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A Grant Proposal Thesis to Encourage Efforts to Enhance Mental Health in Responders:
Mental well-being of public health responders: Neglect is no longer an option

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Abstract

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The topic of psychological health and overall wellness for first responders is worthy of major consideration. First responders are those required to respond to the critical phases of a major incident by providing a variety of rescue, emergency, and healthcare services. In this environment of constant and significant adversity, whether it is a man-made or a natural hardship, first responders are frequently being asked to be first on-the-scene. In fact, in 2008 approximately 1.5 million first responders worked on emergencies. Additionally, it is believed that this number has likely increased in the subsequent decade. Hence, it is vitally important to be concerned with this population's mental health and well-being. Nevertheless, historically emergency personnel in the United States have lacked support and resources in many areas, including the area of occupational health psychology (OPH). This grant attempts to address this gap by supporting the development of a train-the-trainer program that will ultimately facilitate educational resources so that responders may practice self-care and other wellness skills that tend to improve mental health outcomes. A major goal is to obviate negative psychological reactions by providing strategies that enhance resilience through strengthening responder self-efficacy and other healthy coping mechanisms. The ultimate goal is to improve mental health outcomes for first responders in the United States and beyond.

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Chapter 1

This chapter provides a general overview of the public health problem addressed by the grant proposal of interest.

Introduction

Problem Statement

The long-term mental health and overall wellness of first responders is cause for concern. The menace of disaster continues to loom large as the 21st century heads towards its third decade. Significant adversities experienced in the initial two decades include terrorist attacks, wars, a tsunami, unprecedentedly large hurricanes, and outbreaks of disease. Moreover, for if that were not enough, the media is flooded with news of potentially calamitous pandemics and global warming, along with stories of unremitting genocide, terrorism, and natural disaster events (Masten & Obradovic, 2008).

A systematic review of the literature found that in 2008 approximately 1,503,100 individuals worked as first responder professionals in the U.S. The authors characterized this number as conservative indicating that the count omitted volunteers and other non-traditional first responders (Haugen, Evces, & Weiss, 2012). Additionally, this number has likely increased in the subsequent decade. Given the number of professionals employed in emergency response operations at

any given time, it is vitally important to be concerned with this population's mental health and well-being.

Furthermore, it is well known that working as a first responder in humanitarian crisis situations or in natural or man-made disasters can potentially turn into a dangerous endeavor (Connorton, Perry, Hemenway, & Miller, 2012). Additionally, as the number of natural and fabricated disasters continues to rise, so does the demand for response. With the rising number of global complex emergencies, public health responders are progressively more exposed to stress and trauma for longer periods of time (Connorton, Perry, Hemenway, & Miller, 2012).

While there have been small efforts made to mitigate mental health consequences in responders, more can be done to support the psychosocial well-being and health of public health professionals in crisis situations. Moreover, given our current context, it is critical for professionals concerned with adaptive systems (e.g., human development, mental health, resilience, etc.), in various disciplines (e.g., psychology, occupational safety, ecology, etc.), to take stock of what is known and what still needs to be conceptualized regarding responder mental health and wellness. This vital work could feed efforts to deter or ameliorate the consequences of disaster and promote recovery in the area of mental health for first responders (Masten & Obradovic, 2008).

In sum, emergency personnel (e.g., first responders) in the United States currently lack support and resources in many areas, including the area of occupational health psychology (OPH). This grant will address this gap by supporting the development of a train-the-trainer program that will ultimately facilitate educational resources so that responders may practice self-care and other wellness skills that tend to improve mental health outcomes. The goal is to obviate negative psychological reactions such as anxiety, grief, and compassion fatigue (Alexander & Klein, 2009; Figley, 1995) by providing strategies that enhance resilience through strengthening responder self-efficacy and other healthy coping mechanisms (Stamm, 2005).

Detailed Description of the Proposed Training Program

The proposed program intends to develop a training program that a highly qualified cadre of instructors may deliver to responders in order to provide the latter with the support and resources needed to maintain a functional level of mental health and wellness during and after responses. The proposed program will include the following aims:

Step 1: To identify challenges and solutions on responder mental health and wellness within occupational health psychology using a literature review approach

Step 2: To develop the essential components of a non-academic training program focused on mental health and wellness for responders

Step 3: Develop a pilot of the training curriculum to assess participant satisfaction as well as the training material's utility and impact on CDC's emergency personnel

Purpose Statement

The purpose of the proposed training program is to develop a training and evaluate a curriculum, with which to train a first-class cadre of instructors, to address the existing gap in mental health and wellness support and resources for emergency personnel who respond on behalf of the Centers of Disease and Prevention, in Atlanta, GA.

Objectives to be answered by the grant proposal

1. If funded, this grant will allow for the development of a cadre of highly qualified instructors able to train first responders in the areas of responder health and safety, and more specifically in the area of occupational health psychology, thereby building capacity in this area of occupational safety
2. It will add to the body of research on behavioral health of first responders and provide an evidence-based model for training
3. It will also provide responders with training and resources so that they have the necessary tools to participate in complex emergencies with knowledge on how to care for themselves

Significance statement

The potential dangers of responding to humanitarian crisis situations and natural or man-made disasters is well documented (Connorton, Perry, Hemenway, & Miller, 2012). Furthermore, the sharp increase in complex humanitarian emergencies and other types of disasters in the first two decades of the 21st century have placed responders in a uniquely vulnerable position as they have been progressively more exposed to stress and trauma for extended periods (Masten & Obradovic, 2008). This project can be a trailblazing example for other public health professionals who are interested, but have not begun addressing the gap that exists in the area of responder health and safety, particularly in the area of mental health. The success of the response to a disaster is in direct correlation to the health and wellness of the responder. By taking care of response personnel, we improve the chances of having a more successful outcome.

List of Terms

- **Responder –** In the grant proposal portion of this thesis, responders are the CDC personnel answering the call of a disaster. In the literature review portion, the term includes all staff from formal response organizations who are required to respond to the critical phases of a major incident by providing a variety of rescue, emergency, and healthcare services. Volunteers from major charitable and other non-governmental organizations

who assist in similar ways are also included. The term responder is interchangeable with the terms first-responders and deployers.

- **Disaster –** significant adversity, which can be man-made or naturally occurring, that leads to a noteworthy crisis.
- **Complex Humanitarian Emergencies –** it is a form of disaster event that is caused by and results in a complicated set of social, medical, and often political circumstances, usually leading to great human suffering and death and requiring external assistance and aid (Wisner, B. & Adams, J. (2002).
- **Emergency Response Operations –** a set of operating procedures and policies that group of highly trained experts develop and review to prepare for known (and unknown) public health crises and follow in the event of an emergency.
- **Disaster Mental Health** – is the provision of behavioral health**,** substance abuse, and stress management services to disaster survivors and responders. Following an emergency event, it is commonplace for individuals and families, as well as disaster responders, to experience anguish and concern about safety, health**,** and recovery.
- **Responder Wellness -** is concerned with the overall health and well-being of first responders.

Chapter 2

This chapter is an overview of the literature surrounding the mental health and psychosocial well-being of public health professionals in disaster situations. The overview includes key concepts relevant to first responder psychological health and functioning with applicability to curriculum development. It focuses on the evidence of the potential impact of disaster work on the psychological health and functioning of first responders. Lastly, it reviews the literature for both previous efforts and gaps in the provision of mental health and wellness resources to responders.

Overview of the Literature on Responder Mental Health and Wellness

It seems evident that responding in the front lines of a humanitarian crisis or a natural or fabricated disaster can be potentially dangerous endeavors. Three decades ago, Raphael (1986) underscored the potential for disaster work to create psychological damage to first responders. Since then, although related literature has continued to emerge, its overall quality has been poor, often lacking a theoretical and conceptual basis (Alexander & Klein, 2009). In addition, the topic continues to be victim to taboos that generate resistance to address the issue, hence creating a perilous situation in which responders have the potential to become hidden victims (Dyregrov, Kristoffersen, & Gjestad, 1996). Nevertheless, scholars highlight the need for organizations to be cognizant of the liability for the welfare

of their first responders, thus the field of disaster mental health continues to advance, albeit too slowly (McFarlane & Bryant, 2007).

Key Concepts in First Responder Psychological Health and Wellness with Applicability to Curriculum Development

As previously cited, research has defined first responders as staff belonging to formal response organization who are required to respond to the initial acute phases of a major incident by providing a variety of rescue, emergency, and healthcare services. Evolving from such research are a handful of key concepts, such as *compassion fatigue, vicarious traumatization, and burnout* that reflect the belief that providing relief to victims of major traumatic events has the potential to be emotionally noxious to the providers (Palm, Polusny, & Follette, 2004). Other concepts, such as *social support*, focus on the coping, emotional adjustment, and wellness of first responders (Pilisuk & Froland, 1978). Yet another key concept, *resilience*, represents the paradigmatic shift in the literature from an incessant focus on the negative effects of disaster work on responders to a more positive view of these effects (Tedeschi & Kilmer, 2005). These terms defined below by their original proponents are relevant both in understanding the impact of disaster response on first responders and in designing strategies to ameliorate the negative aspects and maximize the positive impacts on responders.

Compassion fatigue

"Compassion fatigue is identical to secondary traumatic stress disorder (STSD) and is the equivalent of PTSD. We can define secondary traumatic stress (STS) as the natural consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other-the stress resulting from helping or wanting to help a

traumatized or suffering person," (Figley, 1995, p.7).

Vicarious traumatization

McCann and Pearlman (1990) coined the term *vicarious traumatization.* They described this process as "persons who work with victims may experience profound psychological effects, effects that can be disruptive and painful for the helper and can persist for months or years after work with traumatized persons" (McCann & Pearlman, 1990, p. 133).

In the past 5 decades, mental health professionals have shown keen interest in studying the psychological aftermath of victimization (Figley, 1995). Their initial focus was on the many different types of victimizing events. Hence, researchers developed extensive research on the psychological consequences of traumatic experiences for victims. However, it was not until the 1990's that studies began to focus on the lasting psychological costs for therapists of exposure to the traumatic experiences of victims (McCann & Pearlman, 1990). The same

extrapolation can be made for first responders who are also constantly exposed to secondary trauma due to the nature of their profession (Figley, 1995)

Burnout

"Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of somee kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As their emotional resources are depleted, workers feel they are no longer able to give of themselves at a psychological level. Another aspect is the development of negative, cynical attitudes and feelings about one's clients," (Maslach & Jackson, 1982, p.1).

Resilience

Definitions of resilience abound, but among the first to enter the psychological theory are the two following ones:

''The process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances'' (Masten, Best, & Garmezy, 1990, p. 426).

''A dynamic process encompassing positive adaptation within the context of significant adversity'' (Luthar et al., 2000, p. 543).

The trauma literature has traditionally focused on the psychopathologic sequelae that victims experience in the aftermath of traumatic events. However, recently there has been a shift from pathogenesis to salutogenesis in the conceptualization of what constitutes good mental health following trauma (Antonovsky, 1987). In other words, the change has placed importance on well-being and personal growth resulting from disaster work, rather than trauma and pain (Tedeschi & Kilmer, 2005). The focus on resilience best represents this change. Under this context, Bonnano (2004, p. 20-21) defined resilience as the "ability of adults in otherwise normal circumstances who are exposed to an isolated and potentially highly disruptive event, such as the death of a close relation or a violent or life-threatening situation, to maintain relatively stable, healthy levels of psychological and physical functioning." The research on resilience underscores two main points. First, resilience appears to be a universal human response to potentially stressful events (Bonnano, Galea, Bucciarelli, & Vlahov, 2006). Second, numerous resources exist, both at the personal and the environmental level, that can help the individual adapt to challenging situations (Hobfoll, 2002).

In recent times, the literature has focused on resiliency in first responders: people, such as fire fighters or medical personnel, who are among those

responsible for being the first on the scene of an emergency to provide assistance. This focus on resiliency has been welcomed for three primary reasons.

First, because exposure to traumatic incidents that can overwhelm an individual's sense of control, connection, and meaning is an inherent part of the job. First responders fall into a "high risk" occupational group with the potential to experience extensive mental health consequences stemming from work-related exposures to traumatic incidents. As such, it is critical to research resilience factors in this population stemming from work-related exposures to traumatic incidents (Benedek, Fullerton, & Ursano, 2007).

Second, negative consequences such as traumatic stress and burnout are not the only possible outcomes of emergency response work (Shakespeare-Finch, 2003). Research has found that emergency workers may develop compassion satisfaction, an emotion that first responders derive from working in precarious environments. The benefits include feelings of job satisfaction and contribution to a larger cause, finding meaning in one's challenges, and a sense of self-efficacy (Stamm, 2005). The notion that the psychological consequences of response work can be positive is relevant in the conceptualization on how to train responders. Teaching responders to draw on the positive aspects of their work must be a key element of training.

The third reason involves the identification of individual and environmental resources that encourage positive adaptation in the aftermath of traumatic incidents. The literature supports the existence of both. Among personal factors, research shows self-efficacy to be an important element in decreasing levels of distress (Gibbs, 1989; McCammon, Durham, Jackson, Williamson, 1988). Efficacy beliefs refer to the extent to which an individual believes in his/her own ability to complete a task and reach a goal. At the environmental level, the literature points out that the perception of collective efficacy (Jex & Thomas, 2003) the ability of the group to get the job done, is an important factor as is the sense of belonging to the first-responder community (McMillan & Chavis, 1986). Both personal and environmental factors are helpful in informing a positive approach to training.

Social Support

Although definitions of social support abound, no one is widely regarded as the standard-bearer due to difficulties with operationalization (Pearson, 1986). Some, such as Kaplan's are more broadly accepted: "support is the degree to which an individual's need for affection, approval, belonging, and security are met by significant others" (Kaplan, Cassel, & Gore, 1997, p. 47)

Despite this lack of consensus on any one definition, the literature has found that active social networks act as a considerable coping resource and that socially supportive relationships contribute significantly to emotional adjustment and

wellness (Pilisuk & Froland, 1978). Additionally, the scope of social support appears to include both qualitative and quantitative dimensions (Thoits, 1982). The former encompasses what the individual perceives to be helpful. The latter represents the actual received support by available relationships (Thoits, 1982; Pearson, 1986, Prati &Pietrantoni, 2010).

A review of the literature by Prati & Pietrantoni (2010) found that social support showed a significant relationship to mental health in first responders. Furthermore, the authors indicated that the research shows that social support acts as a resilience factor after exposure to potentially traumatic events (Prati & Pietrantoni, 2010). Some theoretical perspectives posit that social support may influence the outcome between the stressor and well-being by mitigating a stress appraisal response (Cohen & Wills, 1985). Said differently, the perception that a support network will provide care may reinforce the responder's notion of self-efficacy and provide him/her with a less negative view of the situation. Social support may help change first responders' interpretation of the event and his/her attribution patterns from negative to positive (Jonsson and Segesten, 2003).

Social support appears to be important in the cognitive processing of traumatic situations. Lepore's (2001) model posits the previous social experiences provide opportunities to collect information useful for the assimilation of trauma and influence the frequency of trauma-related symptoms (e.g., rumination and

avoidance). Similarly, positive social interactions can decrease fear responses, whereas negative or even neutral ones can intensify and maintain fear responses (Charuvastra & Cloitre, 2008). Both theoretical considerations and the results of the literature on social support propose that interventions designed to increase social support among first responders may also promote improved wellness and mental health (Prati & Pietrantoni, 2010).

Impact of Disaster Work on the Psychological Health and Functioning of First Responders

Disaster Stressors

As an inherent part of their job, first responders may be exposed to a wide variety of potentially disturbing sensory stimuli as well as jarring emotional and cognitive experiences (Ozen, 2004). These experiences can range from witnessing injured bodies to facing (genuine or perceived) risks to their own safety, such as exposure to unsafe environmental hazards (Viel, Curbakova, Dzerve, et al., 1997). Their health and wellbeing can be further compromised by the conditions in which they often perform their work. These conditions generally involve decreased sleep, fatigue, poor diet, inadequate personal protective and work equipment, and work overload. Additionally, not all missions are successful and some are ridden with bureaucratic roadblocks. In the midst of these challenging conditions, first responders often have to make major decisions, often under pressure and with little

available information (Armagan, Engindeniz, & Devay, 2006). Lastly, big scale disasters can put responders in the predicament of experiencing not only compassion fatigue, but also personal losses that make them primary victims – a dual jeopardy, indeed (Klein & Alexander, 2007).

Psychological Effects

While it is unusual for the pattern and severity of first responders' psychological reactions to justify a clinical diagnostic impression, there are a few reactions that are consistently documented in first responders. These reactions include anxiety, heightened arousal, heightened alertness, painful ruminations, and grief (Alexander & Klein, 2009). The literature also points to how disaster work may elicit feelings of shame, anger and sadness. It further shows how it may change first responders' assumptions about their own vulnerability and the natural justice in the world (Palm, Polusny, & Follette, 2004). Alexander and Klein (2009) suggest that it is possible that the aforementioned emotional reactions are not the issue at hand, rather the manner in which first responders cope with these negative emotions becomes the real issue. They add that "certain self-help" measures such as substance use, inability to communicate emotional states, and other avoidant strategies may add an extra layer of difficulty to the adjustment process (Alexander & Klein, 2009).

Positive Outcomes

Historically, the research on disaster response has focused heavily on the negative experiences and effects associated with such type of work. However, more recently a paradigm shift has placed emphasis on well-being, personal growth, and resiliency rather than the negative aspects of disaster work (Tedeschi & Kilmer, 2005). Examples of these positive outcomes include a revision of life values and priorities, a strengthening of relationships, pride in one's work, and sense of community with co-workers (Tam, Pang, Lam, et al., 2003).

Factors that Exacerbate or Mitigate Adverse Effects: At-Risk and Resilience Factors

Individuals' reaction to disasters are complex and cannot easily be explained by simply analyzing the severity and nature of the stressor. These reactions need to be seen through an adaptive-system models lens that emphasize cognitive/informational factors, biological, and ecological factors as well as the principles of conditioning (Alexander, 1996). Presently, no particular model is dominant. However, these emerging models' goal is to elucidate why while some responders break in the face of a disaster others exhibit remarkable growth and resilience. Why while certain individuals develop chronic post-traumatic psychopathologies others experience acute, self-limiting reactions. Lastly, why certain individuals are able to cope with certain types of disaster, but not others (Alexander & Klein, 2009). Research findings considering these questions have

subdivided the factors into negative and positive factors and the following three categories: pre-disaster factors, peri-disaster factors, and post-disaster factors.

According to the literature, pre-disaster factors that may have a negative impact on responders include burnout as well as being older, female, and of lower educational level (Witteveen, Bramsen, & Twisk, 2007). Pre-disaster factors that tend to have protective qualities are: training in disaster work, hand-selection of responders, being hardy, and having an internal locus of control (Kobasa & Maddi, 1982; Brown, Mulhern, & Joseph, 2002).

Peri-disaster factors that may negatively impact first responders include: a man-made or fabricated disaster, feeling unsafe while at work, the development of empathy toward disaster victims, feeling helpless while at work, the intensity and duration of exposure to the disaster, and the development of either acute stress disorder during work hours (Norris, Friedman, & Watson, 2002; (Fullerton, Ursano, & Wang, 2004; Fullerton, Ursano, & Reeves, 2006; Ozer, Best, & Lipsey, 2002). Peri-disaster factors bearing positive consequences to first responders are being well organized, having a clear role/job, considering personal physical needs, teamwork, and feeling appreciated (Alexander & Wells, 1991; Thompson & Solomon, 1991).

Post-disaster factors negatively impacting responders include: quick return to routine duties thus generating more exposure, unrelated stressful life events, and

coping without adequate social support (Alexander & Klein, 2001; McCaslin, Jacobs, & Meyer, 2005). Positive factors include adequate social support, sense of self-efficacy, contribution to a larger cause, and finding meaning in one's work (Stamm, 2005).

Evidence of Both Previous Efforts and Gaps in Support of the Provision of Mental Health and Wellness Resources to Responders

How best to assist first responders after a disaster remains the subject of much discussion. It has generally been accepted as helpful to allow first responders to informally speak about their experiences with friends, family, and coworkers. There has also been consensus on the notion that individual help should be given in a low-key manner (Dowling, Moynihan, & Genet, 2006). Crisis intervention approaches, which focus on primary prevention through early intervention (Rachman, 1980) have been used individually in crisis settings and have generally been delivered by trained professionals. Mitchell's (1983) Critical Incident Stress Debriefing (CISD) initially appeared promising in assisting responders. However, based on the empirical literature, the National Institute for Clinical Evidence (NICE) indicated that CISD had either no effect or could exacerbate the individual's crisis through iatrogenic effects (NICE, 2005). The mandatory, one-off CISD sessions were deemed especially harmful because of their tendency to ask individuals to either recount or hear others' traumatic experiences, even when

the individuals were not yet ready for it (Raphael & Wooding, 2004). Proponents of CISD agreed with this criticism, stating that single sessions of CISD were no longer recommended, and instead should be only one of the elements in an integrated, comprehensive, multicomponent crisis intervention program such as CISM (Everly & Mitchell, 1997).

Trauma Risk Management (TRiM) is a newer program in use by the military and some emergency services. Unlike CISD, it is provided by trained colleagues who rather than requiring individuals to recount their traumatic experiences, focuses on assessing individuals three and 28-days post-incident to ascertain who may be at risk of developing post-traumatic symptoms and may be in need of referral. Although TRiM seems to have gained acceptance by users, research on its usefulness is highly anticipated (Alexander & Klein, 2009).

An intervention that may seem more agreeable to first responders is Psychological First Aid (PFA) (Raphael, 1986). It is straightforward and lacks jargon and psychiatric labeling. Additionally, and very importantly, it focuses on what the individual needs in the "here-and-now" before helping to facilitate normal methods of coping and normalizing emotional responses (Alexander & Klein, 2009). Studies have consistently found that while first responders commonly experience grief and stress, they do not generally develop symptoms that warrant a clinical diagnosis such as PTSD (McCann & Perlman, 1990). Nevertheless, some

do, and this population may be identified using TRiM (Greenberg, Cawkill, & March, 2005) or PFA (Raphael, 1986).

Clearly, the impact that disaster work has on first responders is a relevant issue. Research has consistently emphasized the importance of post-disaster support for this population (Witteveen, Bramsen, & Twisk, 2007). Studies have made clear that the resilience of first responders is enhanced by selection, training, preparedness, personal characteristics, and good organizational practices. However, these findings have not fully translated to practice. Additionally, more research is needed in all of these areas to determine how to best cultivate and/or enhance resilience in first responders. Regarding the "at-risk" factors that lead to adverse psychological health, trainers and managers need to acknowledge them in their pre-disaster work with responders. On the back-end more research is needed to improve the quality of after-care approaches so that they may be fully beneficial to responders. Equally important is to design pre, peri, and post disaster strategies for first responders that spin off the resiliency literature and focus on responders' strengths.

Chapter 3

This chapter includes an overview of the agencies that grant this type of work, a summary of the grant announcement, the grant review process, and a description of the grant proposal reviewers' expertise.

Overview of the Agencies That Grant This Type of Work

Federal Agencies

Some of the more visible types of grant-awarding agencies are federal agencies. Among the most notable ones to fund projects that involve mental health, occupational safety, or responder wellness are the Substance Abuse and Mental Health Service Administration (SAMHSA), the Department of Defense (DoD), and the Centers for Disease Control and Prevention.

The Substance Abuse and Mental Health Service Administration (SAMHSA) seeks to fund projects that train individuals (e.g., school personnel, emergency first responders, law enforcement, veterans, armed services members) to recognize the signs and symptoms of mental disorders. Additionally, it seeks to educate individuals about resources that are available in the community for individuals with a mental disorder. Nevertheless, SAMHSA's emphasis is on the recognition of serious mental illness and emotional disturbance, rather than the acute symptoms of trauma. However, it would be wise to continue to search for

potential funding opportunities in areas of responder psychological health, wellness, and resiliency.

The Department of Defense provides funding for research on psychological health and trauma resiliency. The training curriculum project herein proposed does not have a specific research component that would qualify under the DoD's funding opportunity announcements. However, future endeavors could potentially include this investigative component.

Since 2002, Congress has provided the Centers for Disease Control and Prevention (CDC) over 11 billion dollars to fund public health preparedness through CDC's largest cooperative agreement, the Public Health Emergency Program (PHEP) (CDC, 2017). However, the vast majority of the funding to-date has gone to provide resources, critical guidance, and technical assistance in areas such as epidemiology, laboratory services, and medical countermeasures. Nevertheless, as the PHEP program evolves, the potential for funding in other areas, such as responder health and safety and community resilience, may increase opening the door to resources for the development of training resources and guidance in said areas.

The National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC) offers the grant of interest, namely a Training Project Grant (TPG). Under federal guidelines, NIOSH is responsible for

providing a sufficient number of qualified personnel to carry out the mandates of the Occupational Safety and Health Act (OSHA). The TPGs are one of the main vehicles by which NIOSH meets this requirement.

To note, one of the United States Public Health Service (USPHS) primary goals is to achieve improvements in health for all of its citizens as stated in its Healthy People 2020 (Healthy People 2020, 2010) national initiative. The goals set by the USPHS help to set priority areas with the aim to achieve better health nationwide. This grant is closely linked to several main goals of Healthy People 2020 with the overarching intention to prevent diseases, injuries, and deaths due to working conditions.

Additional, relevant to this grant, the majority of TPGs go to academic institutions that offer state-of-the-art training in the core occupational safety and health disciplines of occupational medicine residency, occupational health psychology, and other related allied disciplines. However, NIOSH also funds non-academic programs that meet the specific training needs of targeted populations such as first responders. The grant of interest belongs to this non-academic project grant category. A detailed summary of the grant announcement follows next.

Summary of the Grant Announcement

Background

Each day on-the-job injuries claim lives in the United States and work-related illness have a significant public health impact. The National Assessment off the Occupational Safety and Health Workforce found a substantial deficit in the supply of trained OSH professionals to meet current and future demand in the country (McAdams, Kerwin, Olivo, & Goksel, 2011). Thus, the report points to the need of the continued necessity to support OSH training and education in the core and allied OSH disciplines. Part of NIOSH's mission is to help train a sufficient number of occupational and safety practitioners (OSH) to address this gap.

In addition, the Occupational Safety and Health Act of 1970 mandates that NIOSH be responsible for developing an adequate number of qualified personnel to carry out the purposes of the Occupational Safety and Health Act. As mentioned earlier, NIOSH TPGs are a crucial in helping meet this mandate as they contribute to NIOSH's core mission of providing exceptional guidance to prevent workplace illnesses and injuries.

Purpose

The purpose of this grant is to support NIOSH TPGs' mission of addressing the national burden of OSH by providing outstanding training for the future generations of leaders in OSH practice. TPGs play a key role in preparing the next group of OSH experts to respond to new challenges brought about by the

technological advances, globalization, new and emerging risks, and many other factors.

Essential Characteristics of the NIOSH TPG

Needs Assessment - A documented need for the training program and its targeted audience are necessary. These needs may be documented through surveys of employers, alumni, and other stakeholders that work in the health and safety industry.

Regional Presence – TPGs must establish collaborations and partnerships with a diverse and wide network of organizations in order to enhance OSH skills in their region. These collaborations may include historically black colleges and universities, federal, state, and local public health organizations, and businesses.

Advisory Committee – TPGs must include in their organization an Advisory Committee that meets at least annually to advise the TPG on setting and reaching goals. This Committee may include representatives of labor, industry, business, government agencies, or academic institutions.

Recruitment and Retention Plan to Enhance Diversity – NIOSH is committed to funding the recruitment of trainees from underrepresented and underserved groups. It must be documented that institutions serving minority and other

underrepresented populations such as tribal colleges, Hispanic-serving institutions, and historically black colleges and universities were encouraged to participate.

Evaluation Plan – The application must include an evaluation plan that focuses on the quality and effectiveness of the TPG. The plan must include a description of plans to obtain feedback from trainees, employers, Advisory Committee members, and any other stakeholder that may help identify the areas of strength and those that need improvements.

Essential Elements for the NON-Academic Training Project Grants

As mentioned in a prior section, this TPG is located in a non-academic setting and its purpose is to meet the particular OSH trainings of a specific population, namely CDC responders. The application includes:

- A documented need for the training program and its targeted audience
  - The need is documented by the literature and summarized in the literature review
- The Program Director's (PD) qualifications in managing a high quality program
  - An highly qualified PD, from the Office of Public Health Preparedness and Response and commissioned by the PHS is on board to run the program

- The training program's learning objectives and specific aims to have an effective and successful training program
    - The literature review addressed the foundational constructs on which the training objectives will be designed
- The program's faculty and their qualifications and history of success in OSH training
    - The training faculty are highly qualified public health professionals with vast disaster response experience
- Plans for the recruitment, retention, and completion of training (including trainees from underserved and underrepresented groups) and experience with past trainees' career placement and advancements after completion of training, and
    - Trainees will be recruited from the Emergency Operations Center's available rosters of responders and the CDC-PHS deployment rosters
- An evaluation plan to determine the program's effectiveness and impact
    - Utilizing Kirkpatrick's evaluation theory, responders' performance will be evaluated in three different dimensions (e.g., expectation of training, knowledge, and skill) in order to evaluate the effectiveness of the training program

The grant proposal should include a program plan no longer than 10 pages and the following elements: face page, table of contents, project site, introduction, background, program plan, recruitment and retention plan to enhance diversity, contractual agreement, participating faculty biosketches, letters of support, training budget, and appendix. Additionally, for the purpose of the Emory EMPH requirements, the student was only required to write the "narrative" components of the grant proposal, not the components related to the budget. The application due date is October 26, 2018. The grant review process should take about 4 weeks. Below is a proposed timeline for implementation.

Project Timeline

Activities	Responsibilities	Duration
Submit grant application	Director	By October 26, 2018
Notification of sponsorship	NIOSH	January 2019
Create curriculum	Director	Month one and two (Feb 2019/Mar 2019)
Recruit target population	Director	Month one and two (Feb 2019/Mar 2019)
Design evaluation tool	Evaluation Staff	Month one and two (Feb 2019/Mar 2019)
Find appropriate training venue	Director	Month three (Apr 2019)
Hire Instructors	Director	Month three (Apr 2019)
Hire Assistant Instructors	Director	Month three (Apr 2019)

Train Instructors and Assistant Instructors	Director	Month four (May 2019)
Sign contracts with suppliers of emergency response gear	Director	Month four and five (May/Jun 2019)
Information session for trainees	All staff	Month four (May 2019)
Disaster Mental Health Curriculum Implementation	Instructors	Month five through thirteen (Jun 2019/Feb 2020)
Surveys filled out by students on first and last sessions	Evaluation Staff	Month five through thirteen (Jun 2019/Feb 2020)
Program Evaluation (Survey Data Analysis)	Evaluation Staff	Month fourteen (Mar 2020)
Draft Preliminary Report	Director	Month fifteen (Apr 2020)
Seek Report Feedback	NIOSH	Month sixteen (May 2020)
Revise Preliminary Report	Director	Month sixteen (May 2020)
Submit Final Report	Director	Month sixteen (May 2020)

The Grant Review Process

The methodology of the review process of the proposal includes submission of this grant through Grants.gov. To note, applicants need to procure a Dun and Bradstreet Universal Numbering System (DUNS) number and register in the System for Award Management (SAM) to be able to complete the Grants.gov application. The SAM registration includes the assignment of a Commercial and Government Entity (CAGE) code. Additionally, the application must include an

eRA Commons registration, which can only be obtained after attaining of both a DUNS and a SAM registration.

However, because the actual review process is not made publicly available, the review process for the thesis committee will be described. A draft of the grant proposal will be provided to the reviewers on August 6, 2018. They will be given two weeks to review the grant and provide feedback. Grant reviewers will be provided with the full text of the Occupational Safety and Health Training Program Grants announcement (PAR-15-352) and the EMPH reviewer template. All reviewers will be asked to use both the application guidelines and the reviewer template as guides for their analysis. The feedback from the reviews will be incorporated in the final draft of this proposal. All comments will be included in chapter four of this thesis.

Reviewers will have the opportunity to assess whether the proposal was a good fit with the chosen grant. The reviewers will also have the chance to provide feedback on the level of responsiveness of the submission. Thirdly, the reviewers will be able to express their level of agreement or disagreement regarding the proposal's quality. Lastly, reviewers will have the opportunity to make suggestions for improvement to this proposal.

Grant Proposal Reviewers

The grant proposal reviewers included the EMPH thesis chair, the thesis field advisor, and three external reviewers.

Iris Smith, Ph.D., MPH

Dr. Iris Smith is a Professor Emeritus in the Behavioral Sciences/Health Education Department at Emory University. In addition, she is a faculty member in the Executive Master of Public Health Program at Emory. Dr. Smith holds a doctorate in Community Psychology from Georgia State University and a Master's Degree in Public Health from Emory University. During her tenure as an Associate Professor in the Behavioral Sciences and Health Education Department at Emory University's Rollins School of Public Health, Dr. Smith taught graduate courses in Program Evaluation, Substance Abuse, and Social Determinants of Health, as well as a Mental Health Capstone course. In addition to teaching, Dr. Smith served as the Coordinator for the Center for the Application of Prevention Technologies (CAPT) Southeast Resource Team. Prior to coming to Emory, she was the Director of National Evaluation Services for the American Cancer Society, and served as a Deputy Commissioner for the Georgia Department of Juvenile Justice. From 1979-1992, Dr. Smith was Principal and Co-Investigator on a number of studies on prenatal drug exposure and intervention for substance abusing women and their children at Emory University's School of Medicine. As an instructor for the

Conduct of Evaluation Research at Emory and the designer, implementer, and evaluator of outreach, intervention, and treatment programs for substance abusing women and their children, Dr. Smith will provide one of the most realistic perspectives for this review.

Robert Gaines, Pharm.D., MBA

Dr. Gaines holds the rank of Captain (CAPT) with the United States Public Health Service (USPHS) and currently serves as the Director for the Division of Regulatory Business Process Management for the Office of Program and Regulatory Operations in the Center for Drug Evaluation and Research at the Food and Drug Administration. During his time as Director he has overseen the approval of a wide variety of medications. In addition to overseeing the implementation of the congressionally mandated Generic Drug User Fee Amendment for quality review of drug applications and managing a Division with more than 40 employees, CAPT Gaines is Deputy Chief of Operations for the USPHS Rapid Deployment Force – 5. In this role, CAPT Gaines is responsible for the supervision and wellbeing of a team of approximately 114 first responder health care providers during national public health emergencies. As an experienced first responder, Dr. Gaines feedback will be very useful to this review.

Sharon Rhynes, DNP, MSN, AGACNP, NP-C, ANP-BC

Dr. Rhynes is a Commander (CDR) in the United States Public Health Service and currently serves as a Senior Public Health Analyst for the Health Resources and Services Administration (HRSA), Bureau of Health Workforce (BHW), Division of Regional Operations (DRO). As a Senior Public Health Analyst, she is responsible for direct oversight, management, and ensuring statutory compliance of the National Health Service Corps Program for the state of North Carolina. Additionally, CDR Rhynes serves as a Nurse Practitioner for the USPHS Rapid Deployment Force – 2 and has deployed on numerous occasions. Dr. Rhynes is responsible for providing direct medical and mental health assessment, evaluation, diagnosis, and treatment of patients during national public health disasters and emergencies. Given her experience, Dr. Rhynes will provide valuable insight for this review.

Dr. Crystal Hughley, RN, MSN, FNP-BC

Dr. Hughley is a United States Army Nurse Corp Veteran. Dr. Hughley currently holds the rank of Commander in the United States Public Health Service and serves as a Field Medical Coordinator within the Department of Homeland Security. Dr. Hughley has experienced several deployments within the Department of Homeland Security and as an officer in the United States Army. Dr. Hughley's experience both as a Field Medical Coordinator and a first responder will prove very useful to this review.

Carol Robinson, RN, BS

Carol Robinson holds the rank of Lieutenant (LT) with the United States Public Health Service (USPHS) and currently serves as an Investigator for the Office of Biological Products Operations (OBPO) Division 1, at the Atlanta Hartsfield Resident Post at the United States Food and Drug Administration. She conducts routine inspections in accordance to the Office of Regulatory Affairs' (ORA) for the purpose of protecting consumers and enhancing public health by maximizing compliance of FDA-regulated products. LT Robinson worked as the Infectious Disease Control and Prevention Nurse and Health Systems Specialist for the Federal Bureau of Prisons, United States Penitentiary Atlanta, prior to her current role at FDA. Additionally, LT Robinson is an experienced first responder. Her latest deployment was during the 2017 hurricane season. LT Robinson has experienced the negative as well as positive effects that deployments can have on an individual. She has found that discussing her experiences with colleagues as well as leadership and mental health team members in post-deployment debriefs has been extremely helpful for her general well-being. Given her ample experience as a health care provider in responses, LT Robinson will provide valuable insight to this review.

Chapter 4

This chapter includes an overview of the reviewer comments that were provided in the grant reviewer template provided to reviewers. Reviewers were advised that their comments would be utilized for the final grant proposal to be submitted to the agency for submission for funding. Reviewers, thank you for your time and effort as your comments helped guide improvements for the proposal.

Reviewer 2 Comments

Comment 1: In the reviewer template, Reviewer 1 stated, "Strong problem statement. It is unclear whether the statistics are referencing U.S. or global numbers. If they are global, it may be prudent to tie in U.S. participation statistics in global responses."

Response to Comment 1: The statistics are referencing U.S. numbers. Writer will make this clear in the final document.

Comment 2: In the reviewer template, Reviewer 1 stated, "The proposal is a good fit with the grant that has been chosen. I agree with this proposal."

Response to Comment 2: Writer will work on making the final proposal document a clearly written document that can be used to obtain a training project grant.

Reviewer 3 Comments

Comment 1: "The grant proposal clearly articulated the need for a training program for first responders. The author's extensive research related to this topic is highlighted throughout the proposal as referenced by the citing of other authors' research regarding the mental health of first responders."

Response to Comment 1: In the final draft, writer will include a clearly articulated proposal with the necessary elements including the research that supports the need for training in the area of disaster mental health.

Comment 2: "The author described in detail her proposed training program objectives as well as the specific components involved with the training. This author was thorough in her approach when developing the stated objectives as evidenced by her identifying and addressing the existing gaps in mental health and wellness support and resources for emergency personnel."

Response to Comment 2: Writer will ensure that the proposed training program objectives are clearly reflected in the proposal to increase its chances of acceptance.

Comment 3:"The author clearly enunciates the significance of the problem, responder health and safety; specifically, mental health and wellness support for emergency personnel. Additionally, the author provides pertinent historical

perspective in Chapter 2 as it relates to previous scholarly work written examining the potential for disaster work to create psychological damage to first responders."

Response to Comment 3: Writer will draft the proposal with the significance of the problem in mind in order to underscore the importance of the project.

Comment 4: "The author stated she will be using Kirkpatrick's evaluation theory and that responders' performance will be evaluated along three diverse extents to evaluate the effectiveness of the proposed training program. (e.g., expectation of training, knowledge, and skill). In addition to the author developing a pilot of the training curriculum, an evaluation will be created to assess participant satisfaction as well as the training material's utility and effect on the organization's emergency personnel. The author's explanation of the evaluation plan concerning this grant is impressive."

Response to Comment 4: Given the relevance of the evaluation piece in any, including this project, writer will be clear and thorough when describing the evaluation plan in the final draft of the proposal.

Reviewer 4 Comments

Comment 1: "No recommendations for improvement" on the Problem Statement.

Response to Comment 1: Writer will include the current Problem Statement as is in the final draft.

Comment 2: "On page 4, Step 1- Are there multiple solutions to the issue or just one solution? (The sentence read " to identify challenges and solution on responder mental health…")"

Response to Comment 2: There are multiple solutions to the issue. Writer has corrected the typo in the draft and will make sure that the final draft reflects that a multiple-solution approach is conveyed in the document.

Comment 3: "On page 4, under Objective to be answered by the grant proposal: Sentence 1 – perhaps use the term "emergency personnel who respond or first responders" vs using term "responder" twice in the same sentence."

Response to Comment 3: Writer has added the word "first" before the word "responders" in sentence 1 of the Objectives section to add clarity and decrease redundancy in the paragraph.

Comment 4: "No recommendations for improvement in the area of Significance of the Problem."

Response to Comment 4: Writer will include the current Significance of the Problem statement as is in the final draft.

Comment 5: "On page 24, what does eRA stand for in eRa Commons registration?

Response to Comment 5: eRA Commons is an online interface where grant applicants are able to conduct their research administration business electronically as well as access and share administrative information relating to research grants. Following application submission, the eRA Commons becomes the primary site for accessing grant information such as Institute/Center assignments, review outcomes, Summary Statements, and Notices of Award. Considering the former, it is vital to have an eRA Commons registration for this grant. Writer will register the grant following the required steps in order to obtain one.

Reviewer 5 Comments

Comment 1: "The Problem Statement is appropriate, thorough, and research-based. It addresses my subsequent points: First responders lack support and resources in several areas in regards to mental health. Additionally, first responders often lack the skills needed to utilize healthy coping mechanisms when faced with traumatic, disastrous conditions. First responders need additional mental health training. It is not enough to simply know that assistance is available. I have found that most first responders feel that they can handle life's obstacles and are hesitant to seek help. They are so busy taking care of everyone and everything else that they neglect their own mental and physical health."

Response to Comment 1: Writer will include the current Problem Statement as is in the final draft.

Comment 2: "The objectives cited in this grant proposal are critical in improving long-term mental health and holistic wellness of emergency responders. If these objectives are met, the problem addressed by the grant may be significantly minimized over time. Knowledge is power. Once responders become well-trained in regards to responder mental health and/or occupational health psychology, they will be better equipped to manage their own mental health as well as participate in complex emergencies."

Response to Comment 2: Writer will ensure that the objectives are cogently written so that they are able to convey the importance of training with the goal of minimizing the problem addressed by the grant.

Comment 3: "The significance of the problem is clearly delineated by the author in this grant proposal: the problem of lack of support and resources to emergency responders that prepare, prevent, and promote mental health is extremely significant. As evidenced by research, the number of emergency personnel continue to increase, which means there is the potential for an increasing number of mental health problems. Prevention is key to improving outcomes associated with mental health and well-being."

Response to Comment 3: Writer will include the current Significance of the Problem statement as is in the final draft.

Comment 4: "The explanation of the evaluation plan for this grant is thorough and easy to understand. Grant writing is not my area of expertise, response (as a healthcare provider) to emergent and existing threats is. I do feel; however, that after reviewing the grant proposal in its entirety, I fully understand the problem and the reasons for the request for support to improve and/or correct the problem. Additionally, I have gained a much better understanding of the federal grant-awarding agencies that fund projects surrounding mental health and occupational safety."

Response to Comment 4: Writer will be clear and thorough when describing the evaluation plan in the final draft of the proposal.

Chapter 5

The following is the final grant proposal after incorporating the reviewers' comments.

Abstract

The topic of psychological health and overall wellness for first responders is worthy of major consideration. First responders are those required to respond to the critical phases of a major incident by providing a variety of rescue, emergency, and healthcare services. In this environment of constant and significant adversity, whether it is a man-made or a natural hardship, first responders are frequently being asked to be first on-the-scene. In fact, in 2008 approximately 1.5 million first responders worked on emergencies. Additionally, it is believed that this number has likely increased in the subsequent decade. Hence, it is vitally important to be concerned with this population's mental health and well-being. Nevertheless, historically emergency personnel in the United States have lacked support and resources in many areas, including the area of occupational health psychology (OPH). This grant attempts to address this gap by supporting the development of a train-the-trainer program that will ultimately facilitate educational resources so that responders may practice self-care and other wellness skills that tend to improve mental health outcomes. A major goal is to obviate negative psychological reactions by providing strategies that enhance resilience through strengthening

responder self-efficacy and other healthy coping mechanisms. The ultimate goal is to improve mental health outcomes for first responders in the United States and beyond.

Background

Overview of the Literature on Responder Mental Health and Wellness

It seems evident that responding in the front lines of a humanitarian crisis or a natural or fabricated disaster can be potentially dangerous endeavors. Three decades ago, Raphael (1986) underscored the potential for disaster work to create psychological damage to first responders. Since then, although related literature has continued to emerge, its overall quality has been poor, often lacking a theoretical and conceptual basis (Alexander & Klein, 2009). In addition, the topic continues to be victim to taboos that generate resistance to address the issue, hence creating a perilous situation in which responders have the potential to become hidden victims (Dyregrov, Kristoffersen, & Gjestad, 1996). Nevertheless, scholars highlight the need for organizations to be cognizant of the liability for the welfare of their first responders, thus the field of disaster mental health continues to advance, albeit too slowly (McFarlane & Bryant, 2007).

Key Concepts in First Responder Psychological Health and Wellness with Applicability to Curriculum Development

As previously cited, research has defined first responders as staff belonging to formal response organization who are required to respond to the initial acute phases of a major incident by providing a variety of rescue, emergency, and healthcare services. Evolving from such research are a handful of key concepts, such as *compassion fatigue*, *vicarious traumatization*, *and burnout* that reflect the belief that providing relief to victims of major traumatic events has the potential to be emotionally noxious to the providers (Palm, Polusny, & Follette, 2004). Other concepts, such as *social support*, focus on the coping, emotional adjustment, and wellness of first responders (Pilisuk & Froland, 1978). Yet another key concept, *resilience*, represents the paradigmatic shift in the literature from an incessant focus on the negative effects of disaster work on responders to a more positive view of these effects (Tedeschi & Kilmer, 2005). These terms defined below by their original proponents are relevant both in understanding the impact of disaster response on first responders and in designing strategies to ameliorate the negative aspects and maximize the positive impacts on responders.

Compassion fatigue

"Compassion fatigue is identical to secondary traumatic stress disorder

(STSD) and is the equivalent of PTSD. We can define secondary traumatic stress (STS) as the natural consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other-the stress resulting from helping or wanting to help a

traumatized or suffering person," (Figley, 1995, p.7).

Vicarious traumatization

McCann and Pearlman (1990) coined the term *vicarious traumatization.* They described this process as "persons who work with victims may experience profound psychological effects, effects that can be disruptive and painful for the helper and can persist for months or years after work with traumatized persons" (McCann & Pearlman, 1990, p. 133).

In the past 5 decades, mental health professionals have shown keen interest in studying the psychological aftermath of victimization (Figley, 1995). Their initial focus was on the many different types of victimizing events. Hence, researchers developed extensive research on the psychological consequences of traumatic experiences for victims. However, it was not until the 1990's that studies began to focus on the lasting psychological costs for therapists of exposure to the traumatic experiences of victims (McCann & Pearlman, 1990). The same extrapolation can be made for first responders who are also constantly exposed to secondary trauma due to the nature of their profession (Figley, 1995)

Burnout

"Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of somee kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As their emotional resources are depleted, workers feel they are no longer able to give of themselves at a psychological level. Another aspect is the development of negative, cynical attitudes and feelings about one's clients," (Maslach & Jackson, 1982, p.1).

Resilience

Definitions of resilience abound, but among the first to enter the psychological theory are the two following ones:

''The process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances'' (Masten, Best, & Garmezy, 1990, p. 426).

''A dynamic process encompassing positive adaptation within the context of significant adversity'' (Luthar et al., 2000, p. 543).

The trauma literature has traditionally focused on the psychopathologic sequelae that victims experience in the aftermath of traumatic events. However, recently there has been a shift from pathogenesis to salutogenesis in the

conceptualization of what constitutes good mental health following trauma (Antonovsky, 1987). In other words, the change has placed importance on well-being and personal growth resulting from disaster work, rather than trauma and pain (Tedeschi & Kilmer, 2005). The focus on resilience best represents this change. Under this context, Bonnano (2004, p. 20-21) defined resilience as the "ability of adults in otherwise normal circumstances who are exposed to an isolated and potentially highly disruptive event, such as the death of a close relation or a violent or life-threatening situation, to maintain relatively stable, healthy levels of psychological and physical functioning." The research on resilience underscores two main points. First, resilience appears to be a universal human response to potentially stressful events (Bonnano, 2006). Second, numerous resources exist, both at the personal and the environmental level, that can help the individual adapt to challenging situations (Hobfoll, 2002).

In recent times, the literature has focused on resiliency in first responders: people, such as fire fighters or medical personnel, who are among those responsible for being the first on the scene of an emergency to provide assistance. This focus on resiliency has been welcomed for three primary reasons.

First, because exposure to traumatic incidents that can overwhelm an individual's sense of control, connection, and meaning is an inherent part of the job. First responders fall into a "high risk" occupational group with the potential to

experience extensive mental health consequences stemming from work-related exposures to traumatic incidents. As such, it is critical to research resilience factors in this population stemming from work-related exposures to traumatic incidents (Benedek, Fullerton, & Ursano, 2007).

Second, negative consequences such as traumatic stress and burnout are not the only possible outcomes of emergency response work (Shakespeare-Finch, 2003). Research has found that emergency workers may develop compassion satisfaction, an emotion that first responders derive from working in precarious environments. The benefits include feelings of job satisfaction and contribution to a larger cause, finding meaning in one's challenges, and a sense of self-efficacy (Stamm, 2005). The notion that the psychological consequences of response work can be positive is relevant in the conceptualization on how to train responders. Teaching responders to draw on the positive aspects of their work must be a key element of training.

The third reason involves the identification of individual and environmental resources that encourage positive adaptation in the aftermath of traumatic incidents. The literature supports the existence of both. Among personal factors, research shows self-efficacy to be an important element in decreasing levels of distress (Gibbs, 1989; McCammon, Durham, Jackson, Williamson, 1988). Efficacy beliefs refer to the extent to which an individual believes in his/her own ability to

complete a task and reach a goal. At the environmental level, the literature points out that the perception of collective efficacy (Jex & Thomas, 2003) the ability of the group to get the job done, is an important factor as is the sense of belonging to the first-responder community (McMillan & Chavis, 1986). Both personal and environmental factors are helpful in informing a positive approach to training.

Social Support

Although definitions of social support abound, no one is widely regarded as the standard-bearer due to difficulties with operationalization (Pearson, 1986). Some, such as Kaplan's are more broadly accepted: "support is the degree to which an individual's need for affection, approval, belonging, and security are met by significant others" (Kaplan, Cassel, & Gore, 1997, p. 47)

Despite this lack of consensus on any one definition, the literature has found that active social networks act as a considerable coping resource and that socially supportive relationships contribute significantly to emotional adjustment and wellness (Pilisuk & Froland, 1978). Additionally, the scope of social support appears to include both qualitative and quantitative dimensions (Thoits, 1982). The former encompasses what the individual perceives to be helpful. The latter represents the actual received support by available relationships (Thoits, 1982; Pearson, 1986, Prati &Pietrantoni, 2010).

A review of the literature by Prati & Pietrantoni (2010) found that social support showed a significant relationship to mental health in first responders. Furthermore, the authors indicated that the research shows that social support acts as a resilience factor after exposure to potentially traumatic events (Prati & Pietrantoni, 2010). Some theoretical perspectives posit that social support may influence the outcome between the stressor and well-being by mitigating a stress appraisal response (Cohen & Wills, 1985). Said differently, the perception that a support network will provide care may reinforce the responder's notion of self-efficacy and provide him/her with a less negative view of the situation. Social support may help change first responders' interpretation of the event and his/her attribution patterns from negative to positive (Jonsson and Segesten, 2003).

Social support appears to be important in the cognitive processing of traumatic situations. Lepore's (2001) model posits the previous social experiences provide opportunities to collect information useful for the assimilation of trauma and influence the frequency of trauma-related symptoms (e.g., rumination and avoidance). Similarly, positive social interactions can decrease fear responses, whereas negative or even neutral ones can intensify and maintain fear responses (Charuvastra & Cloitre, 2008). Both theoretical considerations and the results of the literature on social support propose that interventions designed to increase

social support among first responders may also promote improved wellness and mental health (Prati & Pietrantoni, 2010).

Impact of Disaster Work on the Psychological Health and Functioning of First Responders

Disaster Stressors

As an inherent part of their job, first responders may be exposed to a wide variety of potentially disturbing sensory stimuli as well as jarring emotional and cognitive experiences (Ozen, 2004). These experiences can range from witnessing injured bodies to facing (genuine or perceived) risks to their own safety, such as exposure to unsafe environmental hazards (Viel, Curbakova, Dzerve, et al., 1997). Their health and wellbeing can be further compromised by the conditions in which they often perform their work. These conditions generally involve decreased sleep, fatigue, poor diet, inadequate personal protective and work equipment, and work overload. Additionally, not all missions are successful and some are ridden with bureaucratic roadblocks. In the midst of these challenging conditions, first responders often have to make major decisions, often under pressure and with little available information (Armagan, Engindeniz, & Devay, 2006). Lastly, big scale disasters can put responders in the predicament of experiencing not only compassion fatigue, but also personal losses that make them primary victims – a dual jeopardy, indeed (Klein & Alexander, 2007).

Psychological Effects

While it is unusual for the pattern and severity of first responders' psychological reactions to justify a clinical diagnostic impression, there are a few reactions that are consistently documented in first responders. These reactions include anxiety, heightened arousal, heightened alertness, painful ruminations, and grief (Alexander & Klein, 2009). The literature also points to how disaster work may elicit feelings of shame, anger and sadness. It further shows how it may change first responders' assumptions about their own vulnerability and the natural justice in the world (Palm, Polusny, & Follette, 2004). Alexander and Klein (2009) suggest that it is possible that the aforementioned emotional reactions are not the issue at hand, rather the manner in which first responders cope with these negative emotions becomes the real issue. They add that "certain self-help" measures such as substance use, inability to communicate emotional states, and other avoidant strategies may add an extra layer of difficulty to the adjustment process (Alexander & Klein, 2009).

Positive Outcomes

Historically, the research on disaster response has focused heavily on the negative experiences and effects associated with such type of work. However, more recently a paradigm shift has placed emphasis on well-being, personal growth, and resiliency rather than the negative aspects of disaster work (Tedeschi

& Kilmer, 2005). Examples of these positive outcomes include a revision of life values and priorities, a strengthening of relationships, pride in one's work, and sense of community with co-workers (Tam, Pang, Lam, et al., 2003).

Factors that Exacerbate or Mitigate Adverse Effects: At-Risk and Resilience Factors

Individuals' reaction to disasters are complex and cannot easily be explained by simply analyzing the severity and nature of the stressor. These reactions need to be seen through an adaptive-system models lens that emphasize cognitive/informational factors, biological, and ecological factors as well as the principles of conditioning (Alexander, 1996). Presently, no particular model is dominant. However, these emerging models' goal is to elucidate why while some responders break in the face of a disaster others exhibit remarkable growth and resilience. Why while certain individuals develop chronic post-traumatic psychopathologies others experience acute, self-limiting reactions. Lastly, why certain individuals are able to cope with certain types of disaster, but not others (Alexander & Klein, 2009). Research findings considering these questions have subdivided the factors into negative and positive factors and the following three categories: pre-disaster factors, peri-disaster factors, and post-disaster factors.

According to the literature, pre-disaster factors that may have a negative impact on responders include burnout as well as being older, female, and of lower

educational level (Witteveen, Bramsen, & Twisk, 2007). Pre-disaster factors that tend to have protective qualities are: training in disaster work, hand-selection of responders, being hardy, and having an internal locus of control (Maddi & Kobasa, 1984; Brown, Mulhern, & Joseph, 2002).

Peri-disaster factors that may negatively impact first responders include: a man-made or fabricated disaster, feeling unsafe while at work, the development of empathy toward disaster victims, feeling helpless while at work, the intensity and duration of exposure to the disaster, and the development of either acute stress disorder during work hours (Norris, Friedman, & Watson, 2002; (Fullerton, Ursano, & Wang, 2004; Fullerton, Ursano, & Reeves, 2006; Ozer, Best, & Lipsey, 2002). Peri-disaster factors bearing positive consequences to first responders are being well organized, having a clear role/job, considering personal physical needs, teamwork, and feeling appreciated (Alexander & Wells, 1991; Thompson & Solomon, 1991).

Post-disaster factors negatively impacting responders include: quick return to routine duties thus generating more exposure, unrelated stressful life events, and coping without adequate social support (Alexander & Klein, 2001; McCaslin, Jacobs, & Meyer, 2005). Positive factors include adequate social support, sense of self-efficacy, contribution to a larger cause, and finding meaning in one's work (Stamm, 2005).

Evidence of Both Previous Efforts and Gaps in Support of the Provision of Mental Health and Wellness Resources to Responders

How best to assist first responders after a disaster remains the subject of much discussion. It has generally been accepted as helpful to allow first responders to informally speak about their experiences with friends, family, and coworkers. There has also been consensus on the notion that individual help should be given in a low-key manner (Dowling, Moynihan, & Genet, 2006). Crisis intervention approaches, which focus on primary prevention through early intervention (Rachman, 1980) have been used individually in crisis settings and have generally been delivered by trained professionals. Mitchell's (1983) Critical Incident Stress Debriefing (CISD) initially appeared promising in assisting responders. However, based on the empirical literature, the National Institute for Clinical Evidence (NICE) indicated that CISD had either no effect or could exacerbate the individual's crisis through iatrogenic effects (NICE, 2005). The mandatory, one-off CISD sessions were deemed especially harmful because of their tendency to ask individuals to either recount or hear others' traumatic experiences, even when the individuals were not yet ready for it (Raphael & Wooding, 2004). Proponents of CISD agreed with this criticism, stating that single sessions of CISD were no longer recommended, and instead should be only one of the elements in an

integrated, comprehensive, multicomponent crisis intervention program such as CISM (Everly & Mitchell, 1997).

Trauma Risk Management (TRiM) is a newer program in use by the military and some emergency services. Unlike CISD, it is provided by trained colleagues who rather than requiring individuals to recount their traumatic experiences, focuses on assessing individuals three and 28-days post-incident to ascertain who may be at risk of developing post-traumatic symptoms and may be in need of referral. Although TRiM seems to have gained acceptance by users, research on its usefulness is highly anticipated (Alexander & Klein, 2009).

An intervention that may seem more agreeable to first responders is Psychological First Aid (PFA) (Raphael, 1986). It is straightforward and lacks jargon and psychiatric labeling. Additionally, and very importantly, it focuses on what the individual needs in the "here-and-now" before helping to facilitate normal methods of coping and normalizing emotional responses (Alexander & Klein, 2009). Studies have consistently found that while first responders commonly experience grief and stress, they do not generally develop symptoms that warrant a clinical diagnosis such as PTSD (McCann & Perlman, 1990). Nevertheless, some do, and this population may be identified using TRiM (Greenberg, Cawkill, & March, 2005) or PFA (Raphael, 1986).

Clearly, the impact that disaster work has on first responders is a relevant issue. Research has consistently emphasized the importance of post-disaster support for this population (Witteveen, Bramsen, & Twisk, 2007). Studies have made clear that the resilience of first responders is enhanced by selection, training, preparedness, personal characteristics, and good organizational practices. However, these findings have not fully translated to practice. Additionally, more research is needed in all of these areas to determine how to best cultivate and/or enhance resilience in first responders. Regarding the "at-risk" factors that lead to adverse psychological health, trainers and managers need to acknowledge them in their pre-disaster work with responders. On the back-end more research is needed to improve the quality of after-care approaches so that they may be fully beneficial to responders. Equally important is to design pre, peri, and post disaster strategies for first responders that spin off the resiliency literature and focus on responders' strengths.

Problem Statement

As is evident from the literature, the long-term mental health and overall wellness of first responders is cause for concern. The menace of disaster continues to loom large as the 21st century heads towards its third decade. Significant adversities experienced in the initial two decades include terrorist attacks, wars, a tsunami, unprecedentedly large hurricanes, and outbreaks of disease. Moreover, for

if that were not enough, the media is flooded with news of potentially calamitous pandemics and global warming, along with stories of unremitting genocide, terrorism, and natural disaster events (Masten & Obradovic, 2008).

A systematic review of the literature found that in 2008 approximately 1,503,100 individuals worked as first responder professionals in the U.S. The authors characterized this number as conservative indicating that the count omitted volunteers and other non-traditional first responders (Haugen, Evces, & Weiss, 2012). Additionally, this number has likely increased in the subsequent decade. Given the number of professionals employed in emergency response operations at any given time, it is vitally important to be concerned with this population's mental health and well-being.

Furthermore, it is well known that working as a first responder in humanitarian crisis situations or in natural or man-made disasters can potentially turn into a dangerous endeavor (Connorton, Perry, Hemenway, & Miller, 2012). Additionally, as the number of natural and fabricated disasters continues to rise, so does the demand for response. With the rising number of global complex emergencies, public health responders are progressively more exposed to stress and trauma for longer periods of time (Connorton, Perry, Hemenway, & Miller, 2012).

While there have been some efforts made to mitigate mental health consequences in responders, more can be done to support the psychosocial well-being and health of public health professionals in crisis situations. Moreover, given our current context, it is critical for professionals concerned with adaptive systems (e.g., human development, mental health, resilience, etc.), in various disciplines (e.g., psychology, occupational safety, ecology, etc.), to take stock of what is known and what still needs to be conceptualized regarding responder mental health and wellness. This vital work could feed efforts to deter or ameliorate the consequences of disaster and promote recovery in the area of mental health for first responders (Masten & Obradovic, 2008).

In sum, emergency personnel (e.g., first responders) in the United States currently lack support and resources in many areas, including the area of occupational health psychology (OPH). This grant will address this gap by supporting the development of a train-the-trainer program that will ultimately facilitate educational resources so that responders may practice self-care and other wellness skills that tend to improve mental health outcomes. The goal is to obviate negative psychological reactions such as anxiety, grief, and compassion fatigue (Alexander & Klein, 2009; Figley, 1995) by providing strategies that enhance resilience through strengthening responder self-efficacy and other healthy coping mechanisms (Stamm, 2005).

Purpose and Specific Aims

The purpose of the proposed training program is to develop a training and evaluate a curriculum, with which to train a first-class cadre of instructors, to address the existing gap in mental health and wellness support and resources for emergency personnel who respond on behalf of the Centers of Disease and Prevention, in Atlanta, GA.

The highly qualified cadre of instructors will be tasked with delivering the proposed program to responders in order to provide the latter with the support and resources needed to maintain a functional level of mental health and wellness during and after responses. The proposed program will include the following aims:

Step 1: To identify challenges and solutions on responder mental health and wellness within occupational health psychology using a literature review approach

Step 2: To develop the essential components of a non-academic training program focused on mental health and wellness for responders

Step 3: Develop a pilot of the training curriculum to assess participant satisfaction as well as the training material's utility and impact on CDC's emergency personnel

Objectives to be answered by the grant proposal

1. If funded, this grant will allow for the development of a cadre of highly qualified instructors able to train first responders in the areas of responder

health and safety, and more specifically in the area of occupational health psychology, thereby building capacity in this area of occupational safety

2. It will add to the body of research on behavioral health of first responders and provide an evidence-based model for training
3. It will also provide responders with training and resources so that they have the necessary tools to participate in complex emergencies with knowledge on how to care for themselves

Significance

The potential dangers of responding to humanitarian crisis situations and natural or man-made disasters is well documented (Connorton, Perry, Hemenway, & Miller, 2012). Furthermore, the sharp increase in complex humanitarian emergencies and other types of disasters in the first two decades of the 21st century have placed responders in a uniquely vulnerable position as they have been progressively more exposed to stress and trauma for extended periods (Masten & Obradovic, 2008). This project can be a trailblazing example for other public health professionals who are interested, but have not begun addressing the gap that exists in the area of responder health and safety, particularly in the area of mental health. The success of the response to a disaster is in direct correlation to the health and wellness of the responder. By taking care of response personnel, we improve the chances of having a more successful outcome.

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