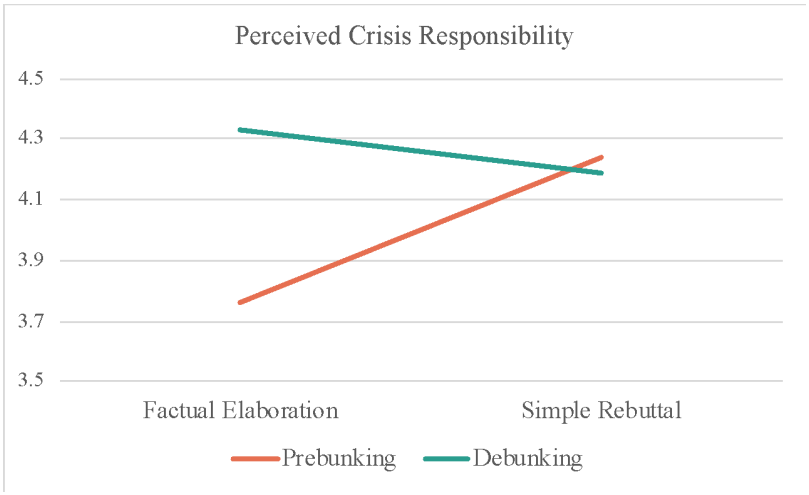


Figure 6.

Intention to discuss misinformation by different misinformation narrative and detail level of refutation.

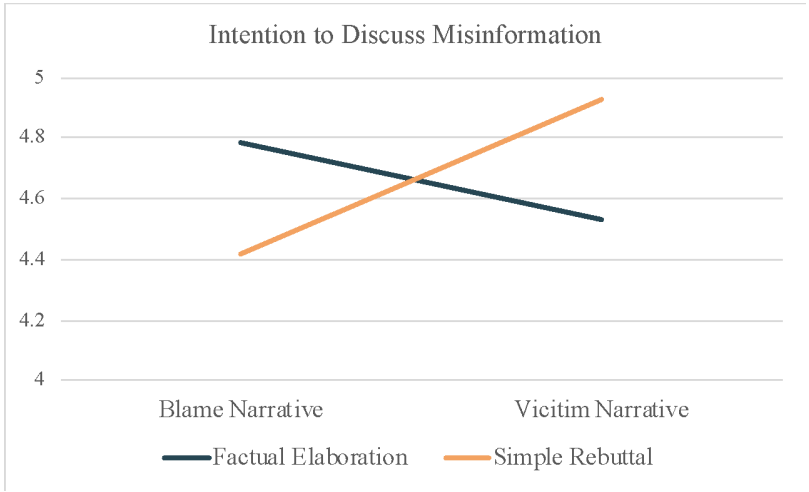


Figure 7.

Discrete Emotions by correction strategy with different timing and detail level (RQ7)

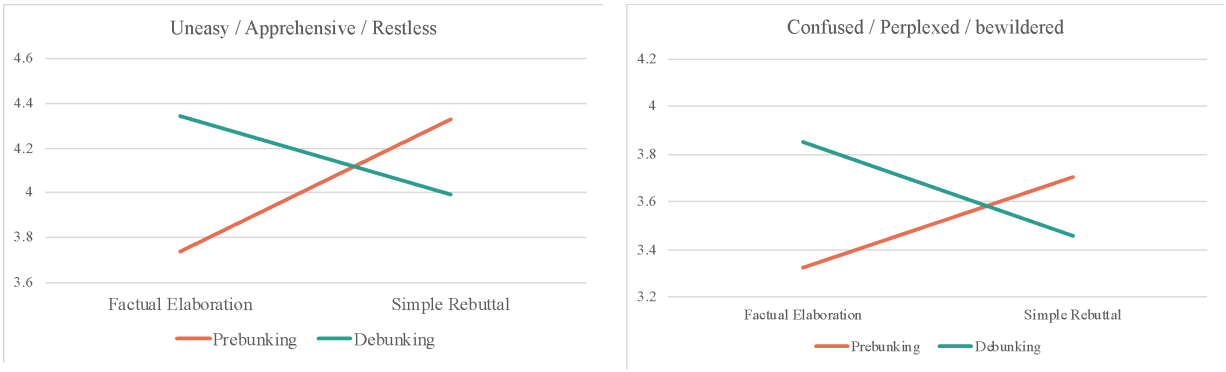


Figure 8.

Intention to discuss misinformation by different misinformation narrative and detail level of refutation. (RQ7)

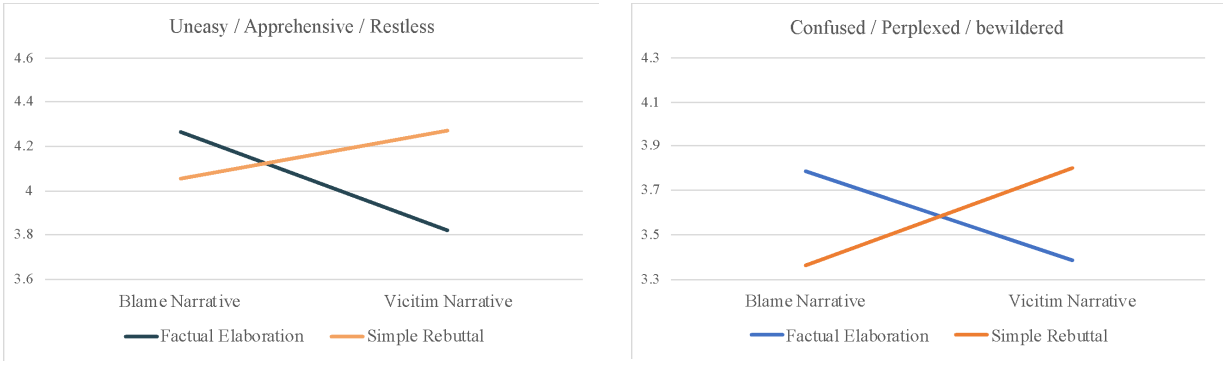
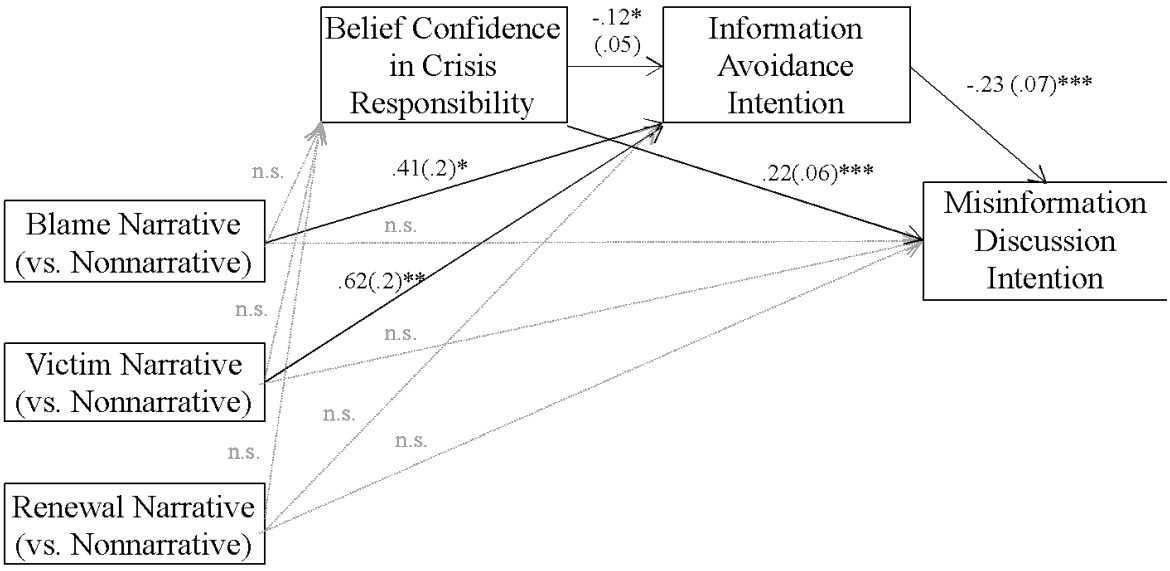


Figure 9a.

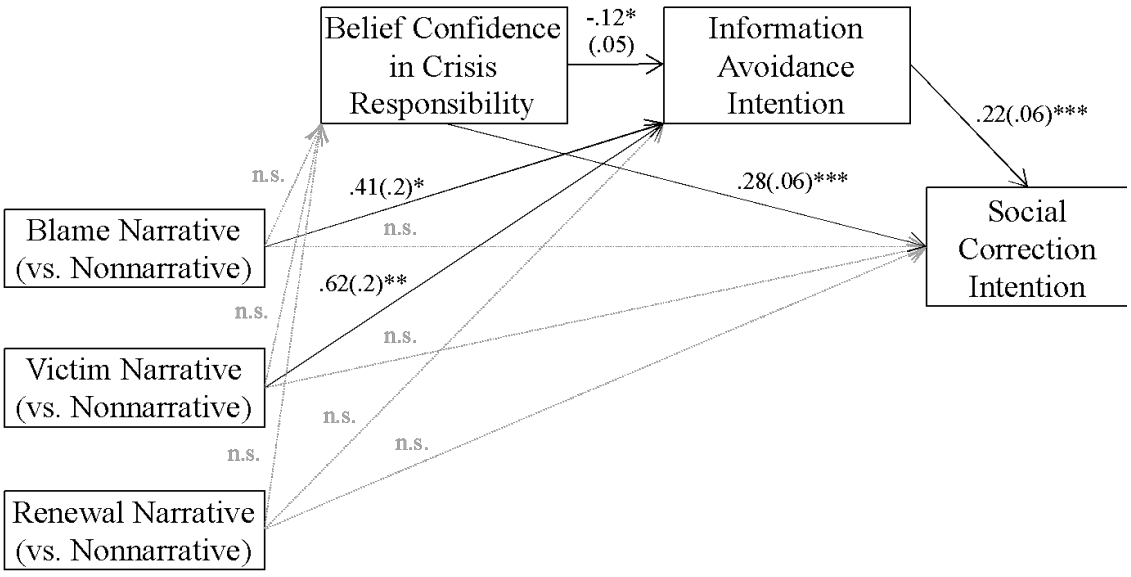
Sequential mediators of belief confidence in crisis responsibility and information avoidance intention in exposure to prebunking narrative for intention to discuss misinformation (RQ12.1)



Note. $N = 352$. Significant paths are presented with solid lines. Non-significant paths are presented with dotted lines. *p<.05; **p<.01; ***p<.001

Figure 9b.

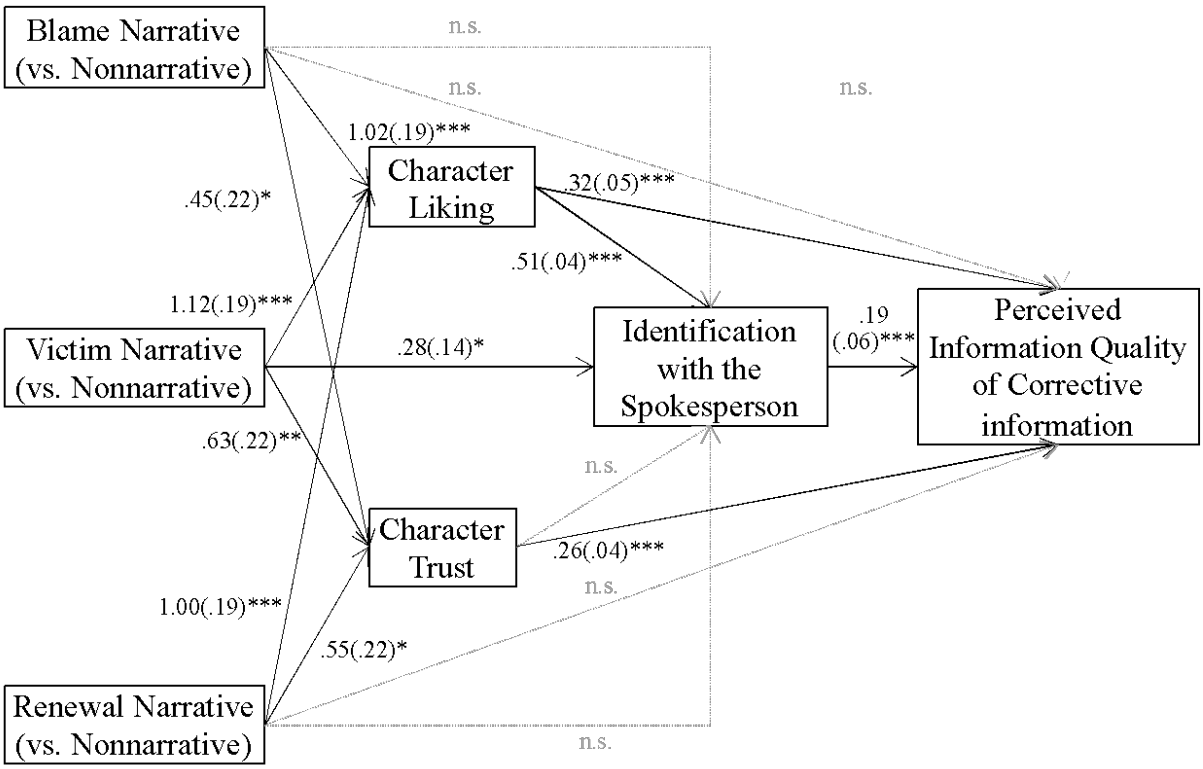
Sequential mediators of belief confidence in crisis responsibility and information avoidance intention in exposure to prebunking narrative for intention to make social correction (RQ12.2)



Note. N = 352. Significant paths are presented with solid lines. Non-significant paths are presented with dotted lines. *p<.05; **p<.01; ***p<.001

Figure 10.

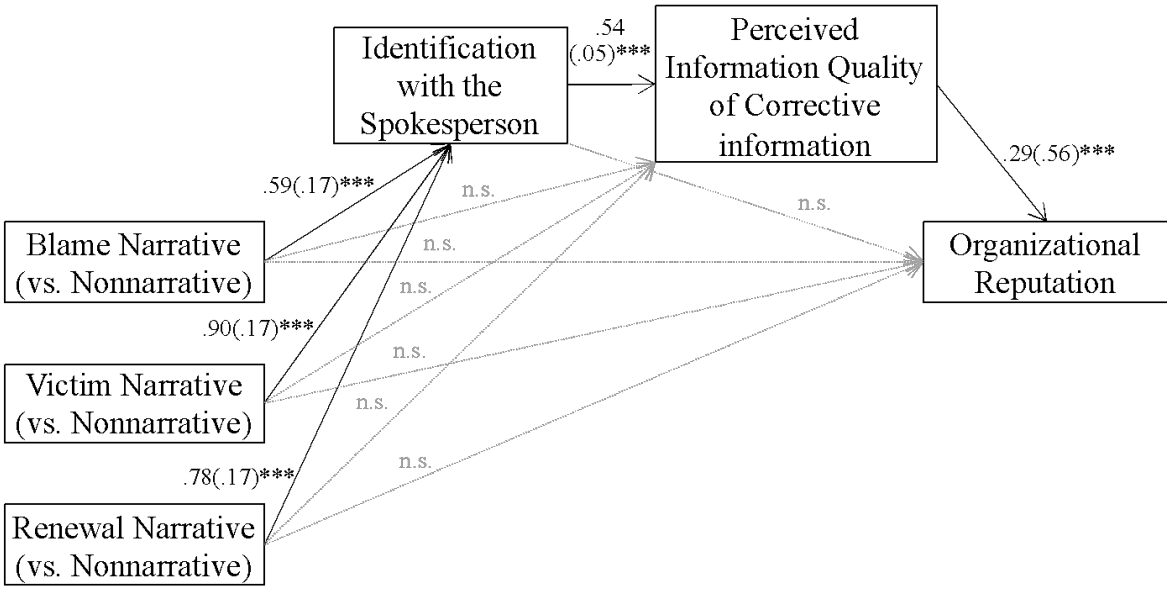
Sequential mediators of character liking/character trust and identification in exposure to prebunking narrative for perceived information quality (RQ16)



Note. N = 352. Significant paths are presented with solid lines. Non-significant paths are presented with dotted lines. *p<.05; **p<.01; ***p<.001

Figure 11a.

Sequential mediators of identification and perceived information quality in exposure to prebunking narrative for intention to organizational reputation (RQ17.1)



Note. N = 352. Significant paths are presented with solid lines. Non-significant paths are presented with dotted lines. *p<.05; **p<.01; ***p<.001

Figure 11b.

Sequential mediators of identification and perceived information quality in exposure to prebunking narrative for intention to discuss misinformation (RQ17.2)

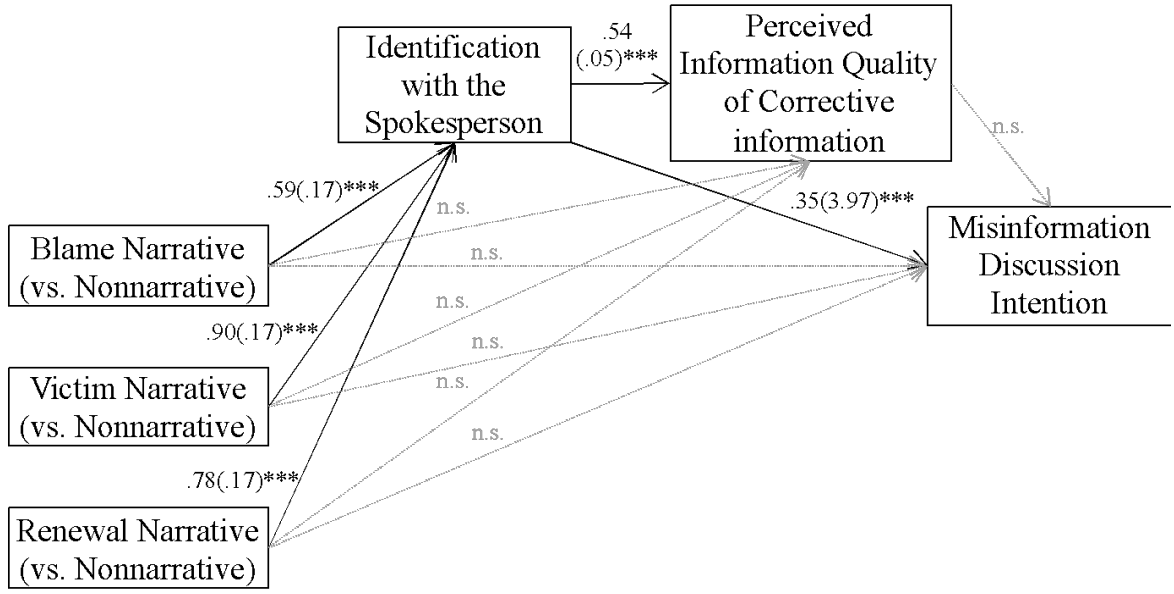
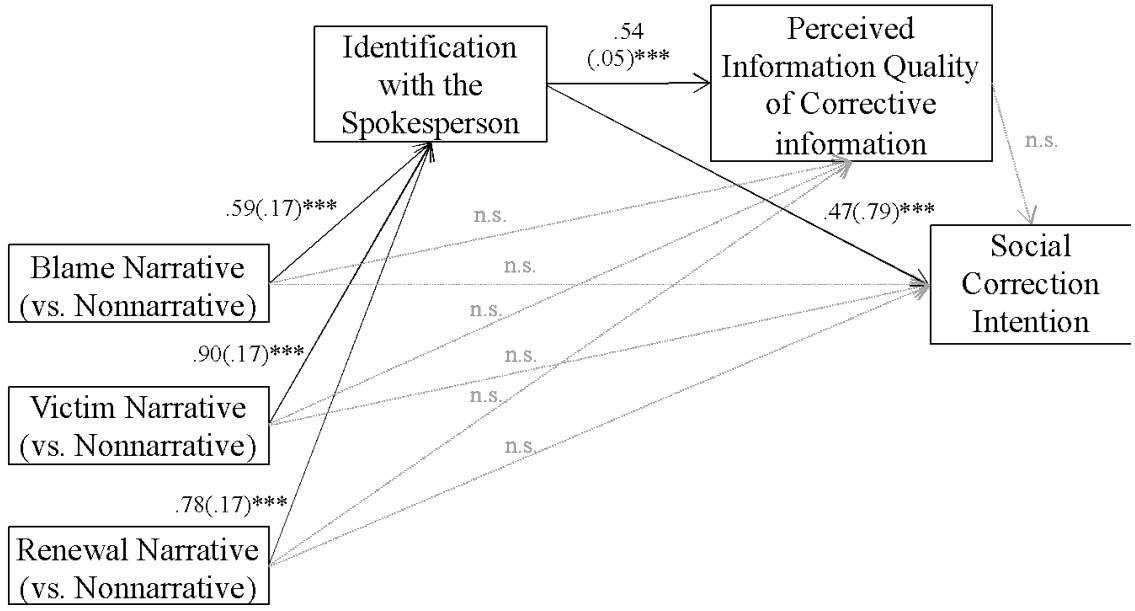


Figure 11c.

Sequential mediators of identification and perceived information quality in exposure to prebunking narrative for intention to make social correction (RQ17.3)



Note. N = 352. Significant paths are presented with solid lines. Non-significant paths are presented with dotted lines. *p<.05; **p<.01; ***p<.001