Retelling the past crisis: Crisis memory and its influences on organizational reputation and public responses

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A R T I C L E   I N F O

A B S T R A C T

Past crises are often collectively retold, recalled, and reconstructed on social media when a new crisis occurs, resulting in a special form of collective memory in crisis communication contexts: *crisis memory*. Through the lens of social constructionism, this study explores the crisis memory of SARS co-created on Chinese social media during COVID-19. First, based on a content analysis of 5677 Weibo posts, seven types of crisis memory narratives are identified (nationalism, heroism, identity, trauma, criticism, historical reference, and personal experience), and their differential usages by multiple users are analyzed. Second, with an online survey of 785 Chinese netizens, the influences of these crisis memory narratives on various perceptions (perceived organizational reputation, perceived threats, and perceived self-efficacy) and behaviors (protective behaviors) in the unfolding public health crisis are examined. Overall, this study provides a new perspective for crisis communication research that moves beyond the strategic communication of current crises to involve constructed narratives of past crises.

1. Introduction

With the rise of social media as a co-creation space for writing and rewriting crises, particular past crises are often collectively recollected and reconstructed in cyberspace when a similar crisis occurs (Chewning, 2015; Zhang et al., 2020). This is especially the case in public health crises, such as pandemics, that are characterized by high levels of uncertainty and risk. For example, in December 2019, a novel coronavirus disease (COVID-19) spread rapidly around China and the world, constituting a severe public health crisis with high uncertainty. During this period, a similar disease, known as severe acute respiratory syndrome (SARS), was recollected constantly in China. SARS was intensively searched for, reported on, and discussed online during COVID-19, especially during its first-wave outbreak in China. Similarly, the collective recollection of past public health crises has been observed during various pandemics in different countries (Abeysinghe & White, 2010; Galley, 2009; Vinitzky-Seroussi & Jalfim Maraschin, 2021). Through an analysis of the collective memory of the 1918 Spanish Influenza, Vinitzky-Seroussi and Jalfim Maraschin (2021) found that the Spanish Influenza was repeatedly brought to the public eye by Western mainstream newspapers, whenever a new pandemic hit, from SARS in 2003, the Avian Influenza in 2006, the Swine Influenza in 2010, the Middle Eastern Respiratory Syndrome in 2012, to COVID-19 in 2020.

As such, recalling and retelling a past similar crisis to understand and respond to a present crisis is increasingly becoming a global phenomenon in an "era of crises" (Lerbinger, 2012), where organizations and the public experience a higher degree of uncertainty than in earlier times (Falkheimer & Heide, 2006). In the face of an emerging crisis, organizations and the public are turning to the similar past for useful information, resources, and experiences to better understand and address the present uncertain crisis situations. However, scant scholarly attention has been directed toward this phenomenon, which is increasingly common in crisis communication and referred to as *crisis memory* – a social reconstruction of similar past crises in the light of current crisis situations (Zhang et al., 2020; Zhang & Chen, 2022). The impacts of similar past crises on crisis communication have been well documented in prior research on *crisis history*, which refers to a history of similar crises happened to an organization and has been proved a factor that can intensify reputational threats posed to the organization by a present crisis (Coombs, 2004; Coombs & Holladay, 2001; Eaddy, 2021). Given that the existence of similar past crises (crisis history) can influence stakeholders' perceptions of organizational reputation in crisis, the

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social reconstruction of these past crises (crisis memory) may as well have reputational influences. Yet, the possible reputational influences of crisis memory have gone untested so far.

In addition, a public health crisis has multiple layers, involving not only reputational threats to relevant organizations but also severe health risks to the wide public (Austin & Jin, 2018). Despite of the growing consensus on combining theoretical insights from crisis communication and risk communication to better guide and assess communication efforts in the context of public health crises (Reynolds & Seeger, 2005; Seeger & Reynolds, 2007), few studies have empirically examined and combined the theoretical perspectives of these two communication fields. While crisis communication focuses on efforts to "prevent or lessen the negative outcomes of a crisis and thereby protect the organization, stakeholders, and/or industry from damage'' (Coombs, 2014, p. 21), risk communication is concerned with "the identification of risks to the public health and efforts to persuade the public to adopt more healthy, less risky behaviors" (Reynolds & Seeger, 2005, p. 47). Therefore, this study first conducted a content analysis to identify different narratives co-created in constructing the crisis memory of SARS during COVID-19 and then performed a survey to examine the influences of these narratives in shaping various public perceptions (i.e., perceived organizational reputation, perceived threats, and perceived self-efficacy) and behaviors (i.e., protective behaviors) that have long been highlighted in crisis communication and risk communication research, respectively.

2. Literature review

2.1. Crisis communication from a social constructionist perspective

The research on traditional crisis communication has predominantly focused on the "how-to" of crisis response strategies involving only the current crisis, with an emphasis on organizational concerns and interests (Kim & Dutta, 2009, p. 146). This leads to a dominant organization-oriented approach to crisis communication, which has been critiqued for its "managerial bias" (Cheng, 2018; Falkheimer & Heide, 2006; Fraustino & Liu, 2018; Heath, 2010). This approach typically emphasizes crisis communication as a means to mitigate reputational harm to organizations in crisis. With the rise of social media, however, the face of crisis communication has changed significantly. Social media enables multiple users, including various organizations and the public, to seek, create, and share crisis information and narratives, which form multivocal crisis communication, unlike traditional news media that extract information mainly from organizations in crisis (Chewning, 2015; Zhang et al., 2020). As such, scholars have called for a more audience- or public-oriented approach that incorporates various public thoughts, feelings, and behaviors into crisis communication (Chewning, 2015; Liu, 2018; Lee, 2004; Zhao et al., 2018), to better understand the polyvocality of crisis communication facilitated by social media (Chewning, 2015).

Echoing this call, scholars have advocated for studying crisis communication from a social constructionist perspective (Falkheimer & Heide, 2006; Heide, 2009; Zhao et al., 2017; Zhao, 2020). That is, crisis communication is considered a process of social or collective sense-making in which people understand crises in coordination with other social actors rather than separately within each individual (Leeds-Hurwitz, 2009). For example, grounded in social constructionism, Zhao et al. (2017) claimed that a crisis should be viewed as a social construct, and thus, crisis communication research is concerned with explaining the process through which various social actors come to describe, explain, or account for a crisis. Falkheimer and Heide (2006) theorized crisis communication as a sense-making process in which crisis situations are collaboratively negotiated and constructed in social contexts. Focusing on crisis communication on social media, Utz et al. (2013) developed a networked crisis communication model in which crisis is considered a social construction "not only influenced by

organization-driven sense-giving processes, but also by individuals' sense-making processes" (p. 41).

2.2. Crisis memory: social reconstruction of past crises

The social or collective sense-making process surrounding crises commonly involves not only the present unfolding crisis but also similar past crises. That is, in the face of an emerging crisis with uncertainty, similar past crises are often retold, recalled, and reconstructed socially, which can form a type of crisis memory shared among members of a particular society (Zhang et al., 2020; Zhang & Chen, 2022). This crisis memory can be considered a form of collective memory, which is typically defined as "a social reconstruction of the past in the light of the present" (Halbwachs, 1992, p. 34), often appearing in the forms of narratives (Neiger et al., 2011; Zhang et al., 2020). Drawing upon this definition, *crisis memory* is conceptualized as the social reconstruction of a particular past crisis in light of real-time needs and concerns in present crisis situations, commonly through several narratives co-created among multiple organizations and the public and often accompanied by communication concerning the present crisis.

Though scholarly attention to crisis memory (or collective memory) in public relations are relatively sparse, there is some research on crisis or disaster anniversaries that shed light on this issue (Courtright & Slaughter, 2007; Hikins, 1996; Maier et al., 2019). Simply stated, crisis or disaster anniversaries provide important public relations challenges and opportunities because the news media likely will cover past crises or disasters and bring them to the public mind at such special dates. For instance, focusing on the 1912 sinking of the Titanic and later discourse regarding the Titanic that has continued to arise in news stories, films, and popular discourse, Hikins (1996) showed that the "rhetoric of disaster" could serve a preservative function, i.e., enabling past crises or disasters remain in the public memory. As such, related organizations should be prepared to address "the remembered crisis" (Courtright & Slaughter, 2007, p. 313).

Notably, crisis memory is increasingly common in crisis communication on social media—especially in the context of public health crises—as exemplified by the SARS memory socially constructed during COVID-19 in China (Zhang & Chen, 2022) and the collective memory of the Spanish Influenza constructed during several pandemics in some Western countries (Abeysinghe & White, 2010; Galley, 2009; Vinitzky-Seroussi & Jalfim Maraschin, 2021). However, little research has examined the variety of narratives co-created on social media to construct such crisis memory. Therefore, this study examines the SARS memory constructed on social media during the first-wave outbreak of COVID-19 in China, as an exploratory study, to shed light on the variety of crisis memory narratives. Furthermore, given the polyvocality of crisis narratives facilitated by social media (Chewning, 2015), as well as the social nature of collective memory construction (Halbwachs, 1992), this study explores how these narratives vary among different user types. Therefore, the following two research questions are proposed:

RQ1. : What are the salient narratives in the SARS memory constructed during COVID-19?

RQ2. : Are there differences in SARS memory narratives by different user types?

2.3. Influences on public health crisis communication

2.3.1. Perceived organizational reputation

In crisis communication research, *perceived organizational reputation* has long been a key outcome variable for assessing the crisis communication effectiveness from organizational perspectives (Coombs & Holladay, 2002; Coombs, 2007). Defined as "an aggregate evaluation stakeholders make about how well an organization is meeting stakeholder expectations based on its past behaviors" (Coombs, 2007, p. 164), perceived organizational reputation is typically measured by the

trustworthiness and goodwill of an organization (Coombs & Holladay, 2002). Perceived organizational reputation is theorized in the situational crisis communication theory (SCCT) as an important variable in crisis communication research that, on the one hand, can influence stakeholders' behavioral intentions, and on the other hand, can be influenced by crisis-related factors including crisis history (Coombs, 2004, 2007).

First, according to SCCT, the more negative the perceived organizational reputation, the less likely stakeholders are to report behavioral intentions supportive of an organization (Coombs, 2007). In organizational crises, these supportive behaviors or behavioral intentions are typically stakeholders' purchase intentions and/or their support for organizations during a crisis (Coombs & Holladay, 2001; Siomkos & Kurzbard, 1994), while in public health crises, these tend to be the public compliance with public health interventions, such as adopting recommended protective behaviors (Amosun et al., 2021; Henderson et al., 2020). Therefore, we hypothesize that perceived organizational reputation concerning two major organizations (i.e., the National Health Commission (NHC) and the local government) exhibits positive relationships with protective behaviors recommended by these organizations during COVID-19. Moreover, the evaluation of official organizations can improve their perceptions of officially recommended protective behaviors (Kim & Tandoc, 2022). Given the trustworthiness aspect involved in organizational reputation (Coombs & Holladay, 2002) and the positive relationship between trust in the government and perceived efficacy found in prior studies (Hassan et al., 2022; Kim & Tandoc, 2022), people's perceived organizational reputation is expected to be positively related to their perceived efficacy. Thus, the following two hypotheses are proposed:

H1. : Perceived organizational reputation is positively related to protective behaviors.

H2. : Perceived organizational reputation is positively related to perceived efficacy.

Second, SCCT proposes that an organization that has experienced a similar crisis in the past suffers more reputational damage than another with no history of crises (Coombs, 2007). That is, a history of past crises was found to have negative influences on people's perceptions of the organization involved in a present crisis, as it may intensify crisis responsibility attributions and reputational threats, which is also known as the *Velcro effect* (Coombs & Holladay, 2001; Coombs, 2004). This indicates potential influences of past crises on the current organizational reputation perceived by the public during an unfolding crisis. To sum up, SCCT theoretically links past crises with present reputational perceptions and behavioral intentions in crisis communication, which provides the theoretical basis for this study. However, the influences of past crises might not only be concerned with their existence, i.e., *crisis history* (whether an organization has experienced similar crises in the past), but also involve their social reconstruction, i.e., *crisis memory* (how past similar crises are socially reconstructed in light of current crises. The influences of crisis memory, particularly exposure to various crisis memory narratives, on the current organizational reputation perceived among the public remain under-explored. Therefore, the following research question is proposed:

RQ3. : How, if at all, will people's exposure to various crisis memory narratives be related to their perception of the reputation of the organizations managing the crisis?

2.3.2. Perceived threats, self-efficacy, and fear

A public health crisis involves not only reputational threats to related organizations but also health risks to the wide public (Austin & Jin, 2018). Scholars have thus advocated for combining theoretical insights from crisis communication and risk communication to better guide and assess communication efforts in the context of public health crises (Reynolds & Seeger, 2005; Seeger & Reynolds, 2007). Several

risk-related perceptions have been examined and theorized as important precursors to adopting protective behaviors against health risks in the extended parallel process model (EPPM). According to the EPPM (Witte, 1992, 1996), whether people adopt protective behaviors depends on their *perceived threats*, consisting of perceived susceptibility (i.e., people's beliefs about how susceptible they are to a disease) and perceived severity (i.e., people's beliefs about the seriousness of a disease in terms of clinical and social consequences), as well as on their *perceived efficacy*, including self-efficacy (i.e., people's beliefs that they can adopt protective behaviors) and response efficacy (i.e., people's beliefs that protective behaviors can effectively control the disease). Among the efficacy perceptions, self-efficacy is particularly emphasized as a key variable according to self-efficacy theory (Bandura, 1977, 1982), which maintains that "expectations of personal efficacy determine whether coping behavior will be initiated" (Bandura, 1977, p. 191). In line with these theoretical insights, people's perceived threats and perceived self-efficacy were positively related to their protective behaviors in various outbreaks (Bults et al., 2011; Farooq et al., 2020; Li, 2018; Liao et al., 2010; Nazione et al., 2021; Ning et al., 2020; Rui et al., 2021). Therefore, in the COVID-19 context, two hypotheses are proposed:

H3. : Perceived threats are positively related to protective behaviors.

H4. : Perceived self-efficacy is positively related to protective behaviors.

Fear, which often emerges as an emotional response to uncertain and risky situations, has been theorized as a key variable associated with people's risk-related perceptions and behaviors (Keller et al., 2012; Lazarus, 1991; Lerner et al., 2003; Witte, 1992). Appraisal theorists suggest that people's cognitive appraisals of particular situations cause emotional responses (Roseman, 1991). The appraisal theory of emotion holds that people appraise their situations along certain dimensions (e. g., certainty, personal agency, and goal congruency) that combine to evoke specific emotions (Lazarus, 1991). In terms of the certainty dimension, fear is an emotion closely associated with uncertainty and thus often arises from the appraisals of uncertainty and situational control in crises (Jin, 2010; Lerner et al., 2003). In prior public health crises, fear was found positively related to perceived threats and negatively related to perceived self-efficacy (Ho et al., 2005; Kim et al., 2022; Oh et al., 2021; Roberto et al., 2021; Zhao & Wu, 2021). Further, fear may result in different behavioral responses toward health risks, such as the two responses theorized in EPPM—danger control responses (e.g., engaging in recommended protective behaviors) and fear control responses (e.g., defensive avoidance and denial) (Witte, 1992, 1996). Empirical studies have shown mixed results on the relationship between fear and public engagement in protective behaviors during various outbreaks: some found positive relationships (Kim et al., 2022; Melki et al., 2020; Wong & Sam, 2011; Zhang et al., 2015), while others revealed negative or non-significant relationships (Mo et al., 2021; Zhao & Wu, 2021). As such, the following two hypotheses and one research question are proposed:

H5. : Perceived threats are positively related to fear.

H6. : Perceived self-efficacy is negatively related to fear.

RQ4. : How, if at all, will fear be related to protective behaviors?

Moreover, fear as an emotional response may mediate between people's perceptual and behavioral responses to health risks. According to appraisal theories, emotions are often induced by people's cognitive appraisals of particular situations—which, in turn, can result in differentiated action tendencies and behaviors (Roseman, 1991; Scherer et al., 2001). In line with this logic, fear may arise from cognitive appraisals of threats and efficacy, subsequently shaping people's behavioral responses in public health crises such as COVID-19. Given the limited and dissimilar findings reached so far in prior studies on such mediation roles of fear (Kim et al., 2022; Zhao & Wu, 2021), the following research

question is asked:

RQ5. : How, if at all, will fear mediate the relationships between (a) perceived threats and protective behaviors and between (b) perceived self-efficacy and protective behaviors?

As most people learn about health risks and crises mainly from media rather than direct experiences, studies have examined information exposure through various media as a crucial factor shaping people's risk-related perceptions (Chang, 2012; Choi et al., 2017; Chan et al., 2018; Li, 2018; Nazione et al., 2021; Zhao & Wu, 2021) and behaviors in public health crises (Bish & Michie, 2010; Chan et al., 2018; Dai et al., 2020; Oh et al., 2021; Zhao & Wu, 2021). However, these studies have extensively focused on people's exposure to information related to the current crisis. Less is known about how people's exposure to narratives surrounding similar past crises might influence their risk-related perceptions and behaviors in the present crisis. Therefore, this study aims to explore how exposure to various crisis memory narratives influences risk-related perceptions and behaviors in response to the unfolding public health crisis (Fig. 1). In particular, the last three research questions are asked to explore the relationships between people's exposure to various SARS memory narratives and their perceived threats and self-efficacy, as well as their protective behaviors during COVID-19:

RQ6. : How, if at all, will people's exposure to various crisis memory narratives be related to their perceived threats?

RQ7. : How, if at all, will people's exposure to various crisis memory narratives be related to their perceived self-efficacy?

RQ8. : How, if at all, will people's exposure to various crisis memory narratives be related to their protective behaviors?

3. Methods

Focusing on the SARS memory constructed among different types of users on social media during the first-wave outbreak of COVID-19 in China as a case of crisis memories, this exploratory study adopted a mixed-method design, beginning with a content analysis to identify the various crisis memory narratives, followed by an online survey to examine the possible influences of these narratives on current crisis communication and responses.

3.1. Content analysis

3.1.1. Data and sample

A content analysis was conducted to examine posts related to SARS on Weibo, a Chinese Twitter-like microblogging platform that is considered one of the most popular social media platforms in China. A combination of SARS-related keywords, including "SARS" and its variants[1] in Chinese, was adopted to retrieve relevant posts during the first-wave outbreak of COVID-19 in China, that is, from December 1, 2019, when the first identified patient exhibited symptoms according to a paper published in *The Lancet* (Huang et al., 2020), to May 4, 2020. Approximately 700,000 posts were collected from Weibo, and after removing duplicated posts and reposts, 374,156 original posts (also known as thread posts) were retained. The data frame of each post comprised post information and user account information (e.g., screen name, authentication information, and brief introduction). To create a manageable sample for manual coding, 5677 qualified posts[2] were sampled for formal content analysis.

3.1.2. Coding procedure

A coding scheme consisting of two coding categories—SARS memory narratives and user types—was developed iteratively for the quantitative content analysis.

SARS memory narratives. Drawing upon the scholarship on collective memory (Edy, 1999; Foucault, 1980; Kitch, 2003; Mosse, 1991; Olick & Robbins, 1998) and preliminary reading of posts from Weibo, a total of seven narratives were used to characterize the SARS memories contained in each post: 1) nationalism, which recalls the national actions and spirits in combating SARS, thereby evoking patriotism, nationalistic sentiments, and social cohesion; 2) heroism, which recalls and praises particular individuals or groups who acted heroically in the containment of SARS; 3) identity, which recalls SARS as a significant event experienced by a particular individual or community that has shaped or defined the identity of the individual or community member; 4) trauma, which recalls the traumatic experiences and feelings of SARS and/or the recovery from the trauma caused by SARS; 5) criticism, which criticizes or reflects on various social issues, including issues of power and contestation, that are associated with SARS; 6) historical reference, which recalls SARS as a reference to guide, analyze, and predict every aspect of COVID-19 and its impacts; and 7) personal experience, which recalls SARS by focusing on personal experiences and feelings. Each post might include more than one type of narrative.

User types. Based on each post's user account information, especially the authentication information, each post was manually coded as being created by one of the following five types of Weibo users: 1) the government, including all levels and departments of the Chinese government and their officials/staff; 2) media, including all types of media outlets and their staff; 3) medical, including all types of non-governmental medical or healthcare organizations and their staff; 4) bloggers, referring to authenticated creators or bloggers, who are not affiliated with or do not explicitly reveal their affiliations with any government, media, or medical organizations; and 5) the public, referring to ordinary persons who explicitly reveal their identity to be other than the above four categories or do not disclose their identities.

Inter-coder reliability was tested between two trained coders who independently coded a random sample of 10 % (n = 568) of the coded posts. The pairwise intercoder reliability was calculated using Krippendorff's alphas. Categories with low reliability (<0.75) were discussed and coded again until an acceptable level of agreement was reached. Finally, Krippendorff's alphas for all categories ranged from 0.76 to 0.99.

3.2. Survey

3.2.1. Data collection

After identifying the variety of crisis (SARS) memory narratives through content analysis, an online survey[3] was conducted to examine the possible influences of various narratives on the public's perceptual and behavioral responses in the current public health crisis of COVID-19. The survey was conducted with participants in Mainland China in December 2021 through the Tencent Questionnaire platform (wj.qq.com), a professional online survey platform in China with 2 million users (Liu & Xu, 2018). The minimum age of the participants was set at 18

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[1] The variants of SARS include "非典," "非典型肺炎" (atypical pneumonia in Chinese), and "严重急性呼吸综合征" (severe acute respiratory syndromes in Chinese).

[2] For the posts that contain the keyword "SARS" but do not refer to the SARS outbreak (e.g., SARS-CoV-2, which refers to the new virus, and severe acute respiratory syndrome coronavirus 2, which causes COVID-19), I labeled them as unqualified posts and excluded them from the analysis of this study.

[3] Given the huge volume of SARS memory narratives spread on Weibo during the first-wave COVID-19 outbreak in China and then the active use of Weibo by our participants, we chose a survey approach (rather than an experiment) because our participants might have already seen certain amounts of Weibo posts involving various types of SARS memory narratives. That is, the use of an experimental design to examine such a well-known real crisis case as SARS might cause internal validity threats to the experimental findings, as it is difficult to rule out the influences of real-life crisis memory narrative exposure.
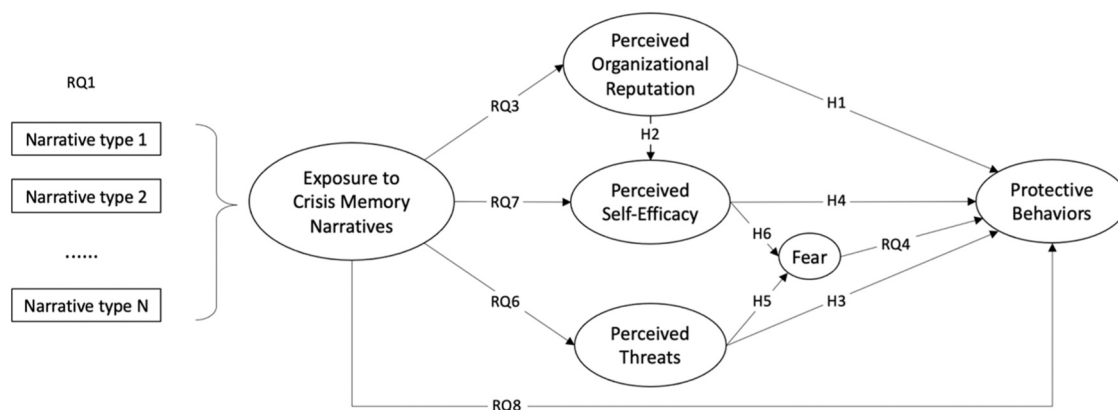
Fig. 1. Research model. Note: The typology of crisis memory narratives is based on the content analysis results.

years. A total of 1000 responses were initially collected. After removing invalid responses (e.g., providing incomplete answers, failing the attention check or the filter question[4]), a final sample of 785 responses was retained for further analysis. Overall, 51 % of the participants were male, which is in line with the sex ratio of the total population in China (Textor, 2022), and the average age was 27 years.

3.2.2. Measures

Protective behaviors. This variable was operationalized by twelve items, which were modified from Bish and Michie's (2010) paper based on the official prevention guidelines of COVID-19. The participants were asked to recall how often they performed recommended protective behaviors during the first-wave outbreak of COVID-19 in China, such as "wearing a face mask while going out," "avoiding parties or going to crowded places," and "daily self-measurement of body temperature." The responses were rated on a seven-point Likert scale, ranging from $1 = not\ at\ all$ to $7 = all\ the\ time$ ($M = 6.09$, $SD = 0.83$, Cronbach's $a = 0.88$).

Perceived threats. Adapted from previous studies (Gore & Bracken, 2005; Rui et al., 2021), five items were used to measure the participants' perceived threats of the COVID-19 crisis. Among them, three items assessed perceived severity (e.g., "COVID-19 is a very serious disease") and two items assessed perceived susceptibility (e.g., "My chance to get COVID-19 is high"). Responses were rated on a 7-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree" ($M = 5.35$, $SD = 0.99$, Cronbach's $\alpha = 0.70$).

Perceived self-efficacy. Three items adapted from prior research (Gore & Bracken, 2005; Rui et al., 2021) were adopted to measure the participants' perceived self-efficacy in taking recommended protective actions during the first-wave outbreak of COVID-19 in China (e.g., "I had no difficulty in performing protective behaviors that the government recommended"). Responses were rated on a 7-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree" ($M = 5.91$, $SD = 1.07$, Cronbach's $\alpha = 0.79$).

Perceived organizational reputation. This variable was measured by four items modified from Coombs and Holladay's (2002) Organizational Reputation Scale. The participants were asked to recall how they felt about two major organizations in response to the first-wave outbreak of COVID-19 in China, namely the local government (i.e., the provincial government where the participant lives) and the NHC (e.g., "The local government/NHC was concerned with the well-being of its public"). The

responses were rated on a 7-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree" ($M = 5.89$, $SD = 0.96$, Cronbach's $\alpha = 0.80$).

Fear. Three items adapted from prior research (Ning et al., 2020; Zhao & Wu, 2021) were used to assess the participants' fear induced in the first-wave outbreak of COVID-19 in China (e.g., "I was afraid that I or my family would be infected with COVID-19"). The responses were rated on a 7-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree" ($M = 5.67$, $SD = 1.24$, Cronbach's $\alpha = 0.74$).

Exposure to SARS memory narratives. This set of variables involved exposure to seven types of SARS memory narratives identified in the content analysis: nationalism, heroism, identity, trauma, criticism, historical reference, and personal experience. The participants were asked to recall how frequently they were exposed to each type of SARS memory narrative through social media during the first-wave outbreak of COVID-19 in China. Each narrative type was concisely described in the corresponding question based on the content analysis results.[5] Each question started with "How often were you exposed to SARS-related narratives during COVID-19 surrounding the idea that…" and was followed by a description of each narrative type. In particular, the narrative of *nationalism* was described as follows: "Chinese were standing united in combating SARS or China has been getting better and stronger since SARS." The narrative of *heroism* was described as "many individuals (e. g., Zhong Nanshan) or groups (e.g., medical staffs) acting heroically in combating SARS." The narrative of *identity* was described as follows: "We are Chinese or particular generations (e.g., the post-1980 or post-1990) gotten through SARS together." The narrative of *trauma* was described as "people survived from SARS have been experiencing serious sequelae or emotional sufferings." The narrative of *criticism* was described as "painful lessons that should be learned from SARS involve various social issues (e.g., wildlife and nature preservation, bureaucratic inefficiency, healthcare reform, rumors and conspiracy theories, and others)." The narrative of *historical reference* was described as "certain aspects of SARS (e.g., prevention and control measures, coronavirus features, or socioeconomic impacts) provide reference for COVID-19." The narrative of *personal experience* was described as "personal trivial daily experiences and feelings during SARS." The responses were rated on a 7-point Likert scale ranging from "1 = not at all" to "7 = all the time" ($M = 5.29$, $SD = 1.58$ for *nationalism*; $M = 5.83$, $SD = 1.36$ for *heroism*; $M = 5.18$, $SD = 1.60$ for *identity*; $M = 4.78$, $SD = 1.74$ for

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[4] A filter question was set in the survey to ask how often the participant used Weibo during the first-wave outbreak of COVID-19 in China (during December 2019 and April 2020), with responses being rated on a 7-point Likert scale ranging from "1 = not at all" to "7 = all the time," and those whose response was below 4 ($n = 26$) were excluded from the final sample for the analysis.

[5] On the basis of the above quantitative content analysis, an additional qualitative examination of SARS memory narratives was conducted through a close reading of all sampled posts, in order to provide a more detailed view of exactly how different SARS memory narratives were constructed. All these results were used to inform the operationalization of different types of exposure to crisis memory narratives in the survey study.

trauma; $M = 5.05$, $SD = 1.65$ for *criticism*; $M = 5.19$, $SD = 1.52$ for *historical reference*; $M = 4.93$, $SD = 1.64$ for *personal experience*).

Control variables. Prior literature showed that people's risk-related perceptions and protective behaviors during outbreaks covaried with their exposure to outbreak information and demographic characteristics (Bish & Michie, 2010; Chan et al., 2018; Dai et al., 2020; Ning et al., 2020; Lee & Li, 2021). Therefore, **demographics**, including age, gender, education level, and income, as well as exposure to COVID-19 information, were added as control variables to the proposed model. In addition, self-rated health was controlled following the practice of previous research (Rui et al., 2021). **Exposure to COVID-19 information** was measured by five questions about how frequently the participants were exposed to COVID-19 information posted by five different types of users (i.e., government, media, medical, bloggers, and publics) on social media during the first-wave outbreak of COVID-19 in China. The responses were rated on a 7-point Likert scale ranging from "1 = not at all" to "7 = all the time" ($M = 5.12$, $SD = 1.08$, Cronbach's $\alpha = 0.74$). **Self-rated health** was measured by asking the participants to rate their general health status on a 5-point scale ranging from "1 = very poor" to "5 = very good" ($M = 4.24$, $SD = 0.72$).

4. Results

4.1. Content analysis results

RQ1 was proposed to identify salient narratives co-created in constructing SARS memory on Weibo during the first-wave outbreak of COVID-19 in China. The results showed that, during the studied period (i.e., from December 1, 2019, to May 4, 2020), the most salient SARS memory narrative was historical reference (50.2%, n = 2849), followed by narratives of heroism (25.3%, n = 1437), criticism (17.6%, n = 1000), nationalism (16.2%, n = 917), identity (5.6%, n = 318), trauma (4.6%, n = 262), and personal experience (3.2%, n = 184).

RQ2 asked about possible differences in the SARS memory narratives generated by the five different user types. As demonstrated in Table 1, the results of chi-square tests indicate that, during COVID-19, the five types of users showed significant differences in the use of the seven types of narratives when they recalled and reconstructed the past SARS outbreak. Comparing narratives among user types, we found that the medical users more frequently adopted narratives of historical reference (60.7%, $\chi^2 = 58.65$, $p < .001$), although all five types of users used this type of narrative most. Narratives of heroism were most likely created by the government users (29.7%, $\chi^2 = 13.83$, $p < .01$), while narratives of criticism were most likely created by the public (21.3%, $\chi^2 = 118.18$, $p < .001$). As for narratives of nationalism, this narrative type was more

likely used by the public (16.8%, $\chi^2 = 23.65$, $p < .001$), followed by media users (17.4%). Narratives of identity were more likely created by the medical (9.5%) and government users (9.2%, $\chi^2 = 46.95$, $p < .001$), while those of trauma were more likely created by the public (5.3%) and medical users (5.2%, $\chi^2 = 17.09$, $p < .01$). Regarding narratives of personal experience, this narrative type was most likely adopted by bloggers (4.7%, $\chi^2 = 21.06$, $p < .001$), followed by medical users (4.0%) and the public (3.8%).

4.2. Survey results

To estimate the research model (Fig. 1), a structural equation modeling (SEM) analysis was performed using the Lavaan package in R (Rosseel, 2012). Maximum likelihood estimation was used to estimate the parameters. The model fit was evaluated using four indices suggested by Hu and Bentler (1999): the normed model chi-square (χ^2/df) < 3, the root mean square error of approximation (RMSEA) $< .06$, the standardized root mean square residual (SRMR) $< .08$ or .10, and the comparative fit index (CFI) $> .90$ or .95. According to the SEM results, the research model fits the data well. All indices are within the acceptable range for a satisfactory model fit ($\chi2$/df = 2.67, RMSEA = .046 (90% CI:.043 to.049), SRMR = .057, CFI = .902), and thus, indicate good empirical support for the theoretical model. The standardized path coefficients are presented in Fig. 2. As recommended by Preacher and Hayes (2008), 5000 bootstrap samples were drawn to calculate the direct and indirect effects hypothesized in the model as well as bias-corrected 95% CIs. The effects were considered significant if a respective CI did not overlap zero (MacKinnon et al., 2004).

As hypothesized in H1, perceived organizational reputation was significantly and positively related to protective behaviors ($\beta = .087$, $p = .003$, 95% CI:.039 to.157). Meanwhile, as hypothesized in H2, perceived organizational reputation was significantly and positively related to perceived self-efficacy ($\beta = .388$, $p < .001$, 95% CI:.223 to.579). Moreover, perceived self-efficacy was significantly and positively related to protective behaviors ($\beta = .104$, $p = .008$, 95% CI:.040 to.195), whereas the relationship between perceived threats and protective behaviors was non-significant ($\beta = .030$, $p = .248$, 95% CI: −.007 to.095). Therefore, H4 was supported, while H3 was rejected.

Focusing on fear in the model, the results suggested a significant and positive relationship between perceived threats and fear ($\beta = .302$, $p < .001$, 95% CI:.219 to.433) and a non-significant relationship between perceived self-efficacy and fear ($\beta = −.004$, $p = .941$, 95% CI: −.104 to.096). Hence, H5 was supported, while H6 was rejected. With respect to RQ4, the results showed that fear was significantly and positively related to protective behaviors ($\beta = .090$, $p = .003$, 95%

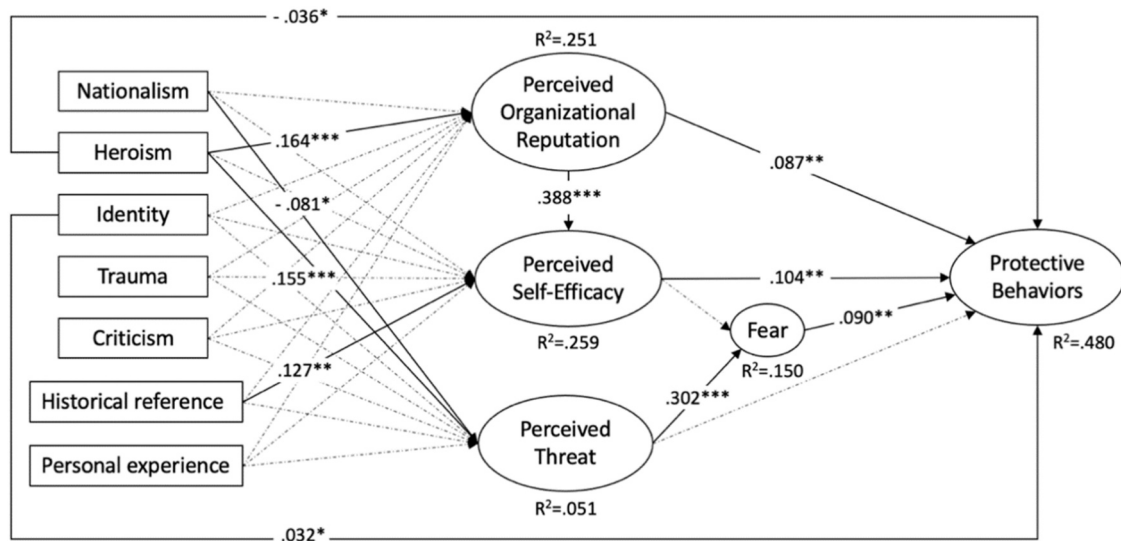**Table 1**
SARS memory narratives by Weibo user types.

Narratives	User types					χ^2
	Government (n = 617)	Media (n = 822)	Medical (n = 577)	Blogger (n = 129)	Public (n = 3532)	df= 4
Nationalism	14.4%	16.8%	9.7%	14.7%	17.4%	23.65***
	(n = 89)	(n = 138)	(n = 56)	(n = 19)	(n = 615)	
Heroism	29.7%	23.5%	21.0%	24.0%	25.7%	13.83**
	(n = 183)	(n = 193)	(n = 121)	(n = 31)	(n = 909)	
Identity	9.2%	6.1%	9.5%	7.0%	4.2%	46.95***
	(n = 57)	(n = 50)	(n = 55)	(n = 9)	(n = 147)	
Trauma	1.8%	3.8%	5.2%	3.1%	5.3%	17.09**
	(n = 11)	(n = 31)	(n = 30)	(n = 4)	(n = 186)	
Criticism	4.5%	15.6%	13.0%	13.2%	21.3%	118.18***
	(n = 28)	(n = 128)	(n = 75)	(n = 17)	(n = 752)	
Historical reference	54.1%	55.2%	60.7%	55.0%	46.4%	58.65***
	(n = 334)	(n = 454)	(n = 350)	(n = 71)	(n = 1640)	
Personal experience	0.6%	2.2%	4.0%	4.7%	3.8%	21.06***
	(n = 4)	(n = 18)	(n = 23)	(n = 6)	(n = 133)	

Notes: * p < .05,
** p < .01,
*** p < .001.

Fig. 2. Research model with standardized path coefficients. Note: * p < .05, ** p < .01, *** p < .001. Solid lines indicate statistically significant paths, and dashed lines indicate non-significant ones. For parsimony, the results of non-significant paths are not presented here, and the dashed lines indicating non-significant paths from the exposure to SARS memory narratives to protective behaviors are omitted here.

CI:.039 to.158). As for RQ5, the mediation analysis results revealed that fear significantly and positively mediated between perceived threats and protective behaviors ($\beta = .027$, $p = .009$, 95% CI:.012 to.055), whereas the mediation effect of fear between perceived self-efficacy and protective behaviors was non-significant ($\beta = .003$, $p = .455$, 95% CI: $-.004$ to.015).

The remaining four research questions asked about the relationships of exposure to various crisis memory narratives with perceived organizational reputation (RQ3), perceived threats (RQ6), perceived self-efficacy (RQ7), and protective behaviors (RQ8). First, exposure to crisis memory narratives of heroism ($\beta = .164$, $p < .001$, 95% CI:.082 to.255) was found to be the only one significantly associated with perceived organizational reputation: the more the exposure to SARS memory narratives of heroism, the better the participants' reputational perceptions of two major organizations (i.e., the NHC and local government) in the crisis communication of and crisis response to COVID-19.

Second, exposure to only two narrative types—nationalism ($\beta = -.081$, $p = .009$, 95% CI: $-.151$ to $-.024$) and heroism ($\beta = .155$, $p < .001$, 95% CI:.089 to.226)—was significantly associated with perceived threat: the less the exposure to SARS memory narratives of nationalism, or the more the exposure to SARS memory narratives of heroism, the higher the participants' levels of perceived threats of COVID-19. Exposure to crisis memory narratives of historical reference ($\beta = .127$, $p = .001$, 95% CI:.054 to.211) was the only one significantly associated with perceived self-efficacy: the more the exposure to SARS memory narratives of historical reference, the higher the participants' levels of perceived self-efficacy in adopting protective behaviors against COVID-19.

Third, among the seven narrative types, exposure to crisis memory narratives of heroism ($\beta = -.036$, $p = .025$, 95% CI: $-.069$ to $-.006$) was significantly and negatively related to protective behaviors, whereas exposure to crisis memory narratives of identity ($\beta = .032$, $p = .039$, 95% CI:.005 to.067) was significantly and positively related to such behaviors: the more the exposure to SARS memory narratives of identity, or the less the exposure to SARS memory narratives of heroism, the more frequently the participants engaged in protective behaviors during COVID-19.

5. Discussion

The current study first adopted a content analysis to explore the crisis memory regarding SARS co-created on social media, and then an online survey to examine its influences in communicating and responding to the unfolding public health crisis, COVID-19. The results of the content analysis revealed seven types of crisis memory narratives in reconstructing SARS among five different types of users on social media. The survey results demonstrated some perceptual and behavioral influences of certain types of SARS memory narratives in the current COVID-19 pandemic.

5.1. Crisis memory co-creation among organizations and the public

According to the content analysis results, crisis memory on social media is constructed not only by major organizations (governmental, media, and medical organizations) who are held accountable for crisis communication but also by various populations (bloggers and ordinary people) through diverse crisis memory narratives that can reflect their respective concerns and needs. This echoes the recent call for a more public-oriented (Liu, 2018) or multivocal approach (Frandsen & Johansen, 2016) to understand the polyvocality of crisis communication facilitated by social media. More broadly, this is also in accordance with the "transition from a functional perspective to a co-creational one" in the field of public relations (Botan & Taylor, 2004, p. 651). That is, the public is no longer instrumentalized but regarded as a partner in the sense-making process (Botan & Taylor, 2004) or a defining force in the co-creation of issues (Crable & Vibbert, 1985). In this regard, various populations are co-creators in crisis memory-making on social media, whose voices can merge and together form narratives that can differ from or even challenge organizational ones (Chewning, 2015; Zhao et al., 2018).

In particular, the content analysis results provided rich insights into the ways in which different organizations and the public reconstruct a particular past crisis (SARS) using various memory narratives through social media in order to understand and respond to a present crisis (COVID-19). For instance, the three organizational users (government, media, and medical users) and bloggers predominantly adopted narratives of historical reference to reconstruct the past SARS outbreak as a "lesson of history" or an analytical and predictive tool (Edy, 1999) for understanding and responding to the unfolding COVID-19 pandemic and

its various socio-economic impacts. Such crisis memory can serve a similar function as the *instructing and adjusting information* emphasized by Coombs (2007) in SCCT. That is, SARS was reconstructed and used as empirical knowledge and resources to inform the public, based on past experiences, what measures should be taken to protect themselves from physical threats, and what happened and will likely happen to cope with psychological threats during COVID-19. This can help reduce uncertainty in an evolving crisis, which is always prioritized in organizational crisis communication (Coombs, 2014).

In addition, government users adopted narratives of heroism more frequently than the other four types of users when recalling the past SARS crisis. This can be seen as a strategy adopted by the government to turn negative crisis situations into positive outcomes (Chen, 2009), for example, refusing the state–society relation by touching heroic stories and distracting the panicked public from negative emotions caused by the new coronavirus (Eyre, 2018; Qian, 2021). In contrast, compared to the other four types of users, ordinary people more frequently used two seemingly competing narratives (i.e., criticism and nationalism) in the reconstruction of SARS. On the one hand, SARS could be reconstructed in a critical way to form alternative or counter-narratives that can challenge the government's agenda and voice their own concerns (Liu, 2018; Wang, 2019; Yang, 2010; Zhao & Liu, 2015). On the other hand, SARS could also be reconstructed in a more positive way to evoke nationalistic sentiments that can enhance the sense of belonging to China and the Chinese government, which are always intertwined (Ismangil, 2019). These findings shed light on how ordinary people understand and respond to emerging crises based on their own experiences and interpretations of past crises, which brings new challenges and possibilities for crisis communication in the social media era.

5.2. Crisis memory influences: organizational reputation and public responses

A public health crisis has multiple layers, involving not only reputational threats to relevant organizations but also severe health risks to the wide public (Austin & Jin, 2018). Accordingly, the influences of crisis memory in the context of public health crises are multilayered, involving both the reputational concerns of organizations and various perceptual and behavioral responses of the general public in the face of health risks (X. Zhang, 2023). The survey results revealed that the crisis memory co-created through particular narratives could shape the organizational reputation perceived by the public, on the one hand, and influence the public's risk-related perceptions (i.e., perceived threats and perceived self-efficacy) and behaviors (i.e., protective behaviors) in the unfolding public health crisis, on the other hand. This also echoes an increasing call for adding multiplicity in its outcome measures to examine crisis communication effectiveness from a more public-oriented approach (Liu, 2018). Instead of measuring outcomes that merely focus on organizational image and reputation concerns, a more public-oriented approach pays attention to organizational concerns while seriously considering the interests of stakeholders and the wide public, such as the likelihood or frequency of the public taking recommended protective actions in public health crises (Liu, 2018; Liu et al., 2016, 2020).

According to the survey results, among the seven narrative types, heroism was the only one that exhibited a positive relationship with perceived organizational reputation. This finding supports the idea that heroism narratives can be used as a communication strategy to turn a negative crisis situation into a positive outcome. This strategy has long been emphasized but rarely tested in prior crisis and disaster communication research (Chen, 2009; Eyre, 2018). While scholarly attention has focused on heroic stories in an unfolding crisis (Chen, 2009; Eyre, 2018; Liu et al., 2020), our results suggest that heroic stories of past similar crises can also be invoked as narrative resources to improve the present reputation of relevant organizations. Moreover, this finding reveals a possibility for changing the negative *Velcro effect* of past crises

(Coombs & Holladay, 2001; Coombs, 2004) by appropriately using heroism narratives to reconstruct these crises in the current crisis communication. While the existence of past crises cannot change, these crises can be reconstructed in different ways from a social constructionist perspective (Halbwachs, 1992; Zhang & Chen, 2022), providing an opportunity for turning the negative impact of past crises into a positive one. It is noted that, however, the use of heroism narratives should serve as a supplement rather than a replacement to necessary crisis information (e.g., instructing and adapting information), and such use should be based on truth, focused on heroes trusted by the public, and careful not to over-exaggerate heroic stories. Otherwise, these narratives might backfire as they could be perceived as a form of propaganda or gaslighting adopted by the authorities (Jack, 2017).

The survey results also suggested a positive relationship between people's perceived organizational reputation and their engagement in recommended protective behaviors. This is consistent with what SCCT proposes: the more positive the reputation of an organization perceived by stakeholders, the more likely they are to report behavioral intentions that are supportive of an organization (Coombs, 2007). When it comes to public health crises, such behavioral intentions typically focus on protective behaviors recommended by the government and health institutions (Amosun et al., 2021; Henderson et al., 2020). Furthermore, the survey results indicate that perceived organizational reputation is positively related to people's perceived self-efficacy in adopting recommended protective behaviors. That said, the organizational reputation measured on the trustworthiness and goodwill of organizations can help build individual confidence in taking recommended measures to avoid risks during the pandemic (Coombs & Holladay, 2002; Hassan et al., 2022). These findings reflect the case of a truly public-oriented approach to crisis communication that considers both organizational concerns and public interests (Liu, 2018), i.e., improving organizational reputation while improving the public's self-efficacy and adopting protective behaviors.

Apart from the influences on organizational reputation, according to the survey results, crisis memory can also influence the public's important perceptual and behavioral responses to the risks posed by the unfolding crisis. In particular, people's exposure to four types of crisis memory narratives regarding SARS, including heroism, historical reference, nationalism, and identity, had significant influences on their perceived threats, perceived self-efficacy, and protective behaviors during COVID-19 in different ways. First, among the seven types of crisis memory narratives, historical reference was the only one that exhibited a positive relationship with perceived self-efficacy in adopting protective behaviors. Exposure to such narratives of historical reference is likely to help reduce the crisis uncertainty and foster knowledge regarding such crises, while prior research has established the important roles of knowledge, either actual or perceived, in enhancing self-efficacy among individuals during outbreaks such as COVID-19 (Roberts & David, 2021; Yıldırım & Güler, 2020).

Second, the crisis memory narratives of heroism and nationalism were significantly associated with perceived threats in different ways: heroism narratives were positively associated with perceived threats, whereas nationalism narratives were negatively associated with perceived threats. The finding regarding heroism narratives can be attributable to the particularity of the past crisis context, in which SARS, as a deadly infectious disease, quickly spread nationwide and resulted in hundreds of fatalities. In this case, such narratives of heroism might prompt a perceptual association between SARS and COVID-19 in terms of threats, especially when these narratives elaborate on the adversity in detail to highlight SARS heroes' sacrifice and fortitude. In contrast, the finding regarding nationalism narratives can be explained with social cognitive theory (Bandura, 2000, 2001). This theory posits that people are active agents who judge their own capacity based on the situation they face, while in crisis situations where people feel a lack of personal control, they tend to evaluate the capacity of collective or proxy agents (e.g., government agencies), which is referred to as collective or proxy

efficacy (Ji & Kim, 2020; Li, 2018). Nationalism narratives, typically focusing on how the Chinese community and government united to successfully combat SARS, might raise people's beliefs in collective or proxy efficacy, which, in turn, might reduce people's threat perceptions (Dryhurst et al., 2020; Tabernero et al., 2020).

Third, according to the survey results, the crisis memory narratives of identity and heroism exhibited significant relationships with protective behaviors in different ways: identity narratives were positively related to protective behaviors, whereas heroism narratives were negatively related to such behaviors. On the one hand, the findings regarding identity narratives offer empirical support for the use of identity-based rhetoric to mobilize public responses to a pandemic (Van Bavel et al., 2020; Vignoles et al., 2021). A sense of shared social identity is considered an important basis for collective action (van Zomeren, 2013), and in the public health crisis context, for compliance with officially recommended protective measures (Vignoles et al., 2021). On the other hand, one possible explanation for the finding regarding heroism narratives is that when the emphasis is exclusively on the roles of hero protagonists in achieving crisis victories, the necessity and urgency for ordinary people to engage in cooperative crisis responses may be largely underestimated. That is, excessive efforts to foster heroism by recalling heroic stories of the past crisis in response to the current one could backfire, especially if a crisis that requires everyone in the society to work together to achieve a resolution.

Finally, the survey results also shed light on the direct and indirect relationships between threats and efficacy perceptions and protective behaviors in the public health crisis context by incorporating the mediation roles of fear. To elaborate, the relationship between perceived self-efficacy and protective behaviors was direct and positive, whereas the positive relationship between perceived threats and protective behaviors was fully mediated by fear. In particular, the findings that fear positively predicted protective behaviors and positively mediated between perceived threats and protective behaviors reflect a danger control response, as proposed in the EPPM (Witte, 1992, 1996). This might be due to the relatively high perceived self-efficacy ($M = 5.91$) among the surveyed participants compared to their perceived threats of COVID-19 ($M = 5.35$). Taken together, these findings support the idea that fear appeals along with efficacy messages can be used as a persuasive tactic to encourage the public to engage in health behaviors against health risks (Maloney et al., 2011; Rogers, 1975, 1983; So et al., 2016; Witte, 1992).

5.3. Limitations and future research

Several limitations should be noted. First, the content analysis only analyzed a relatively small sample due to the limited number of posts that could be manually coded. Second, focusing only on salient narratives in SARS memory constructed on Weibo, there could exist other subaltern narratives of crisis memory that were not captured. Future research could build on this study by using computer-assisted methods to analyze relevant posts and comments on Weibo and other social media platforms to unpack a more complete picture of crisis memory construction online. Third, the survey was conducted after a certain amount of time had passed since the first-wave outbreak of COVID-19 in China, although the participants were repeatedly reminded to recall their experiences and feelings to answer related questions. This might have resulted in certain recall bias. Fourth, given the cross-sectional data and survey design, we were unable to establish any causal relationship but only a correlational relationship, i.e., merely arguing the possibility of influential directions in this study. Future studies should ideally follow an experimental or longitudinal design to better test such causality. Moreover, the survey focused mainly on the influences of various crisis memory narratives (i.e., narrative type). More related factors, such as narrative source (i.e., narrated by which user type), narrative perspective, and the past performance of relevant organizations, should be considered in the future. Additional efforts could also be made to

provide a comparative perspective by including crises in various societies, to evaluate how different social contexts may shape the crisis memory constructed on social media. Despite these limitations, this study represents an initial step in examining crisis memory, which is an increasingly common but rarely explored part of crisis communication facilitated by social media.

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Declaration of Competing Interest

The authors have no conflicts of interest to declare.

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