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# The Effects of Corrective Communication and Employee Backup on the Effectiveness of Fighting Crisis Misinformation

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## ABSTRACT

Crisis misinformation, including false information about a crisis or a crisis-stricken organization, has become a fundamental threat to organizational wellbeing. Effective crisis response geared toward fighting crisis misinformation demands a more systematic approach to corrective communication. Grounded in misinformation debunking theory, this study aims to advance misinformation research in public relations and organizational crisis communication. An online experiment using a U.S. adult sample (N = 817) was conducted to examine the effects of corrective communication strategy (simple rebuttal vs. factual elaboration) and employee backup (present vs. absent) on perceived message quality, organizational reputation, and perceived crisis responsibility. Results show: 1) the use of factual elaboration and the presence of employee backup were direct contributors to crisis response effectiveness; and 2) perceived message quality mediates the effect of corrective communication. This study provides insights into advancing crisis communication theory and offers evidence-based recommendations for practitioners to combat crisis misinformation more effectively.

## 1. Introduction

Among many threats an organization faces, false information about a crisis (e.g., crisis severity, crisis responsibility) has become increasingly detrimental to the organization's crisis communication efforts (van der Meer & Jin, 2020). False information, labeled as fake news (Ireton & Posetti, 2018), misinformation (Southwell, Thorson, & Sheble, 2018; van der Meer & Jin, 2020), or disinformation (McCorkindale, 2019a), threatens an organization's reputation, business continuity, and publics' wellbeing. The understanding of misinformation contributes to the base knowledge for crisis communicators (Coombs, 2014).

Crisis misinformation, if not contained timely or neutralized effectively, can lead to misinformation crisis (Coombs, 2014). Given the danger brought forward by crisis misinformation in various forms (e.g., false accusations, malice allegations, incomplete information, falsified information), to debunk crisis misinformation and intervene its spread has emerged as an essential task for practitioners (van der Meer & Jin, 2020). However, given the nature of public relations as managing competition and conflict (Cameron, Wilcox, Reber, & Shin, 2007), by fighting crisis misinformation, organizations often unavoidably add conflicting information to the crisis situation, a side effect that might result in publics trapped between two contradictory pieces of

information (misinformation vs. correct information) and feeling confused about which one to trust and how to react accordingly (Liu & Kim, 2011).

When it comes to crisis misinformation debunking, Coombs (2014) emphasized the need for organizations to "aggressively fight inaccurate information." Among the Situational Crisis Communication Theory (SCCT) based response strategies, Coombs (2014) recommended denial as best reserved for misinformation crises, which entails the need for an accused organization to explain what the actual situation is with supportive evidence. This response strategy, as pointed out by van der Meer and Jin (2020), corresponds to simple rebuttal and factual elaboration, two primary corrective communication strategies recommended by misinformation debunking scholars (e.g., Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012).

Thus far, few studies have integrated misinformation debunking theory with crisis misinformation frameworks, with the only exception being van der Meer and Jin's (2020) study on the effects of corrective information strategy and misinformation debunking source on publics' responses to a public health crisis. There is a lack of empirical evidence on how to effectively fight misinformation as an organization in order to avoid a misinformation crisis. At least two research gaps can be identified: First, the effectiveness of different corrective communication

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strategies, especially in enhancing organizational message quality in conflicting information environment (Weick, 1988) and multi-vocal media communication system (Frandsen & Johansen, 2017), on key crisis communication outcomes (e.g., crisis responsibility and reputation), needs to be further examined in the context of organizational crises. Second, regarding trusted source for corrective communication, the unique opportunity for employees to play a significant supportive role in an organization's overarching misinformation-debunking efforts has been understudied. Despite the low trust Americans put in corporations (McCorkindale, 2019b), Opitz, Chaudhri and Wang (2018) found that, in corporate crises, employees can be effective advocates for their companies. If employees' voluntary supportive messages (e.g., posts on social media backing up their employers) are perceived as authentic, their "eye-witness" perspective (Opitz, Chaudhri, & Wang, 2018) can increase message believability and help lessen corporate reputational damage (Mazzei, Kim, & Dell'Oro, 2012; Kim & Rhee, 2011). Adding credibility to an organization's message is critical, as publics often do not know what to believe and who to trust in the context of misinformation crises. The organization itself has a credibility disadvantage simply because publics would expect that any crisis-stricken organization would try to fight any reputation-damaging information (regardless of facticity). Additionally, the latest Edelman Trust Barometer report (Edelman, 2020) found that publics regard organizational information from employees of a company as more credible than that from the company's CEO. Therefore, the backup from a more authentic source (e.g., employees) might convince publics that the corrective information from the organization is indeed true and the prior accusing information should be regarded as false.

To help close these misinformation research gaps in the realm of public relations and organizational crisis communication, we conducted an online experiment using a U.S. adult sample (N = 871) to examine: 1) the effectiveness of corrective communication strategy type (simple rebuttal vs. factual elaboration) in lessening reputational damage and lowering perceived crisis responsibility; and 2) the supporting role of employee backup (supporting the organization's corrective information) amidst a crisis misinformation battle. Findings from our study provide insights that advance public relations theory and offer evidence-based recommendations that equip practitioners with more effective debunking ammunition to fight crisis misinformation.

## 2. Literature Review

### 2.1. Crisis Misinformation

Different labels, such as misinformation and disinformation, have been used to describe false/incorrect information. While disinformation is defined as false information that is deliberately created and transmitted as misleading news to harm others (Ireton & Posetti, 2018; McCorkindale, 2019a), misinformation is defined as false information that is not created intentionally to cause harm (Ireton & Posetti, 2018). Regardless of the label, such false/incorrect information can lead to "downstream consequences for health, social harmony, and political life" (Southwell et al., 2018, p.2) due to the confusion of factual matters, interference with personal issue preferences, and misperception (Southwell et al., 2018).

#### 2.1.1. Defining crisis misinformation

In crisis communication, the term "misinformation" has been predominately used to describe false information about a crisis (e.g., Coombs, 2014; van der Meer & Jin, 2020). No matter it is deliberately created to harm the organization or unintentionally created/shared, crisis managers must fight misinformation timely and strategically (Coombs, 2014).

In this study, based on current misinformation research in crisis communication (Coombs, 2014; van der Meer & Jin, 2020) and Tan, Lee, and Chae, (2015) definition of misinformation as "explicitly false"

information according to what is considered to be incorrect by expert consensus (p. 675), we thus define *crisis misinformation* 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 credible source(s) (e.g., the organization, news media, third-party experts, and government agencies, and internal/external witnesses).

Additionally, when misperception about a crisis is formed based on misinformation, the correcting process becomes hard even though publics are motivated to have accurate information (van der Meer & Jin, 2020). We therefore posit that crisis misinformation can lead to publics' *crisis misperception* about any aspect of a crisis and might cause intentional/unintentional damage to an organization's reputation and/or operation if the crisis misinformation is not intervened and corrected effectively.

#### 2.1.2. Corrective communication outcomes

Confronted by crisis misinformation threats that often target at creating misperception among publics, the effectiveness of an organization's corrective communication efforts can be assessed according to key crisis communication outcomes (e.g., Coombs, 2010; Coombs & Holladay, 1996), among which are crisis responsibility and organizational reputation (Coombs, 2007). In a conflict-laden complex media environment, both misinformation and corrective information about a crisis can easily reach publics via various channels, influencing publics' evaluation of whether an accused organization is actually responsible for the crisis and how much reputational damage might be shielded by the accused organization's corrective communication against the accusing information.

Therefore, this study focuses on two key communication outcome measures of organizational responses to crisis misinformation, namely, crisis responsibility and organizational reputation. Crisis responsibility, defined by Coombs (1998) as "the degree to which stakeholders blame the organization for the crisis" (p. 180), is the key to understanding the nature of a crisis and guides an organization how to cope with and respond to the crisis properly (Coombs, 1998). According to Coombs and Holladay (2002), a crisis event becomes a reputational threat to an organization when publics attribute crisis responsibility to the organization itself. Organizational reputation refers to "a collective assessment of a company's ability to provide valued outcomes to a representative group or stakeholders" (Fombrun, Gardberg, & Sever, 2000, p. 243) and is evidenced by the degree to which an organization meets multiple stakeholders' expectation (Coombs, 2007). As an intangible asset, organizational reputation needs to be protected and how to lessen reputational damage by a crisis is a long-standing topic of focal interest among public relations scholars and practitioners (e.g., Dowling, 2002; Fombrun & van Riel, 2004).

### 2.2. Debunking Crisis Misinformation via Corrective Communication

Among SCCT crisis response strategies, denial was recommended by Coombs (2014) as best reserved for misinformation crises. Deny crisis response strategies can be manifest in (a) the accused organization confronting the accuser that made a wrong claim against the accused organization (i.e., attack the accuser), (b) the organization asserting that there is no crisis (i.e., denial), or (c) the organization blaming someone or some group outside for the crisis (i.e., scapegoat) (Coombs, 2007). As advised further by Coombs (2014), an organization might choose some form of denial, claiming "no involvement with crisis or no crisis exists thus the organization has no responsibility to the victims", if the organization has no connection to the crisis or if the responsibility is ambiguous (i.e., the crisis might or might not be at the fault of the organization). From a broader perspective of misinformation communication research, these denial-based crisis response strategies share many commonalities with "debunking strategies", which refer to "presenting a corrective message that establishes that the prior message was misinformation" (Chan, Jones, Jamieson, & Albarracin, 2017, p.

1532). In our study and specific to organizational responses to misinformation crisis, we further posit the use of the term **corrective communication** to describe, in an organizational crisis, how an organization presents corrective message to establish that the prior message about one or multiple aspect of the crisis was misinformation.

Current debunking literature suggests different ways of correcting misinformation, including either directly refuting the misinformation or providing additional factual information (e.g., Chan, Jones, Jamieson, & Albarracín, 2017; Lewandowsky et al., 2012; Swire & Ecker, 2018). In the setting of a public health crisis in the U.S., van der Meer and Jin's (2020) identified two types of corrective information strategy in health crisis communication (simple rebuttal vs. factual elaboration) and tested their effects on publics' awareness of accurate crisis information and their intention of taking preventive action as recommended during an infectious disease outbreak. Their results showed that the presence of corrective information debunks incorrect beliefs based on misinformation. Given the context of crisis misinformation, we adopt and extend this approach taken by van der Meer and Jin (2020), further assessing the effectiveness of two specific crisis misinformation corrective strategies (simple rebuttal vs. factual elaboration) in the context of a corporate crisis.

### 2.2.1. Simple rebuttal

According to van der Meer and Jin (2020), denial approach corresponds to *simple rebuttal*, or "simple, brief rebuttal" corrective information as recommended by misinformation debunking research scholars Lewandowsky et al. (2012): "use fewer arguments in refuting the myth – less is more" (p. 122). The effectiveness of using simple rebuttal was found in fostering healthy skepticism about the misinformation (Lewandowsky et al., 2012). O'Keefe (2016) argued that direct refuting the opposing information would enhance the persuasiveness of the advocated information in a conflicting informational environment, and, conversely, the advocated information would be less persuasive if the opposing information is not refuted.

### 2.2.2. Factual elaboration

Based on Coombs (2014)'s argument that in fighting misinformation, an organization should explain what the crisis situation actually is and provide supportive evidence for its position, van der Meer and Jin (2020) built the linkage between the need to elaborate evidence-based supportive evidence with another type of corrective information, *factual elaboration* (or "emphasis on facts") which reinforces the correct facts (p. 122) as recommended by Lewandowsky et al. (2012). Factual elaboration, as a corrective communication strategy, is in a form of a detailed debunking message that provides publics with a more elaborated narrative to cognitively counter the crisis misinformation, characterized as "well argued" and "sufficiently detailed to allow recipient to abandon initial information" (Chan et al., 2017, p. 1532). Chan et al.'s (2017) meta-analysis of debunking messages' psychological efficacy reported that factual elaboration tends to be effective in countering attitudes and beliefs based on misinformation. Further as evidenced in van der Meer and Jin's (2020) study, the exposure to corrective information using factual elaboration stimulates higher intentions to take protective actions compared to that triggered by simple-rebuttal strategy.

Although we have some preliminary evidence for the benefit of using either simple rebuttal or factual elaboration to correct misinformation among affected publics in public health crisis context, no organizational crisis communication research has been conducted regarding: 1) whether corrective strategy matters; and 2) if so, which strategy type may be more effective when it comes to the key measures of organizational crisis communication outcomes (e.g., reputation and crisis responsibility). Therefore, to further understand the effect of corrective communication strategy type in the setting of organizational crisis, we ask:

**RQ1:** How, if at all, does the type of corrective communication

strategy (simple rebuttal vs. factual elaboration) exert any direct effect on (a) reputation and (b) crisis responsibility?

### 2.3. The Supporting Role of Employee Backup in Corrective Communication

The source of debunking message is another key ingredient in debunking misinformation (Bode & Vraga, 2015) as credible corrective information is more effective in reducing misconception (Bode & Vraga, 2015). Previous misinformation correction studies mainly discussed the varied credibility of different sources (e.g., organizations, individuals, social media users, algorithm/automaton on social media platforms) and how such perceptions influence individuals' information selection and evaluation (Messing & Westwood, 2014). For example, public health authority was found to be a credible source that triggered more public attention to Zika outbreak information (Southwell, Dolina, Jimenez-Magdaleno, Squiers, & Kelly, 2016). Government agency and news media sources were found to be successful in improving belief accuracy about a public health crisis (van der Meer & Jin, 2020). However, the effect of corrective message source seems to be limited and often contingent upon other factors (e.g., social media environment). For example, source did not influence individuals' evaluation of corrective information credibility on social media (Bode & Vraga, 2018; Bode & Vraga, 2015). In combating misinformation about Zika virus on Facebook, corrective message produced by algorithm and Facebook users were found to be equally effective with equal credibility evaluation (Bode & Vraga, 2018). On Facebook, even if a corrective story was evaluated as less credible due to the fact that it contradicted with participants' pre-existing issue attitude, the corrective story still maintained sufficient ability to debunk misinformation by changing attitudes affected by prior misperception (Bode & Vraga, 2015).

Furthermore, Vraga and Bode (2018) argued that misinformation-caused misperception is unlikely to be reduced by mere exposure to corrective information. As suggested by Petty and Cacioppo (1984), more supportive evidence motivates individuals to carefully process information even if they were in low involvement with the message itself. Scholars also suggested that, when updating information during a crisis, multimodal sources (e.g., on-site witness and interactive social media communication) should be used to support official notification (Palen, Vieweg, Liu, & Hughes, 2009). Therefore, more evidence or additional support is needed as supplemental ingredient to effective corrective communication, which can play a critical supporting role in the overall debunking effectiveness. Existing misinformation research has primarily focused on supportive evidence provided by official social media accounts, social peers, and algorithms, which yielded limited and mixed results. For instance, when a correction is made by social peers, providing a link to or an external source of additional supportive evidence was found to improve correction effectiveness on Facebook but not on Twitter (Vraga & Bode, 2018). Additional credible sources, whose presence might support an organization's corrective information, need to be identified and further examined.

In the context of organizational crises, one of the potential credible sources for debunking misinformation can be the accused organization's employees, based on the witness factor in supplemental evidence effectiveness advocated by Palen et al. (2009). Most research involving the role of employees in crisis communication has an internal communication emphasis, including crisis prevention through internal relationship building with employees (Taylor, 2010) and the effect of manager-employee communication on internal trust and reputation (Mazzei & Ravazzani, 2011). The role of employees in crisis communication, geared toward external publics, is thus a crescent research area (Opitz et al., 2018).

Employee's voluntary communication behavior in crisis (e.g., disseminating positive information about their organizations) though information network to external publics was found to be favorable to company reputation (Kim & Rhee, 2011; Mazzei et al., 2012; Opitz et al., 2018), shedding light to the potential of authentically integrating



employees as credible communicators in organizational crisis responses (Opitz et al., 2018). Previous studies reported that employees worked as effective corrective communication agents in combating health crisis misinformation when the traditional source did not work in place (e.g., Reilly, 2008), they functioned as “powerful brand ambassadors” (Dreher, 2014, p. 344), and they worked as an independent source of information using their personal accounts on social media such as Twitter (van Zoonen & van der Meer, 2015) or leading online discussion about their organizations on social media (van Zoonen, van der Meer, & Verhoeven, 2014).

However, little is known regarding whether the presence of *employee backup*, whereas an employee functions as voluntary advocate and provides additional evidence (based on personal experience or other first-hand factual information) to support the organization’s position in its official corrective communication, might influence publics’ evaluation of organizational reputation and crisis responsibility. Therefore, to help fill this void in crisis communication research by assessing the supporting role of employee backup itself and its potential joint effect with the organization’s corrective communication strategy, we ask:

**RQ2:** How, if at all, does employee backup (present vs. absent) exert any direct effect on (a) reputation and (b) crisis responsibility?

**RQ3:** How, if at all, does corrective communication strategy type and employee backup exert any interaction effect on (a) reputation and (b) crisis responsibility?

#### 2.4. Perceived Message Quality

Given the informational competition and conflict created by both crisis misinformation and corrective information counter-arguing against the initial misinformation, corrective communication needs more specific informational measure to indicate its communicative outcomes, in addition to the established crisis communication outcome measures such as organizational reputation and crisis responsibility. In this study, we adopt the concept of *perceived message quality*, grounded in information processing literature (e.g., Dillard, Weber, & Vail, 2007), and posited it as a direct indicator of crisis information quality as evidenced in argument strength perceived by publics. Perceived message quality was then used as an outcome measure for the influence of both misinformation and its correction regarding the same crisis.

According to the elaboration likelihood model (ELM), the persuasive effectiveness of a message is determined by the degree to which individuals process the message carefully and thoughtfully (Petty & Cacioppo, 1986). Jerit and Barabas (2012) further pointed out that individuals tend to engage themselves more with consistent information to their pre-existing attitude for the confirmation purpose and avoid inconsistent information. In the context of misinformation corrective communication, corrective information might lose its effectiveness due to individuals’ lack of either the motivation to continue to think about the message they are exposed to, or the ability to think about the merits presented in the corrective message. Meantime, researchers also found that a message with inconsistent information, compared with consistent information, would be processed more systematically (Jain & Maheswaran, 2000), which corresponds to Jerit and Barabas (2012)’s argument that message inconsistency can trigger motivated reasoning that creates individuals’ counterarguments between conflicting messages. Therefore, corrective information, though inconsistent to individuals’ preference, has the potential to evoke high elaboration among motivated individuals.

Jain and Maheswaran (2000) also found that under the condition of high elaboration, a message with strong argument is more persuasive than one with weak argument. Argument strength, defined by Petty and Cacioppo (1986), refers to individuals’ perception of whether the message is strong and cogent. Strong arguments would be more likely to make individuals stand with the message’s advocated position (Petty &

Cacioppo, 1986). Extended studies also found message characteristics (e.g., quantity of information, source credibility, and message format) that can influence individuals’ perception of the argument strength or the message quality, which can later influence their acceptance of the message itself (Cappella, 2006).

Perceived message quality has been conceptualized as perceived message effectiveness, measured by asking message recipients to evaluate the quality of the message (e.g., how logical and convincing the message is). In the context of strategic communication, perceived message quality not only influences publics’ stance toward a message but also impacts their perception of an organization or an issue the message advocates for. For example, advertising scholars found the causal relationship between attitude toward an advertisement and attitude toward the advertised brand (Davis, Nonnemaker, Duke, & Farrelly, 2013). Health communication scholars reported similar relationship between a health message and the promoted behavior (Dillard & Peck, 2000). In the domain of crisis communication, however, whether (and if so, how) publics perceive the quality of crisis-related messages (of varied sources) differently, as a function of corrective strategy type and employee backup, remains unknown. Therefore, to venture into this new crisis research frontier by further examining perceived message quality as a new outcome measure in crisis misinformation corrective communication, we ask:

**RQ4:** How, if at all, do corrective communication strategy type and employee backup exert direct effect on (a) perceived quality of the accused organization’s corrective message and (b) perceived quality of the accuser’s initial message?

In addition, as noted by Dillard et al. (2007), individuals’ perceived message quality mediates the effect of emotion and cognition evoked by the message on attitude toward the advocated issues. Considering the attitude transferring from a message to its advocated organization/brand (e.g., Davis et al., 2013; Dillard & Peck, 2000; Dillard et al., 2007), we further posit that, in the context of organizational crisis communication, the perceived message quality of both crisis misinformation and corrective information can influence the effects of the corrective communication strategy and the supporting role of employee backup on publics’ evaluation of organization reputation and crisis responsibility. However, there is no empirical evidence, in the setting of crisis communication, to support any further postulate regarding how these mediation effects may take place and in what direction. Therefore, we ask the following question to investigate the potential mediation effects exerted by perceived message quality:

**RQ5:** How, if at all, does (a) perceived quality of the accused organization’s corrective message and (b) perceived quality of the accuser’s initial message mediate the effects of corrective communication strategy and employee backup on reputation and crisis responsibility, respectively?

### 3. Method

A 2 (corrective communication strategy: simple rebuttal vs. factual elaboration) x 2 (employee backup on social media: present vs. absent) between-subjects online experiment was conducted with a representative sample of 817 adults in the U. S. Participants were recruited by Qualtrics, a professional research firm, which provided small incentives for their participation. This study was approved by the Institutional Review Board at a large research university in the U.S.

#### 3.1. Stimuli Development

All participants received an introductory statement that asked them to imagine they were browsing updates from a news website and saw a headline about a pet food contamination crisis situation associated with a fictitious leading pet food company in the U.S., NatureNutrition. As detailed in the news story, a lot of wet food produced by NatureNutrition was found to be contaminated with *Salmonella*, which

is associated with reported incidents of several pet sick cases and one death. NatureNutrition has recalled the affected lot nationwide. However, it states firmly that the company is not responsible for any of the incidents caused by the contamination because their manufacturing process ensures product safety.

Participants were then led to a responding Facebook<sup>1</sup> post from a fictitious special-interest group, LovePets, consisting of volunteers who love pets. According to the brief organizational background, one of LovePets' missions is to educate the general public on pet health by sharing emerging news of pet food manufacturing industry. Specifically in this Facebook post, LovePets accuses NatureNutrition for directly causing the food contamination crisis and alleges that the company is fully responsible for what happened and its consequences.

After reading the food contamination crisis news and subsequently LovePets' accusations on NatureNutrition's crisis responsibility, participants in all four conditions were then presented with NatureNutrition's further response to correct crisis misinformation regarding the pet food contamination situation, in the form of a post on their official Facebook page. The organizational voice in the post was demonstrated as merely a statement from the company (without any reference to an organizational spokesperson or the CEO). From this point on, participants were randomly assigned to one of the four conditions, reflecting NatureNutrition's corrective communication strategy (simple rebuttal vs. factual elaboration) in response to accusations about their crisis responsibility with/without employee backup on social media, respectively: 1) simple rebuttal with employee backup, 2) simple rebuttal without employee backup, 3) factual elaboration with employee backup, and 4) factual elaboration without employee backup. While the post reflecting the simple-rebuttal strategy simply refuses the alleged contamination responsibility, the post reflecting the factual-elaboration strategy provides detailed counterarguments, point by point, based on science-based evidence why it would have been impossible for the contamination to be attributed to the company's manufacturing process. For participants randomly assigned to the two conditions with NatureNutrition employee backup<sup>2</sup>, after reading the company's official corrective message they were further directed to a Facebook post written by a current NatureNutrition employee, who works on the frontline of the company's manufacturing facilities for decades. In the Facebook post, the employee, using first personal voice, refers to firsthand witness of the rigorous manufacturing process the company has in place to ensure product safety and pledges strong support to the company's statement that it is not responsible for the pet food contamination.

### 3.2. Participants and Procedure

A total of 817 U.S. adults participated in the online experiment in June and July of 2019. Since the stimuli were developed by modeling existing visual social media posts on Facebook and previous crisis news of wet pet food contamination, to further ensure the crisis situation relevance, three screening questions were in place for the recruitment process to ensure that all participants 1) had pets such as cat(s) and/or dog(s), 2) had Facebook social media accounts, and 3) reported that their households purchased wet food for their pets before. Only those who answered yes to all three screening questions were recruited as final participants in the study and proceed to read the crisis news, LovePets' accusing post, and then randomly assigned to one of the four

<sup>1</sup> Facebook is chosen as the stimuli platform for misinformation and corrective information, because it is viewed by Americans as the platform most responsible for spreading disinformation (McCorkindale, 2019c).

<sup>2</sup> An employee's personal Facebook post is used in the stimuli, because employees are able to act as defender of their crisis-stricken employers to reach out to stakeholders outside by utilizing personal social media accounts to share their knowledge about the organization (Opitz et al., 2018).

experimental conditions reflecting NatureNutrition's responses to crisis responsibility accusations. Then participants were asked to respond a series of survey questions assessing their perceived crisis responsibility, company reputation, and the company's argument strength.

In terms of participants' demographics: Age-wise, 9.4% (n = 77) were 18-24, 21.3% (n = 174) were 25-34, 19.7% (n = 161) were 35-44, 15.8% (n = 129) were 45-54, and 33.8% (n = 276) were older than 55. There were 284 males (34.8%), 527 females (64.5%), two refusing to tell (0.2%), and four preferring to describe in their own terms (0.5%). Regarding education level, 21 (2.6%) had less than high school degree, 265 (32.4%) had high school graduate degree, 234 (28.6%) had some college but no degree, 57 (7.0%) had associate degree in 2-year college, 114 (14.0%) had bachelor's degree in 4-year college, 106 (13.0%) had master's degree, 12 (1.5%) had doctoral degree, and eight (1.0%) had professional degree (JD, MD). In terms of ethnicity, the majority were White (70.3%, n = 574), with the remaining being Black (12.5%, n = 102), Hispanic (8.4%, n = 69), Asian (5.1%, n = 42), and more than two races (3.7%, n = 30). With regard to income, 24.0% (n = 196) were under \$25,000, 31.1% (n = 254) were \$25,000 to \$49,999, 29.4% (n = 240) were \$50,000 to \$99,999, and 15.5% (n = 127) were \$100,000 or more. When it comes to the state of residence, 17.4% (n = 142) of the participants resided in Northeast states, 20.4% (n = 167) in Midwest states, 32.6% (n = 266) in South states, and 29.6% (n = 242) in West states.

### 3.3. Independent Variables

The experiment included three sets of manipulation check items to determine whether the participants perceived the corrective communication strategy and the presence (or not) of the employee backup, embedded in the Facebook posts regarding the wet food pet contamination, as manipulated in the respective stimuli.

#### 3.3.1. Corrective communication strategy

Participants were asked to respond to, "After reading LovePets' Facebook message that holds NatureNutrition responsible for the pet food contamination situation, you read a Facebook response from the company (NatureNutrition) claiming LovePets' accusation is not true. Based on your reading, how detailed was the information provided in the Facebook post from NatureNutrition?" with "1 = Not detailed at all" and "7 = Very detailed". ANOVA found significant differences between two the types of corrective strategies (simple rebuttal vs. factual elaboration),  $F(1,815) = 100.66, p \leq .001$ . Participants exposed to NatureNutrition's Facebook post using factual elaboration ( $M = 5.18, SE = .09$ ) perceived the post as significantly more detailed than participants exposed to NatureNutrition's Facebook post using simple rebuttal ( $M = 3.97, SE = .09$ ). Therefore, the manipulation of corrective strategy from the company was successful.

#### 3.3.2. Employee backup

Participants were asked to respond to the statement "Did you see any personal post from an employee of NatureNutrition, expressing support for the company?" with checked items using the nominal scale 1 = yes and 2 = no. The chi-square results showed a significant difference,  $\chi^2(1) = 255.49, p \leq .001$ . Among the total number of 415 participants who were in the two conditions with Mature Nutrition employee backup, 79% of them (n = 328) selected the correct answer, indicating they saw the evidence of employee backup. Among the total number of 402 participants who were in the other two condition without NatureNutrition employee backup, 76.9% of them (n = 309) selected the correct answer, indicating that they did not see any employee backup. Therefore, the manipulation check of the presence (or not) of employee backup was successful.

### 3.4. Dependent Measures

#### 3.4.1. NatureNutrition's crisis responsibility

Crisis responsibility was accessed using 12 items from Brown and Ki (2013) on a 7-point Likert-type scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". For instance, the items included "The cause of the crisis situation was an international act by someone in NatureNutrition", "Someone in NatureNutrition knowingly created the cause of the crisis", and "A deliberate act by someone in NatureNutrition caused the crisis". An index was created for NatureNutrition's crisis responsibility ( $\alpha = .93$ ,  $M = 4.26$ ,  $SD = 1.24$ ).

#### 3.4.2. NatureNutrition's reputation

A three-item measure of organization reputation, adapted from an existing reputation measure (Coombs & Holladay, 1996, 2002), was presented for participants to respond using a 7-point Likert-type scale where 1 = "Strongly disagree" and 7 = "Strongly agree". The items were reverse coded and were "NatureNutrition is basically dishonest", "I do not trust NatureNutrition to tell the truth about the incident", and "NatureNutrition is not concerned with the well-being of its publics." An index was created for NatureNutrition's organizational reputation ( $\alpha = .75$ ,  $M = 4.59$ ,  $SD = 1.34$ ).

#### 3.4.3. NatureNutrition's message quality

NatureNutrition's message quality, as perceived by the participants, was assessed by using 4 items adapted from Dillard and Ye (2008) on a 7-point Likert-type scale, ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". The items included "The information provided by NatureNutrition is believable", "The information provided by NatureNutrition is logical", "The information provided by NatureNutrition is plausible", and "The reasoning used by NatureNutrition was sound". An index was created for NatureNutrition's message quality ( $\alpha = .93$ ,  $M = 4.30$ ,  $SD = 1.43$ ).

#### 3.4.4. LovePets' message quality

The same four-item measure adapted from Dillard and Ye (2008) were used to assess LovePets' message quality as perceived by the participants, asking participants to respond using a 7-point Likert-type scale where 1 = "Strongly disagree" and 7 = "Strongly agree". The items included "The information provided by LovePets is believable", "The information provided by LovePets is logical", "The information provided by LovePets is plausible", and "The reasoning used by LovePets was sound". An index was created for LovePets' message quality ( $\alpha = .93$ ,  $M = 4.70$ ,  $SD = 1.28$ ).

## 4. Results

### 4.1. Main Effects of Corrective Strategy Type on Reputation and Crisis Responsibility

To examine RQ1 and explore the direct effect of different corrective communication strategies (simple rebuttal vs. factual elaboration) employed by NatureNutrition to debunk crisis misinformation sent by LovePets that conflicted with the company's crisis responsibility statement, we ran a series of ANOVAs.

First, we tested if the reputation of the accused company, would suffer less harm when an elaborate corrective communication strategy compared to a simpler rebuttal (RQ1a) is employed. In line with the expectations, the ANOVA results demonstrated that the reputation of the organization was indeed evaluated more positively when factual elaboration was used to correct the crisis responsibility misinformation ( $M = 4.67$ ,  $SE = .07$ ) was applied instead of a simple rebuttal ( $M = 4.50$ ,  $SE = .07$ ;  $F(1, 815) = 3.27$ ,  $p < .10$ ,  $\eta^2 = .00$ ) of the same misinformation.

Second, we tested if the corrective strategy using factual elaboration would lower the perceived crisis responsibility of the accused company

(RQ1b). The ANOVA results showed that the company's crisis responsibility as perceived by the participants did not differ significantly whether factual elaboration ( $M = 4.24$ ,  $SE = .06$ ) or simple rebuttal was used to correct crisis misinformation against the company ( $M = 4.27$ ,  $SE = .06$ ;  $F(1, 815) = .05$ ,  $p = .82$ ,  $\eta^2 = .00$ ).

### 4.2. Main Effects of Employee Backup on Reputation and Crisis Responsibility

To investigate if the backup of an employee would strengthen the effectiveness of the accused company's corrective communication strategy (RQ2), ANOVAs were used to test the main effects of the presence or absence of a current NatureNutrition employee's backup as an independent variable.

First, when examining RQ2a, we found that the reputation of the accused company, in an ongoing crisis, was significantly better when its corrective communication strategy was backed up by an employee ( $M = 4.67$ ;  $SE = .07$ ) compared to when this was not the case ( $M = 4.50$ ,  $SE = .07$ ;  $F(1, 815) = 3.15$ ,  $p < .10$ ,  $\eta^2 = .00$ ).

Second, the analysis run for RQ2b showed that the accused company's crisis responsibility was perceived lower when an employee's backup was present ( $M = 4.09$ ;  $SE = .06$ ) compared to when such backup was absent ( $M = 4.43$ ,  $SE = .06$ ;  $F(1, 815) = 15.53$ ,  $p < .001$ ,  $\eta^2 = .02$ ).

### 4.3. Joint Effect of Corrective Communication Strategy and Employee Backup

RQ3 focused on the interaction of both independent variables on the accused company's reputation (RQ3a) and their crisis responsibility as perceived by the participants (RQ3b). The ANOVAs detected a significant interaction effect on reputation ( $F(1, 813) = 4.12$ ,  $p < .05$ ,  $\eta^2 = .01$ ) (see Fig. 1). The strongest reputation of the accused company was found to be perceived by participants who were exposed to the company's post using factual elaboration to correct misinformation without employee backup ( $M = 4.69$ ,  $SE = .09$ ), followed by the post using simple rebuttal with employee backup ( $M = 4.68$ ,  $SE = .09$ ), the post using factual elaboration with employee backup ( $M = 4.66$ ,  $SE = .09$ ), and the post using simple rebuttal without employee backup ( $M = 4.32$ ,  $SE = .09$ ). In addition, pairwise comparisons showed that the company's post using factual elaboration without employee backup led to significantly higher reputation perception than the post using simple rebuttal without employee backup. No significant interaction effect on perceived crisis responsibility was detected ( $F(1, 813) = .36$ ,  $p = .55$ ,  $\eta^2 = .00$ ).

### 4.4. The Role of Perceived Message Quality

Given the unique crisis communication challenge imposed by conflicting crisis information, sent from the two contending organizations (the accused company NatureNutrition vs. the accuser organization LovePets) regarding crisis responsibility, we further examined the respective perceived message quality of crisis misinformation (sent by the accusing organization, LovePets in this study; regarded as misinformation by the accused company, NatureNutrition in this study) and corrective crisis information (sent by the accused company, NatureNutrition in this study) in response to the misinformation.

#### 4.4.1. Main effect of corrective communication strategy and employee backup

To examine RQ4a we run ANOVAs testing the effect of corrective communication strategy type on the perceived message quality as sent by the accused company (Nature Nutrition) and that of the accuser organization (LovePets), respectively. We found that when the accused company used factual elaboration to correct the misinformation, its message was perceived of significantly higher quality ( $M = 4.53$ ,  $SE =$

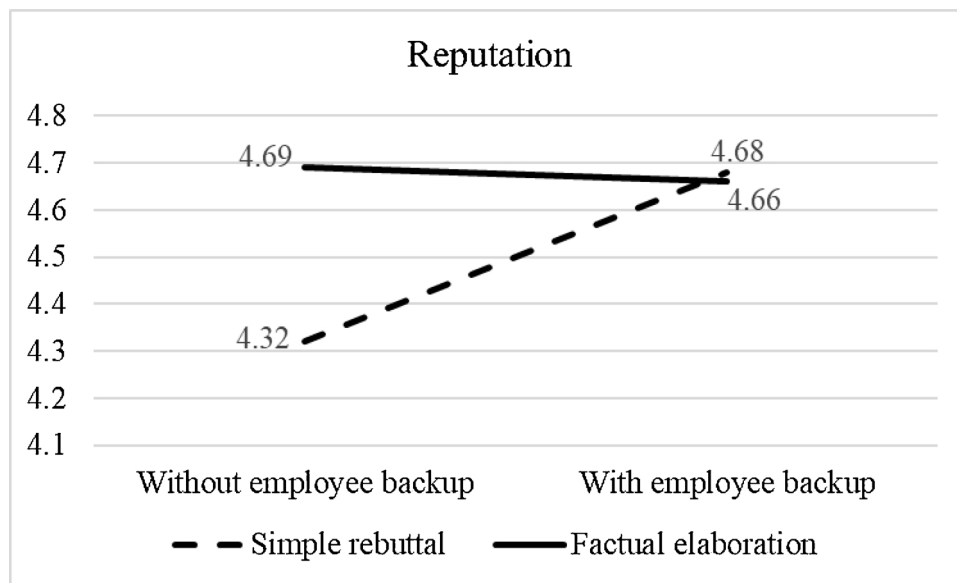


Fig. 1. Interaction effects: corrective communication strategy and employee backup on the accused company’s reputation.

.07) compared to when simple rebuttal was used ( $M = 4.08, SE = .07; F(1, 815) = 20.40, p < .001, \text{par. } \eta^2 = .02$ ). No difference was observed, however, for the perceived message quality of the accuser organization when comparing the use of elaborate communication strategy ( $M = 4.73, SE = .06$ ) with the use of simple rebuttal ( $M = 4.68, SE = .06; F(1, 815) = .41, p = .52, \text{par. } \eta^2 = .00$ ).

For RQ4b, we looked at how the presence (or not) of the employee backup would affect the perceived message quality of the accused company (NatureNutrition) and that of the accuser organization (LovePets), respectively. As expected, we found that when the corrective information provided by the accused company was backed up by its employee, the company’s message were perceived as of significantly higher quality ( $M = 4.55, SE = .07$ ) and the message of the accuser as of significantly lower quality ( $M = 4.58, SD = .06$ ), compared to when no employee backup was present (accused company: ( $M = 4.05, SE = .07; F(1, 815) = 25.79, p < .001, \text{par. } \eta^2 = .03$ ); accuser organization: ( $M = 4.83, SE = .06; F(1, 815) = 7.43, p < .01, \text{par. } \eta^2 = .01$ ).

4.4.2. Mediation effect of message quality on reputation and crisis responsibility

Lastly, we assessed the role of message quality in the effect of corrective communication strategy type and employee backup on the accused company’s reputation and crisis responsibility as perceived by participants. We adopted a multiple mediation approach (Preacher & Hayes, 2008) to see if the effect of these two independent variables on reputation and crisis responsibility was mediated by the perceived message quality of the accused company (RQ5a) and the accuser organization (RQ5b), respectively. Table 1 shows the outcomes of the four

analyses run separately for the different dependent variables.

First, regarding the mediating role of message quality on the effect of corrective communication strategy type (simple rebuttal vs. factual elaboration), only the perceived quality of the accused company’s message was found to 1) significantly mediate the effect of corrective communication strategy on reputation, and 2) marginal-significantly mediate the effect of corrective communication strategy on crisis responsibility (due to the absence of a main effect). According to these findings, when the accused company used factual elaboration in their corrective communication message, compared to a briefer form (e.g., simple rebuttal), its message is perceived as of higher quality, which in turn strengthened its reputation and decreased its perceived crisis responsibility. However, no mediating role was found for the message quality of the accuser organization when we looked at the independent variable corrective communication strategy type.

Second, for the effect of employee backup, we found that the perceived message quality of both the accused company and the accuser organization mediated the effect of the presence (or not) of the backup from the accused company on the accused company’s reputation and crisis responsibility. Hence, when an employee of the accused company backed it up, the company’s message was perceived as of higher quality and the accuser organization’s message was conversely perceived as of lower quality, which led to positive crisis communication outcomes on the end of the accused company in terms of less reputational damage and lower perceived crisis responsibility. The only exception (non-significant results) occurred between the accuser organization’s message quality and the accused company’s reputation.

Table 1 Results of Mediation Models: Testing the Mediating Effect of Perceived Message Quality

Independent and Dependent Variables	Mediating Variable	X→M	M→Y	Indirect Effect	Total Effect
Accused Company’s Reputation	Corrective Type				
	Accused Company’s Message Quality	.45 (.10)***	.23 (.03)***	.10 (.03) [.05; .17]	.17 (.09)*
Employee Backup	Accused Company’s Message Quality	.06(.09)	-.05 (.04)	-.01 (01) [-.02; .01]	
	Accuser Organization’s Message Quality	.50 (.10)***	.23 (.03)***	.12 (.03) [.06; .18]	.17 (.09)*
Accused Company’s Crisis Responsibility	Corrective type				
	Accused Company’s Message Quality	.45 (.10)***	-.25 (.03)***	-.11 (.03) [-.17; -.06]	-.02 (.09)
Employee backup	Accused Company’s Message Quality	.05 (.09)	.37 (.03)***	.02 (.03) [-.04; .09]	
	Accuser Organization’s Message Quality	.50 (.10)***	-.24 (.03)***	-.12 (.03) [-.18; -.07]	-.34 (.09)***
	Accuser Organization’s Message Quality	-.24 (.09)**	.36 (.03)***	-.09 (.04) [-.16; -.02]	



## 5. Discussion

Our findings identified key ingredients for effective crisis misinformation intervention and how they help correct misinformation by improving message quality, lessening reputational damage, and reducing perceived crisis responsibility. In addition to providing a working formula for corrective communication practice, the insights from our study contribute to extending public relations and crisis communication theory by 1) identifying specific message characteristics (i.e., debunking strategy) and communication features (i.e., supportive supplemental information) that are critical for fighting crisis misinformation, 2) providing evidence for the critical role employee support can play in organizational crisis communication, and 3) integrating message quality as a new informational outcome measure in assessing crisis misinformation correction effectiveness.

By integrating interdisciplinary theories (e.g., misinformation debunking, SCCT, information processing, and employee communication), this study presents an innovative public relations framework connecting key players and their roles in the fight against crisis misinformation. It explains the way that an employee's voice (supporting the organization's corrective message) further reduces organizational crisis responsibility and shields organizational reputation from the harm caused by crisis misinformation. Our initial empirical evidence echoes the trend and future needs as identified by public relations industry. For example, according to the latest Edelman Trust Barometer report (Edelman, 2020), when forming an opinion of a company, publics regard information from an employee of the company as more credible than that from the CEO.

### 5.1. Correction with Facts: The Benefit of Using Factual Elaboration

Grounded in misinformation in communication science (Lewandowsky et al., 2012) and health crisis communication (van der Meer & Jin, 2020), our study applied the framework of corrective information theory to organizational crisis communication domain. Our findings imply that, when an organization is under attack by misinformation, compared to simple rebuttal, factual elaboration is more effective in correcting the crisis misinformation, resulting in 1) higher message quality of the organizational corrective communication and 2) better organizational reputation, which are in line with the superiority of factual elaboration in correcting health crisis misinformation as found by van der Meer and Jin (2020). For an organization to fight reputational damage from the spread of crisis misinformation, it can benefit from providing a more elaborated alternative to counter the initial accusing information that is deemed incorrect.

By examining the effectiveness of using simple rebuttal versus factual elaboration as the corrective communication strategy, our research extends the set of SCCT-based denial response strategies recommended for combating misinformation (Coombs, 2014), when the organization has no connection to the crisis or has evidence-based proof that it is not responsible for the crisis as accused. Specifically, our study adds strategic layers to the fabric of the SCCT deny responses (Coombs, 2007) by recommending corrective communication strategies that can go along with attacking the accuser/the wrong claim about the organization, ranging from directly refuting the wrong claim to providing elaborated factual information to emphasize the correction itself.

### 5.2. The Critical Supporting Role: Gaining Advantage with Employee Backup

Our findings clearly highlight the critical role employee backup has in supporting and helping organizations fight crisis misinformation more effectively, which is strongly indicated by: 1) higher message quality of the accused organization's corrective information, 2) lower message quality of the accusing information, 3) better organizational reputation, and 4) lower perceived crisis responsibility. Essentially,

regardless which corrective communication strategy the organization might choose to use (simple rebuttal or factual elaboration), the presence of employee backup, in addition to the exposure of the corrective message from the organization, helps the organization gain informational advantage in battling crisis misinformation, echoing with what Opitz et al. (2018) found and advocated.

This observed effect of employee backup in organizational corrective communication can be further explained by the SCCT theory, in terms of how corrective message reinforced by an employee can influence publics' responses to a crisis situation. Publics' perception of the cause of a crisis event, and therewith their crisis responsibility attribution, can be formed (or adjusted) based on employee communications during the crisis. Corrective information from an employee, using messages based on first-person voice and first-hand experience, can help calibrate (or recalibrate) publics' crisis attribution, making it loud and clear that the misinformation being spread is incorrect and the organization is not to be blamed for the false accusation.

Our study makes a strong case for the critical role employees can play in not only internal communication but also in external communication when an organization is confronted by crisis misinformation. Publics tend to view employees as a type of credible source who know the organization and are likely to tell the truth as a witness. However, to make any employee backup effective (i.e., effective in supporting the organization's position in contended crisis issues), there must be pre-crisis internal trust and reputation in place (Mazzei & Ravazzani, 2011) for any voluntary employee external communication to occur organically with messages supported by their own experience (Mazzei et al., 2012; Opitz et al., 2018).

### 5.3. Seeking Corrective Communication Formula: What (Not) to Do

According to the significant interaction effect rendered in our study, when organizational reputation is used as the parameter for crisis communication effectiveness, factual elaboration without employee backup leads to much better reputational damage control than simple rebuttal without employee backup does. Although there is no significant evidence to indicate which one is best among factual elaboration without employee back, factual elaboration with employee back, and simple rebuttal with employee backup, our findings strongly imply that: 1) organizations should avoid using simple rebuttal if their message is unlikely to be backed up by their employees; and 2) factual elaboration is the go-to ammunition for crisis managers, which works much better than simple rebuttal by itself even without employee backup.

Addressing publics' need for facts is a top priority in the battle against crisis misinformation. By providing detailed information about the corrective information, an organization can play a positive role in restoring stability in often chaotic situation due to crisis uncertainty, information overload, and the plethora of conflicting information. Organizations' corrective communication can facilitate publics' cognitive coping needs by supplying credible information (with or without employee backup) that increases perceived crisis predictability and controllability (Jin, 2010). This also helps explain our finding that employee backup seems to be more effective than corrective message type: The type of corrective communication strategy was relatively less important for lowering perceived crisis responsibility, while the backup of a more genuine source (i.e. an employee) strengthened the organization's corrective message.

Notably, the formula itself can be assessed with a more specific measure, perceived message quality, which functions as a mediator between the formula (corrective communication strategy and employee backup) and its intended communication outcomes, namely in this study, reduced crisis responsibility and lessened reputational damage. Taking the perceived message quality of both the accused organization and its accuser into the equation, we have the following implication: When factual elaboration is used by the accused organization or with

employee backup, it is likely to lead to 1) higher perceived message quality of the accused organization and 2) lower perceived message quality of the accuser, which in turn helps strengthen the accused organization's reputation and lower perceived crisis responsibility. This finding provides additional justification for using factual elaboration and integrating employee backup (when possible) in fighting crisis misinformation. These recommended formula ingredients can help boost the quality of the corrective message and the strength of its arguments embedded, contributing directly and indirectly to crisis communication effectiveness.

We also have one caution for practitioners in planning and implementing corrective communication. There may be a point of redundancy that emerges in crisis misinformation response (or over response). Sources of such redundancy can be the company (and its multiple voices with repeated messages), employees (with repeated messages), or a combination of both. Such redundancy may cause side effects of repeated exposure of the same or similar corrective responses over time, as detected previously by communication scholars (e.g., Cho & Salmon, 2007). Therefore, public relations practitioners need to not only consider the content and form of a single corrective message but also the proper dose of corrections over time (Johnson, 2008). The key message should be consistent and cohesive across organizational official channels and employees' personal accounts, but the response focus or message emphasis can be different. For instance, if the official organizational communication is backed up with a more personal/human-interest story from an employee, it might be received by publics as new/additional information, reinforcing the organizational message without being perceived as repetitive.

#### 5.4. Limitations and Future Directions

This study has several limitations to be addressed by future research. First, the current study only studied two types of corrective communication strategy and one source for playing the supporting role in fighting crisis misinformation. Other forms of corrective communication strategy, incorporating additional debunking strategies (e.g., some updated information vs. complete detailed information of whole fact, Chan et al., 2017; counter-framing by warning publics about misinformation as a way of preventing future persuasive attacks, Niederdeppe, Gollust, & Barry, 2014; Cook, Lewandowsky, & Ecker, 2017), as well as additional supportive sources (e.g., loyal consumers, Opitz et al., 2018) should be examined by future studies. Besides mere exposure to corrective communication message, further studies should examine the potential of utilizing social norm and peer pressure on social media (e.g., the use of hashtag and mention as applied to individuals) (Vraga & Bode, 2018) to effectively combat crisis misinformation.

Second, this study was conducted at a single point in time. The presentation of initial crisis news, misinformation by an accuser, corrective information, and employee backup (when applicable) happens in a short time span. To enhance ecological validity, future studies need to consider using longitudinal studies to compare the pre- and post-effects of each point of communication and multiple exposures to conflicting crisis information. In addition, how news media and its conflicting frames (Nijkraake, Gosselt, & Gutteling, 2015) in crisis news coverage contribute to the process and outcome of misinformation corrective communication merits further examination. Furthermore, the applicability of our findings is limited to certain type of crisis situation (i.e., product recall) and misinformation (false allegation of crisis responsibility). Future studies need to examine whether any different corrective communication outcome may have resulted if the organization had not recalled the product.

Third, when it comes to the roles of employees in organizational corrective communication, this study focused only on one aspect (i.e., employee backup manifested in a social media post on a personal account). As an under-researched area, a more comprehensive view and

more in-depth understanding of the specific roles of employees in fighting crisis misinformation and/or in supporting organizations' crisis response are much needed. This promising research stream is especially pertinent in the social media era. It is also supported by public relations industry's call for including employees more in organizational planning and stakeholder communication, which helps drive workplace recommendations and gain more public trust in organizational information (Edelman, 2020). Additionally, our findings provide empirical evidence for the strategic role employees can fulfill for their organizations in light of their online visibility and approachability (Thois Madsen & Verhoeven, 2019), which can be especially fruitful in times of crisis when an organization is attacked by inaccurate accusations. Future research can also examine employees' role in 1) proactively scanning the environment for organizational risks or potential crises, 2) bridging between their organizations and certain stakeholder groups in times of crisis (e.g., serving as a central node in an otherwise scattered communicative network), and 3) providing publics with personal exemplars of how rumors or the spread of misinformation about their organizations is actually false.

Last but not least, this study was conducted in the U.S., whether the conceptual framework and the current recommendations apply to other countries and different cultures needs to be assessed further. The persistence of false information and the universal difficulty in misinformation correction mandate global collaboration among public relations scholars and joint work between scholars and practitioners in order to advance our understanding of crisis misinformation and develop stronger corrective communication formula for fighting it more successfully.

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The author declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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