

WHEN THE UNIMAGINABLE HAPPENS: A RETROSPECTIVE EXAMINATION
OF THE IMPACT OF EMPLOYEES' INDIVIDUAL CHARACTERISTICS ON
COGNITIVE APPRAISAL, COPING STRATEGIES, AND WELL-BEING
FOLLOWING DISASTERS

A Dissertation

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ABSTRACT

Despite greater preparation efforts and improved disaster detection methods, we lack the ability to completely control or eliminate the occurrence and consequences of disasters. In New York alone, following Hurricane Sandy, approximately 245,000 employees (from over 23,000 businesses) were affected by the disaster. The known physical and psychological impact of disasters on people makes it critical we investigate how employees respond to disasters. Using the transactional stress theory as a foundation, I proposed and then empirically tested a theoretical model of the stressor-strain process for employees involved in disaster events. Specifically, I investigated how three individual characteristics—vulnerability, resiliency, and job classification (first responder or non-first responder)—relate to the cognitive appraisal process, subsequent coping strategy engagement, and well-being of employees. An online survey was administered, using Amazon’s Mechanical Turk, and completed by 534 employees across the United States. The results illustrate that individual characteristics are most predictive when the type of individual characteristic and type of cognitive appraisal are in alignment. Additionally, in line with the goodness of fit hypothesis, both primary cognitive appraisals (threat and challenge) were predictive of their respective coping strategy. However, the relationship between secondary cognitive appraisal (controllable-by-self, controllable-by-others, and uncontrollable) and coping strategies did not always support the goodness of fit hypothesis. Contrary to predictions, the results also indicated that coping was not related to favorable well-being, and that perceptions of organizational support did not generally serve as a buffer.

DEDICATION

I would like to dedicate my dissertation to my grandfather, Francisco Lomeli, whose example has motivated me in times when I needed it most. I wish you were here to celebrate this accomplishment with me. And to Paul Muchinsky, thank you for caring about my progress as if I was one of your own.

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CHAPTER I

INTRODUCTION

“Disasters do not cause effects. The effects are what we call a disaster.”

– Dombrowsky (1995, p. 244)

In late October 2012, Post-Tropical Cyclone Sandy (e.g., Hurricane Sandy) hit the northeast with its “powerful winds, driving rains and life-threatening storm surge” (Barron, 2012, para. 2) leaving over five million people without power and resulting in 147 deaths (Blake, Kimberlain, Berg, Cangialosi, & Beven, 2013; Prezioso & Allen, 2013). At 2:49 pm on April 15, 2013, two bombs exploded near the Boston Marathon finish line killing three people and injuring 264 others (CNN Library, 2013). Just a couple days later (April 17, 2013), a fertilizer plant in West Texas exploded leaving 14 people dead and at least 200 more injured (Chappell, 2013). On August 17, 2013, the Rim Fire (wildfire) started near Yosemite National Park in California burning approximately 260,000 acres, shutting down power plants, and forcing evacuations (InciWeb, 2013). On September 12, 2013, Colorado Springs to Fort Collins experienced historic rainfall and floods resulting in an estimated 200 people missing and property losses totaling at least \$200 billion (Volz & Banda, 2013). Worldwide, more than 450 million people were affected by natural disasters from 2010-2012, a result of 700 natural disasters (IMF, 2012) and 125,411 people were affected by technological disasters (i.e., human-made; Centre for Research on the Epidemiology of Disasters, 2013). The types

of events vary, yet what these events have in common is that they are all disasters—events that impact the routine functioning of society (Fritz, 1961).

Disasters are well-documented in the media, with illustrations of shattered towns and devastating reports on injuries and deaths. Frequently, the focus is on the individual victim; yet, organizations are not left unscathed by disasters. Hurricane Sandy affected more than 23,000 businesses, which employed approximately 245,000 people, in New York alone. Moreover, the number and intensity of disasters has greatly increased in the past 50 years (IMF, 2012) and with this rising frequency a greater number of organizations will have employees who experience disasters at work and outside of work. Nonetheless, we know little about how employees fare following a disaster.

The objective of this dissertation is to examine how employees cope with large-scale social-contextual stressful situations, and how these events impact their well-being. Specifically, I address natural and technological disasters. Based on the transactional stress theory (Lazarus & Folkman, 1984), I propose a theoretical framework of the stressor-strain process that employees engage in following a disaster event (Figure 1). I investigate how employees' perceived vulnerability, resiliency, and job classification impact their cognitive appraisal of the disaster, subsequent coping strategy, and well-being. I also examine whether their perceived organizational support buffers the effects of the disaster. The model I propose in this dissertation applies broadly to all employees; still, I propose that job classification will be the most critical factor, relative to perceived vulnerability and resiliency, influencing cognitive appraisal, and subsequent coping and outcomes.

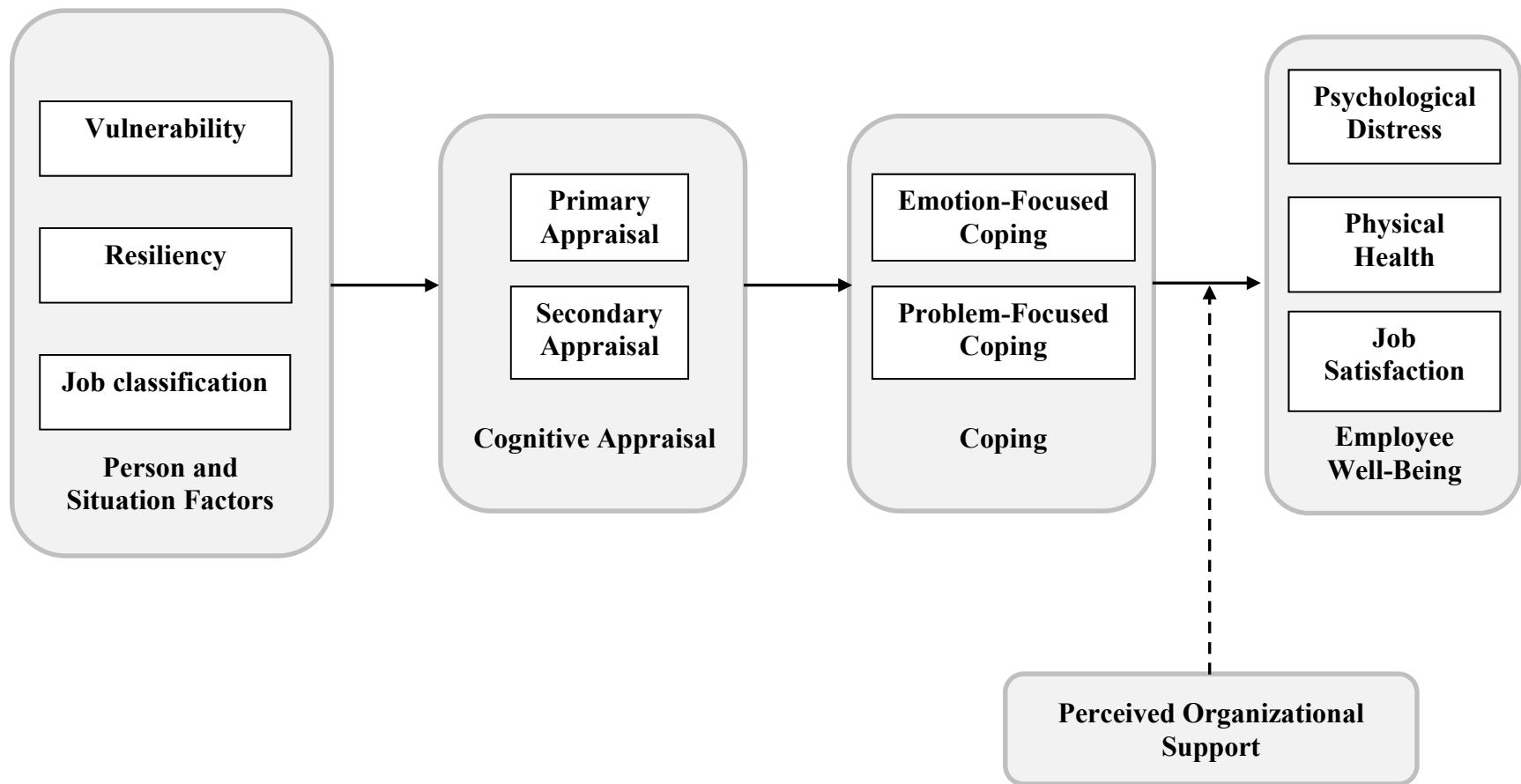


Figure 1. Theoretical Model of the Stressor-Strain Process During Disaster Events

The lack of empirical research on the processes by which employees manage their experience with a disaster event and their subsequent outcomes limits our ability to mitigate the consequences of involvement in a disaster. Because disasters are largely unavoidable, the implications of understanding the stressor-strain process in this context are numerous and critical. Understanding mitigating factors can guide the development of preparedness and recovery initiatives, ultimately improving the overall well-being of employees.

When disaster events occur, victims tend to rely on government agencies, such as the Federal Emergency Management Agency (FEMA), for assistance. Yet, as evidenced by the experiences of Hurricane Katrina, governmental agencies are not always properly equipped to handle disasters (Reid, 2013). Subsequently, victims may be forced to rely on their employers for aid. For various reasons and to the benefit of the employees and the public, organizations have been increasing their involvement in disaster relief—this involvement is referred to as corporate philanthropic disaster response (CPDR; Muller & Whiteman, 2009). Although organizations are becoming more involved (e.g., logistically transporting supplies to communities and victims in need), they have little guidance as to the types of corporate efforts they should engage in to help their own employees' well-being.

The primary contribution of this dissertation is the development of an initial framework for understanding the stressor-strain process of employees who experience disaster events. Due to the frequency and magnitude of disasters, the criticality of employee well-being to organizational success, and increased interest in CPDR, it is

critical that we understand (a) the basic stressor-strain process during disaster situations, (b) which factors influence this process, and (c) whether a supportive organizational environment will buffer the effects of disasters on employees in an effort to help guide organizational efforts.

Defining Disasters

Merriam-Webster (Disaster, n.d.) defines a disaster as “something (such as flood, tornado, fire, plane crash, etc.) that happens suddenly and causes much suffering or loss to many people.” Yet, finding consensus on the definition of a disaster is much more difficult among scientific researchers. In part, the lack of consensus on the definition is due to “legal, operational, and different organizational purposes” (Quarantelli, 1998, p. 3). Perry (2006) provided an interdisciplinary review of disaster conceptualizations, concentrating on perspectives from the classical period, hazards-disaster tradition, and disasters as social phenomenon. The classical period is defined as the time after the end of World War II until Fritz’s (1961) publication. This was an important era in disaster research, sparked by disasters occurring as a result of the war (e.g., bombings in Japanese and European cities) and the formation of disaster research groups [National Opinion Research Center at the University of Chicago (1951, 1952) and the Disaster Research Group under the National Academy of Sciences (1952); Perry, 2006]. The second perspective, the hazards-disaster tradition, was mostly sparked by geographers and geophysical scientists and focuses primarily on the hazard itself. The last perspective is the sociological perspective, which somewhat aligns with the classical perspective, yet emphasizes the role of social phenomenon in disasters. The following briefly describes

the three perspectives and concludes with the disaster definition that will be adopted in this dissertation.

Most disaster definitions during the classical period did not reflect a societal focus, albeit researchers were exploring these effects. Definitions tended to be implicit, and when explicitly stated, primarily described a disaster as a catalyst (Perry, 2006). Fritz (1961) proposed one of the most enduring definitions of a disaster—a disaster is an event that either impacts or produces the threat of an impact to a society, or some part of society, and disrupts daily life. Fritz's definition, which came at the end of the classical period, is critical in the disaster literature because it incorporates a focus on the event's effects on society.

Whereas researchers are familiar with Fritz's (1961) definition of a disaster, the public may be most familiar with the hazards-disaster definition. This perspective defines disasters as the hazard itself (e.g., earthquake, flood, tsunami; Perry, 2006). This approach is more focused on the intersection between the agent (i.e., the event) and the social system, primarily emphasizing the agent. More modern hazards-disaster approaches, albeit still maintaining a large focus on the hazard, also take the social aspects of the event into account. Susman, Okeefe, and Wisner (1983) argued that a disaster is only a disaster if people are involved, and further define a disaster as the convergence between a physical event (i.e., hazard) and a vulnerable human population. This perspective is not alone in highlighting the idea of vulnerability in a social context, and illustrates a similarity between the hazard literature and the sociological literature.

Though the social aspect of disasters is only one component of the previously discussed perspectives, the social aspect is the defining characteristic of the sociological perspective. Quarantelli (2000) defines disasters as “*relatively sudden occasions when, because of perceived threats, the routines of collective social units are seriously disrupted and when unplanned courses of action have to be undertaken to cope with the crisis*” (p. 682). By defining disasters as relatively sudden occasions, this suggests they are limited to a particular social space and time. The perception of threat refers to the threat of losing valuable social objects, including people and possessions. Because typical adjustment techniques do not necessarily allow one to cope with the perceived new threats of the event, daily routines are disrupted. This subsequently leads to the emergence of new behaviors or strategies necessary to cope with the event. In short, Quarantelli (2000) describes disasters as social phenomena and almost completely excludes the physical or environmental aspects of a disaster.

In accord with Quarantelli (2000), Gilbert (1998) and Mileti (1999) argue that the vulnerability humans experience during an extreme event, rather than the actual event, is what constitutes the disaster. Dombrowsky (1995) similarly argues disasters and their effects are indistinguishable as the effects are what we refer to as the disaster. Alexander (2005) illustrates this point by comparing the Sherman landslide in Alaska to the Aberfan landslide in South Wales. The Aberfan landslide was 193 times smaller and moved more slowly than the Sherman landslide; however, no one was injured in the Sherman landslide, whereas 144 people were killed in the Aberfan landslide, including 116 children. The Sherman landslide led to geographical curiosity, but other than that, it

went mostly unnoticed. Conversely, the Abferman disaster was followed by decades of grief and hardship. Thus, our interest does not lie in the mere event, but rather in the effects of that event—specifically, in the way individuals experience the event. In this dissertation, I build on the sociological perspective and the notion that a disaster is defined by what it does to people. I define a disaster as a suddenly occurring event, resulting from natural or human-made forces, that disrupts the routines of social units and requires individuals and communities to cope with the event. Moreover, I focus on the perception of the event as a disaster; that is, focusing on events perceived as disasters by the individual.

Natural vs. Technological Disasters

Disasters are often categorized as either natural or technological—this distinction stems from the notion that disasters were originally conceptualized as either acts of a higher power or man-made (Quarantelli, 2000). Additionally, it is often argued that technological hazards pose different problems than natural hazards. One proposed reason for this is our familiarity and experience with natural disasters, and lack of familiarity and experience with most technological disasters (Kasperson & Pijawka, 2005). Our exposure to natural hazards is not new; the adverse effects of such hazards can be witnessed in places such as Pompeii where Mount Vesuvius destroyed the town-city in 79 AD (Wallace-Hadrill, 2011). Consequently, this has led to more clearly developed policies for dealing with natural hazards or disasters. Conversely, technological hazards are considered to be much more recent, and as such, not as well understood (Kasperson & Pijawka, 2005).

Conceivably, differences are believed to exist in the level of control of natural and technological disasters. Typically, natural hazards are viewed as difficult to control before they occur, whereas technological hazards are viewed as presenting possibilities of control throughout the event (Kasperson & Pijawka, 2005). Kasperson and Pijawka (2005) argue:

Members of the public tend to see natural hazards as acts of God whose effects can only be mitigated; technological hazards, especially those associated with new technologies or those that are imposed, are assumed to be amenable to ‘fixes’ of various kinds and amenable to substantial reduction. (p. 30)

Whereas these general statements may be true for some natural and technological disasters—this is not always the case. Tierney, Lindell, and Perry (2001) maintain some natural disasters can be prevented, or avoided, by engaging policies and regulations. Additionally, there are other natural disasters, such as volcanoes, that have the potential to give longer warning times and allow for control throughout the disaster—not only once it has started. Further, Tierney et al. (2001) argue the distinction between technological and natural disasters is not appropriate because it proposes differences in responses are due to the categorization of a disaster as either natural or technological; however, there are many occasions where differences in responses are unrelated to that specific categorization. Namely, all disasters have the potential to occur without warning and be unfamiliar to a society. Further, the duration and scope of impact will also vary among disasters. Yet, this is not necessarily due to the natural versus technological categorization.

In an effort to gain a more comprehensive view of how employees appraise, cope, and fare in disastrous conditions, this dissertation will include both technological (e.g., Boston Marathon Bombing, West Texas Explosion) and natural disasters (e.g., Denver Floods, Hurricane Sandy, Rim Fire). Tierney et al. (2001) suggest that the distinction between disasters as natural or technological will not significantly affect how people react to disaster; still, there is a lack of empirical research demonstrating this possibility. Given the lack of research, it is difficult to predict that one group will fare better than another group; as such, the following research question will be explored:

Research Question 1: Will the type of disaster, natural or technological, influence the stressor-strain process?

The Transactional Stress Theory

There is a plethora of models, frameworks, and theories that make an effort to explain stress and its outcomes (e.g., Hobfoll, 1988; Karasek & Theorell, 1990; Lazarus & Folkman, 1984; Spector, 1988). Universally, they describe *stress* as a process, where individuals affectively respond to *stressors* that are created by environmental demands that result in *strains* (the psychological, behavioral, and physiological outcomes of the stress process; Griffin & Clarke, 2013). In the most influential theory, the transactional stress theory, Lazarus and Folkman (1984) concur with this basic process, but also emphasize the dynamic nature a person has with the environment (Figure 2). In particular, they argue the person and environment interact to create a new condition or state (i.e., stress). In other words, stress is not the product of the person or the environment alone, but rather the interaction between the two. Because the occurrence of

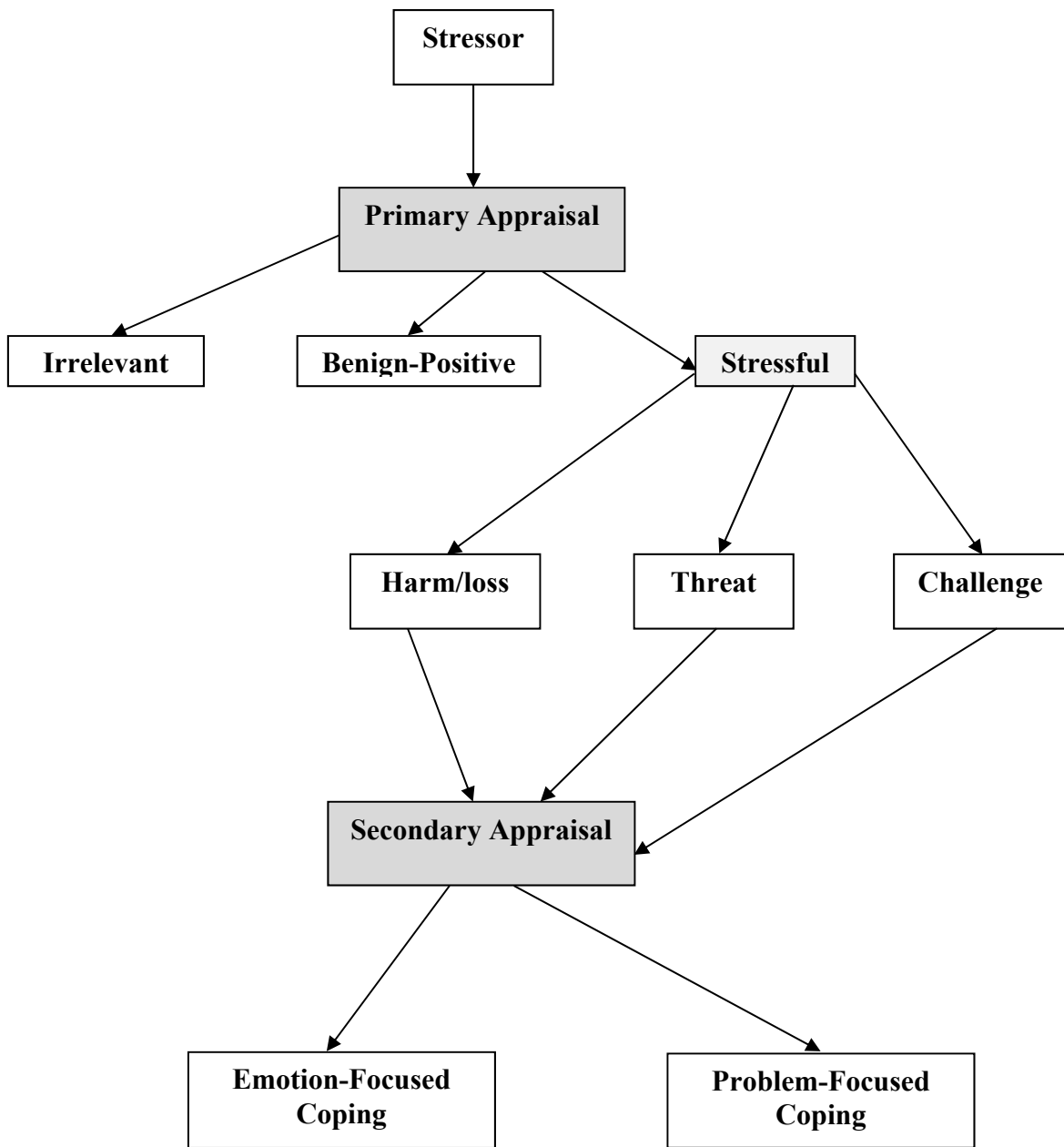


Figure 2. The Transactional Stress Model (Lazarus & Folkman, 1984)

a disaster changes a person's typical environment, the emphasis on the person-environment interaction makes the transactional stress theory particularly valuable in investigating employee responses to disaster events.

As already noted, Lazarus and Folkman (1984) argue stress involves the person-environment interaction. They posit people will engage in *cognitive appraisal*—the process of interpreting the relationship one has with the environment. This process consists of two types of appraisal: *primary appraisal*, where an individual evaluates whether the environmental encounter is relevant to his or her well-being, and if so, in what way, and *secondary appraisal*, where an individual evaluates what can be done to overcome, or cope with, the situation. The naming of the appraisals is misleading as one does not necessarily precede the other and neither one is considered more important.

Primary appraisal involves the categorization of a situation as irrelevant, benign-positive, or stressful (Lazarus & Folkman, 1984). An irrelevant situation is one that an individual has appraised as having no impact on his or her well-being. A benign-positive situation is one where an individual has appraised the outcomes as positive. The last type of appraisal, stressful, reflects the evaluation of the situation as a condition of stress—this dissertation focuses solely on stressful appraisals.

Lazarus and Folkman (1984) propose three types of stressful appraisals: harm/loss, threat, and/or challenge. *Harm/loss* consists of physical and psychological damage already sustained by the individual (e.g., injury, lower self-esteem). The anticipation of future harm or loss is a *threat* appraisal. Conversely, the anticipation of positive outcomes is a *challenge* appraisal (Lazarus, 1999; Lazarus & Folkman, 1984).

Threat and challenge appraisals allow for anticipatory coping, and while these are seemingly opposite ends of a continuum, they are actually separate yet related constructs as it is possible for people to experience both threat and challenge in a situation. Still, one form of appraisal will be more prominent than the other (Folkman & Lazarus, 1984).

Challenge and threat primary cognitive appraisals require an individual to consider how he or she will manage the situation. This complex cognitive evaluation of one's coping options, the perceived likelihood these coping options will be successful, and the likelihood that one can effectively apply a strategy to the situation is the secondary appraisal process (Lazarus & Folkman, 1984). In other words, the central goal of secondary appraisal is to determine whether or not the situation is controllable; that is, whether one can apply a successful strategy to the situation.

Advancing the operationalization of secondary appraisal, Peacock and Wong (1990) suggested three specific types of secondary appraisal: *controllable-by-self*, *controllable-by-others*, and *uncontrollable-by-anyone*. In cases that are *controllable-by-self*, an individual anticipates that he or she can effectively resolve the situation. *Controllable-by-others* refers to situations in which an individual feels there are other people (e.g., friends, family, agencies) that can help resolve the situation. Lastly, in situations categorized as *uncontrollable-by-anyone*, the individual does not foresee a way to resolve the situation. The level of control an individual feels will strongly relate to their selection of a coping strategy, and whether they opt to change the situation, accept the situation, obtain more information, or refrain from rash actions (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986a).

Following the cognitive appraisal of the event, the coping process can begin (Lazarus & Folkman, 1984). The coping process involves the use of cognitive and behavioral efforts to manage the person-environment transaction that is appraised as taxing or exceeding the person's resources (Folkman et al., 1986a). Coping is contextual, as coping must vary over time and conditions in order to be effective (i.e., what is an effective coping strategy in one situation is not necessarily effective in another situation). Moreover, the person-environment relationship can shift as a result of coping efforts aimed at changing the environment (*problem-focused* coping strategies), coping efforts aimed at changing one's interpretation of the situation (*emotion-focused* coping strategies), and changes in the actual environment irrelevant of the individual's behavior. Essentially, people can change the person-environment relationship with their coping strategy.

The cognitive appraisal process influences the type of coping strategy one will engage in (Lazarus & Folkman, 1984). Commonly, coping strategies are categorized as problem-focused, which are those that are directed at the problem, versus emotion-focused, which are those that are directed at regulating the emotional response to the problem. Cognitive appraisals concluding that nothing can be done about the problem are more likely to lead to emotion-focused coping, whereas appraisals concluding that something can be done are more likely to lead to problem-focused coping. Lazarus and Folkman (1984) also propose the "goodness of fit hypothesis," which suggests that coping efforts congruent with the cognitive appraisal are the most effective. For instance, appraisals of high control would pair well with problem-focused coping,

whereas appraisals of low control would pair well with emotion-focused coping (Lazarus & Folkman, 1984). There should be alignment between the cognitive appraisal one makes and the coping strategy that one engages in for optimal outcomes.

Emotion-focused coping involves different types of strategies, which include but are not limited to avoiding, minimalizing, or distancing from the problem. Some emotion-focused strategies focus on reappraisal (i.e., changing the meaning of the encounter). Reappraisal diminishes the threat by changing its meaning. Problem-focused coping strategies aim to define the problem, investigate alternative solutions, select the best solution, and act (Lazarus & Folkman, 1984). Despite the distinction between these two types of coping strategies, many situations elicit both coping strategies (Folkman & Lazarus, 1980); still, as noted earlier, one coping strategy will typically predominate over the other (Carver, Scheier, & Weintraub, 1989).

Problem-focused coping strategies are frequently referred to as “good” strategies, whereas emotion-focused coping strategies are often referred to as “bad” strategies. However, because coping is contextual, an effective strategy in one situation is not effective in all situations. Hence, Lazarus and Folkman (1984) argue for a distinction between coping functions and coping outcomes. They maintain coping functions or strategies should not be treated as either negative or positive. By treating a coping strategy as either negative or positive is to confound the strategy with the outcome.

The transactional stress theory (Lazarus & Folkman, 1984) also argues for various person and situation variables that serve as antecedent conditions of appraisal. Person and situation variables influence how people appraise events, and subsequently

impact coping strategies and outcomes. An example of a person variable is an individual's personal beliefs, which influence the appraisal process through their ability to serve as a "perceptual lens" in which to view the situation (Lazarus & Folkman, 1984, p. 63). For instance, beliefs may influence whether an individual perceives the situation as a challenge or a threat. An example of a situation variable is event uncertainty, which is a term used by Lazarus and Folkman (1984) to describe the likelihood that an event will occur. In other words, it refers to the predictability of the event. Situations characterized by great uncertainty (low predictability) are likely to have a great level of associated threat, and people will have a difficult time adapting to a situation because they are unaware of the path the situation will take (Lazarus & Folkman, 1984).

As a summary statement, the transactional stress theory (Lazarus & Folkman, 1984) proposes a process in which (1) the person (e.g., individual characteristics) and environment interact to create a state of stress, (2) a person must cognitively appraise the situation to determine if the event is relevant to his or her well-being and evaluate his or her ability to overcome the event, (3) this cognitive appraisal is influenced by person and situational variables, and (4) dependent on their cognitive appraisal, a person must select a coping strategy that will help them to change the person-environment relationship to decrease stress (Lazarus & Folkman, 1984).

A Theoretical Model of the Stressor-Strain Process During Disaster Events

Theory identifies the processes by which people appraise and cope with stressful situations (the transactional stress theory; Lazarus & Folkman, 1984) as well as the questions people must answer when determining how to protect themselves in hazard

and disaster situations (Lindell & Perry, 2012). Still, researchers have yet to provide a substantive theoretical investigation of the mediating processes by which employees appraise and cope with disaster events. The following integrates and extends these perspectives including disaster-relevant personal and organizational characteristics that may influence the stressor-strain process.

Person and Situation Variables and Cognitive Appraisal

While in the last few years more than 450 million people were affected by natural disasters alone (IMF, 2012), not everyone affected necessarily responded in the same manner. Given the same conditions, people respond differently to stressors likely due to individual characteristics. The transactional stress theory maintains that in the face of a stressful situation, people must “actively negotiate” between the environmental situation and their personal characteristics (e.g., individual characteristics; Lazarus, 1993). This is the cognitive appraisal process, whereby people must determine if the event is relevant to their well-being (primary appraisal) and whether they have the ability to cope with the disaster (secondary appraisal). Hence, one will “actively negotiate” between their personal resources (i.e., individual characteristics) and the environmental aspects of the situation to arrive at a cognitive appraisal of the situation as either a challenge or threat as well as the level of controllability they have over the event. I argue that in disaster events, three particular individual characteristics will be critical: *vulnerability*, *resiliency*, and *job classification* (i.e., first responder vs. non-first responder). The following section will describe perceived vulnerability to the disaster,

resiliency, and job classification, and how these factors directly relate to one's primary and secondary cognitive appraisal of the disaster.

Vulnerability to Disasters

Broadly defined, vulnerability refers to the potential for loss (Cutter, 1996), and those who are vulnerable are “more easily wounded and recover more slowly” (Liverman, 2001, p. 202). Vulnerability is a central concept in many disaster definitions and is key in understanding how people react to disasters (Lindell, Prater, & Perry, 2006; Pine, 2009).

I contend vulnerability is characterized by the extent to which an individual is exposed to the disaster event in conjunction with their perception of the predictability of the event. Exposure, addressed in multiple theories (Cutter, 1993; Lindell & Perry, 2012; Riskind, 1997), is a particularly important factor of vulnerability as greater exposure to a disaster makes people feel more vulnerable to the situation. That is, the potential for loss becomes more palpable when people have high exposure to the disaster event. Often exposure to disasters is based on physical proximity; however, it is not merely proximity to the disaster, but rather it is the individual perception of exposure that is most detrimental to well-being (e.g., Elal & Slade, 2005). As such, in this dissertation, I maintain that severity of exposure to the disaster refers to an individual's perceptions of closeness with the disaster (i.e., being caught and/or directly affected during the disaster, seeing others affected by the disaster, knowing others who were affected by the disaster). In addition to the severity of exposure to the event, the event's predictability will also impact how vulnerable an individual felt to the disaster. For instance, Riskind (1997)

emphasized the importance of predictability suggesting that predictable situations will not be perceived as threatening as continuously evolving situations would be perceived. Predictability refers to one's knowledge of the approaching disaster, which can come from environmental cues (e.g., ground rumbling during an earthquake), social cues (e.g., people responding to the disaster), and information sources (e.g., warning messages; Lindell & Perry, 2012).

Vulnerability will be specific to the one disaster event, as vulnerability is a compilation of exposure and predictability specific to that place and system (Smit & Wandal, 2006). How vulnerable an individual was to the disaster is a reflection of how exposed they felt to the disaster as well as whether or not they knew it was coming (i.e., predictability). Additionally, in congruence with Elal and Slade (2005), I maintain that felt distress is also critical. For instance, not knowing in advance that the disaster was coming may not be distressing for some people, and in that sense not make them more vulnerable to the disaster. Thus, *perceived vulnerability* to the disaster is a reflection of how distressing the predictability of the event and one's exposure to the event was for the individual.

Lazarus and Folkman (1984) argue higher vulnerability leads to greater threat appraisals, even in situations that should not call for distress. This is congruent with theory (Lazarus & Folkman, 1984) regarding the influential power of person and situation factors on cognitive appraisal. I propose perceived vulnerability will influence how people appraise the disaster event. For instance, the susceptibility to loss inherent in perceptions of vulnerability entails an acknowledgment that future harm or loss is

possible. In the event of a disaster, feelings of vulnerability to the disaster will impact primary appraisal, such that higher vulnerability will lead to primary appraisals of the disaster event as a threat. This concurs with Riskind's (1997) model of looming vulnerability, which maintains that a person who has a sense of looming vulnerability will feel more threatened. Conversely, low levels of perceived vulnerability in a disaster situation will entail that the individual feels more capable of handling the situation. In the event of a disaster, the low feelings of perceived vulnerability will impact primary appraisal such that a person will appraise the situation as a challenge. As such, I propose the following:

Hypothesis 1: Greater perceived vulnerability will be positively related to the primary appraisal of the disaster as a (a) threat and negatively related to the primary appraisal of the disaster as a (b) challenge.

I also posit perceived vulnerability influences secondary appraisal, as it is plausible that vulnerability will elicit appraisals of lower control. As such, people who feel the most vulnerable to a disaster will be the most likely to appraise the situation as uncontrollable-by-anyone. On the other hand, people who perceive themselves as less vulnerable will be more likely to appraise the situation as controllable either by themselves or others. The following is predicted:

Hypothesis 2: Greater perceived vulnerability will be negatively related to the secondary appraisal of (a) controllable-by-others and (b) controllable-by-self, and positively related to the secondary appraisal of the disaster as (c) uncontrollable-by-anyone.

Resiliency

Resilience describes “a class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development” (Masten, 2001, p. 228). In organizational behavior, *resiliency* is described as “sustaining and bouncing back and even beyond (resilience) to attain success” when faced with adverse conditions (Luthans, Youssef, & Avolio, 2007, p. 3). Resilient individuals are able to maintain healthy levels of physical and mental functioning even in the face of adversity (Bonnano, 2004). There has been some debate surrounding its qualities as a state-like or trait-like variable, but Luthans and Avolio (2009) maintain that it is relatively stable over time, yet still changeable. Research on the role of resiliency in organizational contexts is sparse, and most organizational researchers have examined resiliency as part of a larger framework (i.e., the Psychological Capital framework; PsyCap) consisting of several other constructs as well (e.g., Avey, Reichard, Luthans, & Mhatre, 2011); conceivably, however, an employee’s level of resiliency may impact organization-related outcomes as resilient individuals will have better recovery from workplace traumas, such as disasters.

Avey et al. (2011) meta-analyzed the relationship between the different facets of PsyCap and several desirable and undesirable outcomes. Resiliency, as a facet of PsyCap, was found to relate positively to employee well-being ($\rho = .57$) and negatively to stress and anxiety ($\rho = -.29$), supporting the hypothesis that more resilient individuals fare better (i.e., better well-being, lower stress and anxiety). Siu, Hui, Phillips, Lin, Wong, and Shi (2009) in their investigation of resiliency in the workplace found similar results; resiliency is negatively related to physical and psychological symptoms.

Friborg, Hjemdal, Rosenvinge, Martinussen, Aslaksen, and Flaten (2006) investigated the role of resiliency in experiences of pain and stress. They induced ischemic pain in participants, who were in either a low stress or high stress condition, for a maximum of 45 minutes. Stress was manipulated by the amount of information given on the tourniquet method. Whereas the low stress group received information regarding the safety of the method, the high stress group did not. Their results indicated that individuals who scored high in resiliency reported less pain and stress.

Although these studies demonstrated the relationship between resiliency and stress responses, they neglect the process aspect of Lazarus and Folkman's transactional stress theory (1984) by only focusing on the impact of resiliency on well-being. I argue that, in line with the transactional stress theory, resiliency serves as a personal resource (i.e., individual characteristic) in the transactional stress process. Specifically, I propose that resiliency, as an individual characteristic, will be predictive of cognitive appraisal. That is, I predict that higher levels of resiliency will be positively related to cognitive appraisals of the situation as a challenge due to resilient individuals' ability to bounce back under stressful conditions. Moreover, their resiliency serves as a resource in controlling the situation, and they will be more likely to cognitively appraise a stressful situation as controllable-by-others and controllable-by-self. I propose the following:

Hypothesis 3: Resiliency will be negatively related to the primary appraisal of the disaster as a (a) threat and positively related to the primary appraisal of the disaster as a (b) challenge.

Hypothesis 4: Resiliency will be positively related to the secondary appraisal of a situation as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of a situation as (c) uncontrollable-by-anyone.

Job Classification

I propose that job classification (first responder vs. non-first responder) will also serve as an individual characteristic that will relate to cognitive appraisal. *First responders*, as defined by the U.S. Department of Homeland Security (2003), are:

...those individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers...as well as emergency management, public health, clinical care, public works, and other skilled support personnel (such as equipment operators) that provide immediate support services during prevention, response, and recovery operations. (Sec. 2)

Research shows that, compared to employees in other fields, first responders exhibit higher levels of acute stress disorder, posttraumatic stress disorder, and depression (Fullerton, Ursano, & Wang, 2004). Yet, this research concentrates on the mere relationship between one's job title (i.e., first responder) and well-being, and not how one's job classification influences the stressor-strain process.

First responders are trained to respond in catastrophic and disaster situations. Commonly, due to the nature of their job, they are also more frequently exposed to traumatic situations than people in other occupations (FEMA, 2014). Given their

disaster-specific training and (likely) greater exposure to other disaster events, first responders in disaster events may approach disaster events differently than non-first responders. First, although first responders recognize the danger of a disaster, I posit that their training prepares them to view a disaster as a challenge rather than a threat. In contrast, employees who are not first responders may be more likely to gain knowledge about disasters indirectly, through the media and Hollywood which typically only focus on the devastation caused; as such, non-first responders may perceive disasters as a threat and subsequently appraise them as such. Second, although disasters rarely take a set path, first responders are more familiar with the ways in which disasters unfold—leading to less event uncertainty. Hence, they would be less likely to appraise the disaster as a threat because they can engage in anticipatory coping processes. Third, first responders are provided tools and training designed to equip them to deal with disasters (FEMA, 2014). I propose that due to their training, resources, and tools, first responders will have higher beliefs of controllability during disasters. Further, I posit that first responders, who have been trained in controlling and containing disaster situations, will appraise (i.e., secondary appraisal) disaster situations as controllable-by-self and controllable-by-others. I propose non-first-responders will appraise disasters as uncontrollable-by-anyone. Thus, the following is hypothesized:

Hypothesis 5: Job classification will be negatively related to the primary appraisal of the disaster as a (a) threat, such that being a non-first responder will be related to greater appraisals of threat, and positively related to the

primary appraisal of the disaster as a (b) challenge, such that being a first responder will be related to greater appraisals of the disaster as a challenge.

Hypothesis 6: Job classification will be positively related to the secondary appraisal of a situation as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of a situation as (c) uncontrollable-by-anyone. Specifically, being a first responder will be related to greater appraisals of the disaster as controllable-by-others and controllable-by-self and being a non-first responder will be related to greater appraisals of the disaster as uncontrollable-by-anyone.

Relative Importance of Individual Characteristics

In addition to predicting that vulnerability, resiliency, and job classification all impact cognitive appraisal, I also make predictions regarding their relative importance in this process. I propose that of the three individual characteristics examined in this dissertation, job classification will have the strongest influence on all forms of cognitive appraisal. First responders have the training and experience to understand how to manage a disaster situation—they understand which situations should be considered threats and which should be considered challenges (Leffler & Dembert, 2010; Ursano & McCarroll, 1994)—which should overpower any feelings of vulnerability and resiliency. In contrast, feeling ill-equipped (i.e., lacking the training and experience) to manage a disaster situation should be especially pronounced for non-first responders and subsequently have a stronger influence on their cognitive appraisal than their feelings of vulnerability and resiliency. Thus, I predict that job classification, because of the specific

advanced training and experience relevant to disasters, will have the strongest influence on cognitive appraisal.

Hypothesis 7: Job classification will be a stronger predictor of cognitive appraisal [(a) threat, (b) challenge, (c) controllable-by-self, (d) controllable-by-others, (e) uncontrollable-by-anyone] than resiliency and vulnerability.

Cognitive Appraisal and Coping Strategies

The cognitive appraisal process is a critical piece of the stressor-strain relationship, as this is where an individual determines the significance of an event to his or her well-being. While the cognitive appraisal and coping process have the potential to interact, the cognitive appraisal process generally serves as a precedent to an individual's selection of a coping strategy. Researchers have, to some extent, investigated how these processes relate to each other. In line with Lazarus and Folkman (1984) and the goodness of fit hypothesis, research (Carver et al., 1989; Florian, Mikulincer, & Taubman, 1995; Folkman et al., 1986) tends to support the notion that an individual is more likely to engage in emotion-focused coping when they have an appraisal that nothing can be done about a stressful situation, and that problem-focused coping occurs when an individual appraises the situation as modifiable.

Carver et al. (1989) further examined the distinction between problem-focused and emotion-focused coping when individuals are faced with stressors. They found that in stressful situations, participants who felt the situation was amenable to change were more likely to engage in active coping strategies (i.e., problem-focused), and participants who felt the situation was uncontrollable were more likely to engage in acceptance and

denial (emotion-focused coping). Their results parallel Folkman and Lazarus (1980), who argue problem-focused strategies are more frequently used in controllable situations and emotion-focused strategies are more frequently used in uncontrollable situations.

Although research on the relationship between cognitive appraisal and coping processes has not been conducted in a disaster context, Florian et al. (1995) did examine these processes in a high stress situation characterized by novelty and ambiguity—a four-week combat training program for Israeli recruits. They examined the relationships between the primary appraisal processes of threat and challenge with secondary appraisal and coping strategies. Note that they defined secondary appraisal as the felt ability to cope. In line with Lazarus and Folkman's (1984) theoretical propositions, threat appraisals were significantly positively related with emotion-focused coping, whereas challenge appraisals were significantly positively related with problem-focused coping. Interestingly, they also found that appraisals of threat were more strongly related to emotion-focused coping than were appraisals of challenge to problem-focused coping.

Collectively, the aforementioned studies are in congruence with Lazarus and Folkman's (1984) goodness of fit hypothesis. They suggest that the primary appraisal of a situation as a challenge and the secondary appraisal of a situation as controllable-by-self or controllable-by-others are most likely to precede problem-focused coping strategies. They also suggest that the primary appraisal of a situation as a threat and the secondary appraisal of a situation as uncontrollable-by-anyone are most likely to precede emotion-focused coping strategies. In essence, these studies suggest people who perceive the disaster event as creating a threatening and uncontrollable situation cannot

foresee a way to solve the problem and will, instead, focus their efforts on emotionally regulating the situation. In contrast, people who appraise the disaster event as a challenge and controllable either by themselves or others will be more likely to engage in problem-focused coping strategies. That is, because this group of people perceives the situation as controllable, they will be more likely to then also engage in a coping strategy that directly addresses the situation. As such, I predict the following:

Hypothesis 8: The primary appraisal of threat will be positively related to emotion-focused coping.

Hypothesis 9: The primary appraisal of challenge will be positively related to problem-focused coping.

Hypothesis 10: The secondary appraisal of uncontrollable-by-anyone will be positively related to emotion-focused coping.

Hypothesis 11: The secondary appraisal of controllable-by-one or controllable-by-others will be positively related to problem-focused coping.

Coping and Employee Well-Being

Adaptational outcomes, such as functioning at work and well-being, are influenced by the way in which people appraise and cope with situations (Lazarus & Folkman, 1984). Employee well-being is characterized by an individual's physical, mental, and emotional health and is a practical and imperative concern for organizations due to its relation to organizational outcomes, and ultimately, the organization's bottom-line (Grawitch, Gottschalk, & Munz, 2006). In the APA's psychologically healthy workplace model, which links workplace practices with employee well-being and

organizational outcomes, employee well-being is postulated to include factors such as physical health, mental health, stress, and job satisfaction (Grawitch et al., 2006).

Frequently, the importance of employee well-being is emphasized by illustrating the host of negative consequences resulting from decreased employee well-being, such as reduced job performance, absenteeism, and greater turnover intentions (Jex & Crossley, 2004; Griffeth, Hom, & Gaertner, 2000; Judge, Bono, Thoreson, & Patton, 2001; Lee & Ashforth, 1996; Spector, 1997). In financial terms, companies in the U.S. accrue costs of approximately \$300 billion a year due to absenteeism, productivity loss, turnover, and healthcare costs associated with job stress (i.e., lower employee well-being; APA, 2010). In the following section, I review the literature on the relationship between coping strategies and well-being, some of which has been conducted in a disaster context. I will draw from this research to make propositions regarding the relationship between the coping strategy endorsed by employees and well-being.

Folkman, Lazarus, Gruen, and Delongis (1986b) investigated the impact of personality, primary appraisal, and coping on adaptational outcomes (i.e., psychological and somatic symptoms). They found that together these variables accounted for 43% of the variance in the adaptational outcomes. Personality variables accounted for 18% of the variance, primary appraisal accounted for an additional 17%, and the coping variables accounted for an additional 9%. To further explore the relationship, they switched the order of primary appraisal and coping in analyses and found that coping accounted for 20% of the variance and primary appraisal accounted for an additional 5% of the variance. The overlap between appraisal and coping highlighted how strongly

related cognitive appraisal and coping are in a stressful encounter. Moreover, Folkman et al. (1986b) also presented correlations between several coping styles and adaptational outcomes. Confrontive ($r = .47$), seeking social support ($r = .27$), and accepting responsibility ($r = .37$) were significantly related to psychological symptoms. Distancing ($r = .19$), self-controlling ($r = .32$), escape-avoidance ($r = .51$), and positive reappraisal ($r = .19$) were also significantly related to a greater number of psychological symptoms. These results do not imply that either emotion- or problem-focused coping related to more maladaptive outcomes, as the two strongest relationships between coping and distress include an emotion-focused (escape-avoidance) and a problem-focused (confrontive) coping strategy. In addition, confrontive ($r = -.17$) and accepting responsibility ($r = -.25$) were also negatively related to somatic health (low scores on somatic health indicated poor health). Additionally, distancing ($r = -.22$), self-controlling ($r = -.16$), and escape-avoidance ($r = -.24$) were also significantly and negatively related to somatic health. Similar to the relationships they found with psychological distress, there was not a clear pattern for the relationships between emotion or problem-focused coping strategies and somatic health.

Freedy, Shaw, Jarrell, and Masters (1992) proposed a conceptual model of natural disaster adjustment, based on conservation of resources (COR) stress theory (Hobfoll, 1989), emphasizing that stress is a reaction to the threat of a loss of resources, the actual loss of resources, or a lack of resource gain following the investment of resources. Eight weeks after Hurricane Hugo, 418 people completed questionnaires assessing their resource loss, coping strategies, and psychological distress. Results

indicated resource loss was strongly correlated with problem-focused coping strategies ($r = .28$), emotion-focused ($r = .24$) coping strategies, and psychological distress ($r = .64$). Moreover, emotion-focused coping strategies ($r = .24$) were more strongly related to psychological distress than problem-focused ($r = .11$).

Also building on the conservation of resources framework, Benight et al. (1999) investigated the process by which lost resources, coping self-efficacy, and coping strategies (active coping and avoidant coping) influenced acute and subsequent disaster recovery among people affected by Hurricane Andrew. Active coping strategies, similar to problem-focused coping strategies, are those strategies directly aimed at changing the situation. Avoidant coping strategies, similar to emotion-focused coping strategies, involve avoiding thoughts and feelings associated with the stressors. The first administration of the questionnaire and interview occurred between the first and fourth month following the hurricane and the second administration, which only included the questionnaire, occurred during the eight and 8-12th month following the hurricane. Results indicated resource loss was significantly and negatively related to coping self-efficacy ($\beta = -.29$), and significantly and positively related to both avoidant ($\beta = .22$) and active ($\beta = .11$) coping strategies. Interestingly, avoidant coping strategies were significantly and positively related to acute psychological distress (Time 1; $\beta = .49$) but not long-term psychological distress. Approach coping strategies were not related to acute psychological distress but were significantly and negatively related to long-term psychological distress ($\beta = -.12$).

Although not examining a disaster, McKee-Ryan, Song, Wanberg, and Kinicki (2005) meta-analyzed the relationship between another highly stressful situation, job loss, and well-being. Psychological well-being measures were categorized based on Diener, Suh, Lucas, and Smith's (1999) components of subjective well-being: pleasant affect, psychological distress, life satisfaction, and situation satisfaction. McKee-Ryan et al. (2005) combined the pleasant affect and psychological distress categories into one, due to their unification in many well-being measures (e.g., general health questionnaire), and labeled this dimension as mental health. In addition to psychological well-being, physical well-being measures, categorized as either subjective or objective, were also included in analyses. They included 104 studies, comprised of 146 independent samples, in the analyses. Both problem-focused ($\rho = .17$) and emotion-focused coping ($\rho = .14$) were related to higher levels of mental health (i.e., better mental health) and unrelated to physical health or life satisfaction. The relationships are weak, but still support the argument that problem-focused strategies are more strongly related to improved well-being. The results are noteworthy as neither coping strategy was related to physical health, but both were related to psychological well-being.

Littleton, Horsley, John, and Nelson (2007) conducted a meta-analysis on trauma coping strategies and psychological distress. Focusing on approach and avoidance coping strategies, they evaluated the relationships between these coping strategies and psychological distress (depression, posttraumatic stress symptoms, and general distress) following interpersonal violence and severe injury. Thirty-nine samples (6,747 individuals) were used in the meta-analysis. Avoidance coping was related to general

distress ($r = .38$), depression ($r = .39$), and PTS symptoms ($r = .32$). Approach coping was only found to relate to depression ($r = -.13$). The duration of the trauma was found to moderate the relationship between approach coping and distress, such that when traumas were of longer duration the relationship between approach coping and experiencing less distress was stronger. Duration of the trauma did not moderate the relationship between avoidance coping and distress. Overall, the findings of this meta-analysis indicated avoidance coping styles more strongly relate to maladaptive or negative outcomes than active coping styles.

Lazarus and Folkman (1984) firmly advocate that coping strategies should not be confounded with outcomes—primarily because a particular coping strategy cannot be effective in all situations. For instance, an emotion-focused coping strategy that appears to be avoidant of the situation does not necessarily involve avoidance. Specifically, they posit that “functions are not defined in terms of outcomes” (Lazarus & Folkman, 1984, p. 149). Yet, it can be expected that certain functions will demonstrate a stronger relationship to certain outcomes. They suggest that some situations call for problem-focused coping strategies, which may yield better outcomes than emotion-focused coping strategies and the reverse is also true. They further propose that research is needed to determine the context for which coping strategies are effective, without dismissing the importance of the appraisal process in influencing a coping strategy’s effectiveness. Moreover, the supposition that coping strategy effectiveness is dependent on the situation is also a likely explanation for the nebulous results between coping strategies and adaptational outcomes (i.e., both emotion-focused and problem-focused

strategies have been linked to poorer psychological and physical health). These tenuous results also highlight the importance of understanding the process and context for effective coping.

In disaster situations there is some consensus that emotion-focused coping strategies are more strongly related to psychological distress than problem-focused strategies (Benight et al., 1999; Freedy et al., 1992). These findings illustrate that both coping strategies are related to well-being, yet questions remain regarding the relative contribution of these coping strategies to employee well-being. Accordingly, I posit that both problem-focused and emotion-focused coping strategies will predict employee positive well-being, and additionally, that problem-focused coping strategies will more greatly contribute to favorable employee well-being than emotion-focused coping strategies. Employee well-being will be characterized by an employee's psychological distress, physical health, and job satisfaction—three of the employee well-being components in the APA's model of a psychologically healthy workplace (Grawitch et al., 2006). As Grawtich et al. (2006) note, consensus on what comprises employee well-being does not exist. Still, theory and research have focused their efforts on employee well-being constructs such as psychological distress, general physical health, and job satisfaction. Due to their wide-spread exploration in the literature, these forms of employee well-being are explored in an effort to shed more light on these relevant and important forms of employee well-being.

Hypothesis 12: Problem-focused coping strategies and emotion-focused coping strategies will be related to favorable well-being [(a) lower psychological distress, (b) lower physical health symptoms, and (c) higher job satisfaction)].

Hypothesis 13: Problem-focused strategies will be a stronger predictor of favorable well-being [(a) lower psychological distress, (b) lower physical health symptoms, and (c) higher job satisfaction)] than emotion-focused coping.

Perceived Organizational Support as a Moderator

Perceived organizational support (POS) refers to the extent to which employees perceive their organization cares about their well-being and values their contributions (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). Perceptions of organizational support create an environment in which employees feel that they can ask for and receive help (Cropanzano, Howes, Grandey, & Toth, 1997). This perception is valuable in stressful situations (Rhoades & Eisenberger, 2002) like disasters, where employees may be in need of resources from their organization. POS also assures employees that “aid will be available from the organization when it is needed to carry out one’s job effectively and to deal with stressful situations” (Rhoades & Eisenberger, 2002, p. 698). Rhoades and Eisenberger (2002) posit that by meeting employee needs for emotional support, esteem, and approval, “POS may be especially helpful in reducing the traumatic consequences of stressors at work” (p. 711).

Cohen and Wills (1985) concur with Lazarus and Folkman’s (1984) conceptualization of stress and offer the buffering hypothesis, which proposes that social support buffers, or protects, people from the potentially harmful outcomes associated

with stressful events. Social support is postulated to serve as a buffer because of its utility as a resource for coping when stress occurs. Research has demonstrated the buffering effects of POS, as a form of social support, on the negative impact of stressful events, such that employees who have higher POS have more favorable well-being outcomes (Miner, Settles, Pratt-Hyatt, & Brady, 2012; Stamper & Johlke, 2003).

Whereas in the past the private sector was typically viewed as a victim, the private sector (i.e., one's employer) is now viewed as a valuable resource during catastrophe. That is, individuals not only receive aid from their government, but also their employer (Muller & Whiteman, 2009). I argue that POS will serve as a valuable resource for employees who are affected by disaster, as it is an additional resource during a stressful encounter that will aid in buffering the impact of the disaster event. Specifically, I posit that it will moderate the relationship between coping strategies and employee well-being such that employees with higher POS using emotion-focused coping strategies will fare better than employees with lower POS who are using emotion-focused coping strategies. Similarly, I also predict that employees with higher POS using problem-focused coping strategies will fare better than employees with low POS who are using problem-focused coping strategies. Note that while I predict that problem-focused coping will more greatly contribute to favorable well-being than emotion-focused coping strategies, I argue that POS will influence these relationships. Therefore, I hypothesize:

Hypothesis 14: POS moderates the relationship between problem-focused coping and well-being such that employees report more favorable well-being with higher levels of POS.

Hypothesis 15: POS moderates the relationship between emotion-focused coping and well-being such that employees report more favorable well-being with higher levels of POS.

CHAPTER II

METHOD

Participants, Design, and Procedure

Participants included adults who were employed during the occurrence of a disaster (e.g., hurricane, earthquake, tornado) in an area affected by the disaster event. In an effort to recruit participants, I contacted 99 organizations near areas affected by specific disasters (e.g., Hurricane Sandy). I also created a Facebook page and an advertisement to recruit participants. These efforts resulted in 13 responses. Due to the low number of participants recruited via these strategies, I also used Amazon's Mechanical Turk (www.MTurk.com) to recruit participants. A total of 1,035 people initiated the MTurk survey and were compensated \$1.50 for completion of the survey. Note that participants were not required to answer all items in order to receive payment; participants only needed to reach the final page of the survey and obtain the completion code.

Although Mechanical Turk (MTurk) has been shown to be an adequate online data collection service (Buhrmester, Kwang, & Gosling, 2011), I took several steps to maximize the quality of the dataset. Specifically, I took steps to ensure that participants met the study requirements, participant responses were not computer-generated, and that participants did not engage in random responding. First, it was specified in the survey instructions that participants needed to be employed at the time they experienced a disaster. Even so, participants could complete the survey without meeting these qualifications. As such, I excluded participants who indicated they were not employed

during the disaster or did not respond to the item, “Were you employed when the disaster hit” ($n = 99$). Second, in an effort to assess the existence of random or careless responding, the question “What is $5 + 5$?” was included in the survey; if participants are not responding randomly, they should answer this question correctly. I excluded participants who answered incorrectly ($n = 5$). Third, given the length of the survey (408 items), it was expected that participants would not be able to provide thoughtful responses if completed in less than 15 minutes. As such, I excluded all participants who completed the survey in less than 15 minutes ($n = 394$). Fourth, I assessed the frequency of invariant responding as another gauge of random or careless responding. Variance scores for each block of items in the online survey were aggregated to compute an overall variance score. I examined the responses for participants who had variance scores more than 2 standard deviations below the mean (variance ≤ 2.45 ; $n = 19$) to ensure that it was random responding. All 19 cases illustrated evidence of random responding and were excluded. Lastly, I excluded all participants who failed to complete more than 50% of the survey ($n = 395$). Some participants met more than one of these conditions. When removing all participants that met at least one of the aforementioned conditions, these efforts resulted in a final sample of 534 participants.

The final sample was 53% male ($n = 272$) and 47% female ($n = 240$) with ages ranging from 18 to 82 ($M = 34$; $SD = 9.95$). Seventy-one percent of participants indicated they were European-American/White ($n = 379$), 12% were African-American/Black ($n = 66$), 8% were Latina/o or Hispanic ($n = 43$), 6% were Asian-

American/Asian ($n = 33$), 1% were Native-American or Alaskan-Native ($n = 3$), less than 1% were Middle-Eastern/Arab ($n = 1$), and 1% indicated they were other ($n = 7$).

Participants indicated the type of disaster they experienced (see Appendix B), of which 96% experienced a natural disaster. Thirty-five percent of participants indicated they had experienced Hurricane Sandy ($n = 187$), 4% experienced the Georgia Winter Storm ($n = 19$), 3% indicated they had experienced the Colorado Floods ($n = 17$), 3% experienced the Boston Marathon Bombing ($n = 15$), 3% experienced the California Rim Fire ($n = 14$), 2% experienced the Tornadoes ($n = 10$), 2% experienced the South Napa Earthquake ($n = 12$), and 49% ($n = 260$) experienced other disasters.

Measures

The following describes the measures used in this study. All items appear in Appendix C and item reliabilities are presented in Table 1.

Perceived Vulnerability. Perceived Vulnerability consisted of 16 items, where participants indicated the item's *Occurrence* and their felt *Distress* if it had occurred. Five of the items were modified from the Traumatic Exposure Severity Scale (Elal & Slade, 2005) and an additional 11 items were developed for this study. For each item, participants were asked to indicate whether they had experienced the incident (e.g., "I became dependent on others because of the physical injuries/losses I suffered during the disaster"), and if they answered yes, they indicated how distressing it was for them on a scale of 1 (*not at all*) to 5 (*extremely*). Their *Perceived Vulnerability* scores reflect their mean level of distress for each item they experienced.

Resiliency. The six-item Brief Resilience Scale (BRS; Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008) was used to measure resiliency. Participants rated the extent to which they agreed with the items (e.g., “I tend to bounce back quickly after hard times”) on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale in relation to how they felt before the disaster occurred.

Job Classification. Participants were asked to indicate whether they were a first responder or a non-first responder at the time of the disaster. First responders include emergency response providers, emergency management, public health, clinical care, public works, and other skilled support personnel that provide support services in disaster situations, including their prevention and recovery. Non-first responders include all other types of employees who were at work during the disaster. Of the sample, 83% self-identified as non-first responders ($n = 441$) and 17% self-identified as first responders ($n = 93$).

Cognitive Appraisal. *Primary appraisal* was measured with the Appraisal of Life Events scale (Ferguson, Matthews, & Cox, 1999). Six items measured *Threat* appraisals and six items measured *Challenge* appraisals. Using a 5-point response scale (1 = *not at all* to 5 = *extremely*), participants responded to adjectives describing how they felt at the time of the event. Example items include, “threatening” (Threat) and “enjoyable” (Challenge). *Secondary Appraisal* was measured using the 11-item secondary appraisal scale of the Secondary Appraisal Measure (Peacock & Wong, 1990). This scale consists of three components of situational control: *Controllable-by-self*, *Controllable-by-others*, and *Uncontrollable-by-anyone*. Participants were asked to indicate the extent (1 = *not at*

all to 5 = extremely) to which the questions reflected how they felt at the time of the disaster. Example items include, “Will I be able to overcome the problem?” (Controllable-by-self), “Is there anyone who can help me manage this problem?” (Controllable-by-others), and “Is this a totally hopeless situation?” (Uncontrollable-by-anyone).

Coping. Coping strategies were measured with 16 items (10 items for emotion-focused coping and 6 items for problem-focused coping) from the Brief COPE (Carver, 1997). Participants rated the extent (1 = *not at all*; 5 = *used a great deal*) to which they engaged in the listed strategies to cope with the disaster in the last six months. Items included, “I’ve been learning to live with it” (*emotion-focused*) and “I’ve been taking action to try to make the situation better” (*problem-focused*).

Employee Well-Being. Employee well-being included measures of physical health symptoms, psychological distress, and job satisfaction. *Physical health symptoms* were assessed with 7 items from the Physical Symptom Inventory (Spector & Jex, 1998). Participants were asked to indicate whether they had experienced a list of symptoms (1 = *never*, 2 = *a few times*, 3 = *frequently*), such as “trouble sleeping,” “headache,” or “diarrhea.” *Psychological distress* was measured using 9 items from Derogatis’s (1993) Brief Symptoms Inventory. Participants were asked to indicate the frequency (1 = *never*, 2 = *a few times*, 3 = *frequently*) they experienced a list of symptoms, including “feeling lonely,” “feeling fearful,” or “feeling suddenly scared for no reason.” Lastly, *job satisfaction* was measured with three items adapted from Cammann, Fichman, Jenkins, and Klesh (1979). Participants rated the extent (1 = *strongly disagree*; 5 = *strongly*

agree) to which the statements characterize their work (e.g., “All in all, I am satisfied with my job”).

Perceived Organizational Support. Perceived organizational support was measured using six items adapted from Eisenberger, Huntington, Hutchinson, and Sowa (1986). Using a 1 (*strongly disagree*) to 5 (*strongly agree*) scale, participants responded to items such as “My workplace really cares about my well-being” and “Even if I did the best job possible, my workplace would fail to notice.”

Control Variables

Time since disaster. As the sample included participants who had experienced a wide range of disasters at varying time points in the past 10 years, the time since the disaster was included as a control. This variable was computed using the date participants started the survey and the date they experienced the disaster.

Disaster Preparation. Preparation for disasters was assessed with eight items regarding their preparation at home and the same eight items regarding their preparation at work. Participants were asked to indicate (*yes* or *no*) whether they were prepared before the disaster with items such as “I had an evacuation plan and location to meet” and “I had tools handy (e.g., flashlight, batteries) in case of a disaster.” A sum of each was created and used as a control variable in an effort to ensure the effects were not erroneously attributed to their preparation before the disaster.

CHAPTER III

RESULTS

Means, standard deviations, internal reliabilities, and inter-correlations of all study variables are presented in Table 1 for the full sample. Additionally, I present this information separately for non-first responders (Table 2) and first responders (Table 3).

To test the hypotheses (Appendix A), I conducted a series of hierarchical linear regressions controlling for disaster preparation and time since the disaster. The regression results are presented in Tables 4 – 9 and Tables 14 – 18, which displays the focal variables, standardized beta coefficients, and whether or not the hypothesis was supported. Additionally, to test Hypotheses 7 and 13, a relative weights analysis (Johnson, 2000) was conducted using RWA Web (Tonidandel & LeBreton, 2014); the results of these analyses appear in Tables 10 – 13. Regression analyses were also conducted to investigate the moderator relationships proposed in Hypotheses 14 and 15 (Tables 19 – 20). The coping and POS variables were centered before computing the interaction terms in an effort to make the results interpretable and to correct for multicollinearity (Aiken & West, 1991); these results are presented in Tables 9 and 10. Lastly, I ran a path analytic model in MPLUS using the observed variables (see Figure 3). Three measures of model fit were calculated: χ^2 , CFI, and RMSEA. A non-significant χ^2 indicates good model fit; however, χ^2 is sensitive to sample size and, as such, other fit indices should be examined. A CFI value of .95 or higher and a RMSEA value of .08 or lower are indicative of good model fit (Hu & Bentler, 1999).

Table 1. Means, Standard Deviation Values, Reliability Estimates and Correlations Between Study Variables

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Time Since Disaster										
2. Preparation at Work			.00							
3. Preparation at Home			-.09*	.43*						
4. Job Classification			-.03	-.30*	-.12*					
5. Vulnerability	3.45	0.88	.05	.10*	.03	-.15*				
6. Resiliency	3.66	0.87	.02	-.18*	-.13*	.01	-.15*			
7. Threat	3.43	1.04	.09*	.04	.02	-.10*	.70*	-.19*		
8. Challenge	2.15	0.74	.06	-.10*	-.06	.12*	.02	.04	.07	
9. Controllable-by-Others	3.21	0.90	-.09*	-.34*	-.20*	.20*	-.25*	.20*	-.19*	.14*
10. Controllable-by-Self	3.13	0.95	-.04	-.29*	-.17*	.17*	-.22*	.32*	-.17*	.23*
11. Uncontrollable-by-Anyone	3.15	1.12	.08	.10*	.09*	-.17*	.55*	-.23*	.61*	.02
12. Emotion-Focused Coping	2.79	0.76	-.06	-.15*	-.17*	-.06	.19*	-.07	.27*	.12*
13. Problem-Focused Coping	2.95	1.08	-.04	-.11*	-.16*	-.10*	.31*	-.05	.34*	.12*
14. Perceived Organizational Support	3.45	0.99	-.11*	-.25*	-.15*	.10*	-.01	.32*	-.01	.04
15. Job Satisfaction	3.74	0.96	-.08	-.19*	-.08	.05	-.04	.29*	-.04	.02
16. Physical Health Symptoms	1.74	0.43	.04	.04	.00	-.07	.27*	-.21*	.28*	.03
17. Psychological Distress	1.52	0.47	.05	.06	.01	-.01	.31*	-.37*	.32*	.07

Note. N = 534. * $p < .05$. Values in parentheses are Cronbach Alpha estimates. Job Classification: 0 = Non-First Responder, 1 = First Responder.

Table 1. Continued

<i>Variable</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>
1. Time Since Disaster									
2. Preparation at Work									
3. Preparation at Home									
4. Job Classification									
5. Vulnerability									
6. Resiliency									
7. Threat									
8. Challenge									
9. Controllable-by-Others									
10. Controllable-by-Self	.67*								
11. Uncontrollable-by-Anyone	-.36*	-.27*							
12. Emotion-Focused Coping	.12*	.15*	.22*						
13. Problem-Focused Coping	.00	.05	.31*	.63*					
14. Perceived Organizational Support	.23*	.19*	-.12*	.07	.13*				
15. Job Satisfaction	.17*	.16*	-.14*	.03	.03	.38*			
16. Physical Health Symptoms	-.15*	-.22*	.27*	.12*	.21*	-.15*	-.17*		
17. Psychological Distress	-.21*	-.27*	.33*	.10*	.20*	-.18*	-.26*	.67*	

Note. N = 534. * $p < .05$. Values in parentheses are Cronbach Alpha estimates. Job Classification: 0 = Non-First Responder, 1 = First Responder.

Table 2. Means, Standard Deviations, and Correlations Between Study Variables for Non-First Responders

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Time Since Disaster	1418.05	1187.26	---							
2. Preparation at Work	11.50	2.25	.02	(.76)						
3. Preparation at Home	10.87	2.00	-.08	.39*	(.74)					
4. Vulnerability	3.51	.86	.09	.10*	.03	(.87)				
5. Resiliency	3.65	.89	.03	-.18*	-.14*	-.16*	(.90)			
6. Threat	3.47	1.03	.14*	.02	-.01	.69*	-.21*	(.91)		
7. Challenge	2.11	.744	.08	-.06	-.06	.05	.05	.08	(.74)	
8. Controllable-by-Others	3.13	.90	-.12*	-.31*	-.17*	-.25*	.20*	-.19*	.14*	(.75)
9. Controllable-by-Self	3.05	.97	-.07	-.28*	-.14*	-.20*	.33*	-.16*	.23*	.67*
10. Uncontrollable-by-Anyone	3.23	1.12	.10*	.03	.05	.57*	-.23*	.62*	.02	-.35*
11. Emotion-Focused Coping	2.81	.74	-.07	-.15*	-.19*	.18*	-.06	.27*	.11*	.16*
12. Problem-Focused Coping	2.99	1.09	-.03	-.11*	-.17*	.33*	-.06	.38*	.13*	.02
13. Perceived Organizational Support	3.40	1.00	-.11*	-.24*	-.16*	-.01	.32*	-.03	.04	.24*
14. Job Satisfaction	3.72	.98	-.06	-.21*	-.09	-.04	.29*	-.05	.04	.15*
15. Physical Health Symptoms	1.76	.43	.07	.01	-.03	.25*	-.26*	.27*	.00	-.15*
16. Psychological Distress	1.52	.47	.08	.07	-.03	.29*	-.39*	.30*	.04	-.20*

Note. $n = 441$. *Indicates correlation estimates are significant, $p < .05$.

Table 2. Continued

<i>Variable</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
1. Time Since Disaster								
2. Preparation at Work								
3. Preparation at Home								
4. Vulnerability								
5. Resiliency								
6. Threat								
7. Challenge								
8. Controllable-by-Others								
9. Controllable-by-Self	(.78)							
10. Uncontrollable-by-Anyone	-.23*	(.86)						
11. Emotion-Focused Coping	.19*	.20*	(.74)					
12. Problem-Focused Coping	.07	.35*	.60*	(.92)				
13. Perceived Organizational Support	.22*	-.12*	.08	.14*	(.91)			
14. Job Satisfaction	.17*	-.13*	.09	.05	.34*	(.88)		
15. Physical Health Symptoms	-.24*	.26*	.11*	.21*	-.17*	-.18*	(.84)	
16. Psychological Distress	-.28*	.32*	.08	.20*	-.20*	-.26*	.66*	(.88)

Note. $n = 441$. *Indicates correlation estimates are significant, $p < .05$.

Table 3. Means, Standard Deviations, and Correlations Between Study Variables for First Responders

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Time Since Disaster	1309.66	1168.97	---							
2. Preparation at Work	9.70	2.00	-.17	(.76)						
3. Preparation at Home	10.25	1.91	-.21*	.58*	(.72)					
4. Vulnerability	3.17	.92	-.15	-.13	-.03	(.90)				
5. Resiliency	3.68	.75	.01	-.20	-.08	-.09	(.86)			
6. Threat	3.20	1.04	-.12	-.03	.10	.70*	-.09	(.92)		
7. Challenge	2.35	.68	.00	-.11	.01	-.02	-.08	.07	(.68)	
8. Controllable-by-Others	3.61	.79	.10	-.18	-.26*	-.10	.20	-.08	-.03	(.71)
9. Controllable-by-Self	3.48	.79	.21*	-.13	-.22*	-.19	.23*	-.13	.16	.60*
10. Uncontrollable-by-Anyone	2.73	1.01	-.06	.19	.18	.37*	-.22*	.57*	.19	-.25*
11. Emotion-Focused Coping	2.69	.81	-.00	-.34*	-.12	.20	-.13	.24*	.24*	.03
12. Problem-Focused Coping	2.72	1.01	-.13	-.34*	-.20	.16	.01	.13	.15	.08
13. Perceived Organizational Support	3.66	.94	-.07	-.20	.00	.09	.32*	.13	-.08	.09
14. Job Satisfaction	3.84	.87	-.14	-.01	.04	.05	.29*	.02	-.16	.21*
15. Physical Health Symptoms	1.67	.41	-.16	.06	.11	.31*	.08	.28*	.22*	-.03
16. Psychological Distress	1.50	.46	-.08	.03	.17	.39*	-.21*	.37*	.26*	-.24*

Note. $n = 93$. *Indicates correlation estimates are significant, $p < .05$.

Table 3. Continued

<i>Variable</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
1. Time Since Disaster								
2. Preparation at Work								
3. Preparation at Home								
4. Vulnerability								
5. Resiliency								
6. Threat								
7. Challenge								
8. Controllable-by-Others								
9. Controllable-by-Self	(.66)							
10. Uncontrollable-by-Anyone	-.36*	(.78)						
11. Emotion-Focused Coping	-.00	.27*	(.81)					
12. Problem-Focused Coping	.03	.06	.74*	(.91)				
13. Perceived Organizational Support	-.11	-.03	.05	.15	(.90)			
14. Job Satisfaction	.07	-.23*	-.22*	-.08	.59*	(.82)		
15. Physical Health Symptoms	-.07	.25*	.14	.19	-.03	-.08	(.83)	
16. Psychological Distress	-.18	.37*	.15	.21*	-.05	-.24*	.68*	(.85)

Note. $n = 93$. *Indicates correlation estimates are significant, $p < .05$.

Research question 1, which questioned whether the type of disaster, natural or technological, would influence the stressor-strain process was not investigated due to the low number of participants who experienced technological disasters ($n = 19$).

Hypothesis Testing¹

In Hypothesis 1, I proposed that greater perceived vulnerability would be positively related to the primary appraisal of the disaster as a threat and negatively related to the primary appraisal of the disaster as a challenge (Table 4). Regression analyses revealed that perceived vulnerability was significantly and positively related to the primary appraisal of (a) threat ($\beta = .70, p < .05$), but not related to (b) challenge ($\beta = .03, ns$). As such, Hypothesis 1 was partially supported. These analyses reveal that perceptions of vulnerability to the disaster were related to appraising the disaster as a threat; however, perceptions of vulnerability had no impact on appraising the disaster as a challenge.

In Hypothesis 2, I posited that greater perceived vulnerability would be negatively related to the secondary appraisal of the disaster as (a) controllable-by-others and (b) controllable-by-self, and positively related to the secondary appraisal of the disaster as (c) uncontrollable-by-anyone (Table 5). Perceived vulnerability was significantly and negatively related to the secondary appraisals of (a) controllable-by-others ($\beta = -.21, p < .05$) and (b) controllable-by-self ($\beta = -.18, p < .05$). The relationship

¹ Regression analyses were also carried out including only individuals who experienced Hurricane Sandy, as this was the largest subgroup. A control variable was included indicating whether individuals were in the FEMA designated Hurricane Sandy impact area or not. The inclusion of this control variable did not alter the relationships.

Table 4. Regression Analyses for Hypothesis 1

	<u>Threat</u>			<u>Challenge</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	2.99	.30		2.40	.22	
Controls						
<i>Days since disaster</i>	.00	.00	.09	.00	.00	.05
<i>Preparation at work</i>	.00	.02	.00	-.03	.02	-.09
<i>Preparation at home</i>	.03	.03	.06	.00	.02	.01
Vulnerability	.81	.04	.70*	.02	.04	.03
<i>Adj. R²</i>	.01			.00		
Δ <i>Adj. R²</i>	.49			.00		

Note. * $p < .05$

Table 5. Regression Analyses for Hypothesis 2

	<u>Controllable-by-Others</u>			<u>Controllable-by-Self</u>			<u>Uncontrollable-by-Anyone</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	5.06	.25		4.74			2.09	.33	
Controls									
<i>Days since disaster</i>	.00	.00	-.09*	.00	.00	-.05	.00	.02	.08
<i>Preparation at work</i>	-.11	.02	-.28*	-.10	.02	-.24*	.03	.02	.05
<i>Preparation at home</i>	-.05	.02	-.10*	-.04	.02	-.08	.06	.03	.11*
Vulnerability	-.21	.04	-.21*	-.20	.05	-.18*	.69	.05	.54*
<i>Adj. R²</i>	.11			.08			.02		
Δ <i>Adj. R²</i>	.04			.03			.29		

Note. * $p < .05$

between perceived vulnerability and (c) uncontrollable-by-anyone was significant and positive ($\beta = .54, p < .05$). Thus, Hypothesis 2 was fully supported; broadly, these results suggest that vulnerability influences control appraisals.

Next, I predicted in Hypothesis 3 that greater resiliency would be negatively related to the primary appraisal of the disaster as a (a) threat and positively related to the primary appraisal of the disaster as a (b) challenge (Table 6). Resiliency significantly and negatively related to the primary appraisal of (a) threat ($\beta = -.19, p < .05$). Resiliency was not related to the primary appraisal of the disaster as a (b) challenge ($\beta = .02, ns$). As such, Hypothesis 3 was partially supported; resiliency was negatively related to greater appraisals of the disaster as a threat but not related to appraisals of the disaster as a challenge.

In Hypothesis 4, I posited that resiliency would be positively related to the secondary appraisal of the disaster as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of the disaster as (c) uncontrollable-by-anyone (Table 7). Resiliency significantly and positively predicted secondary appraisal of (a) controllable-by-others ($\beta = .14, p < .05$) and (b) controllable-by-self ($\beta = .28, p < .05$). Resiliency also significantly and negatively predicted (c) uncontrollable-by-anyone ($\beta = -.22, p < .05$). Hypothesis 4 was fully supported. Similar to the relationship between perceived vulnerability and secondary appraisals of control, resiliency also related to control appraisals. These results illustrate that higher resilience is linked to appraising the disaster event as more controllable-by-others and

Table 6. Regression Analyses for Hypothesis 3

	<u>Threat</u>			<u>Challenge</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	3.03	.29		2.50	.20	
Controls						
<i>Days since disaster</i>	.00	.00	.10	.00	.00	.05
<i>Preparation at work</i>	.02	.02	.04	-.03	.02	-.09
<i>Preparation at home</i>	.01	.03	.02	-.01	.02	-.02
Resiliency	-.23	.05	-.19*	.02	.04	.02
<i>Adj. R</i> ²	.01			.01		
Δ <i>Adj. R</i> ²	.04			.00		

Note. * $p < .05$

Table 7. Regression Analyses for Hypothesis 4

	<u>Controllable-by-Others</u>			<u>Controllable-by-Self</u>			<u>Uncontrollable-by-Anyone</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	5.04	.23		4.71	.25		2.25	.31	
Controls									
<i>Days since disaster</i>	.00	.00	-.10*	.00	.00	-.05	.00	.00	.08
<i>Preparation at work</i>	-.12	.02	-.30*	-.11	.02	-.26*	.03	.02	.07
<i>Preparation at home</i>	-.04	.02	-.09	-.03	.02	-.06	.04	.03	.07
Resiliency	.15	.04	.14*	.30	.05	.28*	-.28	.06	-.22*
<i>Adj. R</i> ²	.13			.08			.02		
Δ <i>Adj. R</i> ²	.02			.07			.04		

Note. * $p < .05$

more controllable-by-self, whereas lower resilience is related to appraising the disaster as more uncontrollable-by-anyone.

In Hypothesis 5, I proposed that job classification would be negatively related to the primary appraisal of the disaster as a (a) threat and positively related to the primary appraisal of the disaster as a (b) challenge (Table 8). Job classification significantly and negatively predicted the primary appraisal of the disaster as a (a) threat ($\beta = -.09, p < .05$), suggesting that being a non-first responder was related to greater appraisals of the disaster as a threat and being a first responder was related to lower appraisals of the disaster as a threat. Job classification significantly and positively predicted the appraisal of a disaster as a (b) challenge ($\beta = .10, p < .05$), suggesting that being a first responder is related to appraising the disaster as a challenge. Combined, these results support Hypothesis 5 and suggest job classification is predictive of primary cognitive appraisal.

I proposed in Hypothesis 6 that job classification would be positively related to the secondary appraisal of the disaster as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of (c) uncontrollable-by-anyone (Table 9). Results revealed job classification significantly and positively related to the appraisal of the disaster as (a) controllable-by-others ($\beta = .11, p < .05$), as well as (b) controllable-by self ($\beta = .09, p < .05$). Additionally, job classification was significantly and negatively related to (c) uncontrollable-by-anyone ($\beta = -.15, p < .05$). These results demonstrate that being a first responder is related to appraisals of control and being a non-first responder is related to appraisals of the disaster as uncontrollable.

Table 8. Regression Analyses for Hypothesis 5

	<u>Threat</u>			<u>Challenge</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	3.03	.29		2.50	.20	
Controls						
<i>Days since disaster</i>	.00	.00	.10*	.00	.00	.00
<i>Preparation at work</i>	.02	.02	.04	-.03	.02	-.10
<i>Preparation at home</i>	.01	.03	.02	-.01	.02	-.02
Job Classification	-.26	.12	-.09*	.20	.09	.10*
<i>Adj. R</i> ²	.01			.01		
Δ <i>Adj. R</i> ²	.00			.00		

Note. * $p < .05$

Table 9. Regression Analyses for Hypothesis 6

	<u>Controllable-by-Others</u>			<u>Controllable-by-Self</u>			<u>Uncontrollable-by-Anyone</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	5.04	.23		4.71	.25		2.25	.31	
Controls									
<i>Days since disaster</i>	.00	.00	-.10*	-.11	.02	-.26*	.00	.00	.08
<i>Preparation at work</i>	-.12	.02	-.30*	-.11	.02	-.26*	.03	.02	.07
<i>Preparation at home</i>	-.04	.02	-.09	-.03	.02	-.06	.04	.03	.07
Job Classification	.25	.10	.11*	.23	.11	.09*	-.45	.13	-.15*
<i>Adj. R</i> ²	.12			.08			.01		
Δ <i>Adj. R</i> ²	.01			.01			.02		

Note. * $p < .05$

I further investigated the impact of vulnerability, resiliency, and job classification on cognitive appraisal in Hypothesis 7. I predicted that job classification would be a stronger predictor of cognitive appraisal than resiliency and vulnerability. A series of relative weights analyses (Johnson, 2000) were conducted to investigate which was the strongest predictor; results from these analyses are summarized in Table 10 – 13. I conducted these analyses using RWA-Web (Tonidandel & LeBreton, 2014). RWA-Web produces confidence intervals for the individual relative weights and corresponding significance tests; the significance tests are based on bootstrapping with 10,000 replications (Tonidandel & LeBreton, 2014). First, the relative impact of job classification, resiliency, and vulnerability on the primary appraisal of threat was examined (Table 10). The results illustrate that job classification, resiliency, and vulnerability explained half of the variance in the threat appraisal ($R^2 = .50$). The relative weights revealed that only vulnerability explained a statistically significant amount of variance in threat appraisals, as the 95% *CIs* for resiliency and job classification contained zero. These results suggest vulnerability is the strongest predictor of a threat appraisal; thus, Hypothesis 7a was not supported. I also predicted that job classification would be the strongest predictor of (b) challenge. Relative weights analyses, however, were not conducted as job classification was the only significant predictor of challenge. Still, this supports Hypothesis 7b.

Next, I examined the relative impact of job classification, resiliency, and vulnerability on secondary appraisal. Results indicated that job classification, resiliency, and vulnerability explained 12% of the variance in the controllable-by-others appraisal

($R^2 = .12$; Table 11). The relative weights analyses revealed that job classification, resiliency, and vulnerability each explained a statistically significant amount of variance in controllable-by-others appraisal as none of the 95% *CI*s for the tests of significance contained zero. The relatively most important variable was vulnerability ($RW = .05$); job classification and resiliency had similar effect sizes ($RW = .03$ for both). These results suggest that vulnerability, and not job classification, is the strongest predictor of controllable-by-others; as such Hypothesis 7c is not supported. Job classification, resiliency, and vulnerability explained 15% of the variance in the controllable-by-self appraisal ($R^2 = .15$; Table 12). The only significant predictor was resiliency ($RW = .09$), as the 95% *CI*s for vulnerability and job classification contained zero. Thus, Hypothesis 7d was not supported. In Hypothesis 7e, job classification, resiliency, and vulnerability predicted roughly a third of the variance of the uncontrollable-by-anyone appraisal ($R^2 = .33$; Table 13). The only significant predictor, however, was again vulnerability ($RW = .28$). As such Hypothesis 7e was also not supported. Together, the results of these analyses reveal that vulnerability is the strongest predictor of cognitive appraisal.

Table 10. Relative Weights Analysis of Individual Characteristics on Threat

Predictor	B	β	RW	CI-L	CI-U	RS-RW
Job Classification	-.06	-.02	.01	0.00	.02	1.01
Resiliency	-.14	-.012	.02	0.00	.05	4.35
Vulnerability	.79	.68	.047	0.41	.53	94.63*
Overall $R^2 = 0.49$, $F(3, 492) = 164.76$, $p < .05$						

Table 11. Relative Weights Analysis of Individual Characteristics on Controllable-by-Others

Predictor	B	β	RW	CI-L	CI-U	RS-RW
Job Classification	.21	.09	.03	.01	.07	29.33*
Resiliency	.13	.13	.03	.01	.07	29.10*
Vulnerability	-.18	-.18	.05	.01	.09	41.57*
Overall $R^2 = 0.12$, $F(3, 493) = 21.47$, $p < .05$						

Table 12. Relative Weights Analysis of Individual Characteristics on Controllable-by-Self

Predictor	B	β	RW	CI-L	CI-U	RS-RW
Job Classification	.20	.08	.02	.00	.05	16.14
Resiliency	.30	.28	.09	.05	.15	61.35*
Vulnerability	-.15	-.14	.03	.00	.07	22.50
Overall $R^2 = 0.15$, $F(3, 493) = 30.95$, $p < .05$						

Table 13. Relative Weights Analysis of Individual Characteristics on Uncontrollable-by-Anyone

Predictor	B	β	RW	CI-L	CI-U	RS-RW
Job Classification	-.30	-.10	.02	-0.02	.03	5.70
Resiliency	-.19	-.15	.04	-0.01	.06	10.94
Vulnerability	.65	.51	.28	.19	.33	83.35*
Overall $R^2 = 0.33$, $F(3, 493) = 81.92$, $p < .05$						

Note: B = unstandardized regression weight; β = standardized regression weight; RW = raw relative weight (within rounding error raw weights will sum to R^2); CI-L = lower bound of confidence interval used to test the statistical significance of raw weight; CI-U = upper bound of confidence interval used to test the statistical significance of raw weight; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%).

I proposed in Hypothesis 8 that the primary appraisal of the situation as a threat would be positively related to the endorsement of emotion-focused coping strategies (Table 14). The primary appraisal of the event as a threat was significantly and positively related to the endorsement of emotion-focused coping strategies ($\beta = .29, p < .05$), lending support to Hypothesis 8. Specifically, appraising the disaster as a threat related to the engagement of emotion-focused coping.

In Hypothesis 9, I predicted that the primary appraisal of the situation as a challenge would be positively related to the endorsement of problem-focused coping strategies (Table 15). Analyses revealed that the primary appraisal of the event as a challenge was significantly and positively related to the endorsement of problem-focused coping strategies ($\beta = .11, p < .05$), supporting Hypothesis 9. Thus, appraising the disaster as a challenge related to the engagement of problem-focused coping.

Additionally, it was predicted that the secondary appraisal of the event as uncontrollable-by-anyone would be positively related to the endorsement of emotion-focused coping strategies (Hypothesis 10; Table 16). The secondary appraisal of the event as uncontrollable-by-anyone was significantly and positively related to the endorsement of emotion-focused coping strategies ($\beta = .25, p < .05$), supporting Hypothesis 10. Thus, appraising the event as uncontrollable-by-anyone was related to emotion-focused coping.

In Hypothesis 11, I predicted secondary appraisal of the event as controllable-by-self or controllable-by-others would be positively related to the endorsement of problem-focused coping strategies (Table 17 - 18). The secondary appraisal of the event as

Table 14. Regression Analyses for Hypothesis 8

	Emotion-Focused Coping		
	<i>B</i>	<i>SE</i>	β
Constant	3.75	.21	
Controls			
<i>Days since disaster</i>	.00	.00	-.07*
<i>Preparation at work</i>	-.03	.02	-.10*
<i>Preparation at home</i>	-.05	.02	-.13*
Threat	.21	.03	.29*
<i>Adj. R²</i>	.04		
Δ <i>Adj. R²</i>	.08		

Note. * $p < .05$

Table 15. Regression Analyses for Hypothesis 9

	Problem-Focused Coping		
	<i>B</i>	<i>SE</i>	β
Constant	4.15	.30	
Controls			
<i>Days since disaster</i>	.00	.00	-.06
<i>Preparation at work</i>	-.03	.02	-.05
<i>Preparation at home</i>	-.08	.03	-.15*
Challenge	.16	.06	.11*
<i>Adj. R²</i>	.03		
Δ <i>Adj. R²</i>	.01		

Note. * $p < .05$

controllable-by-others did not predict the endorsement of problem-focused coping ($\beta = -.05$, *ns*; Table 17). The secondary appraisal of the event as controllable-by-self did not significantly predict the endorsement of a problem-focused coping ($\beta = .02$, *ns*; Table 18). Thus, Hypothesis 11 was not supported.

I predicted in Hypothesis 12 that problem-focused and emotion-focused coping strategies would both be related to favorable well-being. Problem-focused coping was not significantly related to (a) job satisfaction ($\beta = .00$, *ns*). It was, however significantly and positively related to (b) psychological distress ($\beta = .21$, $p < .05$). This relationship was contrary to expectations as it was expected that engaging in coping would relate to lower psychological distress. Problem-focused coping was also related to greater physical health symptoms ($\beta = .22$, $p < .05$). This relationship was also contrary to expectations.

Emotion-focused coping did not significantly relate to (a) job satisfaction ($\beta = .00$, *ns*). Emotion-focused coping did significantly and positively relate to (b) psychological distress for ($\beta = .11$, $p < .05$) and (c) physical health symptoms ($\beta = .13$, $p < .05$). Again, the relationships between emotion-focused coping and psychological distress and physical health were contrary to expectations in that greater coping related to more distress and health symptoms. Given that the significant relationships were contrary to expectations, Hypothesis 12 was not supported.

Hypothesis 13 predicted that problem-focused coping would be a stronger predictor of favorable well-being than emotion-focused coping. However, neither coping strategy was predictive of favorable well-being (i.e., Hypothesis 12 was not

Table 16. Regression Analyses for Hypothesis 10

	<u>Emotion-Focused Coping</u>		
	<i>B</i>	<i>SE</i>	β
Constant	3.75	.21	
Controls			
<i>Days since disaster</i>	.00	.00	-.07
<i>Preparation at work</i>	-.03	.02	-.10*
<i>Preparation at home</i>	-.05	.02	-.13*
Uncontrollable-by-anyone	.17	.03	.25*
<i>Adj. R</i> ²	.04		
Δ <i>Adj. R</i> ²	.06		

Note. * $p < .05$

Table 17. Regression Analyses for Hypothesis 11: Controllable-by-Others

	<u>Problem-Focused Coping</u>		
	<i>B</i>	<i>SE</i>	β
Constant	4.15	.30	
Controls			
<i>Days since disaster</i>	.00	.00	-.06
<i>Preparation at work</i>	-.03	.02	-.05
<i>Preparation at home</i>	-.08	.03	-.15*
Controllable-by-others	-.06	.06	-.05
<i>Adj. R</i> ²	.03		
Δ <i>Adj. R</i> ²	.00		

Note. * $p < .05$

Table 18. Regression Analyses for Hypothesis 11: Controllable-by-Self

	<u>Problem-Focused Coping</u>		
	<i>B</i>	<i>SE</i>	β
Constant	4.15	.30	
Controls			
<i>Days since disaster</i>	.00	.00	-.06
<i>Preparation at work</i>	-.03	.02	-.05
<i>Preparation at home</i>	-.08	.03	-.15*
Controllable-by-self	.02	.05	.02
<i>Adj. R</i> ²	.03		
Δ <i>Adj. R</i> ²	.00		

Note. * $p < .05$

supported). As such, the proposed relative weights analyses (Johnson, 2000) were not conducted and Hypothesis 13 was not supported.

In Hypothesis 14, I proposed perceived organizational support (POS) would moderate the relationship between problem-focused coping and well-being (job satisfaction, psychological distress, and physical health symptoms). As shown in Table 19, there were significant main effects of problem-focused coping ($\beta = .24, p < .05$ and POS ($\beta = -.11, p < .05$) which were qualified by a coping \times POS interaction on physical health. Problem-focused coping and POS significantly interacted to predict physical health ($\beta = -.10, p < .05$); the interaction is graphed in Figure 3. To further examine the nature of the relationships, simple slope analyses were conducted using conditional values for POS that were calculated 1 *SD* above and 1 *SD* below the mean (Aiken & West, 1991). For individuals with higher POS, higher problem-focused coping was related to significantly more physical health symptoms ($B = .06, \beta = .15, SE = .02, p < .05$). For individuals who had lower POS, higher problem-focused coping was more strongly related to more physical health symptoms ($B = .13, \beta = .33, SE = .03, p < .05$). This is in line with predictions that higher perceived organizational support would moderate the relationship between problem-focused coping and well-being. Thus, Hypothesis 14 was partially supported.

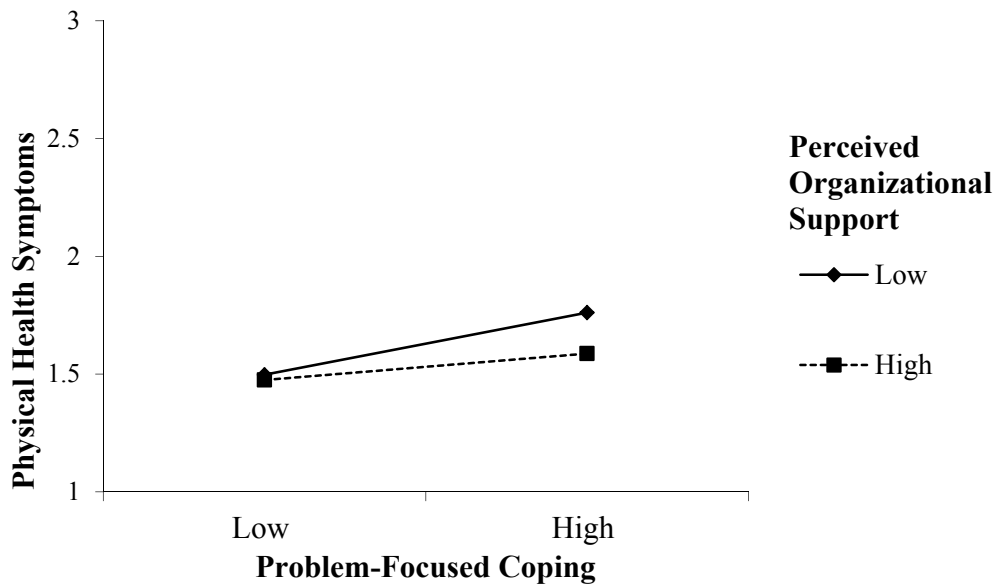


Figure 3. Interaction between Problem-Focused Coping and Perceived Organizational Support on Physical Health

In Hypothesis 15, I proposed that perceived organizational support would moderate the relationship between emotion-focused coping and well-being (job satisfaction, psychological distress, and physical health symptoms). This hypothesis was not supported as perceived organizational support did not moderate the relationships between emotion-focused coping and well-being (Table 20).

Table 19. Moderator Analyses for Hypothesis 14

	<u>Psychological Distress</u>			<u>Physical Health</u>			<u>Job Satisfaction</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	1.37	.13		1.64	.12		4.65	.26	
Controls									
<i>Days since disaster</i>	.00	.00	.05	.00	.00	.04	.00	.00	-.07
<i>Preparation at work</i>	.01	.01	.07	.01	.01	.05	-.08	.02	-.19*
<i>Preparation at home</i>	.00	.01	-.01	.00	.01	.00	.00	.02	.01
Problem-Focused Coping	.10	.02	.23*	.09	.02	.24*	.00	.03	-.01
Perceived Organizational Support	-.09	.02	-.18*	-.05	.02	-.11*	.68	.03	.69*
Problem-Focused Coping X Perceived Organizational Support	-.03	.02	-.07	-.04	.02	-.10*	.04	.03	.05
<i>Adj. R²</i>	.01			.00			.04		
Δ <i>Adj. R²</i>	.08			.06			.46		

Note. * $p < .05$

Table 20. Moderator Analyses for Hypothesis 15

	<u>Psychological Distress</u>			<u>Physical Health</u>			<u>Job Satisfaction</u>		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	1.37	.13		1.64	.12		4.65	.26	
Controls									
<i>Days since disaster</i>	.00	.00	.05	.00	.00	.04	.00	.00	-.07
<i>Preparation at work</i>	.01	.01	.07	.01	.01	.05	-.08	.02	-.19*
<i>Preparation at home</i>	.00	.01	-.01	.00	.01	.00	.00	.02	.01
Emotion-Focused Coping	.07	.03	.11*	.08	.03	.14*	.02	.04	.01
Perceived Organizational Support	-.09	.03	.11*	-.05	.02	-.12*	.69	.03	.69*
Emotion-Focused Coping X Perceived Organizational Support	-.02	.03	-.04	-.02	.03	-.03	-.03	.04	-.02
<i>Adj. R</i> ²	.00			.00			.03		
Δ <i>Adj. R</i> ²	.04			.03			.46		

Note. * $p < .05$

The final step was to conduct a path analysis using MPLUS (Muthén & Muthén, 2010) to examine the overall model (Appendix E). The relationships between the independent variables, outcomes, and moderator were estimated simultaneously. The model showed poor fit ($\chi^2(67) = 3527.72, p > .05, CFI = .26, RMSEA = .31, SRMR = .18$). The path analytic model did not support the theoretical model predicted in this dissertation. Generally, the estimates were similar to those exhibited in the regression analyses presented earlier. Still, there were some differences. Specifically, Hypothesis 5 (i.e., relationship between job classification and cognitive appraisal), which was fully supported in regression analyses, did not exhibit the same relationships. The path analytic estimates revealed that job classification was only significantly related to challenge appraisals. Additionally, there were some key differences in the relationships between coping and outcomes. Recall that problem focused coping significantly related to both psychological distress and physical health. The path analytic estimates also illustrated a significant relationship between problem-focused coping and job satisfaction. Moreover, emotion-focused coping had been found to positively and significantly relate to psychological distress and physical health. Yet, the path analytic estimates illustrated that emotion-focused coping was not related to physical or psychological well-being, but was positively and significantly related to job satisfaction. Lastly, POS was found to moderate the relationships between problem-focused coping and job satisfaction, problem-focused coping and psychological distress, and emotion-focused coping and psychological distress.

Exploratory Analyses

A series of exploratory t-tests revealed a number of significant differences between non-first responders and first responders. Non-first responders and first responders reported significantly different rates vulnerability to disasters ($t(497) = 3.42$, $p < .05$, $d = .40$), with non-first responders feeling more vulnerable ($M = 3.52$, $SD = .86$) than first responders ($M = 3.17$, $SD = .92$). There were no significant differences in their reports of resiliency ($t(152.39) = -.26$, ns ; $M = 3.65$ and $SD = .89$ for non-first responders and $M = 3.68$ and $SD = .75$ for first responders).

I also investigated the differences in cognitive appraisal between non-first responders and first responders. Non-first responders had significantly higher primary appraisals of the disaster as a threat ($M = 3.47$, $SD = 1.03$) than first responders ($M = 3.20$, $SD = 1.04$), $t(532) = 2.33$, $p < .05$, $d = .26$. First responders had higher primary appraisals of the disaster as a challenge ($M = 2.35$, $SD = .68$) than non-first responders ($M = 2.11$, $SD = .74$), $t(532) = -2.89$, $p < .05$, $d = .33$. Accordingly, non-first responders were more likely to perceive a disaster event as a threat, whereas first responders were more likely to perceive a disaster event as a challenge.

First responders had higher secondary appraisals of the disaster as controllable-by-self ($M = 3.48$, $SD = .79$) than non-first responders ($M = 3.05$, $SD = .97$), $t(153.43) = -4.52$, $p < .05$, $d = .46$. First responders also had higher secondary appraisals of the disaster as controllable-by-others ($M = 3.61$, $SD = .79$) than non-first responders ($M = 3.13$, $SD = .90$), $t(530) = -4.71$, $p < .05$, $d = .54$. Lastly, non-first responders had higher secondary appraisals of the disaster as uncontrollable-by-anyone ($M = 3.23$, $SD = 1.12$)

than first responders ($M = 2.73$, $SD = 1.01$), $t(530) = 4.01$, $p < .05$, $d = .45$. Thus, first responders were more likely to appraise the situation as controllable, whereas non-first responders were more likely to appraise the situation as uncontrollable.

In regard to coping, non-first responders and first responders differed significantly in their endorsement of problem-focused coping ($t(531) = 2.23$, $p < .05$, $d = .26$) with non-first responders ($M = 2.99$, $SD = 1.09$) having higher endorsement of problem-focused coping than first responders ($M = 2.72$, $SD = 1.01$). They did not differ significantly in their endorsement of emotion-focused coping ($t(531) = 1.41$, $p > .05$; $M = 2.81$ and $SD = .74$ for non-first responders and $M = 2.69$ and $SD = .81$ for first responders).

Finally, there were also significant differences in perceived organizational support, such that first responders reported higher levels of perceived organizational support than non-first responders ($t(531) = -2.26$, $p < .05$, $d = .26$, $M = 3.40$, $SD = 1.00$ for non-first responders and $M = 3.66$, $SD = .94$ for first responders). There were no significant differences in well-being between non-first responders and first responders.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

Natural and technological disasters vary in their destructive intensity and impact (Center for Research on the Epidemiology of Disasters, 2013; IMF, 2012) and often have devastating consequences for those affected. The effects of disasters on victims' well-being have been of research interest for decades, with studies indicating that the psychological impact of a disaster ranges from short-lived and minimal to long-lasting and persistent (Cook & Bickman, 1990; Garmezy & Rutter, 1985; Green, Lindy, Grace, & Leonard, 1992; Norris, Friedman, Watson, Byrne, Diaz, & Kaniasty, 2002; Yule & Williams, 1990). Coping, which involves efforts to modify the stressful situation either by changing the environment (problem-focused) or by changing one's interpretation of the situation (emotion-focused), has also been shown to relate to well-being in stressful situations, including the disaster context (e.g., Benight et al., 2002; Folkman et al., 1986b; Freedy et al., 1992; Littleton et al., 2007; McKee-Ryan et al., 2005).

There remain numerous gaps in the literature on coping and well-being during a disaster. For instance, while researchers (e.g., Benight et al., 2002) have provided insight into some of the predictors of coping strategies and the impact of coping on well-being, few have investigated the cognitive appraisal process (i.e., the process that influences the selection of a coping strategy). Because the cognitive appraisal process is theorized to influence an individual's coping strategy (i.e., the transactional stress theory; Lazarus & Folkman, 1984), this is an important part of the coping process that deserves attention. Other researchers have also explored pieces of the coping process in the disaster context,

but have not yet investigated the process approach to coping proposed by Lazarus and Folkman (1984). I address these gaps in this dissertation by examining the coping process of employees following a disaster event. Additionally, I provide a unique contribution to the literature by focusing on personal and organizational factors that influence this process.

I proposed a comprehensive theoretical model of the processes involved in employee response to disasters, derived from Lazarus and Folkman's (1984) transactional stress theory. Broadly, I postulated that a person's perceived vulnerability to the disaster, general resiliency, and job classification (first responder vs. non-first responder) would influence their cognitive appraisal of the disaster, thereby influencing their coping strategy and subsequent well-being. In so doing, and building on the transactional stress theory (Lazarus & Folkman, 1984), I proposed that the inclusion of these specific individual characteristics is essential in understanding the stress process in disaster situations. To further shed light on the relationships between individual characteristics and cognitive appraisal during a disaster, I also investigated the relative importance of each characteristic (vulnerability, resiliency, job classification) on the cognitive appraisal process. Further, I predicted that cognitive appraisal would impact the coping strategy endorsed, and subsequent well-being. Finally, I theorized that perceived support from one's work organization would interact with coping strategies to impact well-being, essentially serving as a buffer of negative well-being.

The results were generally supportive of the impact of the individual characteristics (perceived vulnerability to the disaster, resiliency, and job classification)

on cognitive appraisal. However, my results did not necessarily support the goodness of fit hypothesis (Lazarus & Folkman, 1984). As noted previously, the goodness of fit hypothesis refers to the alignment between cognitive appraisal and coping strategies. Theoretically, one will have the most effective outcomes if the coping strategy is in alignment with the form of cognitive appraisal (e.g., cognitively appraising an event as a threat will lead to more optimal well-being if a problem-focused coping strategy is endorsed). Additionally, the results were generally not supportive of the impact of coping on well-being or the mitigating role of perceived organizational support. I describe these findings in more detail below.

Individual Characteristics on Cognitive Appraisal

Lazarus and Folkman (1984) posited that the resources a person brings to a situation (e.g., individual characteristics) interact with the environment to determine how the event is cognitively appraised. There are a myriad of individual characteristics (e.g., locus of control, self-esteem, positive/negative affectivity) that have the potential to serve as personal resources and influence the cognitive appraisal process (Lazarus & Folkman, 1984; Lazarus, 1999). The individual characteristics that influence cognitive appraisal are often categorized as stable personality characteristics, learned behavior patterns, and more situation-specific cues (Lazarus, 1999; Lazarus & Folkman, 1984). As the transactional stress theory also emphasizes the importance of the context in understanding the coping process, I focused on three individual characteristics that I proposed would be particularly relevant and important during a disaster event.

Specifically, I theorized that perceived vulnerability, resiliency, and job classification are individual characteristics that shape how people appraise a disaster event.

Vulnerability and resiliency are two frequently discussed variables in the disaster literature (e.g., Bonanno, Brewin, Kaniasty, & La Greca, 2010; Cutter, 1996; Luthans & Avolio, 2009; Lindell et al., 2006; Liverman, 2001; Paton & Johnson, 2000; Pine, 2009; Tugade & Frederickson, 2004), both in regards to the physical environment and people. In the disaster context, an individual's vulnerability is often objectively defined by demographic (e.g., age, ethnicity, education) and environmental or social characteristics (e.g., economic resource limitations, lack of information and knowledge, social capital; Cutter et al., 2001; Paton & Johnson, 2000; Tierney et al., 2001). Two common themes of disaster vulnerability (e.g., Cutter, 1993; Lindell & Perry, 2012; Riskind, 1997; Smit & Wandal, 2006) are exposure, which refers to perceptions of closeness with the disaster (i.e., being caught and/or directly affected during the disaster, seeing others affected by the disaster, knowing others who were affected by the disaster), and predictability (e.g., knowledge of the approaching disaster from environmental cues, social cues, information sources). Building off this literature, I defined vulnerability as the severity of exposure to the disaster and an individual's distress arising from their perceived exposure to the disaster. In regards to the transactional stress theory (Lazarus & Folkman, 1984), vulnerability is a situation-specific cue as it involves one's perception of the environment, specifically one's exposure to it and its predictability.

Resiliency describes an individual's ability to "bounce back" from stressful experiences. Resilient individuals are typically characterized as having a positive view

of themselves and an overall optimistic outlook on the future (Bonanno et al., 2010; Lazarus, 1993; Luthans & Avolio, 2009; Tugade & Frederickson, 2004). There is some debate regarding its state and trait-like qualities, but research has indicated that resilient actions and behaviors can be learned and developed (Comas-Diaz et al., 2002; Luthans & Avolio, 2009). The potential to change an individual's resiliency through training and other initiatives makes it a potentially important variable for organizations, especially for disasters and other highly stressful situations.

The last individual characteristic I investigated was job classification. Job classification has been frequently examined in the disaster context; however, research has primarily examined how first responders fare in comparison to non-first responders (Fullerton, Ursano, & Wang, 2004). Thus, whereas previous research has concentrated on the mere relationship between one's job title (i.e., first responder) and well-being, I focus on investigating how one's job classification influences the stressor-strain process. In this way, job classification is treated as a learned behavior pattern; it is an individual characteristic that has been learned.

I hypothesized that perceived vulnerability to the disaster, resiliency, and job classification would be related to how people cognitively appraise the disaster. Succinctly, these individual characteristics serve as resources or lack of resources that influence the individual's cognitive appraisal of the disaster event. This is congruent with one of the main propositions put forward by the transactional stress theory, which states that people will actively negotiate between their personal resources and the environmental aspects of the situation to arrive at their appraisal (Lazarus and Folkman,

1984). During the cognitive appraisal process, the individual must interpret his or her relationship with the environment (i.e., disaster event). In the primary cognitive appraisal process, the individual determines whether the encounter is of relevance to his or her well-being. In essence, an individual who has the resources to manage the environmental encounter will not find the encounter relevant and it will not be stressful. However, if the individual determines that the encounter is stressful, the individual will then classify it as a challenge or a threat (Lazarus, 1999; Lazarus & Folkman, 1984). In accordance with the transactional stress theory and the conservation of resources theory (Hobfoll, 1988), the lack of the personal resources and the disaster environment interact to lead an individual to anticipate future harm or loss (threat appraisal). Conversely, an individual who perceives oneself to be equipped with the resources to manage the event will likely anticipate positive outcomes (challenge appraisal).

I posited that people who had high perceived vulnerability to the disaster, low resiliency, and were classified as a non-first responder would be especially likely to cognitively appraise the disaster as a threat. I theorized that these relationships would exist because each of these individual characteristics would serve as a lack of a resource necessary to deal with the disaster, thereby influencing one to cognitively appraise the disaster as a threat (Lazarus & Folkman, 1984). Consistent with predictions, these individual characteristics were all found to influence an individual's appraisal of the disaster as a threat.

Next, I hypothesized that all three individual characteristics would also predict the cognitive appraisal of challenge. I had proposed that having low perceived

vulnerability, high resiliency, and being a first responder would be related to appraising the event as a challenge. These resources would influence an individual to appraise the event as one that they can overcome and learn from (i.e., challenge appraisal). My results, however, indicated that only job classification was related to challenge appraisals. Indeed, first responders' experience and training equips them with the confidence that with effort the disaster event can be overcome leading them to perceive it as a challenge (Lazarus & Folkman, 1984; Leffler & Dembert, 2010). It is less clear why resiliency and vulnerability were unrelated to challenge appraisals. I had predicted that resiliency would positively relate to challenge such that people higher in resiliency would be more likely to appraise the disaster as a challenge because they tend to recover quickly following stressful events (Bonanno et al., 2010; Lazarus, 1993; Luthans & Avolio, 2009; Tugade & Frederickson, 2004). However, the understanding that one can easily recover from stressful incidents may not be enough to appraise the disaster as a challenge. That is, knowing a stressful situation is passable does not necessarily mean that one will view it as an enthusiastic challenge. Alternatively, it could be that resiliency during disaster events is more situation-specific (e.g., resiliency to disasters) than the general resiliency tested here. People may need to feel resilient to the disaster event (situationally-specific resilience) in order to feel that they can overcome it (challenge appraisal). Vulnerability may operate similarly; it may be that feeling invulnerable is not enough to appraise the disaster as a challenge or that vulnerability is more domain-specific (e.g., vulnerability of family, vulnerability of health) that was assessed.

Although resiliency and vulnerability did not relate to appraising a disaster as a challenge, recall that these characteristics did influence individuals' appraisal of the disaster as a threat. I suggest that one potential reason for this is because challenge appraisals are less likely in a disaster situation. As demonstrated by the results, threat appraisals were endorsed significantly more than challenge appraisals. Although the transactional stress theory argues that threat and challenge cognitive appraisals are both potential forms of cognitive appraisal, there may be situations that are less likely to elicit both forms of appraisal. That is, resiliency and vulnerability may be critical to challenge appraisal in other stressful situations (e.g., terminal illness) but irrelevant to others (e.g., disasters). Further, there may be other individual characteristics that are related to challenge appraisal in disaster contexts, but that I did not examine.

Next, I examined the secondary cognitive appraisal process, which includes a complex cognitive evaluation of one's coping options, the perceived likelihood these coping options will be successful, and the likelihood that one can effectively apply a strategy to the situation (Lazarus & Folkman, 1984). I proposed that lower vulnerability, higher resiliency, and being a first responder would be related to secondary appraisals of the disaster as controllable-by-self and controllable-by-others. Conversely, I posited the lack of these resources (i.e., higher vulnerability, lower resiliency, non-first responder) would be related to secondary appraisals of the disaster as uncontrollable-by-anyone. The relationships between perceived vulnerability to the disaster, resiliency, and job classification and the secondary cognitive appraisal processes were all consistent with

predictions. In line with the transactional stress theory, the presence or lack of personal resources significantly related to control appraisals (Lazarus & Folkman, 1984).

Because the way in which people cognitively appraise an event is so critical to how they cope following a stressful encounter, I also investigated the relative impact of the individual characteristics on the cognitive appraisal process.² First, I investigated the impact of the individual characteristics on the cognitive appraisal of threat. Given that first responders have more disaster training and experience with disasters than non-first responders, I had predicted that job classification would show the strongest relation with primary and secondary cognitive appraisals (Lazarus & Folkman, 1984; Leffler & Dembert, 2010; Ursano & McCarroll, 1994). In contrast to my prediction, results revealed that vulnerability actually had the greatest impact on threat and control appraisals, respectively. Why might this be the case?

Lazarus (1999) theorized that there are various types of individual characteristics that influence how a cognitive appraisal is construed. Although Lazarus and Folkman's (1984) goodness of fit hypothesis is not explicitly stated to apply to the relationship between individual characteristics and cognitive appraisal, the relative impact results of this dissertation suggest the individual characteristics that have the greatest impact on the cognitive appraisal process are those that align with that form of cognitive appraisal based on the individual characteristic types (personality characteristics, situation-specific cues, learned behavior patterns).

² The relative impact of individual characteristics on challenge was not investigated, as only job classification was predictive of challenge appraisals.

One individual characteristic type is a situation-specific cue, which refers to those cues from the environment that are likely to affect how appraisals are construed. Vulnerability to the disaster can be considered a situation-specific cue in that one's vulnerability is derived from cues from the environment, specifically, severity of exposure and the event's predictability. Perceptions of vulnerability likely vary from stressful event to stressful event making characteristics of each specific event critical in appraising it (i.e., vulnerability will vary depending on the stressful event). Both vulnerability and threat cognitive appraisals are concerned with the situation (Lazarus & Folkman, 1984). Threat appraisals are based on foreseeable damage (Lazarus, 1999), which would be derived from environmental cues (i.e., situational-specific cues), and perceived vulnerability is also derived from environmental cues. As such, both vulnerability and threat appraisals are based on situation-specific cues. This alignment on the situational focus, which is not present with the other individual characteristics, may be what is driving vulnerability to be the most important predictor of threat. As a summary statement, vulnerability, as an individual characteristic that reflects situational cues, may be the most important predictor of threat because it was the most situationally-relevant and informative to the particular situation people were experiencing.

I also predicted that job classification would be the most important predictor secondary appraisal. Yet, contrary to my predictions, job classification was not more important than either vulnerability or resiliency for any of the forms of secondary appraisal. Instead, resiliency was the most important predictor of controllable-by-self, and vulnerability was the most important predictor of controllable-by-others and

uncontrollable-by-anyone. Conceivably, resiliency may have been the most important predictor for the secondary appraisal of controllable-by-self because resiliency is more of a personality characteristic (Luthans & Avolio, 2009). When considering one's own ability to control the situation, resiliency may be the most relevant because it directly concerns the self, making it the least context-specific. In this way (as with the alignment of vulnerability and threat appraisal), there is also alignment between resiliency and controllable-by-self appraisal.

In contrast, vulnerability was the most important predictor of controllable-by-others and uncontrollable-by-anyone. In accord with Lazarus and Folkman, appraising the event as controllable-by-others or uncontrollable-by-anyone are lower control appraisals (i.e., because an individual feels that the event is either controllable by other individuals than themselves or that it is entirely uncontrollable, these appraisals reflect lower control of the situation), where the individual perceives fewer coping options. In both of these forms of appraisal, an individual may feel that finding a resolve to the situation is difficult or near impossible. Both of these forms of appraisal may imply that the individual recognizes the disaster has the control. In essence, vulnerability, as a situation-specific cue, may provide people with the information they need to appraise the disaster as not controllable by themselves (i.e., controllable-by-others or uncontrollable-by-anyone).

In summary, findings for the relationships between the individual characteristics and forms of cognitive appraisal revealed a number of interesting patterns. First, in the context of a disaster event, the forms of cognitive appraisal appear to align to the

categories that Lazarus and Folkman (1984) alluded to for individual characteristics (i.e., personality characteristics, situation-specific cues, learned behavior patterns). That is, the cognitive appraisal forms of threat, uncontrollable-by-anyone, and controllable-by-others appear to be the most context-specific and a function of situational cues; these three forms of appraisal emphasize potential harm and lack of control and thus most related to the individual characteristic vulnerability. Controllable-by-self, in contrast, is more personal and a function of personal characteristics or traits. Thus, making it most related to resiliency. Further, to appraise the disaster as a challenge is a function of specific learned behavior patterns. Thus, it is most relevant to job classification, and in this study, only related to job classification. Especially in disaster situations where people generally try to escape the situation, training in how to approach a disaster appears to be vital in appraising it as a challenge.

Second, and related to the previous point, results suggested the importance of alignment between individual characteristics and cognitive appraisal. Lazarus and Folkman (1984) put forward the goodness of fit hypothesis, which they centered around the relationship between appraisal and coping strategies, not the relationship between individual characteristics and appraisal. The relative importance results in this dissertation indicate that the goodness of fit hypothesis may also apply to the relationship between individual characteristics and cognitive appraisal. To conclude, the results advance the goodness of fit hypothesis in relation to the individual characteristics and cognitive appraisal; namely, the individual characteristics that have the greatest impact on the cognitive appraisal are those that are congruent with that form of cognitive

appraisal based on the individual characteristic categories (personality characteristics, situation-specific cues, learned behavior patterns) outlined by Lazarus and Folkman (1984).

Cognitive Appraisal on Coping

As theorized in the transactional stress theory (Lazarus & Folkman, 1984), the cognitive appraisal process precedes coping. This relationship has been investigated for decades (e.g., Carver et al., 1989; Florian et al., 1995; Folkman et al., 1986) and findings have supported the notion that appraising a stressful situation as one where nothing can be done leads to emotion-focused coping (e.g., making fun of the situation), whereas appraising the situation as one where something can be done leads to problem-focused coping (e.g., actively addressing the situation). In accordance with this research and theory, I predicted that these relationships would also hold true during a disaster.

I predicted that the cognitive appraisals of threat and uncontrollable-by-anyone would be positively related to emotion-focused coping. Threat and uncontrollable-by-anyone are the forms of cognitive appraisal that involve an individual appraising the situation as one they cannot actively resolve. Thus, in an effort to manage the situation, people should engage in emotion-focused coping. This prediction concurs with Lazarus and Folkman's (1984) goodness of fit hypothesis. As previously noted, the goodness of fit hypothesis, which proposes an alignment between cognitive appraisal and coping strategies leads to the most optimal outcomes, supports the notion that when an individual appraises a situation as one in which they have little or no control, they should attempt to manage their emotions toward the situation (emotion-focused coping) rather

than trying to resolve the situation (problem-focused coping) that may not have a resolve. Essentially, to achieve optimal well-being, one's coping strategy must be congruent with their cognitive appraisal of the event. Supporting these predictions and the goodness of fit hypothesis, threat and uncontrollable-by-anyone were positively related to the engagement of emotion-focused coping. That is, these forms of cognitive appraisal reflect little or no control over the situation, making emotion-focused coping the most optimal coping strategy.

I had also predicted that challenge, controllable-by-self, and controllable-by-others would be positively related to problem-focused coping as these appraisals suggest that the individual sees a way to actively resolve the situation. However, only challenge was related to problem-focused coping. Thus, the relationships between cognitive appraisal on problem-focused coping were only partially supported. Moreover, the relationship between challenge appraisal and problem-focused coping was weak, although similar to previous findings (Florian et al., 1995).

Interestingly, Florian et al. (1995) also found a stronger relationship between threat appraisal and emotion-focused coping than between challenge appraisal and problem-focused coping. Given the intensity of a disaster situation, the relationship between challenge and problem-focused coping, while present, may tend to be weak. Indeed, problem-focused coping involves changing the environment, which may be difficult in a disaster situation. As such, the disaster context may be one that more easily lends itself to emotion-focused coping (e.g., trying not to think about the event) resulting

in a stronger relationship between threat and emotion-focused coping than between challenge and problem-focused coping.

To summarize, results partially supported my predictions on the relationships between appraisal and coping based on the transactional stress theory (Lazarus & Folkman, 1984). In accordance with the goodness of fit hypothesis, threat and uncontrollable-by-anyone were related to emotion-focused coping, and challenge was related to problem-focused coping. However, appraisals of controllable-by-self and controllable-by-others were not related to problem-focused coping. It is possible that the disaster context is unique in that the environment limits one's ability to problem-focus cope and, as such, the expected relationships are not exhibited, and when they do exist (i.e., challenge and problem-focused coping) are weak.

Coping on Well-Being

Coping strategies are frequently viewed as either good or bad, with problem-focused coping often considered the "good strategy" and emotion-focused coping often considered the "bad strategy." However, Lazarus and Folkman (1984) argue that different situations call for different coping strategies. In situations where an individual cannot change the environment, it is typically healthier for that individual to engage in emotion-focused coping and change their interpretation of the environment. That is, because the environment does not allow for changes, problem-focused coping would not be successful and, as such, emotion-focused coping is better. This, however, does not suggest that problem-focused coping is detrimental. Indeed, both emotion-focused

coping and problem-focused coping can lead to optimal well-being (e.g., Folkman & Lazarus, 1984; Folkman et al., 1986b; Freedy et al., 1992; McKee-Ryan et al., 2005).

I predicted that the greater endorsement of both problem-focused and emotion-focused coping strategies would be related to more positive well-being, yet none of these relationships were supported. Contrary to my predictions, problem-focused coping and emotion-focused coping were related to *less* favorable well-being. Specifically, both types of coping were related to greater psychological distress and more physical health symptoms. Moreover, the relationships between problem-focused coping and well-being were stronger than the relationships between emotion-focused coping and well-being.

Based on previous research (Benight et al., 1999; Freedy et al., 1992), I would have expected that emotion-focused coping would be more related to unfavorable well-being than problem-focused coping. Yet, Folkman et al. (1986a) also found some negative relationships between coping and well-being. And although it is generally theorized that coping will improve well-being, Lazarus and Folkman (1984) suggest that the negative relationship can occur for several reasons. Relevant to the current study, coping can negatively affect health when it involves a risk to an individual's life (Lazarus & Folkman, 1984). It is possible that problem-focused coping is putting individuals at greater risk to lose their lives or become injured, and thus leading them to have poorer well-being outcomes. Additionally, certain disaster events may limit an individual's ability to change the environment, causing unanticipated relationships between coping and well-being. That is, the relationship between problem-focused coping and unfavorable well-being may be stronger because individuals are attempting

to control a situation that they may not actively be able to control. And although emotion-focused coping was also negatively related to well-being, it was less so than problem-focused coping. According to the transactional stress theory, coping strategies should be congruent with the situation to be effective; as such, it may be better in disaster events to understand that nothing can be done and focus on emotionally regulating the situation.

In summary, both emotion-focused and problem-focused coping were negatively related to well-being. Lazarus and Folkman (1984) strongly emphasize the importance of the context in understanding which coping strategy is most effective. My findings suggest that in a seemingly precarious situation such as a disaster, coping can be complex. Results indicated that while neither coping strategy appears to be optimal, emotion-focused coping may be more advantageous than problem-focused coping in disaster situations. A disaster event likely limits an individual's ability to change the environment, making emotion-focused coping a "less bad" strategy in the disaster context.

POS as a Moderator of Coping and Well-Being

Lastly, I predicted that positive organizational support (POS) would moderate the relationships between coping and well-being, which was largely unsupported in this study. POS only moderated the relationship between problem-focused coping and physical health symptoms. In this particular relationship, POS served as a buffer such that the positive relationship between problem-focused coping and physical health symptoms was mitigated with higher levels of POS. Why POS moderated this

relationship but not those between coping and job satisfaction and coping and psychological distress remains unclear. Moreover, the low effect size for this relationship suggests this finding may be idiosyncratic and therefore interpreted with caution. Nonetheless, results suggest that supportive organizations may be able to help their employees combat experiencing negative physical health symptoms when they engage in problem-focused forms of coping following a disaster.

First Responders and Non-First Responders

Exploratory analyses indicated several differences between first responders and non-first responders that I had not hypothesized. First, non-first responders reported feeling significantly more vulnerable to the disaster than first responders. As previously noted, first responders have relevant disaster training and experience; non-first responders are less likely to have this training and experience. Non-first responders' likely limited understanding of disaster events, in comparison to first responders, may be largely influencing their perceived vulnerability to the disaster. Another difference arose in their appraisals of the disaster as a threat or challenge. Non-first responders were more likely to appraise the disaster as a threat; first responders were more likely to appraise the disaster as a challenge. I posit that, similar to vulnerability, it is the relevant training and experience that first responders have that is driving these differences. These differences may merit further research on how these groups may undergo the cognitive appraisal process and subsequent coping.

Theoretical Implications

In this dissertation, I aimed to provide a theoretical model of the stress and coping process for employees in a disaster context. Although not all of the proposed relationships were supported, two primary patterns emerged that advance the literature on stress and coping during disasters and on the transactional stress theory more generally: 1) the importance of alignment between individual characteristics and appraisal and 2) the importance of context.

Although the transactional stress theory emphasizes the importance of individual characteristics in the stress process, very little research has examined how individual characteristics differentially (or similarly) relate to primary and secondary appraisal. As illustrated by my results, the individual characteristics did not uniformly link to the various forms of cognitive appraisal implying that one individual characteristic may not be applicable for every form of cognitive appraisal. Perhaps one of the more important theoretical contributions of this dissertation, these results extend the goodness of fit hypothesis proposed in the transactional stress theory by documenting the importance of alignment between specific individual characteristics and specific forms of cognitive appraisal. Essentially, although individual characteristics may relate to multiple forms of cognitive appraisal, individual characteristics are more influential of cognitive appraisal when there is alignment between the individual characteristic type and form of cognitive appraisal. More investigation is needed to more fully comprehend how individual characteristics relate to cognitive appraisal. This understanding in conjunction with a greater understanding of the impact of coping on well-being could elucidate the

individual characteristics most relevant to forms of cognitive appraisal that ultimately lead to the most optimal well-being.

In accord with the transactional stress theory, the results of this dissertation also suggest the importance of context in understanding the stress process. However, results also deviate from the transactional stress theory by suggesting that aspects of the context may lead people to engage in a coping strategy that does not align with their cognitive appraisal of the event. In a disaster context, people may be more likely to engage in emotion-focused coping rather than problem-focused coping because of the limits of personal control over the situation. According to the transactional stress theory, control appraisals lead to problem-focused coping (i.e., goodness of fit), but my results suggest the relationships between control (cognitive appraisal) and coping may be dependent on the contextual conditions. Namely, although it is believed that there is a goodness of fit between cognitive appraisal and coping, this hypothesis may not be applicable in every situation—disaster events may be one of those situations. That is, although it is expected that one's coping strategy will align with their cognitive appraisal, and that this alignment leads to more optimal well-being, this may not be the case in every context. Indeed, it may actually be beneficial for individuals who appraise a disaster as a challenge to engage in emotion-focused coping during a disaster. That is, although I may appraise the disaster as a challenge and I may want to problem-focus cope, the environment or situation may limit my ability to engage in problem-focused coping, leading me to engage in emotion-focused coping. Future research should more closely investigate the relationship between appraisal and coping to shed light on how other

factors may interact with appraisal to influence the ways people cope. Moreover, future research should also examine how appraisal fluctuates with contextual conditions.

The relationship between coping and well-being was muddled and, for the most part, contrary to my predictions. These findings, however, are important in understanding the complexity and importance of context in coping effectiveness. Given the connotation of emotion-focused as a bad coping strategy, the findings of this study support the transactional stress theory's (Lazarus & Folkman, 1984) proposition that context is important in coping effectiveness and problem-focused coping does not guarantee favorable well-being. Although this is stated in the transactional stress theory, research has not always aligned with this proposition, as such this dissertation emphasizes the importance of context in the effectiveness of coping strategies.

Practical Implications

The findings of the present study provide several practical implications for organizations. The relationships between individual characteristics and cognitive appraisal suggest that vulnerability, resiliency, and job classification are predictive of cognitive appraisal. Vulnerability, specifically, had the largest effects for appraisals of threat, controllable-by-others, and uncontrollable-by-anyone. This finding is of note for organizations as vulnerability is an individual factor that, to some extent, can be addressed. Organizations can take measures to prepare so that when a disaster happens, employees feel less vulnerable to the disaster, thus influencing how employees appraise the disaster.

For example, Walmart has emergency operations teams that are always prepared for a myriad of emergency and disaster events. This preparation to manage disaster events was critical during Hurricane Katrina. Walmart Emergency Operations had storm-readiness supplies and cleanup materials ready to be delivered to stores for the incoming hurricane even before it had made landfall (Wal-Mart, 2006). Once the hurricane made landfall, Walmart engaged in several initiatives to account for their own associates as well as help the members of the affected communities account for their missing. Walmart activated its photo centers and Walmart.com for people to post pictures of missing friends and family for free in an effort to assist with accounting for the missing. Additionally, Walmart brought satellite cell phones into the disaster area for its employees. These phones, when the local phone infrastructure was down, were critical in accounting for employees. Moreover, partnering with shelters, Walmart delivered more than 150 Internet-ready computers so that shelters could help evacuees and families find each other using the Walmart and Red Cross websites (Horwitz, 2009; “Walmart’s Response to Hurricane Katrina”, n.d.). Additionally, Walmart implemented a disaster pay initiative, providing \$14.5 million in cash assistance to Walmart employees. Initiatives such as these serve as examples of how an organization can assist employees so they feel less vulnerable to the disaster. Still, there are many more initiatives that organizations can engage in (e.g., providing resources for people to prepare their homes for disasters). Organizations will not be able to control every aspect that makes an individual vulnerable, but researchers and organizations should work

together to identify those initiatives that can bolster their employees. Not only does this physically help their employees, but can also lead to greater POS among employees.

Additionally, job classification was found to be the only individual characteristic that influenced the cognitive appraisal of the disaster as a challenge. Although not every individual can be trained as a first responder, these results suggest that if we want employees to appraise the disaster as a challenge, it may be beneficial for them to receive disaster-relevant training. This training may not make non-first responders equal to first responders in their likelihood of appraising the disaster as a challenge, but it may have the potential for employees to feel more control over the situation. It should be noted that it may not be feasible to train employees on all kinds of disasters, but it would be beneficial to provide specific training on the disasters that are most likely to occur in the region. Trainings should not only help employees by training them on how to prepare for a disaster (e.g., house preparation, needed supplies), but also ensuring that employees are aware of all the organizational and community resources available to them.

This dissertation provides an initial examination of this process, and although the results illustrate the impact of these individual characteristics on cognitive appraisal, the results do not completely elucidate how cognitive appraisal ultimately leads to optimal well-being. Limitations and future research directions are discussed in the next section, which should help advance theory and lead to more practical implications for organizations.

Limitations and Directions for Future Research

This study, like any research, is not without limitations. A potential limitation of the current study is the use of single-source self-report data. Single-source self-report data has been considered a limitation in research primarily because of the possibility of common method variance (Podsakoff, et al., 2003). Common method variance is a type of systematic variance that results from the measurement method rather than the constructs that the measures represent (Campbell & Fiske, 1959; Doty & Glick, 1998; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It is the allegation that there is an artifactual relationship between the observed variables, which occurs as a result of the use of a common method of assessment. Several procedural efforts were made in the survey design to reduce common method bias. In line with Podsakoff et al.'s (2003) recommendations, respondents were allowed to answer anonymously and asked to answer questions as honestly as possible. These efforts are suggested to reduce participants' efforts to provide socially desirable responses. Additionally, different scale endpoints were used for the predictor and criterion measures, thus leading to the reduction of method bias resulting from similarities in the endpoints (Podsakoff et al., 2003). Spector noted that "correlations in the study that are nonsignificant and near zero" are indicators that there is not method variance (Brannick, Chan, Conway, Lance, & Spector, 2010, p. 412); one example in the current study is the correlation between challenge and vulnerability ($r = .02, n.s.$). In any case, future research might include reports from co-workers, family members, or other records of employee well-being (e.g., health reports and ratings). Additionally, one could also incorporate information

regarding the organization's emergency operations and response management. For example, one could objectively account for the organization's role in emergency response as well as the individual's perception of how supportive the organization is during a disaster. That is, organizations have protocols in place to help employees during disaster events and an objective coding scheme could be devised to determine the organization's role. This coding scheme could account for various aspects of emergency response, including but not limited to the option for disaster pay, time off, preparation of the workplace and employees prior to a disaster event, and disaster communications (e.g., workshops, email communications, emergency alerts). This would provide a more complete view of organizational initiatives and the perception of these as supportive or not.

There are also limitations with the use of the MTurk sample. Researchers have indicated that MTurk is an inexpensive, high-quality source for survey data (Buhrmester et al., 2011), and I was able to gather data from a wide-range of people affected by a myriad of disasters. Still, I encountered some issues including incomplete responses, individuals who indicated they were not employees or were not in a disaster (i.e., not meeting the study requirements), and invariant responding. The possibility of these issues was taken into account in the survey design. Items were included in the survey to filter those respondents who did not meet the study requirements. Moreover, to address the possibility of random or careless responding, the question "What is 5 + 5?" was included in the survey; if participants were not responding randomly, they should have answered this question correctly. Moreover, some of these issues were statistically

addressed post-data collection. The frequency of invariant responding was used as a gauge of careless or random responding, and those participants that had variance scores more than 2 standard deviations below the mean were removed from analyses. To further assess careless or random responding, survey completion time was examined and participants who completed the survey in less than 15 minutes were removed from the survey. These design and statistical measures were undertaken in an effort to address the limitations posed by MTurk.

Another limitation of this study is its retrospective design. Retrospective data poses several possible issues. Firstly, retrospective data are subject to inaccuracies because people cannot always remember everything that happened at a particular time point. Moreover, memories can be altered or reconstructed over time. Secondly, retrospective data can easily be influenced by the situation in which the data are collected. That is, the situation in which an individual is completing the study (e.g., being hungry or tired) may influence how they respond to the survey. Thirdly, because we do not have antecedent data, we cannot infer causal relationships in the current study (Myers & Hansen, 2006). However, when investigating disasters, it is difficult to use a different type of research design. Disasters are not always predictable, and even in cases when they are, disaster warnings are usually short, thus making it difficult to obtain pre-disaster data on employees. Moreover, at this point, people would already know that the disaster is approaching. One option is to collaborate with human resource analytics teams, which could yield valuable information regarding employees. For example, some organizations administer annual engagement surveys. These surveys could potentially

provide a viable source of pre-disaster data (e.g., stress, engagement, job satisfaction) that could be used for longitudinal analyses and provide greater insight into the impact of disasters.

Another related limitation of this study is the way in which coping strategies were measured. Specifically, participants were asked how they have coped since the disaster. Thus, it is difficult to determine whether participants were reporting on their coping with the disaster as it occurred or the aftermath of the disaster. It is possible that the phrasing of the coping instructions therefore introduced error variance, thereby potentially reducing the strength of the relationships. Future research should address this limitation by clearly asking how participants coped during the disaster.

Relatedly, in an effort to address some of the issues with the retrospective design, the relationships between cognitive appraisal, coping, and well-being could be examined longitudinally. Given the difficulty with disaster prediction, it may be difficult to collect data on some of the variables at different time points. Still, tracking well-being immediately following the disaster as well as some designated time following the disaster may help shed light on the process. This may help address questions such as, what are the conditions under which well-being improves, remains stable, or declines over time? If and when do organizational resources positively affect well-being?

In addition to improvements to the design of the study, it is imperative to also explore other factors that might impact the relationship between cognitive appraisal, coping, and well-being. Given some of the significant yet weak relationships between variables, it is critical to explore other potential variables that may have a stronger

impact. Researchers should investigate other individual factors (e.g., optimism, locus of control, disaster-specific resiliency, financial stability) that may interact with the situation to influence cognitive appraisal (Lazarus, 1999). Moreover, because my findings illustrate that the individual characteristics differentially predict cognitive appraisal, future research should focus on the types of individual characteristics important for each form of appraisal.

I propose that locus of control, which refers to whether people believe that they have control of their own fate (internal locus of control) or whether they believe that other forces determine their fate (external locus of control; Rotter, 1966), may be an especially important variable to assess in future research. Although generally it is expected that an internal locus of control leads to better well-being (e.g., Judge & Bono, 2001), in a disaster situation, having an external locus of control may actually lead to the best outcomes. An external locus of control during a disaster event may be the most realistic perception of control, and as such lead to more optimal well-being. External locus of control may have the most influence on threat and lack of control cognitive appraisals. As illustrated in the current study, the individual characteristics that are congruent with the form of cognitive appraisal are the most predictive of that form of cognitive appraisal. As such, I would propose that having an external locus of control would be most predictive of cognitively appraising a disaster as a threat. Additionally, vulnerability and external locus of control may interact and lead to an even greater cognitive appraisal of the disaster as a threat. Typically, appraising a situation as a threat is not viewed as a necessarily good strategy. Yet, in this context, it may lead to the best

outcomes. Namely, if an individual has an external locus of control, appraises the disaster as a threat, and emotionally copes with the event, this will align with the disaster context and lead to more favorable well-being. Still, this relationship may pan out differently based on one's job classification. It may be more beneficial for first responders to have an internal locus of control so that they can actively engage in necessary disaster efforts. The consequences of this on their well-being, however, is still of question. Future research should investigate the aforementioned ideas to gain more insight on the and coping process following a disaster.

Also, as noted earlier, it is imperative to include more disaster-specific forms of POS in future research efforts. Content-specific support refers to the specific perception of support that “reinforce(s) a particular type of role demand” (Kossek, Pichler, Bodner, & Hammer, 2011, p. 292). Although disasters are not necessarily a role demand, the literature on content-specific support serves as a foundation for the idea that support that is directly related to the stressor is more predictive of well-being than general support. The importance of content-specific organizational support has been illustrated in other areas, such that content-specific organizational support related to well-being outcomes (e.g., job satisfaction) above and beyond more general supervisor support (Allen, 2001). In the current dissertation, general perceived organizational support did not buffer negative outcomes associated with coping following a disaster. Indeed, what may be most critical is for employees to perceive that their organization will support them in ways specific to a disaster in order to be most beneficial. In line with content-specific organizational support research (e.g., Allen, 2001; Kossek et al., 2011), future research

should investigate whether disaster-specific organizational support, such as receiving disaster pay while displaced, buffers negative effects on well-being following a disaster.

Relatedly, it could be of interest to include perceptions of the role of the corporation as well as the government in disaster response. With more instances (e.g., Hurricane Sandy) where large corporations are stepping in to help communities and also being sought out by governmental officials to step in, people may be expecting more from corporations during disasters than ever before (Muller & Whiteman, 2006). Namely, some employees may have higher expectations of their organization than they do of their government. The alignment with what an individual expects and receives from his or her organization may impact the stressor-strain process.

Another potential limitation of this study is that the data were not collected from groups of people within the same organization. This is a limitation in that it is difficult to account for the specific disaster context. Although participants indicated the type of disaster they experienced, there is great variance even within types of disasters. Even within one disaster, organizations can also be affected at varying levels. Because the stressor-strain process is so context-dependent, it may be of benefit to explore the stress and coping process for employees in various organizations affected by the same specific disaster and then draw from that research to find an overall model. This would improve the generalizability of the findings. As such, future research might include participants from multiple organizations affected by the same disaster to isolate aspects of the stress and coping process that are similar or different across organizations. It would also be fruitful to collect data from organizations in various disaster contexts, and understanding

the variance in the context (e.g., disaster intensity, disaster type), we can derive a more accurate model that can be applied to a broader disaster context.

In conclusion, this dissertation provides a retrospective and initial examination of the processes through which employees respond to disaster events. Perhaps the most important finding of this dissertation is that although I had expected job classification to play the largest role in how people cognitively appraise a disaster, the results indicated that the impact of individual characteristics varied for the forms of cognitive appraisal. Moreover, a goodness of fit trend appeared between the individual characteristics and forms of cognitive appraisal. The results also indicated, in line with the goodness of fit hypothesis (i.e., problem-focused coping strategies with cognitive appraisals of high control and emotion-focused coping strategies used with stressors of low control appraisals will produce the most effective outcomes) proposed by the transactional stress theory, both primary cognitive appraisals (threat and challenge) were predictive of their respective coping strategy, but the only secondary appraisal predictive of its respective coping strategy was uncontrollable-by-anyone. The results also indicated that coping was not related to favorable well-being, and that POS did not generally serve as a buffer. This dissertation elucidates the importance of context in the process of coping by illustrating that individual characteristics do not uniformly impact cognitive appraisal, and that the relationships between cognitive appraisal, coping and well-being are not always in line with the transactional stress theory's goodness of fit hypothesis. This study posed several limitations, which if addressed, could potentially provide a more complete view of the stress and coping processes during disasters.

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APPENDIX A

RESEARCH QUESTIONS AND HYPOTHESES

Research Questions and Hypotheses

- RQ 1 Will the type of disaster, natural or technological, influence the stressor-strain process?
- H1 Greater perceived vulnerability will be positively related to the primary appraisal of the disaster as a (a) threat and negatively related to the primary appraisal of the disaster as a (b) challenge.
- H2 Greater perceived vulnerability will be negatively related to the secondary appraisal of (a) controllable-by-others and (b) controllable-by-self, and positively related to the secondary appraisal of the disaster as (c) uncontrollable-by-anyone.
- H3 Resiliency will be negatively related to the primary appraisal of the disaster as a (a) threat and positively related to the primary appraisal of the disaster as a (b) challenge.
- H4 Resiliency will be positively related to the secondary appraisal of a situation as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of a situation as (c) uncontrollable-by-anyone.
- H5 Job classification will be negatively related to the primary appraisal of the disaster as a (a) threat, such that being a non-first responder will be related to greater appraisals of threat, and positively related to the primary appraisal of the disaster as a (b) challenge, such that being a first responder will be related to greater appraisals of the disaster as a challenge.
- H6 Job classification will be positively related to the secondary appraisal of a situation as (a) controllable-by-others and (b) controllable-by-self, and negatively related to the secondary appraisal of a situation as (c) uncontrollable-by-anyone. Specifically, being a first responder will be related to greater appraisals of the disaster as controllable-by-others and controllable-by-self and being a non-first responder will be related to greater appraisals of the disaster as uncontrollable-by-anyone.
- H7 Job classification will be a stronger predictor of cognitive appraisal [(a) threat, (b) challenge, (c) controllable-by-self, (d) controllable-by-others, (e) uncontrollable-by-anyone) than resiliency and vulnerability.
- H8 The primary appraisal of threat will be positively related to emotion-focused

coping.

- H9 The primary appraisal of challenge will be positively related to problem-focused coping.
- H10 The secondary appraisal of uncontrollable-by-anyone will be positively related to emotion-focused coping.
- H11 The secondary appraisal of controllable-by-one or controllable-by-others will be positively related to problem-focused coping.
- H12 Problem-focused coping strategies and emotion-focused coping strategies will be related to favorable well-being [(a) lower psychological distress, (b) lower physical health symptoms, and (c) higher job satisfaction)].
- H13 Problem-focused strategies will be a stronger predictor of favorable well-being [(a) lower psychological distress, (b) lower physical health symptoms, and (c) higher job satisfaction)] than emotion-focused coping.
- H14 POS will moderate the relationship between problem-focused coping and well-being, such that higher levels of POS will be related to more favorable well-being.
- H15 POS will moderate the relationship between emotion-focused coping and well-being, such that higher levels of POS will be related to more favorable well-being than low levels of POS.

APPENDIX B

TYPE OF DISASTER EXPERIENCED

<i>Type of Disaster</i>	<i>Frequency</i>	<i>Percentage</i>
Chemical/Biological	5	.9
Coastal Storm	6	1.1
Dam/Levee Break	2	.4
Drought	1	.2
Earthquake	28	5.2
Emergency Planning and Security	1	.2
Explosion(s)	16	3.0
Extreme Temperatures	1	.2
Fire	21	3.9
Flooding	52	9.7
Hurricane/Tropical Storm	275	51.5
Mudslide/Landslide	2	.4
Severe Storm(s)	10	1.9
Tornado(es)	76	14.2
Tsunami	3	.6
Wildfire	4	.7
Winter Storm	29	5.4
Other	2	.4
Total	534	100.0

APPENDIX C

LIST OF ITEMS

Complete list of items used to construct *Perceived Vulnerability* composite scale. Items adapted from the Traumatic Exposure Severity Scale (Elal & Slade, 2005) are indicated by *. The remaining items were developed for this study.

I was injured during the disaster.*

I became dependent on others because of the physical injuries/losses I suffered during the disaster.*

I know someone who was physically injured during the disaster/catastrophe.

I know someone who was killed as a result of the disaster/catastrophe.

I was physically exposed to the disaster (e.g., caught in floodwaters, trapped under rubble).

I witnessed other people being harmed by the disaster/catastrophe.

I was directly impacted by the disaster/catastrophe.

I felt like I was caught in the middle of the disaster.

I was involved in rescue work.*

I heard sounds and cries for help from people during the disaster.*

There was a period of time when I was uncertain about the welfare of loved ones, either unable to establish contact with them or locate them.*

I knew in advance the disaster was going to happen.

I knew what to expect when the disaster occurred.

I was surprised by how powerful/strong/intense the disaster was.

I noticed signs (e.g., changes in weather) that indicated a disaster was about to happen.

I received warning (e.g., media, social networks, FEMA) about the looming disaster.

Complete list of items from the Brief Resilience Scale used to measure Resiliency (Smith et al., 2008).

- I tend to bounce back quickly after hard times.
- I have a hard time making it through stressful events. (Reversed)
- It does not take me long to recover from a stressful event.
- It is hard for me to snap back when something bad happens. (Reversed)
- I usually come through difficult times with little trouble.
- I tend to take a long time to get over set-backs. (Reversed)

Complete list of items used to measure *Primary Appraisal*, items found in the Appraisal of Life Events (Ferguson et al., 1999).

- Threatening (*Threat*)
 - Fearful (*Threat*)
 - Worrying (*Threat*)
 - Hostile (*Threat*)
 - Frightening (*Threat*)
 - Terrifying (*Threat*)
 - Enjoyable (*Challenge*)
 - Challenging (*Challenge*)
 - Stimulating (*Challenge*)
 - Exhilarating (*Challenge*)
 - Informative (*Challenge*)
 - Exciting (*Challenge*)
-

Complete list of items used to measure *Secondary Appraisal*, items found in the Secondary Appraisal Measure (Peacock & Wong, 1990).

- I felt like I had sufficient resources available to help me in dealing with the disaster. (*Controllable by others*)
- I felt like there was help available to deal with the disaster. (*Controllable by others*)
- I felt like there were people who could help me manage the situation. (*Controllable by others*)
- It felt like there were no agencies I could turn to for help. (*Controllable by others*)
- I felt like I could overcome the situation. (*Controllable by self*)
- I felt like I had the ability to do well in the situation. (*Controllable by self*)
- I felt like I had the skills necessary to achieve a successful outcome. (*Controllable by self*)
- I felt like it was beyond anyone's power to do anything about the disaster. (*Uncontrollable*)
- I felt like there was no one who could resolve the situation. (*Uncontrollable*)
- It felt like a totally helpless situation. (*Uncontrollable*)
- It felt like no one could control the outcome of the situation. (*Uncontrollable*)

Complete list of items used to measure *Coping strategies*, items found in the Brief COPE (Carver, 1997).

- I've been trying to see it in a different light, to make it seem more positive. (*Emotion-Focused Coping*)
- I've been looking for something good in what is happening. (*Emotion-Focused Coping*)
- I've been accepting the reality of the fact that it has happened. (*Emotion-Focused Coping*)
- I've been learning to live with it. (*Emotion-Focused Coping*)
- I've been making jokes about it. (*Emotion-Focused Coping*)
- I've been making fun of the situation. (*Emotion-Focused Coping*)
- I've been trying to find comfort in my religion or spiritual beliefs. (*Emotion-Focused Coping*)
- I've been praying or meditating. (*Emotion-Focused Coping*)
- I've been getting emotional support from others. (*Emotion-Focused Coping*)
- I've been getting comfort and understanding from someone. (*Emotion-Focused Coping*)
- I've been concentrating my efforts on doing something about the situation I'm in. (*Problem-Focused Coping*)
- I've been taking action to try to make the situation better. (*Problem-Focused Coping*)
- I've been trying to come up with a strategy about what to do. (*Problem-Focused Coping*)

I've been thinking hard about what steps to take. (*Problem-Focused Coping*)

I've been trying to get advice or help from other people about what to do. (*Problem-Focused Coping*)

I've been getting help and advice from other people. (*Problem-Focused Coping*)

Complete list of items used to measure *Physical Health Symptoms*, items found in Physical Symptoms Inventory (Spector & Jex, 1998).

An upset stomach or nausea

Trouble sleeping

Headache

Acid indigestion or heartburn

Diarrhea

Constipation

Tiredness or fatigue

Complete list of items used to measure *Psychological Health*, items are found in the Derogatis' (1993) Brief Symptoms Inventory.

Feeling suddenly scared for no reason.

Temper outbursts that you could not control.

Feeling lonely.

Feeling tense or keyed up.

Feeling blue.

Feeling no interest in things.

Feeling fearful.

Having urges to break or smash things.

Getting into frequent arguments.

Complete list of items used to measure *Job Satisfaction*, adapted from Cammann et al. (1979).

In general, I like working here.

In general, I don't like my job.

All in all, I am satisfied with my job.

Complete list of items used to measure *Perceived Organizational Support*, items are found Eisenberger et al. (1986).

My workplace shows very little concern for me. (Reversed)

My workplace really cares about my well-being.

My workplace cares about my general satisfaction at work.

My workplace cares about my opinions.

My workplace is willing to extend itself in order to help me perform my job to the best of my ability.

Even if I did the best job possible, my workplace would fail to notice. (Reversed)

Complete list of items used to measure *Disaster Preparedness*.

I had an evacuation plan and location to meet.

There was a working smoke detector on each floor.

I had practiced the evacuation plan at least one time.

I had a disaster supply kit with first aid kit, battery-powered radio, flashlight extra batteries, water & food.

I knew the location of a medical emergency center near me.

I had participated in disaster training workshops.

I had tools handy (e.g., flashlight, batteries) in case of a disaster.

APPENDIX D

SUMMARY OF HYPOTHESES TESTING

H	Predictor	Outcome	Hypothesis Supported?
1	Vulnerability	(a) Threat	Supported
		(b) Challenge	Not Supported
2	Vulnerability	(a) Controllable-by-others	Supported
		(b) Controllable-by-self	Supported
		(c) Uncontrollable	Supported
3	Resiliency	(a) Threat	Supported
		(b) Challenge	Not Supported
4	Resiliency	(a) Controllable-by-others	Supported
		(b) Controllable-by-self	Supported
		(c) Uncontrollable	Supported
5	Job Classification	(a) Threat	Supported
		(b) Challenge	Supported
6	Job Classification	(a) Controllable-by-others	Supported
		(b) Controllable-by-self	Supported
		(c) Uncontrollable	Supported
7	RWA of Individual Characteristics	Cognitive Appraisal	Not Supported
8	Threat	Emotion-Focused Coping	Supported
9	Challenge	Problem-Focused Coping	Supported
10	Uncontrollable	Emotion-Focused Coping	Supported
11	Controllable-by-self	Problem-Focused Coping	Not Supported
	Controllable-by-others	Problem-Focused Coping	Not Supported

H	Predictor	Outcome	Hypothesis Supported?
12	Problem-Focused Coping	(a) Job Satisfaction	Not Supported
		(b) Psychological Distress	Not Supported
		(c) Physical Health Symptoms	Not Supported
	Emotion-Focused Coping	(a) Job Satisfaction	Not Supported
		(b) Psychological Distress	Not Supported
		(c) Physical Health Symptoms	Not Supported
13	RWA of Coping	Well-Being	Not Tested
14	Problem-Focused Coping X Perceived Organizational Support	Psychological Distress	Not Supported
		Physical Health Symptoms	Supported
		Job Satisfaction	Not Supported
15	Emotion-Focused Coping X Perceived Organizational Support	Psychological Distress	Not Supported
		Physical Health Symptoms	Not Supported
		Job Satisfaction	Not Supported

Note. * $p < .05$

APPENDIX E

PATH ANALYTIC MODEL

