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Abstract

Breakdowns in infrastructure can cause both physical and psychological harm. Examining the coping strategies of individuals and the subsequent results of those strategies can aid recovery workers and inform emergency practitioners on how to prepare to meet the needs of the general population in such an event. Following the 2007 I-35W bridge collapse in Minneapolis, Minnesota, a self-report questionnaire was used to address the emotional state and coping behaviors of local residents. Consistent with prior work indicating that individuals respond to crisis-related stress with information seeking and other behaviors, the present study found that emotional distress in the period immediately following the collapse was related to the endorsement of a number of coping strategies. Furthermore, women reported experiencing higher levels of psychological distress than men and endorsed thinking and seeking information about the event more than men. Regardless of gender, thinking about the crisis was associated with a decrease in feelings of fright between the initial period after the crisis and several days after the event.

Keywords

coping, urban bridge collapse, crisis communication, gender

One's response to a traumatic event varies depending on the type of disaster, proximity to the disaster, characteristics of the victim, and other factors. Despite a great deal of attention concerning the effect of traumatic events on Americans, there is still much that can be learned about the nature, size, and duration of personal responses. Because of the sudden nature of many crises, the public often does not have a chance to prepare physically or mentally for the onset of such extreme events, and as such, crises can be devastating to local residents (or others indirectly involved) in addition to direct victims of such events. Examining the coping strategies and results of those behaviors after such an event can aid recovery workers and inform emergency practitioners on how to prepare to meet the needs of the general population in such an event.

This study examined the role of emotion and coping behaviors for individuals in close geographic proximity to the I-35W bridge collapse. Information seeking, faith, communication, and action were examined as coping mechanisms used by Minneapolis residents following the collapse. Although coping mechanisms have been examined with respect to natural disasters, terrorist episodes, and several other crises, little research has examined the coping strategies of individuals in the United States in the aftermath of a breakdown in infrastructure (Coombs, 2007). Immediately after the I-35W bridge collapse, media outlets began discussing the decay of U.S. infrastructure in multiple contexts. In

the days after the bridge collapse, much of the coverage was devoted to failures in oversight and infrastructure maintenance, perhaps leading to further uncertainty on the part of the public. A substantive body of research has articulated differences between men and women in terms of their emotional reactions to such uncertainty and trauma, their preferred coping strategies, and the effectiveness of these strategies. Here, we provide an overview of this literature and then examine field data collected from Minneapolis residents who were in the nearby area during the bridge collapse.

Coping

Coping is conceptualized in this study as reactions to "conditions of psychological stress, which requires mobilization and excludes automatized behaviors and thoughts which do not require effort" (Lazarus & Folkman, 1984, pp. 141-142). It refers to the thoughts and behaviors people use to manage the demands of stressful transactions (Spence, Lachlan, &

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Burke, 2007). Although certain personality characteristics such as self-esteem, optimism, and perceived personal control have been used to provide valuable resources in coping with stress, both through moderating the link between stress and potential psychopathology and by directly or indirectly influencing the level of distress (Cozzarelli, 1993; Watson & Hubbard, 1996), such characteristics are outside the scope of this study.

Moreover, much of the literature on coping situates events into three categories (life events, chronic strains, and daily hassles). However, crisis events are novel by definition and produce circumstances that defy prediction. This unpredictability in turn drives emotional responses that may be different from other stressors, thus necessitating their examination. The current study focuses on what Minneapolis residents actually did to cope, what they reported as being useful, and what their thoughts and actions were following the crisis.

Information Seeking

After a crisis, individuals experience high levels of uncertainty (Lachlan, Spence, & Eith, 2007; Spence et al., 2005). This uncertainty can motivate individuals to engage in information seeking (Brashers et al., 2000; Spence et al., 2005; Spence et al., 2006) in order to reduce uncertainty and alleviate anxiety. People seek information from available sources and attempt to update their knowledge and understanding of the event. Research in social psychology posits that individuals are fundamentally motivated to seek resolution, certainty, and the return of predictability to their surroundings (Berger, 1987). Although obtaining information facilitates further remedial processes (Seeger, Sellnow, & Ulmer, 2003), lack of information may produce high levels of uncertainty, a feeling of loss of control, and associated stress. Information acquisition allows individuals to view the way others behave during the crisis event and assures them that they are not going through the experience alone. A primary means of obtaining information is through the mass media.

Research on the psychological impact of media exposure during crises has provided somewhat conflicting results. Some evidence supports the idea that seeking media exposure is a popular method of coping with crises. One study reported that the most common coping strategy after the World Trade Center attacks (9/11) was to seek "access to television and radio to follow the news," and the coping item rated most helpful in the first 24 hours after the attack was information-seeking related (DeRoma et al., 2003). Through hearing and seeing the accounts of others who have experienced the event, individuals are able to make sense of a highly equivocal situation (Weick, 1995). Also, formal leaders may have a central role in helping others understand what to think about and how to interpret these disruptive and threatening events (Seeger, Vennette, Ulmer, & Sellnow, 2002; Spence et al., 2005).

The literature, however, indicates that negative consequences associated with media exposure to crises are more common. For example, children who viewed explicit coverage of disasters (such as the Oklahoma City bombings and the World Trade Center attack) were more likely to develop symptoms consistent with posttraumatic stress disorder (PTSD) and other anxiety and depressive disorders (Hoven et al., 2004; Hoven et al., 2005; Pfefferbaum et al., 2001; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003; Terr et al., 1999). Studies of the 9/11 attack have found this relationship for children living in New York City (Hoven et al., 2004; Hoven et al., 2005) as well as those farther away, who were only indirectly exposed to the terrorist attacks via media coverage (Saylor et al., 2003).

Parallel findings in adults have led some researchers to claim that television coverage itself may merit consideration as a form of exposure to traumatic events (Ahern, Galea, Resnick, & Vlahov, 2004). Current clinical definitions of PTSD even specify that the disorder may arise after an individual witnesses, or is confronted with, an event involving "actual or threatened death or serious injury, or a threat to the physical integrity of self or *others* [*italics added*]" (American Psychiatric Association, 2000). Similarly, a large body of research indicates that individuals who are exposed to other people's trauma (e.g., mental health professionals or law enforcement officers) can experience "secondary traumatization," a phenomenon that can manifest itself with PTSD-like symptoms (e.g., Charney & Pearlman, 1998; McCann & Pearlman, 1990). Consistent with these perspectives, individuals who viewed more television images of 9/11 were more likely even four months later to report PTSD symptoms (Ahern et al., 2004) along with other negative emotional responses (Lachlan, Spence, & Seeger, 2009), and similar emotional responses were found for those in close geographic proximity to the traumatic event (Spence et al., 2005). Not only were increased PTSD-like symptoms found, but also increases in depressive symptomology in those directly exposed to 9/11 who viewed certain television images of the event (Ahern et al., 2002). Taken together, these results suggest that those not directly exposed to a disaster can be impacted emotionally (Galea et al., 2003; Liverant, Hofmann, & Litz, 2004). Thus although information seeking may reduce uncertainty and anxiety after disasters, it has also been shown to have the ability to increase such emotions.

Interpersonal Communication

In addition to information seeking, individuals are likely to engage in interpersonal communication interactions following crises to alleviate negative affective experiences (see Luminet, Bouts, Delie, Manstead, & Rimé, 2000; Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998). Research on responses to 9/11 provided strong support for the importance

of interpersonal communication in the information exchanges used for coping. In a study by Greenberg, Hofschire, and Lachlan (2002), half of the sample learned about the terrorist attacks through an interpersonal exchange, whereas 33% obtained this information from television and 15% from radio; 60% of the respondents then indicated continued reliance on interpersonal discussion of the event as a source of anxiety-reducing information. A substantive body of research in the communication and psychology literature has lent support to the notion that interpersonal exchanges (alongside television) are critical in the coping process of crisis response (e.g., Bracken, Jeffres, Neuendorf, Kopfman, & Moulla, 2005; Spitzer & Spitzer, 1965).

Faith

Although faith serves a world-maintaining function in everyday life, it is particularly good at providing answers when everyday understandings of reality are called into question by marginal situations, such as an infrastructure collapse. The beneficial role of perceived spiritual support that is derived from using faith to cope in a variety of circumstances is well documented (Levin, Taylor, & Chatters, 1994; Mackenzie, Rajagopal, Meibohm, & Lavizzo-Mourey, 2000; Pargament, 1997; Wright, Pratt, & Schmall, 1985). After the 9/11 terrorist attacks, Americans with varied backgrounds turned to prayer for coping, and faith-based virtues surged among Americans, whereas secular character strengths did not (Peterson & Seligman, 2003). Results from displaced individuals in temporary relief facilities after Hurricane Katrina implicated prayer as a useful means of reducing psychological stress (Spence et al., 2007). When events are uncontrollable or not easily accepted or understood (as is characteristic of a crisis), people turn to belief in some kind of higher power for support. In times of crisis, people view faith as a comforting and controlling mechanism they can use to manage the situation (Pargament, Smith, Koenig, & Perez, 1998). Individuals' relationships with a higher power provide them with a means of support, guidance, strength, and connectedness. It has been suggested that prayer, as a process of connecting with spirituality, can act as a means of decreasing isolation (Meisenhelder, 2002).

Additionally, individuals in the aftermath of a crisis may turn to less organized means of spiritual support, such as introspection, meditation, and other means of reflections. There is evidence that nonreligious spiritual activities, such as reflection and introspection, can reduce negative psychological responses and anxiety and aid in coping with crises and trauma (Masters & Spielmanns, 2007; Wachholtz, Pearce, & Koenig, 2007). In addition, meditation may serve in a similar capacity to reduce anxiety (Carlson, Bacaseta, & Simanton, 1988) and bolster psychological health (Pargament, 1997; Poloma & Pendleton, 1991).

Self-Efficacy

The ability to take some action during a crisis can produce a sense of empowerment, thus creating an impression that the individual has some control in the situation (Seeger et al., 2003). Individuals' judgments of their capability in managing general stress is important in predicting psychological difficulties after crises and possibly physiological reactions. Different emotions are, therefore, characteristic of different action tendencies (Lazarus, 1981). For example, individuals who possess a sense of control or mastery over life (an internal locus of control orientation) are more likely to engage in action (Folkman, 1984; Turner & Noh, 1988).

Gender and Coping

Gender has also been demonstrated to be a predictor of differences among coping strategies (Grou, Thomas, & Shoffner, 1992; Jordan & Revenson, 1999). Research indicates that women and men might apply different mechanisms of stress reduction even when they perform the same activity (Slusarcick, Ursano, Fullerton, & Dinneen, 1999). Women typically use more positive reappraisal than men (Folkman & Lazarus, 1980; Folkman, Lazarus, Gruen, & DeLongis, 1986), whereas men use more self-control coping strategies that involve keeping one's feelings to oneself. Men more often indicate controlling their emotions, not thinking about the situation, accepting the problem, and engaging in problem-solving efforts (Thoits, 1995). In particular, research on crisis response suggests that women may be more inclined toward information seeking in times of crisis (Spence et al., 2007). A study of information seeking following the 9/11 attacks suggested similar gender differences (Seeger et al., 2002).

A greater inclination by women to seek social support, engage in activities as a distraction, and turn to prayer is preeminently consistent across studies (Thoits, 1995). Given the differences between men and women in their adaptive strategies and information seeking tendencies, the effectiveness of different strategies for both men and women becomes germane to the current research.

Minneapolis Bridge Collapse

On August 1, 2007, at 6:05 p.m., sections of a 1,907-foot bridge fell into the Mississippi River and onto roadways below in Minneapolis, Minnesota, killing 13 and injuring 145. Despite being under renovation, the bridge was packed with rush hour traffic, and dozens of vehicles fell with the bridge while nearby pedestrians scrambled for safety. With an estimated 100 vehicles on the crossing, the concrete and steel bridge buckled suddenly under the weight of heavy traffic (Lohn, 2007).

A bridge collapse such as I-35W is a crisis event that attracts substantial media coverage. Specifically, it is a

technical-error accident (Coombs, 2007), one that occurs when the technology used or supplied fails. Crisis events such as technical-error accidents are specific, surprising, and create high uncertainty and threat perception (Seeger et al., 2002). The media spectacle of the bridge collapse was replayed on television news throughout the evening, along with the video of a school bus filled with children that had slid down the embankment as the bridge failed. Minnesota Governor Tim Pawlenty called it "a catastrophe of historic proportions" (Levy, 2007).

With respect to crisis events, previous studies have examined coping mechanisms among emergency workers, such as the use of avoidance strategies by firefighters (Brown, Mulhern, & Joseph, 2002; North et al., 2002). Other research has looked at how survivors of natural disasters coped, and such studies found differences based on gender, socioeconomic status, and coping strategy choices (Johnsen, Eid, Løvstad, & Michelsen, 1997; Spence et al., 2007; Sumer, Karanci, Berument, & Gunes, 2005). However, little if any research has explored the coping actions of ordinary citizens (i.e., individuals close to, but not directly involved in, the crisis) following an infrastructure collapse.

Hypotheses

With the circumstances of the crisis outlined and past research on coping examined, the present study sought to examine three primary topics: the extent to which emotional reactions of Minneapolis residents differ by gender (Research Question 1), differences in coping strategies in males and females after the bridge collapse (Research Question 2), and how particular coping strategies were related to changes in emotional distress for each gender (Research Question 3).

Method

Participants and Survey

Over the course of 5 days following the bridge collapse, 166 usable questionnaires were collected from Minneapolis residents using a convenience sample (59% female and 41% male, with 1 of unknown gender). Participants were recruited in public venues near the site of the crisis and were self-selected. Participants were not victims of the bridge collapse; rather, they were Minneapolis residents who knew of the event. To retain as many questionnaires as possible, missing data were excluded case-wise in the analyses (producing varying degrees of freedom across analyses). The study and participant recruitment measures had prior institutional review board approval. The self-administered questionnaire had a coversheet outlining the rights of the participants and that participation was voluntary. Participants were required

to sign the consent sheet and were additionally reminded that completion of the questionnaire indicated consent. Instructions also required participants to detach the cover sheet before handing it back to the researcher ensuring confidentiality at the individual level.

The five-page questionnaire included items pertaining to demographic attributes, emotional responses to the crisis, coping strategies such as information seeking, and media identified as primary sources information. Age was recorded as a continuous variable; mean age for the sample was 30.37 years ($SD = 12.16$) with a median age of 26 years. A total of 86% were Caucasian ($n = 142$), 6% were African American ($n = 9$), 5% were Asian American ($n = 8$), and the remainder of the sample was divided between Native American ($n = 2$), Pacific Islander ($n = 2$), and missing data ($n = 3$). Although this sample is not completely congruent with the makeup of Minneapolis residents, it comes close in several descriptive measures, such as mean age and income distribution.

Measures

Six items addressed emotional state immediately following the collapse (Time 1) and during the time period in which respondents filled out the questionnaire (Time 2). For each item, respondents indicated how they felt "immediately following the collapse," with response categories of *strongly disagree*, *disagree*, *neutral*, *agree*, and *strongly agree* (coded 1 through 5, respectively, such that higher scores indicated more distress). The same items later asked how they felt "now." Items inquired about feelings of confusion, anger, depression, fright, sorrow, sadness, and calmness (called "anxiousness" below because it was reverse scored to match the direction of the other six items). The six items measuring the emotional state of the respondents were also put together to produce mean scores for Times 1 and 2 referred to as the aggregate distress indices. Coping actions were measured by six items that asked respondents to indicate what they "had personally done to cope with the aftermath of the collapse." Response options to each of the questions were "yes" or "no." Faith was measured by respondents indicating they "prayed about it." Information seeking was measured through the response options of "tried to keep informed" and "sought information about the extent of damage." Communication was measured through the option "talked with others," and action was indicated through "tried to help the injured." Finally, there was one other response option: "thought about it." The six items addressing the emotional state of respondents at Times 1 and 2 along with the six items that asked respondents what they had done personally to cope were modified from a previous study examining the coping behaviors of displaced individuals in temporary relief shelters after Hurricane Katrina (Spence et al., 2007).

Table 1. Independent Samples *t*-Tests Comparing Males and Females in Emotional Distress (for Both the Aggregate Distress Index and Individual Items) Separately for Time 1 (Immediately Following the Collapse) and Time 2 (at the Time of Questionnaire Completion)

	Time 1: Just After the Collapse (Estimated at Time 2)		Time 2: During Questionnaire Completion		Change in Distress: Time 2 Versus Time 1	
	<i>t</i> ^a	<i>p</i>	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Mean distress	-4.03	<.001	-3.23	.001	0.84	.400
Confused	-3.65	<.001	-3.51	.001	0.02	.982
Angry	0.28	.782	-0.90	.372	-0.98	.329
Depressed	-2.45	.015	-2.28	.024	0.26	.792
Frightened	-4.78	<.001	-2.42	.028	2.37	.019
Sorrowful	-2.00	.047	-2.79	.006	-1.36	.177
Sad	-3.23	.002	-3.65	<.001	-0.67	.506
Anxious ^b	-4.54	<.001	-2.45	.015	2.25	.026

Note: ^aNegative *t* values (Time 1 and Time 2) indicate that females were more distressed than males. Positive *t* values (Time 2 vs. Time 1) indicate that females decreased more than males in emotional distress.

^bLabeled "Calm" in the actual questionnaire but reverse scored to make directional interpretations consistent with the other items.

Results

Respondent's emotional states immediately following the collapse (Time 1) and at the time of questionnaire completion (Time 2) were addressed with the six aforementioned items. The mean score across these items was computed to create aggregate measures of psychological distress at Time 1 ($M = 3.32$, $SD = 0.80$, $\alpha = .82$) and Time 2 ($M = 2.85$, $SD = 0.81$, $\alpha = .81$). A paired-samples *t*-test indicated that despite the short time window between the crisis and data collection, on average residents experienced a significant decrease in distress between the collapse and data collection, $t(165) = -9.56$, $p < .001$. A difference score representing the aggregate measure of distress at the time of data collection minus distress just after the collapse was computed for subsequent analyses.

Gender Differences in Emotional Distress

To evaluate gender differences in emotional distress as outlined in Research Question 1, a series of independent samples *t*-tests were performed on the aggregate emotional distress measures, the individual item measures (for both the time of data collection and just after the crisis), and the difference scores of the change in emotional distress between Time 1 and Time 2. Table 1 presents these findings in detail, but only significant results are discussed here. On average, women reported experiencing greater emotional distress than men both at Time 1, (males/females: $M = 3.13/3.62$, $SD = 0.75/0.79$; $t[163] = -4.03$, $p < .001$) and Time 2, (males/females: $M = 2.68/3.09$, $SD = 0.74/0.86$; $t[163] = -3.23$, $p = .001$). Item-level analyses suggested that these differences were significant for all individual items except anger. Comparisons of the change in distress (difference scores of distress during data collection and just after the crisis) by gender revealed no difference on average for males and

females, $t(163) = .84$, *ns*, although at the item-level females decreased significantly more than males in fright (males/females: $M = -0.55/-1.01$, $SD = 1.23/1.19$; $t[157] = 2.37$, $p = .019$) and anxiousness ($M = -0.55/-0.97$, $SD = 1.10/1.23$; $t[159] = 2.52$, $p = .026$) between the time of the crisis and time of questionnaire completion. Thus, although females reported experiencing more emotional distress than males, they largely did not experience a greater change in distress between Times 1 and 2.

Gender Differences in Coping

Research Question 2 examined the extent to which differences emerged in coping strategies in males and females after the bridge collapse. Preliminary analyses of endorsement rate for each coping strategy suggested that, for the sample as a whole, the most common strategies were related to information seeking ("tried to keep informed," 91%; "sought information about the extent of damage," 86%), thinking about the event (90%), and talking with others (83%), whereas praying (44%) and trying to help the injured (18%) were less commonly endorsed.

Independent samples *t*-tests revealed that two strategies were endorsed more highly by females than males: seeking information about the extent of damage (males/females: 81%/93%; $t[163] = -2.06$, $p = .041$) and thinking about the event (85%/97%; $t[162] = -2.51$, $p = .013$). Table 2 presents the data by gender for all coping strategies.

Relationships Between Reported Emotional Distress and Coping Behaviors

How particular coping strategies were related to changes in emotional distress for males and females was the focus of Research Question 3. To obtain a general understanding of the relationship between coping behaviors measured and

Table 2. Endorsement Rates of Coping Strategies for Males and Females

	Endorsement Rate (%)		Males Versus Females	
	Males	Females	<i>t</i>	<i>p</i>
Talked a lot with others	79.38	88.24	-1.49	.138
Tried to keep informed	88.66	94.12	-1.20	.233
Prayed about it	42.11	47.06	-0.66	.533
Sought information about the extent of damage	81.44	92.65	-2.06	.041
Thought about it	85.42	97.06	-2.51	.013
Tried to help the injured	14.58	23.53	-1.46	.146

emotional distress, a series of preliminary analyses compared subjects who responded "yes" and "no" to each coping strategy in terms of average emotional distress for Time 1 and the difference score between Times 1 and 2. Time 1 was chosen because it was hypothesized that initial emotional response may relate to the coping strategies used, whereas the difference score between Times 1 and 2 permits exploration of the extent to which coping strategies are associated with amelioration of negative emotional experiences prompted by crises.

Initial emotional distress was related to all but one coping item. Except for "thought about it," those who endorsed coping items reported experiencing greater emotional distress immediately following the bridge collapse (Table 3). However, none of those coping strategies was related to greater decreases or increases in distress between Times 1 and 2. The item that did not relate to initial emotional response, "thought about it," was related to a significant decrease in emotional distress between Time 1 and Time 2, $t(163) = -2.09, p = .038$.

To better understand the relationship between the thinking coping strategy and decreases in emotional distress, follow-up *t*-tests examined this relationship for each of the seven individual emotional distress items. For only "fright" was endorsing the thinking coping strategy associated with a greater decrease in the negative emotion, $t(158) = -3.15, p = .002$. Because females reported greater fright and greater decreases in fright between Times 1 and 2 than males, and because females endorsed thinking about the event at a higher rate, it was important to determine whether this effect was driven by females. To answer this question, independent-samples *t*-tests comparing the change in emotional response for those who did or did not endorse "thinking" as a coping strategy were performed for males and females separately. The relationship between thinking and decreased fright was evidence for both females, $t(65) = -2.54, p = .014$, and males, $t(90) = -1.96, p = .053$. Furthermore, a two-way between-subjects analysis of variance on the change in fright between Time 1 and Time 2 did not find a significant interaction between gender and "thinking," $F(1,155) = 2.12, p = .147$.

Table 3. Independent-Samples *t*-Tests Comparing Initial Emotional Response and Change in Emotional Response for Those Who Endorsed Versus Did Not Endorse Each Coping Strategy

	Time 1		Change in Distress (Time 2 - Time 1)	
	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Talked a lot with others	2.34	.021	-1.04	.298
Tried to keep informed	2.62	.010	0.10	.924
Prayed about it	2.11	.036	0.33	.740
Sought information about the extent of damage	2.74	.007	-0.68	.495
Thought about it	0.66	.508	-2.09	.038
Tried to help the injured	3.80	< .001	-0.21	.832

Note: Positive *t* scores (Time 1) indicate that those who endorsed the coping strategy had greater emotional distress. The negative *t* scores for change in distress (Time 2 - Time 1) indicate that those who endorsed thinking about the crisis experienced greater decreases in distress between Time 1 and Time 2.

Discussion

Results indicate that women experienced more psychological stress than men following the bridge collapse, and they endorsed information seeking and thinking about the event more than men. Regardless of gender, initial emotional distress following the collapse was related to the endorsement of a number of coping strategies, consistent with research suggesting that individuals seek information and employ other coping strategies to reduce stress after a crisis (Spence et al., 2007). Interestingly, individuals who endorsed thinking about the event reported a significantly greater decrease in fright between Time 1 (immediately following the crisis) and Time 2 (during data collection, several days after the event). This again may be consistent with the idea that coping strategies employed following crises serve to ameliorate negative emotions associated with crisis events.

That simply thinking about a crisis may be regarded as a coping strategy, however, is an interesting and relatively untouched idea in the crisis literature. Perhaps this finding reflects a similar cognitive process as that implemented in exposure therapy, a highly effective tool for the treatment of PTSD and other anxiety disorders. Exposure therapy involves thinking or talking about traumatic or frightening experiences in a controlled way, which ultimately results in desensitization from triggers that previously caused emotional distress. A recent study even indicates that among individuals at risk of developing PTSD, exposure therapy may prevent the development of full-blown PTSD from its chronological precursor, acute stress disorder (Bryant, Sackville, Dang, Moulds, & Guthrie, 1999). Although somewhat speculative, that the current sample, who also reported reduced frightfulness following thinking about the event,

may have been naturally partaking in a process similar to that done in such a mainstream therapy is an interesting one that could be clarified in future research.

Regardless of the exact thinking process used by our sample, these findings have important implications for research on crisis interventions after disasters. After 9/11, mental health professionals flocked to New York City anticipating a flood of residents seeking counseling for psychological distress. However, a surprising lack of response by the residents as well as numerous studies on PTSD rates after the disaster suggested that, on the whole, individuals are surprisingly resilient following trauma (McNally, Bryant, & Ehlers, 2003). Furthermore, commonly used psychological debriefing protocols implemented in the general population after crises (e.g., critical incident stress debriefing) do not appear helpful for preventing posttraumatic psychopathology in the general population and may even be harmful (i.e., they may impede the natural recovery process; van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002). Thus, although individuals appear good at coping with traumatic experiences on the whole, there exists a gap in the literature on how they manage to do so. Expanding this area of research may help us understand the psychological needs of the general population and may allow for better prediction of those individuals who *will* go on to develop serious posttraumatic psychopathology. That is, by understanding how people cope successfully with stress, we may better identify and treat those who do not cope well, which will both maximize resources available for crisis intervention and better help (and prevent harm) in those who need the interventions most.

Should this avenue be studied further, larger samples and more extensive follow-up of participants would aid in learning about how individuals naturally cope with crises and understanding how different coping strategies may relate to subsequent mental health status. Because a minority of individuals exposed to trauma develop psychopathology, larger samples would allow for the differentiation of populations that do and do not cope well. More extensive follow-up (e.g., assessment at several time points) would also allow for better measurement of the time course of emotional responses to crises. Another limitation of the current study was the fact that study respondents estimated their emotional distress levels based on memory. Thus, accuracy of memory for past emotions is a potential confound in this study. Surveys were collected within 5 days of the crisis; although memories of disasters may not decay as rapidly as memories of other events or experiences (Bourque, Shoaf, & Nguyen, 2002) a potential for bias, although small, does exist.

Conclusion

Although significant research has been directed toward the psychological processes involved in alerting the public about risks and planning for crises, far less has addressed the need

for uncertainty reduction and the relief of psychological distress once appropriate actions have been taken. This gap in the literature exists despite ample evidence that men and women have decidedly different emotional reactions to traumatic events, and may employ different coping strategies to deal with them. The current study is a first step in the exploration of this timely and important phenomenon. Considering multiple audiences with different psychological needs may be critical for public officials and media outlets in designing messages that serve to alleviate the distress experienced by the general public. The results of the current study may help in beginning to develop standard practices for how crisis communication strategies are implemented and may be informative for the development of programs whose goals are to meet mental health needs and coping choices of the general public after crisis events.

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