



8-2015

Resilience Training for Firefighters: A Proposed Approach

Karen F. Deppa

University of Pennsylvania, kfernico@aol.com

Follow this and additional works at: http://repository.upenn.edu/mapp_capstone

 Part of the [Emergency and Disaster Management Commons](#), and the [Psychology Commons](#)

Deppa, Karen F., "Resilience Training for Firefighters: A Proposed Approach" (2015). *Master of Applied Positive Psychology (MAPP) Capstone Projects*. 82.

http://repository.upenn.edu/mapp_capstone/82

This paper is posted at ScholarlyCommons. http://repository.upenn.edu/mapp_capstone/82

For more information, please contact repository@pobox.upenn.edu.

Resilience Training for Firefighters: A Proposed Approach

Abstract

In the course of doing their jobs, firefighters unavoidably experience stressful and even traumatic situations that can lead to emotional and behavioral health problems including anxiety, burnout, depression, alcoholism, substance abuse, post-traumatic stress disorder, and suicide. Current approaches to addressing these problems tend to focus on assistance and treatment that takes place following traumatic events, or after symptoms emerge. While these important efforts must continue, the science of positive psychology can suggest a more proactive approach through the development of resilience skills, which prepare individuals to resist the negative effects of stressful events and situations, and support overall well-being. Resilience training teaches thinking and coping skills that can be employed on the job as well as at home and in other circumstances. Existing evidence-based resilience training programs used in military and educational settings are reviewed, as well as literature addressing factors specific to firefighter and emergency responder populations. A firefighter resilience training program is recommended that takes into account the fire service culture and focuses on developing increased self-efficacy through increased social support and flexible, accurate thinking habits that promote optimism. Suggested interventions and measures are presented, along with ideas for fostering an environment of resilience within the fire department.

Keywords

Resilience, firefighter, behavioral health, emergency responder, coping, self-efficacy, social support, optimism, PTSD, positive psychology

Disciplines

Emergency and Disaster Management | Psychology

Resilience Training for Firefighters: A Proposed Approach

Karen F. Deppa

University of Pennsylvania

A Capstone Project Submitted

In Partial Fulfillment of the Requirements for the Degree of

Master of Applied Positive Psychology

Advisor: Judith Saltzberg-Levick, Ph.D.

August 1, 2015

Acknowledgments

Deepest appreciation to my family — my husband, Roy, and our kids, Janetta, Nate, and Garrett — for their encouragement, patience, understanding, support, and pinch hitting during my physical and mental absences while I completed my MAPP studies and overcame other challenges along the way.

Endless gratitude to my advisor, Judy Saltzberg-Levick, for her interest, expertise, availability, on-point feedback, helpful suggestions, reassurances, and compassion during my Capstone journey.

Enduring thanks to Michael Donahue, retired Assistant Chief/Deputy Fire Marshal of Montgomery County (Maryland) Fire and Rescue Service, for inviting me to share my thoughts, for providing insights that come only with experience, for adding dimension and course correction to my ideas, for helping to streamline my writing, and for his friendship.

For providing early positive and constructive feedback and encouragement, special thanks to the members of the Board of Directors of the National Association of State Fire Marshals.

This paper is dedicated to firefighter emergency responders everywhere - a selfless, devoted group of public servants who deserve our unwavering admiration and respect for their efforts and sacrifices. I look forward to continuing to work with them in ways that contribute to their well-being and flourishing.

This paper is also dedicated to the memories of my dad, Anthony Fernicola (himself a volunteer firefighter) and my uncle, Vince Vitale, who taught me, each in his own way, to always have hope for a better future.

Resilience Training for Firefighters: A Proposed Approach
Karen Fernicola Deppa
kfernico@aol.com

Capstone Project
Master of Applied Positive Psychology
University of Pennsylvania
Advisor: Judith Saltzberg-Levick, Ph.D.
August 1, 2015

Abstract

In the course of doing their jobs, firefighters unavoidably experience stressful and even traumatic situations that can lead to emotional and behavioral health problems including anxiety, burnout, depression, alcoholism, substance abuse, post-traumatic stress disorder, and suicide. Current approaches to addressing these problems tend to focus on assistance and treatment that takes place following traumatic events, or after symptoms emerge. While these important efforts must continue, the science of positive psychology can suggest a more proactive approach through the development of resilience skills, which prepare individuals to resist the negative effects of stressful events and situations, and support overall well-being. Resilience training teaches thinking and coping skills that can be employed on the job as well as at home and in other circumstances. Existing evidence-based resilience training programs used in military and educational settings are reviewed, as well as literature addressing factors specific to firefighter and emergency responder populations. A firefighter resilience training program is recommended that takes into account the fire service culture and focuses on developing increased self-efficacy through increased social support and flexible, accurate thinking habits that promote optimism. Suggested interventions and measures are presented, along with ideas for fostering an environment of resilience within the fire department.

Introduction and Statement of Goals

Firefighter emergency responders routinely face work-related stresses. Violent, graphic incidents are a well-documented but unavoidable part of the job (for example, Fisher & Etches, 2003; Meyer et al., 2012). So, too, are the risks for behavioral health problems associated with those stresses (for example, Sliter, Kale, & Yuan, 2014; Wilmoth, 2014). Researchers have studied the factors associated with the development of psychological distress in this population in hopes of finding patterns and predictors pointing to when such problems are more likely to occur. Since the events of September 11, 2011, attention to treating psychological symptoms in emergency responders has gained greater prominence. A number of programs and guidance documents focus on addressing symptoms once they occur, or on trying to reduce the impact of events after the fact. These crucial efforts need to continue.

However, very few studies address the idea of actively trying to prevent, or at least mitigate, the negative reactions to traumatic stress *before* the exposure to events occurs. This paper's intent is to begin filling that void by exploring concepts and science through the lens of the relatively new field of positive psychology. In particular, I examine factors that lead to resilience and how those factors could be applied to firefighter emergency responders. Based on this initial review, I propose to address resilience training for firefighters and ultimately the development of resilient fire department environments. My approach capitalizes on the best aspects of the profession and culture of the fire service. In doing so, I hope to light a path to a more efficient and effective fire service, as well as to strengthen the coping resources of the dedicated men and women who are sworn to protecting life, property, and the environment and to serving their communities in ways that few are willing or able to do.

Firefighter First Responders

As of 2013, the United States was protected by approximately 30,000 fire departments. Nearly 2,500 of these departments were all career, protecting primarily communities of 25,000 people or more; almost 20,000 were all volunteer, protecting communities of fewer than 25,000 people; and the remainder were departments that staffed a combination of career and volunteer responders, known as “combination” departments (U.S. Fire Administration, 2015a). Of the estimated 1,140,750 firefighters in 2013, about 31 percent were career firefighters, and 69 percent were volunteers (Haynes & Stein, 2014).

In addition to fighting fires and providing services related to preventing fires (such as fire investigation, fire inspection/code enforcement, fire prevention/public education), many fire departments offer specialized emergency responder services. These include vehicle extrication, wildfire/wildland urban interface, technical rescue, and hazardous materials response (U.S. Fire Administration, 2015b). Approximately 60 percent of fire departments also offer their communities some degree of emergency medical service (EMS) at a basic or advanced level (Haynes & Stein, 2014). In fire departments that also provide emergency medical response, calls for medical aid constitute about 80 percent of the total number of responses. Thus, in many communities, firefighters are truly our nation’s first responders: first to arrive on the scene of an incident, and first to administer care to victims.

This readiness comes at a cost. Firefighting was named 2015’s “most stressful job in the U.S.” by the career information site CareerCast, with enlisted military personnel coming in second (CareerCast, 2015). This is not particularly surprising, since from the time that the first organized fire companies were established at the urging of Benjamin Franklin in Philadelphia in the 1730s, firefighters have run toward danger when most everyone else runs away from it.

Firefighters are exposed to levels of danger and both physical and psychological stress that are uncommon to most occupations (International Association of Fire Chiefs, 2015). A volunteer firefighter from Wisconsin named Michael Perry coined an unofficial motto of the firefighter when he said, “Your worst day is our everyday” (*Into the Fire*, 2006). In the course of their normal duties, they may be exposed to hazards including fire-related death and injuries, structural collapse, vehicle accidents en route to incidents, and exposures to contaminants from products of combustion, hazardous materials, and medical emergencies. Firefighters also are first on the scene in the aftermath of natural disasters, terrorist attacks, mass casualties, and environmental catastrophes. In their role as first responders, they are exposed in a very graphic way to deaths, auto accidents, child abuse, domestic violence, murders, suicides, and similar tragedies. Workplace stresses can include overtime, the unpredictability of shift work, departmental politics, interrupted sleep, the necessity of being on high alert while at work, lack of regular meals, the emotional burden of having to report tragic news, and excessive workload (Fisher & Etches, 2003; Meyer et al., 2012; Milen, 2009). They could be called directly from one traumatic incident to attend another one (Dowdall-Thomae, Gilkey, Larson, & Arend-Hicks, 2012). Volunteer firefighters serving rural areas and small communities often respond to calls involving friends and relatives, which adds a personal element to a traumatic incident (Jahnke, Gist, Poston, & Haddock, 2014). The stress of the job often gets carried home and affects spouses, significant others, and other family members (Regehr, 2005). Firefighters are also not immune from the everyday stressors that everyone faces, and stress at home can compound the stress experienced at work (Regehr 2005; Regehr 2009; Regehr, Dimitropoulos, Bright, George, & Henderson, 2005).

Firefighters are highly trained for the physical aspects of their job, and this attention to training, combined with more sophisticated firefighting techniques and improved personal protective equipment, has made the job of firefighting safer than it used to be from a physical standpoint. The 10-year average of firefighter line-of-duty deaths in the United States has been steadily dropping since 2008: from 1995-2008, the yearly average of on-duty deaths was in the low 100s, and is currently at an average 83 deaths for the years 2005-2014 (Fahy, LeBlanc, & Molis, 2015). Still, the fact that the rate of firefighter injuries per 1,000 fires has remained fairly steady from 1981-2013 emphasizes the hazardous nature of the job (Karter & Molis, 2014).

The psychological toll of emergency response gets less attention than the physical toll, and its effects have not been as well documented. Most people are familiar with the term “mental health,” but professionals dealing with the psychological concerns affecting emergency responders refer to them as “behavioral health” issues. Behavioral health addresses not only the mental and emotional aspects of wellness, but also substance use and other physical manifestations of mental and emotional states.

Behavioral health problems among first responders stemming from the stresses that they face can take many forms. Some of the most common are absenteeism, burnout, depression, anxiety, alcoholism, substance abuse, and post-traumatic stress disorder (Sliter et al., 2014; Wilmoth, 2014). Posttraumatic stress disorder (PTSD) is considered a trauma- and stressor-related disorder by the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013). It is triggered by exposure to actual or threatened death, serious injury, or sexual violation, either by directly experiencing the traumatic event; directly witnessing the traumatic event; learning that the traumatic event occurred to a close family member or friend; or experiencing first-hand exposure to the negative details of the event

in a repeated or extreme way. Certainly, these apply to first responders. The behavioral symptoms accompanying PTSD include re-experiencing the event; avoidance of distressing reminders of the event; having negative thoughts and mood that can comprise a range of feelings and behaviors; and arousal, which includes behaviors that are destructive to self or others, sleep problems, extreme vigilance, and similar “fight or flight” responses (American Psychiatric Association, 2013). Rates of PTSD among firefighters differ according to source. Some studies have reported rates ranging from 18-37%, while studies using more rigorous diagnostic procedures have reported PTSD rates from 5-13% in the firefighting population, which is comparable to the rate of PTSD in the general population (Meyer et al., 2012).

Suicide among firefighters in the United States has been a subject of attention in recent years, particularly in connection with suicides of high-profile members of the fire service and “clusters” of suicides among firefighters in large fire departments (Wilmoth, 2014). Quantifying the prevalence of suicide in connection with firefighting compared with the general level in the population, however, has been difficult for a number of reasons, and as a result there are no reliable statistics on the topic (Gist, Taylor, & Raak, 2011). At the same time, suicidal thoughts or ideations are associated with depression, anxiety, substance abuse, PTSD, and alcohol dependence, and tend to increase the more such stressors are present (Gist et al., 2011).

The Interpersonal Theory of Suicide (Van Orden et al., 2010) has been suggested by Gist et al. (2011) as a useful way of understanding why suicides occur and in approaching interventions that have the goal of reducing suicide. The theory proposes that three factors must be present in order for suicidal thoughts to translate into suicidal behavior. First, the individual feels social isolation from an obstructed sense of belongingness. Next, the individual perceives that he or she is a burden. Finally, the individual has the capability to engage in suicidal

behavior, which is separate from the desire to do so (Van Orden et al., 2010). The dimensions of perceived burdensomeness are feeling unwanted, expendable, and an onus on others, combined with a strong sense of self-hatred (Van Orden et al., 2010). Capability comprises not only the physical means of carrying out a suicide, but a reduced fear of death and an increased tolerance for physical pain (Van Orden et al., 2010).

The Fire Service Culture

The culture of the U.S. fire service is closely linked to its history. Tradition in the fire service is a sacred concept. Tradition can have its positive aspects. For example, tradition holds that firefighter emergency responders are a close-knit alliance of men and women who are service-oriented and willing to sacrifice for the greater good of their community. They share a unique camaraderie developed not only from responding to incidents together but also from drilling and training together, from sharing common experiences, both good and bad, and from living and dining together during their shifts. They look out for one another and take care of their own; they consider themselves a family. This sense of belongingness extends beyond on-duty hours. Firefighters often fraternize when off-duty, which serves to strengthen bonds and reinforces cultural norms (M. Donahue, personal communication, July 10, 2015). This cohesiveness is crucial to their ability to work together seamlessly during an incident, and creates a strong sense of belonging when not responding to emergencies as well (Marsar, 2013).

But tradition also has its downsides, and the negative aspects of the firefighter culture may be contributing to an increase in preventable firefighter deaths and injuries (International Association of Fire Chiefs, 2015). Though firefighter safety and health has improved over the years, many firefighters still believe that in order to be effective, they have to be fast in getting to the fire at all costs, and take personal and collective risks to get as close to the fire as possible.

This “hero mentality” can perpetuate incorrect and unsafe methods of fighting fires because they are viewed as traditions (International Association of Fire Chiefs, 2015). Many firefighters were trained to have an expectation that they would get injured or die while responding to incidents (M. Donahue, personal communication, July 10, 2015).

Dark expressions of humor about traumatic events — often referred to as “gallows humor,” “black humor” or “cynical humor” — are a universal coping mechanism among emergency responders. Researchers have found that humor fulfills several functions in situations where emotions in response to adverse events might otherwise be unbearable; expression of humor is associated with increased pain tolerance, stress relief at both the physical and emotional, and prevention of professional burnout (Rowe & Regehr, 2010). Though the use of such humor is not restricted to the helping professions, it is used by emergency responders within their peer interactions to reframe stressful experiences, enabling them to distance themselves from the emotions of a situation so that they can focus on managing the incident and completing necessary tasks (Rowe & Regehr, 2010). Sharing this form of humor among themselves also allows firefighters to strengthen the cohesion of their group and increase social support from colleagues (Rowe & Regehr, 2010). A study of career firefighters in a large Midwestern U.S. city found that a sense of humor acted as a buffer between exposure to traumatic incidents and symptoms of burnout and PTSD (Sliter et al., 2014). The researchers suggested that humor is a form of active coping that serves to increase social bonding, promotes relaxation, and helps to reframe the adverse situation in order to make it seem less negative and stressful (Sliter et al., 2014).

On the other hand, the tendency to “laugh off” traumatic incidents can reinforce the reluctance to seek help if it is needed (M. Donahue, personal communication, July 10, 2015). In

general, because the fire service is such a tight-knit community, outsiders and those who do not conform tend to be excluded from life in the fire station, and external influences tend to be resisted (International Association of Fire Chiefs, 2015). For example, emergency responders' reluctance to share the details of the day when they return home, in hopes of preventing distress in family members and significant others or because it is felt that they would not understand, can end up distancing and isolating them from a key source of support (M. Donahue, personal communication, July 10, 2015).

A 2015 report on the need to create a greater safety orientation within the fire service (International Association of Fire Chiefs, 2015) pointed out that the features of the fire and emergency service culture that are most highly valued need not be compromised in the process of shifting the culture, but suggested that changes in practice are more likely to be successful if they take the form of small adjustments rather than large, sudden transitions.

How Behavioral Health Issues in the Fire Service Have Been Approached

The traditional image of the firefighter as the strong, silent hero has fostered a reluctance to acknowledge and seek out treatment for behavioral health problems. This has contributed to a lack of focus in many fire departments on mental health issues (Jahnke et al., 2014). The earliest approach to firefighter behavioral health, if it can be called an approach, involved denying that emotional and psychological problems existed at all. Firefighters were told to "suck it up," and not discuss their difficulties. If they acknowledged that they were troubled, they were subject to social sanctions, such as being avoided, ignored, or ridiculed for being weak or unfit for the job (Sweeney, 2014).

The stigma attached to admitting emotional and psychological vulnerability remains a problem in the fire service, and is one of the negative cultural legacies of the past. Admitting to

being affected by an event directly flies in the face of the cultural image of toughness. A core belief prevails: “We are problem solvers. We don’t need help; we’re the ones who provide help” (M. Donahue, personal communication, July 10, 2015).

From the 1980s until the past decade, the most popular method for addressing responses to traumatic incidents in fire departments was the Critical Incident Stress Management (CISM) model, which featured the Critical Incident Stress Debriefing, or CISD (Regehr, 2001). CISD, one element of a comprehensive crisis response program, is a structured small-group storytelling that includes a required single-session group meeting in which participants describe the traumatic event and their reactions to it in graphic detail in an attempt to process what happened (Mitchell, undated). The popularity of CISD has waned over the past decade in light of empirical research that questioned its effectiveness. Anecdotal reviews of CISD were reported to be positive, but controlled studies have shown either no effect on reducing the incidence of post traumatic stress disorder or in some cases found the process to have a negative effect on some participants, perhaps as a result of exposure to the traumatic reactions of others in the group (Regehr, 2001). Because post-incident interactions among peers often serve as natural debriefings of traumatic events, Jahnke et al. (2014) have speculated that the mandatory group debriefing prescribed by CISD interrupts that natural process. Approaches to fire service behavioral health that have been introduced since CISM/CISD have had much more of an emphasis on solid empirical findings of benefit to justify the resources devoted to their deployment.

Since September 11, 2001, and particularly in the last decade, several of the major fire service organizations have developed programs to address firefighter behavioral health issues. For example:

- The National Fallen Firefighters Foundation has been a leader in developing its Everyone Goes Home® initiative to prevent firefighter line-of-duty deaths and injuries. Of the program's 16 Firefighter Life Safety Initiatives, number 13 is "Firefighters and their families must have access to counseling and psychological support." Among other things, the Foundation is promoting an Occupational Stress Exposure Recommended Protocol for dealing with potentially traumatic events (National Fallen Firefighters Foundation, n.d.).
- The International Association of Fire Fighters and the International Association of Fire Chiefs are preparing updated, broader recommendations on firefighter behavioral health, including suicide prevention and awareness, as part of their Fire Service Joint Labor Management Wellness-Fitness Initiative (International Association of Fire Fighters, n.d.).
- The National Fire Protection Association's 1500 Standard on Fire Department Occupational Safety and Health Program is in the process of being updated and includes chapters on "Behavioral Health and Wellness Programs" and "Occupational Exposure to Atypically Stressful Events" (National Fire Protection Association, 2015).
- The National Volunteer Fire Council, through its Share the Load™ support program, provides firefighters and emergency medical service providers with access to resources and information to assist first responders and their families in managing and overcoming problems at work and at home (National Volunteer Fire Council, n.d.).

These programs, and others like them, are important resources that should continue and be expanded, because they address a need that has too long gone unrecognized. These programs generally take a secondary or tertiary prevention approach. They address the problems after the critical event has taken place or the adverse reaction has occurred, and attempt to reduce their impact.

Research with fire service populations and others suggests that a primary prevention approach could supplement the good and important work that is already being conducted. Such an approach could shore up the psychological resources of firefighters to prevent behavioral health problems *before* they occur. This is where the relatively new field of positive psychology could make an important contribution.

Positive Psychology: An Introduction

The events of September 11, 2001, marked the beginning of a shift in how firefighter behavioral health issues were recognized and addressed. Just three years prior, in 1998, another revolution was initiated: that of a new branch of psychology known as *positive psychology*. In his inaugural address as newly elected president of the American Psychological Association, Dr. Martin Seligman (1998) called for “a new science of human strengths” focusing on “what makes life most worth living.” The new direction toward living the best life possible was intended to supplement, not replace, the focus on repairing mental illness and suffering under the traditional disease model that characterized so-called mainstream psychology research and practice to that point (Seligman & Csikszentmihalyi, 2000). A commitment to the scientific method puts positive psychology on a par scientifically with clinical psychology, and differentiates it from self-help approaches and certain branches of psychology (such as humanistic psychology) that cover similar topics but do not share an insistence on demonstrating an empirical basis for their findings and interventions (Peterson, 2006).

Three main topics characterize the study of positive psychology. Positive subjective experience deals with positive emotions such as happiness and pleasure. Positive personality comprises subjects such as character strengths, virtues, and interests. Positive institutions address groups of people as they connect in communities, families, congregations, businesses, and other

formal and informal organizations (Peterson, 2006; Seligman & Csikszentmihalyi, 2000). As a field of study, positive psychology focuses on scientific research into the mechanisms of positive human emotions and strengths, such as joy, optimism, and courage, as well as measuring and documenting the benefits of these emotions and strengths. As a field of practice, it focuses on the application and measurement of interventions (that is, actions performed with the intention of bringing about change) to increase well-being, life satisfaction, physical health, and other conditions that lead to human flourishing at the individual or group levels. Psychologist Christopher Peterson, one of the founders of the field, summarized the essence of positive psychology and the quest for a fulfilling life in the oft-quoted phrase, “Other people matter” (Peterson, 2006, p. 249).

The theories, themes, and concepts referenced in the study of positive psychology go back to ancient times and have roots in philosophy as well as psychology. For example, Aristotle wrote that people seek true virtue (which he called *eudaimonia*) above all else, and that *eudaimonia* lies in the control of self (Melchert, 2002). In fact, some theorists and researchers make a distinction between hedonic and eudaimonic well-being. Hedonic well-being refers to positive emotions, pleasure, self-gratification, and the absence of pain and distress, while eudaimonic well-being refers to the satisfaction coming from cultivating the best in oneself and realizing a deeper purpose and meaning in life (Huta, 2014). Philosopher and psychologist William James wrote about “healthy-mindedness” as a tendency to regard all things as good, and noted that this tendency could be either an involuntary proclivity or it could be cultivated deliberately and systematically through habit (James, 1902). Psychotherapist Viktor Frankl (1985), writing about his experiences as a prisoner during the Holocaust, observed that his fellow prisoners who survived the concentration camps tended to be the ones who retained their

optimism, hope, meaning, and the courage to carry on despite the hardships they endured. While positive psychology grew from a separate tradition than humanistic psychology, the celebrated psychologist Abraham Maslow and his fellow humanists in the mid-20th century promoted motivation, creativity, peak experiences and other concepts related to optimal human functioning, or what Maslow called *self-actualization* (Gleitman, Gross, & Reisberg, 2011).

The topics of scientific study covered under the umbrella of positive psychology include many that were conceived subsequent to the founding of the field in 1998. The creation of a space called “positive psychology” established a unifying home for topics that had been studied earlier and that fit well into an overall science of human flourishing. For example, it was in the 1960s that Csikszentmihalyi (1990) first observed and began to study *flow* as a pathway to fulfillment in life. Flow is a state of optimal engagement and immersion in which a person controls and directs attention toward an activity, matching skills with the challenges undertaken, so that the self grows more complex. Flow states have been correlated with peak athletic performance (Jackson, Thomas, Marsh, & Smetherst, 2001) and with enhanced performance at work through the use of organizational resources such as social support and personal resources such as self-efficacy (Salanova, Bakker, & Llorens, 2006), among other benefits.

An example of a more recent topic under the positive psychology umbrella is the trait of *grit*, defined as passion for a long-term goal and perseverance toward achieving that goal despite setbacks (Duckworth, Peterson, Matthews, & Kelly, 2007). High grit scores are associated with greater academic achievement, and predicted higher performance in the National Spelling Bee as well as completion of a rigorous training program at West Point (Duckworth et al., 2007).

Seligman’s own emphasis on the positive side of psychology grew from his development of a theory of learned helplessness, which he studied early in his career as a psychology

researcher in the 1960s. Learned helplessness was a phenomenon first observed in dogs that did not try to get away from escapable shock after experiencing inescapable shock, when it was theorized that the dogs learned that their efforts to escape were ineffective. The theory was later reformulated to apply to humans, where learned helplessness manifested as depression based on a belief that one's actions do not make a difference (Seligman, 2006). In seeking to prevent or reverse the condition of learned helplessness, Seligman pursued research on the phenomenon that he called learned optimism, which holds that one can learn and master the ability to look at situations positively, and choose to use that technique and dispute pessimistic thoughts when appropriate (Seligman, 2006). For example, an optimistic explanatory style would describe misfortune as temporary, specific to that event, and caused by external events or situations, while good fortune tends to be explained by optimistic thinkers as permanent, applicable to all situations, and a result of one's own influence (Seligman, 2006). From there evolved Seligman's theory of well-being, which states that well-being results from a combination of contributing factors that are commonly known as the PERMA model: Positive emotion, Engagement, positive Relationships, Meaning, and Accomplishment (Seligman, 2011).

One of the foundational concepts of positive psychology is the identification and use of character strengths. This concept studies and emphasizes the aspects of our personality that are our central capabilities for thinking, feeling, and behaving to the benefit of ourselves and others (VIA Institute on Character, 2015). Character strengths are considered universal qualities that manifest through thoughts, emotions, choices, and behaviors (Niemiec, 2013). An early project in the history of positive psychology was the identification and classification of 24 character strengths that are thought to be substantially stable, universal qualities and that provide a common language for describing what is best in people (Peterson & Seligman, 2004). All 24

character strengths are considered present in everyone to a greater or lesser degree; those strengths that come most naturally are considered “signature strengths.” However, any of the strengths can be developed and applied individually or in combination as a pathway to greater levels of well-being (Peterson & Seligman, 2004).

To name just a few of the many benefits associated with some of the well-known theories promoted under the heading of positive psychology:

- Ryff’s eudaimonic model of psychological well-being includes six key elements: self acceptance, positive interpersonal relationships, autonomy, environmental mastery, purpose in life, and a mindset of personal growth (Ryff & Singer, 2002). Research on women above age 60 found that those with higher scores on measures of eudaimonic well-being showed lower levels of stress, lower levels of inflammation response, more favorable cardiovascular indicators, and better quality of sleep than those with lower eudaimonic well-being. Most of these benefits were found not to correlate with high levels of hedonic well-being in the same population (Ryff, Singer, & Love, 2004).

- Self-Determination Theory (Ryan & Deci, 2000) holds that well-being results from satisfaction of the basic psychological needs of competence, autonomy, and relatedness. For example, feelings of competence lead to greater positive affect (i.e., emotions or feelings). The strong sense of security in interpersonal relationships that characterizes relatedness bears heavily on a person’s motivation to explore, assimilate new experiences, and develop mastery of his or her environment (Ryan & Deci, 2000).

- The Broaden and Build Theory of Positive Emotions states that experiencing certain positive emotions (such as joy, love, and contentment) serves to broaden one’s attention, thought processes, and actions, aid in problem solving, and build one’s physical, social, and

intellectual resources (Fredrickson, 2001). For example, positive emotions have been correlated with greater psychological resilience as measured by a faster return to baseline levels of cardiovascular activity following a stressful task (Tugade & Fredrickson, 2004). Through this mechanism, positive emotions are thought to have an “undoing effect” on the lingering physiology of negative emotions and on the physiology of the resultant anxiety, fear, and distress (Fredrickson et al., 2000).

Positive psychology practitioners are often quick to point out that positive psychology is not to be dismissed as “happyology.” Positive in this context does not simply mean the absence of the negative. Seligman (2011) observed that in his career as a therapist treating depressed patients, he would sometimes succeed in ridding patients of the sadness, anxiety, and anger that fueled their depression. However, in the end, he did not succeed in creating happy individuals. Rather, he created “empty” patients (Seligman, 2011, p. 54). Individuals who were successfully treated for depression were brought to a neutral point, but were not aware of how to create a fulfilling life or a life of optimal functioning, which required a different skill set. Pawelski (2014) points out the need to consider that positive and negative states coexist in life; that negative emotions can lead to positive outcomes, and vice versa; and that emotions, whether positive or negative, can have both benefits and costs. A good life takes place in a context that includes negative aspects, and dealing effectively with those negative aspects indeed may help to define a good life. Thus, how one attends to and deals with the negative experiences that occur in a full life is, Pawelski (2014) suggests, arguably a necessary topic of study in positive psychology.

Resilience: Dealing with Adversity and Setbacks

Resilience is one of the key concepts adopted by positive psychology, and it is about the way individuals deal with negative experiences – adversity and setbacks – that occur as part of a full life. The fire service is familiar with the term *resilience* in the context of communities and the nation’s infrastructure, referring to their ability to adapt to changing conditions as well as to withstand and recover promptly from emergencies arising from manmade or natural causes (Presidential Policy Directive PPD-8, 2011). In the context of positive psychology, resilience refers to the process by which individuals adapt in a positive way during or after stressful situations that involve adversity or risk (Masten, Cutuli, Herbers, & Reed, 2009). Research in resilience began by studying children in the 1960s and 1970s, when it was observed that some children not only did well, but flourished despite situations or risks in their environments or within themselves that caused other children to perform poorly, lose hope, and give up. Until the term “resilient” was adopted, children in these circumstances were referred to as “stress-resistant” and even “invulnerable” by some researchers (Masten et al., 2009).

Positive adaptation (also referred to as competence) in the resilience research has proceeded on two generally accepted assumptions (Masten et al., 2009). One, that the individual is doing well in regard to behavioral expectations for their age and situation (not necessarily excelling in comparison to others). Two, the individual has been exposed in a significant way to adverse situations (which might occur in combination and accumulate over time) such that the prospect of doing well comes under serious threat. Both the positive adaptation and the exposure to risk are considered crucial to the definition of resilience (Luthar & Cicchetti, 2000). Adversities can acutely or chronically disrupt normal adaptive functioning or affect the development of systems that allow for adaptive functioning (Yates & Masten, 2004).

Resilience can be defined by the lack of negative outcomes as well as by the presence of positive outcomes (Peterson & Seligman, 2004). Factors that moderate (account for the relationship between) adversities and outcome in order to produce positive outcomes are known as promotive and protective factors. These are assets, resources, and other factors, both internal and external, that work in favor of the individual to predict good adaptation and more favorable outcomes (Masten et al., 2009). Factors that moderate the adversities and the outcome such that negative outcomes are more possible are referred to as risk factors and vulnerabilities (Masten et al., 2009; Yates & Masten, 2004). Promotive and protective factors, as well as risk factors and vulnerabilities, have been found to be additive, and to interact with one another (Peterson & Seligman, 2004). Rutter (1987) emphasizes the importance of not just identifying vulnerabilities and protective factors, but also of understanding the mechanisms and processes behind them - that is, why they have the effects that they have in given situations.

A crucial point to keep in mind is that resilience is not a single, fixed personality trait, strength, attribute, or characteristic. Rather, resilience is a comprehensive term that refers to a series of mechanisms and processes of adapting and coping that are influenced, for better or for worse, by the interaction between assets and risks at the individual, relationship, and environmental/community levels (Garmezy, 1991; Luthar & Cicchetti, 2000; Yates & Masten, 2004). Resilience depends on one's response to risk or adversity at a given time, in a given circumstance. An individual's ability to be resilient can change if the circumstances change (Rutter, 1987). Resilience is not, therefore, a "suck it up" and "pull yourself up by your bootstraps" quality that you would have if you only tried hard enough. People demonstrate resilience to given circumstances, as opposed to being resilient. Scientists and practitioners are cautioned to talk about resilient trajectories or outcomes, as opposed to resilient individuals

(Luthar & Cicchetti, 2000). Moreover, resilience is teachable, as will be discussed later in this section.

A related, essential point about resilience is that it is not a magical, heroic status that is enjoyed by a select, lucky few. Rather, resilience has been found to be a set of common, ordinary skills and adaptive processes that are our dominant response to dealing with hardship (Masten, 2001). Resilience is the result of basic human adaptive systems operating as they should. Those adaptive systems include, among other things, the ability to problem-solve, the motivation to learn and master new skills, the development of strong and secure relationships, and cultural traditions that foster opportunities for learning, mentoring, social rituals, and other adaptive activities (Masten et al., 2009). Research has found that the ability to cope is compromised more from adaptive systems becoming overwhelmed, damaged, or undermined than it is by the number or combination of risk factors (Yates & Masten, 2004).

Optimism: A Primary Characteristic of Resilience

While several factors contribute to resilience, including ability to problem-solve, self-regulation, self-efficacy, and a sense of humor (Masten et al., 2009), researchers agree that optimism is the primary characteristic of resilient behavior (Reivich & Shatté, 2002). Compared with their more pessimistic counterparts, optimistic thinkers tend to persevere when faced with great challenges; try to solve problems rather than avoiding or denying them; find positive meaning in situations; accept situations they cannot change but frame them in a positive perspective; relieve distressing situations with humor; take better care of their health; and have better immune response (Carver, Scheier, Miller, & Fulford, 2009).

Optimism has been defined in terms of being hopeful about future events and believing that things can change for the better. This orientation is known as dispositional optimism (Carver

et al., 2009). Another definition looks at optimism in terms of explanatory style and the ability to influence events, in which optimistic people are more likely to explain adverse events as external (not caused by me), temporary (this too shall pass), and specific (affecting just this situation). Conversely, positive events are seen as internal (I had something to do with it), permanent (this is always how it is), and pervasive (affecting everything rather than just that one situation) (Peterson & Steen, 2009; Seligman, 2006).

Positive psychology does not advocate blind, unquestioning optimism that is habitually and universally applied in all circumstances and at all costs. Seligman (2006) advocates a state of realistic, or flexible optimism, in which one can choose to apply optimistic thinking or not according to the requirements of, and one's goals for, a given situation. Techniques that teach optimistic thinking through the use of cognitive-behavioral therapies focus on addressing negative, distorted interpretations of events and reframing them to more positive interpretations without ignoring the reality of the situation (Carver et al., 2009).

Not to Be Confused with Post-Traumatic Growth

Resilience is not to be confused with post-traumatic growth, which is the experience of positive psychological change and transformation as the result of struggling with traumatic life situations. Post-traumatic growth is characterized by a heightened appreciation for life, a change in priorities, greater spirituality, increased compassion, and a sense of finding meaning in suffering. Post-traumatic growth is considered an outcome of the process of coping with adversity. It is not consciously pursued, and often occurs simultaneously with the distress from the adverse event (Tedeschi & Calhoun, 2004). In fact, studies of Israeli adolescents who experienced terrorist events and of members of the Israeli army who had participated in the second Lebanon War found that those who did not suffer from post-traumatic stress disorder

(and thus were considered resilient according to the researchers) had the lowest scores for post-traumatic growth, suggesting that resilience and post-traumatic growth are inversely related (Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2009). It should be noted, however, that failure to develop post-traumatic stress disorder by itself should not be considered evidence of resilience in an individual, especially when determining policy and interventions (Almedom & Glandon, 2007).

Resilience Skills Are Teachable

Prevention activities (known as “interventions,” or activities designed to bring about change and reducing risks and threats) can be divided into primary, secondary, and tertiary prevention. Primary prevention has the goal of preventing a negative event or reaction before it occurs. This can be done by preventing exposure to hazards, changing behaviors that can lead to negative events or to adverse reactions to those events, and increasing one’s resistance to negative outcomes if exposure were to take place. The aim of secondary prevention is to reduce the impact of a negative event that has already occurred, in order to stop or slow the progression of an adverse reaction, prevent long-term problems, and return individuals to their status before the event. Tertiary prevention, which takes place after the negative event has already occurred and has produced a lasting adverse reaction, attempts to alleviate the long-term negative impacts of the reaction.

Resilience research has taken place over the past five decades. However, the relatively recent development of positive psychology has encouraged a shift from addressing negative responses to stressful events after they occur, to preventing the negative response in the first place. In other words, approaches have moved from a secondary or tertiary approach to prevention toward a primary approach, through the development of defenses and the boosting of

assets and resources to enable a healthy, adaptive response (Yates & Masten, 2004). This is the direction toward which I hope to move resilience training for firefighter emergency responders, as I will address later in this paper.

Research on resilience tends to follow one or a combination of three strategies (Masten et al., 2009). Risk-focused strategies aim to reduce risks and vulnerabilities, i.e., exposure to hazardous experiences and situations. Asset-focused strategies strive to increase the number of, quality of, or access to assets and resources required for positive adaptation. Process-focused strategies center on marshaling and shoring up the basic, fundamental protective systems required for normal human development. Masten et al. (2009) note that the resilience is most threatened when these basic protective systems are undermined by adversity.

Interventions in the realm of resilience research address three levels of functioning (Masten et al., 2009). At the level of the individual, the focus is on such skills as effective problem solving, stress response, and self-regulation. At the level of relationships, the focus includes supportive attachments to friends, family, and partners. At the level of the environment, the focus is on the surroundings in which the individuals and relationships operate. Significantly, the research literature strongly cautions against attempts to work on individual skills in isolation, without also taking into account the relationships and the environment in which the individual operates. The most effective interventions are those that are multi-faceted, and take into account the functioning of the individual in the context of various levels of influence (Luthar & Cicchetti, 2000).

The most basic takeaway from this research has been that individuals are capable of learning skills that facilitate resilience, and that environments can be organized in ways that foster resilience (Gillham et al., 2014). Teaching aspects of resilient thinking and behaviors can

improve coping levels and prevent depression. This is particularly true when the adversities one encounters are especially traumatic or frequent, and overwhelm the levels of resilience we normally depend on from day to day (Reivich & Shatté, 2002).

Bonanno (2004) expresses concern that attempts to teach resilient responses could interrupt the natural processes that would otherwise lead to the very resilient responses that are being sought and end up making an individual less resilient. While this is an interesting position to consider, studies that have been done on the effects of resilience training programs for school-age and adult populations, such as those described next, appear to indicate that they have achieved many of the sought-after benefits, and have not done harm to those receiving the training.

Teaching Resilience Skills to School-Age Populations

Much of the research on resilience interventions has focused on schoolchildren. For example, the University of Pennsylvania designed the Penn Resiliency Program (PRP) as a group depression-prevention intervention for late-elementary and middle school students. The curriculum teaches the detection and evaluation of inaccurate thoughts, how to dispute negative beliefs, and skills for problem solving, negotiating, decision-making, assertiveness, and relaxation (Positive Psychology Center, 2007). A meta-analysis of both targeted and universal studies evaluating the PRP (Brunwasser, Gillham, & Kim, 2009) found greater levels of optimism and modest but reliably lower levels of depressive symptoms in participants through 12 months of follow up compared to controls. The reduction and prevention of depressive symptoms appeared to be more meaningful in participants with elevated baseline symptoms. Notably, the average effect size across studies showed a larger effect at a 6-month follow up than immediately after the intervention (Brunwasser et al., 2009). This delayed effect is likely due to

the fact that symptoms take time to develop in those who become depressed, as well as that the skills learned during the intervention improve and thus have more impact as they are practiced over time (Cutuli et al., 2013).

A high school positive psychology program developed by the same team that created the Penn Resiliency Program built on the skills taught in the PRP (Gillham et al., 2014). The high school curriculum is based on the three pathways to happiness presented by Seligman (2002): the Pleasant Life, the Engaged Life, and the Meaningful Life. The Pleasant Life module teaches ways to facilitate positive emotions with a focus on gratitude, savoring, and optimism. The Engaged Life module assists students in identifying and developing their character strengths (those that are most natural as well as those that are important to them) and using them in their everyday activities. The unit on the Meaningful Life encourages students to reflect on what makes life meaningful for them and for others. All of the modules encourage the students to apply these lessons on a daily basis and use them in fostering strong social connections with others and pursuing goals that serve a larger purpose. Preliminary results of a 4-year scientific evaluation indicate that while the program did not affect students' reports of depression or anxiety, teachers and parents reported improvements in the students' social skills and engagement in school. Students with lower grades prior to the implementation of the program did better academically as a result of the program (Gillham et al., 2014).

Teaching Resilience Skills to Adult Populations

Resilience training has also been applied to adult populations, and the U.S. military has taken two noteworthy approaches. A program called the Boot Camp Survival Training for Navy Recruits - A Prescription (BOOT STRAP) sought to address stress, depression, situational events, interpersonal considerations, and performance among Navy recruits (Williams et al.,

2004). Recruits who were determined to be “at risk” for depression were placed in two groups, one receiving the intervention and one not receiving it. A control group of recruits not “at risk” was used as a comparison. Because of limited time available for training, the intervention was delivered in 45-minute group sessions once weekly over the course of the 9-week recruit training. All recruits participated in weekly group sessions, but only the intervention group received training on cognitive behavioral techniques for coping, increasing one’s sense of belonging, decreasing thought distortions, and managing stress. The at-risk recruits who received the intervention reported significant increases in their sense of belonging and camaraderie with their peers, experienced less loneliness, demonstrated problem-solving coping more frequently, decreased their insecure attachments, and increased their secure attachments by the end of the training compared to the non-intervention group. Moreover, fewer at-risk recruits who received the intervention were sent home during recruit training: recruit training retention rates for the intervention group (84%) were higher than for the nonintervention group (74%) and comparable to the comparison group (86%; Williams et al., 2004).

A follow up to the BOOT STRAP study, called STARS, or Strategies to Assist Navy Recruits’ Success (Williams et al., 2007), applied the BOOT STRAP intervention to entire divisions of Navy recruits, not just those deemed “at risk.” Eight divisions were randomly selected to receive training, which took place during basic training, and eight divisions were control groups. During the training, recruits were encouraged to apply the skills in their own lives as well as to coach each other in using the skills. At the end of the training, the intervention divisions reported significantly higher scores on group cohesion and perceived social support measures compared to the control groups. The intervention divisions also reported lower stress levels, decreased emotional reactivity to stressors, higher problem-solving coping skills, higher

perceived social support, less conflict in relationships, and lower anger expression scores. Moreover, during a two-year period of data collection, the intervention divisions had a statistically significant 3.4% lower separation from the Navy during basic training than the control group, which researchers attributed to the training. This represented 1,120 more recruits who stayed in the Navy after basic training as a result of the intervention. The researchers calculated that the intervention could save the Navy money by retaining more recruits and decreasing separation costs, even taking the cost of the intervention into consideration (Williams et al., 2007).

The U.S. Army is carrying out another large-scale deployment of adult resilience training based on the PRP (Reivich et al., 2011). The Master Resilience Trainer (MRT) course is a 10-day program based on a train-the-trainer model, in which resilience fundamentals are taught to noncommissioned officers, who then teach the skills to their soldiers. The four components of the MRT comprise definitions and competencies of resilience, building mental toughness, identifying and using character strengths, and strengthening relationships.

The first independent review of the effectiveness of the MRT found that soldier-reported levels of resilience and psychological health (R/PH) were significantly higher in units exposed to MRT than in control units (Lester, Harms, Herian, Krasikova, & Beal, 2011). Certain dimensions of R/PH improved significantly (for example, higher emotional fitness, good coping and friendship skills, and less catastrophizing). Further, while the MRT appeared to be more effective for younger soldiers, there was no evidence that soldiers reported lower R/PH as a result of exposure to MRT or that they were in any way harmed by MRT (Lester et al., 2011). A subsequent study evaluating the effectiveness of MRT in view of mental and behavioral health outcomes indicated that soldiers who had an MRT-trained sergeant in their unit were less likely

to receive diagnoses for mental health problems such as anxiety, depression, or PTSD (Harms, Herian, Krasikova, Vanhove, & Lester, 2013). In addition, soldiers in units exposed to MRT experienced significantly lower rates of diagnosed substance abuse than those in control units. The researchers surmise that the MRT's beneficial effects may reach beyond individual soldiers to improving the effectiveness and efficiency of the Army as an organization (Harms et al., 2013).

Major Factors That Influence Behavioral Health in the Fire Service

Could the firefighter emergency responder population also benefit from training on resilience skills, as school-age children and military populations have? In order to investigate this and recommend an appropriate intervention strategy, we must look into what the literature says about the key factors that influence firefighter behavioral health. In a review of literature that identifies vulnerabilities and protective factors associated with behavioral health in the fire and emergency services, several factors turn up repeatedly and provide clues as to the interventions that might be most effective in a resilience training approach with this population.

Thinking Patterns That Lead to Unproductive Emotions and Behaviors

The thoughts and beliefs that we have in response to events in our lives determine how we feel and behave in relation to those events. When we can accurately, thoroughly, and flexibly interpret each event, we free ourselves to respond in the most productive way (Reivich & Shatté, 2002). When we develop a tendency to interpret events habitually in the same way every time, however, we lose perspective about the realities of each situation, and our responses can fall into destructive, or maladaptive, patterns (Reivich & Shatté, 2002). A form of maladaptive thinking patterns that has been found to be a risk factor for psychological distress following trauma is negative self-appraisal, or negative evaluations about oneself. These negative self-appraisals can

stem from people's perfectionist expectations of themselves that they can never meet, leading to their developing doubts about their abilities or competence (Carver et al., 2009).

A study involving trainee firefighters who were initially assessed for PTSD, a history of traumatic events, and the tendency to express negative self-appraisals, and then re-assessed after 4 years, found that participants who developed PTSD over the course of the study engaged in more frequent negative appraisals about themselves than participants without PTSD (Bryant & Guthrie, 2007). The researchers surmised that negative self-image was intensified by the traumatic experience and helped to predict PTSD.

A study of career firefighters from four departments in the Midwest found that those who had difficulty coping with stress also had trouble putting their concerns into perspective. Additionally, they reported a lack of social support from family members, peers, and co-workers, and had a negative outlook on their ability to succeed professionally and at life in general (Milen, 2009).

A study of police, fire-rescue workers, doctors, nurses and hospital workers who responded either directly or indirectly to two emergencies involving fatalities (McCammon, Durham, Allison, & Williamson, 1988) identified several impediments to recovery from trauma. These include the tendency for emergency responders to suppress their anxiety and fear not only during the incident (which may well be necessary to function in the moment), but after the incident as well. The difficulty of letting go of the emotion-free condition called "going clinical" could be a barrier to resilience and recovery (M. Donahue, personal communication, July 10, 2015). This tendency is further exacerbated by disillusionment stemming from the responders' own unrealistic expectations about their ability to have a positive impact on a disastrous situation (McCammon et al., 1988).

As mentioned previously, negative self-appraisal also looms large in people who are at risk for suicide, according to the Interpersonal Theory of Suicide (Van Orden et al., 2010). The negative self-evaluation includes the perception of being a burden to others, which contains an element of self-hatred.

Other research indicates that thinking about the good that they do in their jobs can help firefighters to counteract the negative self-appraisals and other types of maladaptive thinking associated with psychological distress. Borrowing from identity theory, Lee & Olshfski (2002) suggest that a high level of commitment to the job, whether as a career or volunteer, motivates firefighters to serve their community. They commit to an identity for which they expect themselves, and others expect them, to act heroically and altruistically. A study of 156 firefighters in upstate New York, both career and volunteer, found that the firefighters' willingness to put in extra effort to their jobs was correlated with their belief that the community values and supports their work (Lee & Olshfski, 2002).

Beyond the mere expectation to act altruistically, prosocial behavior (behavior intended to benefit others) in firefighters has also been found to be associated with positive *affect* - the observable expression of positive emotions or feelings. In other words, helping others can make you feel good. A study of 68 career firefighters and rescue emergency responders in Switzerland, Germany, and Austria looked into the belief and judgment that one's actions on the job are helpful to others (known as perceived prosocial impact) and how that belief relates to positive affect at home, after the work day is done (Sonnentag & Grant, 2012). The researchers found that perceptions of prosocial impact predicted positive affect at the end of the workday, suggesting that good experiences at work can spill over into non-work environments. Several factors

accounted for that result, including positive reflections about the workday and feelings of increased perceived competence (Sonnentag & Grant, 2012).

Importantly, perceived prosocial impact can also help to counteract negative self-evaluations that put one at risk for distress following trauma. In studies of professional fundraisers and public sanitation employees, Grant and Sonnentag (2010) addressed employees' negative evaluations of themselves and their work tasks, which are signs of low intrinsic motivation and lead to emotional exhaustion, depletion of resources, and less energy on the job. The studies suggested that employees who self-reported low intrinsic motivation and low core self-evaluations were protected from emotional exhaustion by high levels of perceived prosocial impact. The researchers found support for their hypothesis that perceived prosocial impact helps to prevent employee burnout on the job by compensating for negative evaluations of task and self. Thus, perceived prosocial impact safeguards against feelings of being emotionally exhausted and helps to maintain high levels of job performance (Grant & Sonnentag, 2010). When the employees directed their attention outward rather than on the self, the focus on the prosocial impact of their jobs prevented them from ruminating about the unpleasant aspects of their jobs. The perceived prosocial impact also resulted in positive emotion that made the employees feel more competent and valued because they helped others. The positive emotion diverted them from negative self-appraisals, and inhibited emotional exhaustion (Grant & Sonnentag, 2010).

Relatedness, Belonging, and the Role of Social Support

As mentioned previously, a person's sense of relatedness to others is one of the three pillars of Self Determination Theory that supplies our motivation to make our way in the world (Ryan & Deci, 2000). Belonging is a fundamental human need that motivates the desire to form

social and interpersonal bonds with others that are pleasant and enduring. Furthermore, high degrees of belongingness strongly correlate with improved health and well-being (Baumeister & Leary, 1995).

Several studies point out the importance of a supportive social environment in reducing the stress response to trauma. A meta-analysis of 37 studies that looked at the role of received and perceived social support among first responders found that social support had a significant relationship to psychological health and well-being. Moreover, *perceived* social support had a greater effect size than *received* social support. Specifically, knowing the help was available if needed produced more well-being than actually seeking and receiving that help (Prati & Pietrantonio, 2010).

A study of male firefighters in one Midwestern community (Varvel et al., 2007) reported that the firefighters experienced lower levels of stress when they felt that their supervisors provided support in the form of reliable alliance (the sense of security from knowing that help is available if needed), social integration (the feeling of being part of a larger group), and reassurance of worth (in the form of positively recognizing one's skills and abilities). In a study of social workers (Boscarino, Figley, & Adams, 2004), both job burnout and secondary trauma — trauma resulting not from direct exposure to the trauma but from working with or otherwise encountering people who are themselves traumatized — were less likely to be associated with a supportive work environment. Regehr (2009) reported on studies of firefighters in which social support was found to be an important factor in cases of work-related psychological distress. A study of Australian career firefighters found that higher levels of perceived support from spouse, family, and friends were associated with lower levels of depression. A qualitative study of Canadian firefighters also cited support from friends and family, and particularly from the

management of the fire department, as protective factors in reducing stress and trauma-related reactions (Regehr, 2009).

Another study examined fire recruits in Canada during their first week of employment and following a 10-week training period, compared with a group of experienced firefighters (Regehr, Hill, Knott, & Sault, 2003). The researchers reported that, for both groups, as levels of perceived social support decreased, levels of depression and symptoms of traumatic stress increased. However, experienced firefighters reported significantly lower perceived social support from their family and employer, as well as lower levels of self-efficacy and higher levels of depression and trauma symptoms, indicating that firefighting takes a toll psychologically over time and may make them more vulnerable to the effects of traumatic stress (Regehr et al., 2003). Similarly, a cross-sectional study comparing stress and coping mechanisms in three groups of Australian firefighters (recruit level, on-shift, and firefighters who had experienced a traumatic situation involving a death) explored how PTSD symptoms and coping strategies evolved over the course of a firefighter's career (Chamberlin & Green, 2010). The researchers reported that older age was associated with higher levels of psychological stress, but that the coping strategy of seeking support from others predicted lower levels of post-traumatic stress in all groups (Chamberlin & Green, 2010).

As previously noted, the Interpersonal Theory of Suicide (Van Orden et al., 2010) holds that a thwarted sense of belongingness and the ensuing social isolation are among the factors that must exist for a person to want to attempt suicide.

Perceived Coping Self-Efficacy

Earlier in this paper, I briefly touched on Self Determination Theory, which states that well-being lies in a person's ability to master the basic psychological needs of competence,

autonomy, and relatedness (Ryan & Deci, 2000). Self-efficacy, a concept related to competence, derives from the theoretical framework of Social Cognitive Theory, which explains human behavior in terms of agency – the capacity to explore, manipulate, and influence one’s environment (Bandura, 1999). Self-efficacy is the belief and confidence in one’s personal agency, or ability to act in a way that brings about a desired outcome (Maddux, 2009).

Self-efficacy beliefs develop from several sources. Self-efficacy is most strongly related to our own efforts to control our environment (performance experiences), followed by what we learn from observations of others’ behaviors (vicarious experiences), our ability to imagine how we or others would act in hypothetical situations (imaginal experiences), others’ beliefs about our capabilities, and our physical and emotional states (Bandura, 1982; Maddux, 2009). High self-efficacy has been shown to be related to happiness and well-being, less depression and anxiety, adoption of healthy behaviors, and effective immune functioning, as well as our ability to self-regulate (Maddux, 2009). Self-efficacy beliefs affect people’s sense of mastery, their decisions about behaviors, and their choice of activities. Higher self-efficacy scores indicate that someone will more strongly persist in his or her efforts, especially when conditions change or become challenging. Thus, self-efficacy is more influential than innate ability or talent in determining whether a person will reach his or her goals (Maddux, 2009).

Self-efficacy is not just a matter of knowing what to do in a given situation, and successful performance by itself is not enough to create beliefs of self-efficacy. Self-efficacy involves people’s judgments about how well they can carry out a course of action for an anticipated situation, which is why this construct is often referred to as perceived self-efficacy (Bandura, 1982). Individuals who judge an activity to be beyond the capacity of their ability to

cope will tend to avoid that activity, will dwell on their own shortcomings, and inflate the difficulty of future activities.

These negative thoughts and behaviors lead to stress and poor performance, even if a person knows what to do in the situation (Bandura, 1982). An event can be interpreted either as a frightening threat or a surmountable challenge, depending on how confident a person feels in his or her ability to manage the event (Benight & Bandura, 2004).

When people gain new skills to manage challenges, self-efficacy increases, as it does when they encounter new information to discredit inaccurate beliefs about their capabilities and fears (Bandura, 1982). For example, having had the experience of successfully coping with past adversity can be a protective factor for coping with future negative events because of the resultant increase in self-efficacy (Rutter, 1987). The stronger one's feeling of self-efficacy, the more likely one will be to actively address stressful situations and the greater success one will have in shaping the outcome of the situation rather than feeling controlled by the situation (Benight & Bandura, 2004). Those with a higher sense of coping self-efficacy are more solution-focused and tend to take actions and adopt strategies that shape challenging events in ways that produce better outcomes (Benight & Bandura, 2004). They are more successful in part because they put more effort into meeting the challenge and do not give up as easily (Bandura, 1982). Completing tasks successfully has been found to be associated not only with greater feelings of self-efficacy, but also greater self-esteem and more positive personal relationships (Rutter, 1987).

Self-efficacy is often discussed in connection with specific roles, activities, or situations rather than in a global sense. Perceived coping self-efficacy has been shown to be a primary

factor that accounts for recovery after a traumatic situation, as well as a protective factor against development of PTSD (Benight & Bandura, 2004).

Looking specifically at studies involving emergency responders and self-efficacy, a study of Italian rescue workers (including male and female firefighters, paramedics, and medical technicians) reported that respondents high in self-efficacy tended to be less affected by conditions of high stress, compared with workers with low self-efficacy. Using the Professional Quality of Life Scale, which measures levels of compassion satisfaction (the pleasure derived from being able to do one's work), as well as compassion fatigue (job burnout and secondary work-related trauma), researchers found that in rescue workers with high self-efficacy scores, compassion satisfaction was not affected by stress levels. Among workers with low self-efficacy, however, compassion satisfaction was positively related to reported stress levels. These findings supported the researchers' hypothesis that self-efficacy acts as a buffer between stressful events and professional quality of life (Prati, Pietrantonio, & Cicognani, 2010).

A study of German career firefighters tested on psychological and biological health measures immediately after basic training and periodically for two years (Heinrichs et al., 2005) reported that the number and severity of traumatic events encountered by the firefighters did not correlate with development of PTSD symptoms over the course of the 24 months. However, firefighters who exhibited high hostility levels coupled with low levels of self-efficacy at the baseline evaluation showed a significant increase in PTSD symptoms, depression, anxiety, general psychological distress, and emotional dysfunction over the two years of the study (Heinrichs et al., 2005).

Frazier, Berman, and Steward (2002) conducted a literature review looking at reactions between perceived control and symptoms of post-traumatic stress. The studies they reviewed

indicated that perceived control in the present (what can I do about the situation now) and in the future (can I do something to prevent this situation in the future) were associated with fewer PTSD symptoms and better overall adjustment to traumatic incidents. This is consistent with models proposing that PTSD is more likely to occur when events are perceived as uncontrollable (Frazier et al., 2002).

In developing and evaluating the Firefighter Coping Self-Efficacy Scale (FFCSE), a 20-item self-report instrument that measures how capable the respondent feels in successfully dealing with the demands of the job, Lambert, Benight, Harrison, and Cieslak (2012) reported that firefighters who scored higher on perceived competence for coping with the stresses and trauma of firefighting also reported less work-related stress and fewer behavioral health problems. The researchers also found that a higher score on the FFCSE was associated with higher levels of social support and positive relationships, more self-acceptance, higher levels of perceived autonomy, a sense of mastery over one's environment, and greater purpose in life, while lower scores on the FFCSE predicted PTSD and general psychological symptoms associated with exposure to traumatic incidents (Lambert, Benight et al., 2012).

Drawing from research involving a range of subjects, Benight and Bandura (2004) propose a mechanism for the role of perceived coping self-efficacy in mitigating or preventing traumatic stress symptoms. When traumatic stress arises, it can result in a threat to and rapid depletion of one's most valued resources. These resources include tangible objects such as housing; environmental conditions such as secure work and social support; energies such as knowledge; and personal characteristics such as self-esteem and coping self-efficacy (Hobfoll 1991). This loss of resources can result in PTSD and related symptoms, but the extent to which it does (if it does at all) depends on the individual's degree of coping self-efficacy (Benight &

Bandura, 2004). Likewise, both social support and dispositional optimism (the belief that more good things than bad will happen in the future) are resources that have been shown to reduce the likelihood of PTSD and related symptoms. These beliefs are mediated by coping self-efficacy. Benight and Bandura (2004) propose that the impact of resource loss (which can result in PTSD and related symptoms), as well as the impacts of optimism and social support (which are important resources that can alleviate PTSD and related symptoms) are all three “entirely mediated through perceived coping self-efficacy” (p. 1139). That is, the loss of resources results in PTSD symptoms due to a lack of belief that one is able to effectively cope with the trauma. Social support and optimism reduce the likelihood and severity of PTSD symptoms because of the belief in one’s capability to cope effectively. Moreover, self-efficacy not only mediates (accounts for the effect of) social support in reducing PTSD symptoms, but also is a key factor in one’s ability to establish social support, because self-efficacy enables people to find, cultivate, and maintain social support (Benight & Bandura, 2004). These relationships among resource loss, social support, optimism, coping self-efficacy, and PTSD symptoms are depicted in Figure 1.

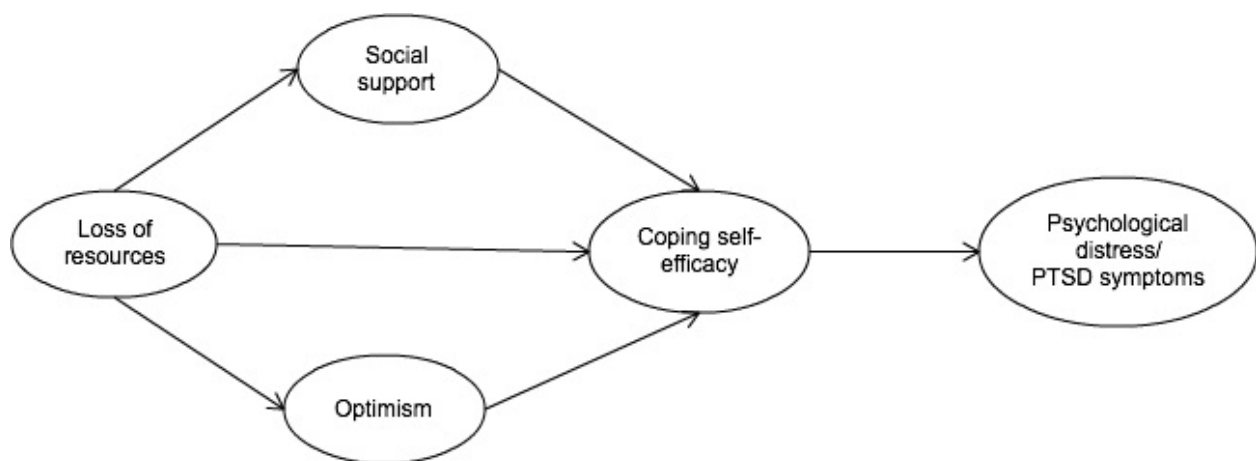


Figure 1. Path analysis showing how the relationship between resource loss and psychological stress/PTSD symptoms is mediated by coping self-efficacy. Social support and optimism mediate the relationship between resource loss and coping self-efficacy (Benight & Bandura, 2004; Benight et al., 1999).

Discussion

The research described in this paper points toward three major factors that influence the degree to which firefighter emergency responders exhibit resilience in the face of adverse events. These factors, when they are present, have the potential to prevent or mitigate psychological distress following stressful or traumatic situations. When these factors are absent, they can lead to or exacerbate such distress. To recap:

- **Flexible, accurate, thorough thinking** (Reivich, 2015). This includes positive appraisals of one's influence and effectiveness on the job and perceived prosocial impact, or the belief that one's efforts are helpful to others. Negative self-appraisals, which are associated with psychological distress, are evidence of inaccurate, pessimistic thinking patterns. Thinking more thoroughly, flexibly, and accurately often leads to more optimistic feelings, and even if it leads to the conclusion that someone is partly or fully responsible for a problem, it puts that person in a better mindset to seek solutions (Gillham et al., 2014).
- **Social support.** In particular, perceived social support, or knowing that support is available if needed, tends to be more beneficial than received support (Prati & Pietrantonio, 2010). Support from supervisors is particularly important (Varvel et al., 2007). There is some indication that social support decreases later in a firefighter's career (Chamberlin & Green, 2010; Regehr et al., 2003).
- **Self-efficacy for coping.** A firefighter's belief that he or she can take action to deal effectively with a stressful event is associated with less psychological distress and better event outcomes. Additionally, the level of perceived coping self-efficacy can predict whether social support and optimism will result in a resilient response to traumatic events (e.g., Benight & Bandura, 2004).

As the research indicates, these three factors are not isolated; rather, they are interrelated in their effects. Prolonged distress in response to trauma is often accompanied by more than one of these factors, if not all three in combination. All three factors are often cited in studies that examine the coping measures used by firefighters to facilitate more adaptive responses in stressful situations. For example, in a study of emergency workers including firefighters mentioned earlier (McCammon et al., 1988), coping strategies cited by the workers as effective involved reframing how they think about the situation to make it more tolerable, including feeling a sense of mastery or self-efficacy about the situation; developing positive appraisals about their role in the incident; and generally looking at the situation in adaptive ways that facilitate coping. Facilitators of recovery from trauma among the emergency workers included a commitment to their profession, the cohesiveness of workers in the organization, and the satisfaction they experienced from helping others (McCammon et al., 1988).

Thus, I propose that it is necessary to consider all three factors – realistic optimistic thinking, perceived social support, and perceived self-efficacy for coping – if we are to effectively promote resilient responses in the firefighter emergency responder population. Further, I would propose addressing all three in the context of a primary prevention program of interventions to increase resilient thinking, emotions, and behaviors in firefighter emergency responders. The objectives would be to 1) prepare first responders psychologically so that adverse reactions to traumatic events are prevented or mitigated, and also 2) to help emergency responders deal more productively and effectively with the everyday stresses that occur at work, at home, and in life – stresses that, as they accumulate, can take their toll on resilience.

This proposed approach is intended to supplement, not replace, the programs that are already in place or being developed for the fire service that address secondary and tertiary

prevention needs. Programs that attempt to reduce the impact of a traumatic event that has already occurred, or to mitigate the long-term effects of an adverse reaction to a traumatic event, are needed every bit as much as fire suppression is needed alongside fire prevention efforts.

Sample Interventions

The research advises that the most effective approach to resilience training is to apply interventions, such as the ones suggested earlier, at three levels: the level of the individual, the level of relationships (both work-related and personal), and the level of the environment or organization (Luthar & Cicchetti, 2000). My proposal would be to incorporate resilience training into all three levels, each reinforcing the other.

The interventions summarized below are suggestions based on factors identified in the literature review as being associated with increased resilience and reduced psychological distress in relation to trauma. In this case, they would be introduced as a primary prevention measure – that is, taking place before the traumatic event occurs, with the goal of teaching a set of tools for preventing and mitigating the symptoms of traumatic stress, as well as enabling more adaptive responses to adverse events generally. For each intervention, specific examples would be developed that are tailored to real-life situations encountered by firefighter emergency responders, with measures also tailored to the firefighter population. The more they are practiced, the more habitual and automatic they will become. The interventions are described in more detail in Appendixes 1 and 2.

Interventions to increase flexible, accurate, thorough thinking.

Identifying ABCs: A foundational skill to build resilience. This intervention is based on a model developed by psychologist Albert Ellis, a pioneer in the field of cognitive behavioral therapies, to identify common thought patterns that can either provide helpful or

counterproductive responses to events (Ellis, 2003; Reivich & Shatté, 2002). The intervention teaches how to identify beliefs (B), defined as heat-of-the-moment thoughts that are triggered by activating events (A). The activating events can be positive or negative. The beliefs result in emotions, behaviors, bodily reactions and other responses that in this model are called consequences (C). In most cases, at least one belief connects an activating event and a consequence. Evaluating the B-C connections can help us to see if we tend to respond in one particular style more than others. This intervention is included in the U.S. Army's Master Resilience Training (MRT) as part of the "Building Mental Toughness" module (Reivich et al., 2011).

Identifying thinking traps and getting FAT thinking. This is another lesson taught as part of the MRT's "Building Mental Toughness" module (Reivich et al., 2011). Building on the ABC model, this lesson teaches how to identify thinking traps – that is, destructive thinking patterns that cause us to miss critical information and lead us to draw inaccurate conclusions about situations. Thinking traps interfere with resilience because they make us less able to assess the facts, and less able to respond appropriately to the situation (Reivich & Shatté, 2002). But if we can recognize when we are in danger of falling into a thinking trap, we can learn to ask critical questions that lead to Flexible, Accurate, and Thorough (FAT) thinking (Reivich, 2015).

Counteracting unproductive thoughts in real time. Another of the MRT lessons involves changing counterproductive beliefs at the time that they occur, so that, over time, fewer such thoughts occur and when they do, they are less destructive (Reivich & Shatté, 2002). The skill involves applying one of three strategies to the negative thought in the moment and reframing it to be more accurate: optimism (i.e., a more accurate way to look at this is...); evidence (i.e.,

that's not true because...); or perspective (i.e., a more likely outcome is... and I can ... to deal with it) (Reivich et al., 2011; Reivich & Shatté, 2002).

Hunting the good stuff. This exercise involves either individually or in a group reflecting on ways that the firefighters and/or their shift helped others or otherwise made the world a better place, and what each positive experience or event meant to them individually. It is intended to enhance positive emotions and develop feelings of perceived prosocial impact at the end of the day or at the end of a shift. Similar to an exercise taught during the MRT (Reivich et al., 2011), Hunting the Good Stuff is based on an intervention called Three Good Things, which was shown to increase happiness and decrease depressive symptoms for six months after it was practiced for a week by participants recruited from the authentichappiness.org website (Seligman, Steen, Park, & Peterson, 2005). This exercise is intended to supplement the after-action reviews that take place routinely in fire departments, which tend to focus on what went wrong.

Interventions to increase the quality of social interactions.

Active-constructive responding. How someone responds to the good news shared by another matters. Of four main styles of responding, only one has been shown to have positive implications for the relationship: Active-Constructive Responding (ACR). ACR involves showing enthusiastic support and asking good questions, as opposed to a passive positive response, an unenthusiastic negative response, or ignoring the news altogether (Gable, Reis, Impett, & Asher, 2004). People who respond actively and constructively to others' good news report greater relationship satisfaction, higher quality relationships, and fewer conflicts (Lambert, Gwinn et al., 2012). This intervention is used as part of the Strengthening Relationships module of the MRT for building relationships with other soldiers and with their family members (Reivich et al., 2011).

Building high-quality connections. High-quality connections (HQCs) are short-term positive interactions at work between two people. All department members would be trained on what HQCs are and the various benefits that have been documented in interpersonal and organizational contacts; the mechanisms by which they can be achieved (emotional, cognitive, and behavioral); and the pathways within each mechanism, which provide specific techniques for achieving HQCs (Stephens, Heaphy, & Dutton, 2011). Department members would then be asked to consciously foster HQCs within the fire department and to be responsible for reporting on at least 3 HQCs they achieved every day that they are working at the department. Department members also would be encouraged to create HQCs outside work.

Predicted increase in coping self-efficacy.

The literature reviewed in this paper provides indications that flexible, accurate, and thorough optimistic thinking, as well as real and perceived social support, lead to greater perceptions of self-efficacy for coping with stressful situations. For example, many of the studies cited in this paper link negative, unrealistic, and out-of-perspective thinking patterns with low self-efficacy for coping (e.g., Bryant & Guthrie, 2007; McCammon et al., 1988; Milen, 2009; Van Orden et al., 2010). At the same time, less psychological distress is associated with more optimistic but realistic thinking that results in increased feelings of satisfaction, positive emotion, and competence for the job (e.g., McCammon et al., 1988; Sonnentag & Grant, 2012). In addition, optimistic thinking is associated with a greater tendency to seek solutions to problems, which is an active coping strategy (Gillham et al., 2014). Perceived self-efficacy is predicated on having the belief and confidence that one can handle challenging situations and shape their outcome (Benight & Bandura, 2004).

From the perspective of Self-Determination Theory, research indicates that a supportive

social environment helps to provide motivation to develop mastery over one's environment (Ryan & Deci, 2000). Lower levels of perceived social support were also associated with lower levels of self-efficacy and increased psychological distress in experienced firefighters (Regehr et al., 2003). Finally, the research by Benight and Bandura (2004) points out that social support and optimism both lead to and account for the increase in coping self-efficacy that minimizes psychological distress in the face of the resource loss caused by traumatic situations.

Thus, the interventions described previously for increasing social support and developing skills for flexible, accurate, thorough optimistic thinking – assuming they are practiced enough to the point of being automatic and habitual – are predicted to lead to the perceived coping self-efficacy that is so important to resilience. Further, I would predict that measured increases in coping self-efficacy can serve as a marker for whether interventions to increase social support and optimistic thinking are having their desired effects. This hypothesis would naturally have to be tested, and potential measures to consider are the Firefighter Coping Self-Efficacy Scale (Lambert, Benight et al., 2012), the Revised Ways of Coping Checklist for Firefighters (Dowdall-Thomae et al., 2012), or the Brief COPE (Carver, 1997).

The Case for Universal Training

Resilience training could potentially benefit *all* firefighters, and thus I propose that it should be applied universally to all members of a department rather than just to those who are identified as being “at risk” for psychological distress. Training on the physical aspects of firefighting proceeds on the basis that the more it is practiced, the more it becomes part of muscle memory. Thus, the correct actions are carried out automatically when the need arises. Making resilience skills a habit will lead to their being part of the “mental muscle memory” that is automatically applied when faced with challenging situations, and become an ingrained

manner of coping. Moreover, an intervention that is framed as “training” is more likely to be accepted than if it were presented as “treatment,” which implies that the recipients need help and imparts a stigma on the situation.

We have no way of knowing for sure who will have a house fire in the future, so we prudently teach fire prevention to everyone. In a similar way, we do not necessarily know which firefighters will most benefit from resilience training, but the skills and techniques of training can be applied not only in the case of traumatic events but also to everyday stresses. Because resilience is exhibited on a situation-specific basis (Rutter, 1987), someone who has demonstrated resilience in the past may be unexpectedly challenged by a “perfect storm” of circumstances in the future that has the potential to overwhelm coping strategies that may have worked well before.

As a matter of fairness, all firefighters should have the exposure to resilience training and the opportunity to apply it in all areas of their lives, both on and off duty. Additionally, if all firefighters were to receive the same or similar training, they would have a common language and frame of reference with which to discuss and practice coping strategies, and to reinforce those skills in one another.

Initial Thoughts on Where, When, Who

Incorporating resilience training skills into firefighter recruit school, where those new to the fire service learn the basics of being a firefighter emergency responder, would be an excellent opportunity to introduce resilience training skills to a large group of firefighters at the beginning of their careers, when the training could potentially have the greatest impact. But while the training should be introduced in recruit school, it by no means should end there. In light of research that resilience, as well as coping self-efficacy, are not considered stable personality

traits but rather are dependent on the situation and environment (Lambert, Benight et al., 2012), and taking into consideration findings that social support can wane over the course of firefighter careers (Regehr et al., 2003), resilience skills should be taught early and reinforced often. Having such training provided by fellow fire service members may be the best approach, since some studies report that firefighters can be uncomfortable receiving training from those who do not have direct experience as first responders themselves because they believe outsiders cannot relate to the traumatic experiences they encounter (Jahnke et al., 2014).

Ideally, the fire department itself should be where resilience skills get reinforced. That would entail a “train-the-trainer” training for key individuals within the department on how to use the skills, who then in turn would train others within the department to use them, along the model employed by the U.S. Army’s Master Resilience Training (Reivich et al., 2011). Shift or company officers, who are responsible for a team of first responders within the fire department, would be a logical group to receive the initial training, because they play a key role as both formal and informal leaders within the department.

Another practical way to incorporate resilience training into a fire department’s routine is through peer support providers. Peer support is already a recommended component of fire service behavioral health programs (Wilmoth, 2014). Expanding the role of peer support providers to practice resilience interventions from a primary prevention perspective would enhance the function they serve in providing assistance to firefighters in psychological distress.

Retired fire department members may be another natural avenue for providing resilience training. Fire department membership can be all-consuming, providing a meaningful occupation or volunteer pursuit, as well as a social life. When retirement forces that activity to disappear or be drastically reduced, the psychological toll it takes on the retiree can be difficult to endure (M.

Donahue, personal communication, July 10, 2015). Equipping retired department members to assist in providing resilience training to active members and to help reinforce that training within the department on a regular basis is an excellent use of an under-used resource and would provide retirees with a responsibility – as well as useful coping skills – that will add meaning and increased well-being to their own lives.

Finally, veterans who have been exposed to the U.S. Army's resilience training and subsequently join or return to their fire departments back home would have an excellent background with which to teach resilience skills to their fellow department members and help to reinforce those skills among their peers as they become habits.

Moving Toward a More Resilient Fire Service

Training is a big part of a firefighter's life. After the initial training to get basic certification as a firefighter (some 600 hours over the course of approximately 12 weeks), there are requirements for training based on keeping one's basic certification, advancing to new levels of expertise and responsibility within the department, developing knowledge and skills for special operations and situations, separate training for emergency medical response, and required annual continuing education depending on the jurisdiction. Each shift of a department may spend a certain amount of time training and drilling to keep their skills sharp when they are not responding to calls. So, how will another training program go over when firefighters already spend so much of their time training?

As firefighters well know, training is how people get good at things. Training and drilling enables not only the muscle memory to perform a task correctly each time, but it also helps to develop the confidence – indeed, the *self-efficacy* – of knowing that a firefighter can handle the situation he or she trained for when it comes up in real life. Training on the physical aspects of

the firefighter's job is a given. Training on the psychological aspects to develop the coping self-efficacy for weathering stressful events is arguably just as important, but traditionally has not been given the attention it deserves to this point.

At the same time, fire departments likely will not have the luxury of a concentrated 10-day training such as the one provided through the U.S. Army's Master Resilience Training. However, a smaller package of interventions administered over a more manageable time frame can also be effective, as evidenced by the U.S. Navy's BOOT STRAP training, which comprised one weekly 45-minute session over a 9-week period (Williams et al., 2004). Several of the interventions I have recommended in this paper could be delivered in short sessions. The key will be the extent to which they are practiced and reinforced over time. As data on their effectiveness accumulates, interventions can be refined and added.

Having the buy-in of fire chiefs and training directors will be absolutely crucial to initiating a resilience training program. Through the next steps – refining the elements of the training and collecting evidence that shows it is effective for the fire service population – we will need progressive chiefs to agree to pilot the approach in their departments, as well as chiefs who are willing to have their departments serve as controls.

Beyond helping to define and refine the training, chiefs will also be needed to help define the organizational aspect of this effort. What does a resilient fire department look like? What conditions in a department lead to an environment that encourages resilience in its members? How do its members contribute to a stronger and more efficient operation? What values, leadership, policies, guidelines, practices, energies, relationships, and systems must be in place to create an environment that makes resilience possible by fostering flexible, accurate and thorough thinking; stronger social support networks; and greater levels of individual and collective coping

self-efficacy? How can we measure these effects to determine if and how they can lead to a more efficient and effective fire department and fire service as a whole? The work to identify, define and measure the mechanisms and effects of resilient fire departments is a study that is waiting to be conducted.

Limitations of This Paper

When looking into the factors related to psychological distress in firefighter emergency responders, I primarily cited studies that were limited to that population. If I had relied too heavily on research results that did not include the firefighter emergency responder population, my conclusions could potentially have been dismissed as not applicable to the population of interest. At the same time, not all of the studies looking at firefighter emergency responder populations took place in the United States, so questions might be raised about whether the same population in different countries are comparable in terms of types of experiences, reactions to traumatic events, and response to interventions.

Studies cited in this paper often used different measures to assess constructs such as the impact of traumatic events, self-efficacy, and sources of support. It simply was not practical to reference only studies that used identical measures. While that variation introduces some question of whether the measures were in fact assessing exactly the same concepts, the manifestations of similar constructs often overlap and interrelate despite nuanced differences in how they are defined – for example, self-efficacy, mastery, agency, and competence. Thus, I took the liberty of treating similar concepts as falling under the same umbrella construct in order to make useful connections.

Most of the studies referred to in this paper used self-report measures. While being the most widely used type of measurement, self-report measures can have limitations. They are

subject to sources of error such as faking, situational influences (for example, a rainy day might affect a response), social desirability bias (responding based on what the respondent thinks the researcher wants to see), and response sets (following an arbitrary rule such as responding with the same answer to all questions regardless of what is true) (A. Duckworth, personal communication, September 3, 2014). In some of the studies cited, self-report measures are supplemented by informant (third-party) reports or other more objective and independent measures, which add to the validity of the results. Still, the results from each study tended to be consistent with one another, which suggests that any variation introduced by self-report measures did not change the overall conclusions of this paper.

Studies of resilience training programs on school-age children and military populations present suggestions for interventions that could work with a firefighter emergency responder population, but they are just suggestions until they can be tried and tested with this population.

Future Directions

This paper is intended to be just the beginning of an inquiry into how positive psychology concepts, science, and interventions can be applied to improve the resilience of the men and women who make up the fire and emergency services. Through the strengthening of realistic optimistic thinking and greater social support leading to improved self-efficacy for coping with challenging circumstances, the goal of my efforts would be to enhance their ability to withstand traumatic stresses, and improve their overall psychological functioning in the course of their everyday activities both on and off the job. A study based on this research could assemble and pilot-test a package of interventions within a number of fire departments in various geographical regions and makeups (career, volunteer, combination) in a “train-the-trainer” model such as that used for the Army’s Master Resilience Training. Because the results of such training may take

time to become apparent in terms of preventing or mitigating PTSD, depression, and other symptoms of psychological distress, interim measures of effectiveness may need to be put in place.

The positive psychology sub-field of positive organizational scholarship (POS) has much to teach us about creating an environment that fosters resilience, and the POS literature could inform a study to determine what factors and characteristics contribute to resilient fire departments in terms of leadership, values, practices, policies, and membership. A study looking at resilience at the fire department level and testing interventions to create such environments is absolutely crucial to ensuring that a program of resilience training will “stick,” because the most effective interventions take into account the individual, relationship, and environmental levels in a multi-faceted approach (Luthar & Cicchetti, 2000).

Future research should look at interventions that foster realistic optimistic thinking, stronger social support, coping self-efficacy, and other relevant constructs in populations besides those in education and the military that were reviewed here. Studies of resilience training in high-performance professions such as elite athletes and athletic teams are an example of another possible avenue of inquiry that could be applicable to firefighter emergency responders.

Also, the study of strengths-based resilience, in which character strengths are incorporated into efforts to enhance protective factors that promote resilience, was not examined in this paper but is a fertile area of exploration that would no doubt complement the approaches suggested here. Identifying and using one’s signature strengths in new ways, for example, could provide opportunities to practice mastery and enhance feelings of self-efficacy.

I expect that the benefits of resilient training will not be limited to preventing psychological distress reactions to trauma but also to fostering better cohesion, teamwork, and

retention within the fire department. Based on what we know about organization-wide benefits of military applications of resilience training (Williams et al., 2007; Harms et al., 2013), this appears to be a promising area of future study.

Conclusion

When the alarm sounds, we count on our firefighter emergency responders to show up and to be strong, both physically and psychologically. We expect this during our own time of need, and again for the needs of our neighbors, and again for the needs of our community members. These men and women are dedicated and courageous, but they are also human. They deserve to have access to every tool we know of and every opportunity available to shore up their personal, social, and environmental resources so that they can carry out their job to the best of their capability.

Creating a more resilient fire service will ultimately mean challenging the fire service culture to put behavioral health on a par with physical fitness. Creating a more resilient fire service is also consistent with the best tendencies of the fire service to take care of its own. This is a critically important goal and fully deserving of the resources that will be required to make it happen. It is not just about preventing PTSD, depression, and other signs and effects of psychological distress, but about creating a reduced vulnerability to everyday stressors as well. It is not only about cultivating the capacity in individuals to be less likely to succumb to long-term impairment when faced with harrowing scenarios at an uncommon pace and intensity, but ultimately about creating a more efficient and effective fire service in the process. In this most worthwhile pursuit, positive psychology may not have all the answers, but positive psychology can get us asking the right questions and headed in the right direction.

Appendix 1: Sample Interventions to Target Flexible, Accurate, Thorough Thinking

What could fire department resilience training consist of? What might it look like? A possible approach is to choose interventions that have been tested in other domains and tailor them to the fire service audience. Presented here are examples of interventions that target the factors identified as critical to developing flexible, accurate, thorough thinking, and developing positive emotions through realistic optimism. These techniques are based on interventions taught as part of the Master Resilience Training in the U.S. Army (Reivich et al., 2011).

Intervention: Identifying ABCs – A Foundational Skill to Build Resilience

If we can learn to identify the beliefs and thoughts that underlie our responses to events in our lives, we can be flexible in how we respond rather than falling back on a particular response or interpretive style every time. The ability to accurately assess a situation can allow us to evaluate whether our beliefs are contributing to making the situation better, or causing problems (Helping or Harming). The ABC model was developed by psychologist Albert Ellis, a pioneer in the field of cognitive behavioral therapies, as a tool to identify the beliefs that we have in response to events that lead to our emotions and behaviors (Ellis, 2003; Reivich & Shatté, 2002).

The “A” stands for Activating Event: a “trigger” situation that can be positive or negative, big or small, resulting in beliefs that drive us to feel or act a certain way.

The “B” stands for Beliefs. These are the “heat of the moment” thoughts, opinions, interpretations, and assumptions about what caused the Activating Event and what the implications might be. There are generally two types of beliefs that we are interested in: “Why” beliefs and “What Next” beliefs. There is usually at least one belief that connects an Activating Event and a Consequence.

The “C” stands for Consequence. This is an emotion, behavior, physiological reaction or other result that stems from the Belief that we have about the Activating Event.

Once we identify the ABC, we can look for patterns in the B-C connection that indicates what our style of responding might be. We can then evaluate that response pattern in terms of whether it helps or harms our ability to deal effectively with the Activating Event. (See the table of B-C Thought Patterns below.) The ABC technique can be used before, during, or after an Activating Event.

B-C Connections and Common Thought Patterns

Beliefs	Emotional Consequences
Loss (I have lost something)	Sadness/Withdrawal
Danger (Something bad is going to happen and I can't handle it)	Anxiety/Agitation
Trespass (I have been harmed)	Anger/Aggression
Inflicting harm (I have caused harm)	Guilt/Apologizing
Negative comparison (I don't measure up)	Embarrassment/Hiding
Positive contribution (I contributed in a positive way)	Pride/Sharing, planning future achievements
Appreciating what you have received (I have received a gift that I value)	Gratitude/Giving back, paying forward
Positive future (Things can change for the better)	Hope/Energizing, taking action

Copyright ©2015 by The Trustees of the University of Pennsylvania. All rights reserved.

Intervention – Identifying Thinking Traps and Getting FAT Thinking

What Are Thinking Traps? Remember the ABCs. We all need to use shortcuts in our thinking to make sense of the world so that we are not assessing every situation as if we were encountering it for the first time. But sometimes in response to an Activating Event (A), we get into destructive patterns of thinking, or Beliefs (B), that cause us to miss critical information and lead us to draw inaccurate conclusions about situations, leading to harmful Consequences (C). Those destructive patterns are known as Thinking Traps.

How Do Thinking Traps Interfere with Resilience? We tend to fall into Thinking Traps when there is ambiguity about a situation; when we are tired, rundown, or stressed; and when we interact with those we are closest to. Because they cause us to miss information and respond in an overly rigid fashion, Thinking Traps make us less able to assess the facts, and less able to respond appropriately to the situation (Reivich & Shatté, 2002).

Fixing the Problem: Get FAT. The good news is that we can change our style of thinking if we do the hard work to understand the goals and ask critical questions that lead to FAT thinking: Flexible, Accurate, and Thorough (Reivich, 2015).

Steps: The following table shows the most common Thinking Traps. When you identify the Thinking Trap in your Belief, move to the last column and see what you must do in order to think more flexibly, accurately, and thoroughly (the goal is underlined in the table below). Then ask yourself the question corresponding with that goal. You may come to the conclusion that your initial belief was accurate, but most often the question will lead to a more even-handed way of looking at the situation.

What Are the Most Common Thinking Traps, and How Can We Avoid Them?

Thinking Trap	What It Is	Goals/Critical Questions
Jumping to Conclusions	Being certain about a situation's meaning despite little or no evidence to support that interpretation. This is considered the "mother of all thinking traps," because the other traps are some form of jumping to conclusions.	<u>Slow Down</u> : What evidence supports your conclusion?
Tunnel Vision	Focusing on the less significant details of a situation and missing the important stuff. Can't see the forest for the trees.	<u>Include More</u> : What salient info did I miss?
Overgeneralizing	Using a single situation to make global assumptions about your lack of worth or ability. Character assassination toward yourself.	<u>Look at Behavior</u> : Does a specific behavior explain the situation?
Magnifying and Minimizing	Blowing the bad stuff out of proportion and dismissing the good stuff. Looking at the world through the wrong side of the binoculars.	<u>Be Evenhanded</u> : What positive events occurred?
Personalizing	Assigning all the blame to yourself and not recognizing others' role in a situation. Me, me, me.	<u>Look Outward</u> : How did others or circumstances contribute?
Externalizing	Making it all the fault of others and not taking responsibility or control for yourself. Them, them, them.	<u>Look Inward</u> : How did I contribute?
Mind Reading	Assuming that you know what others are thinking, and they know what you're thinking.	<u>Speak Up</u> : Did I express myself or ask for information?

Sources: Beck, A. T., 1967, 1976, and Beck, A. T., et al., 1979, as cited in Reivich & Shatté, 2002; and Reivich & Shatté, 2002.

Intervention: Countering Unproductive Thoughts in Real Time

Learning to counter unproductive thoughts and beliefs at the moment they occur is the essence of a skill called Real-time Resilience (Reivich & Shatté, 2002). Excessive focus on inaccurately negative thoughts (or even unhelpful positive thoughts) can result in less confidence and engagement in performing tasks, which can put oneself and others at greater risk (Reivich et al., 2011). Once we develop the skill of recognizing our harmful beliefs and negative thoughts by way of the interventions described above, we can work on challenging them and reframing them to be more productive through our internal dialog. This is not matter of automatically substituting positive thoughts for negative ones, but rather discovering the most accurate interpretation of events, which tends to result in more optimistic thinking. With practice, the goal of Real-time Resilience is to have fewer nonproductive thoughts or less destructive thoughts when they do occur (Reivich & Shatté, 2002). This will enable more of an ability and motivation to focus on completing the task at hand.

Structuring your response: Three strategies (Reivich & Shatté, 2002).

Generate alternative beliefs: A more accurate way of seeing this is.... Think of a different and more accurate way to explain the situation than your heat-of-the-moment belief. Often, this will be a more optimistic and hopeful way of looking at the event.

Use evidence to test the accuracy of your beliefs: That's not true because.... Look for a specific and detailed example that challenges the unproductive belief.

Identify implications: A more likely outcome is....and I can....to deal with it. To counter a tendency to think of the worst possible outcome of a situation, come up with a more realistic outcome and one thing that can be done to address it.

Common mistakes and how to correct them (Reivich & Shatté, 2002).

Using unrealistic optimism. So-called Pollyanna optimism does not reflect the reality of the situation. If you remember that the goal is accuracy and not optimism, you will develop a sense of when your counter-thought is authentic to the situation rather than blindly idealistic.

Dismissing the grain of truth in the counter-productive beliefs. If you automatically contradict the whole negative belief, you might miss the kernel of truth it holds, and it will not ring true. If you acknowledge the truth in the negative thought, you can identify a strategy to address it.

Blaming oneself or others. Failure to acknowledge the proper responsibility of yourself or others in creating the situation denies you of the opportunity to take appropriate steps to address it. Often, both parties contribute to a problem. Try to minimize all-or-nothing thinking.

Minimizing the importance of the situation. Denying the significance of the situation may result in substituting an unrealistic worst-case outcome with a similarly unrealistic best-case scenario. If the situation really does not matter, don't waste your energy on it. But if taking the most realistic view still acknowledges the problem, you will be in a better position to deal with it for having put it in perspective.

Intervention: Hunting the Good Stuff

As a way of enhancing positive emotions and developing feelings of perceived prosocial impact at the end of the day or at the end of a shift, this exercise involves either individually or in a group reflecting on ways that the firefighters and/or their shift helped others or otherwise made the world a better place, and what each positive experience or event meant to them. Similar to an exercise taught during the MRT (Reivich et al., 2011), Hunting the Good Stuff is based on an intervention called Three Good Things, which was shown to increase happiness and decrease depressive symptoms for six months after it was practiced for a week by participants recruited from the authentichappiness.org website (Seligman et al., 2005).

Reflecting on prosocial behavior has been found to be associated with positive emotion in firefighters that lasts even after the workday or shift is completed, and spills over into non-work environments (Sonnentag and Grant, 2012). Focusing on the prosocial impacts of the job can help to make workers feel more competent and valued, as well as making them less likely to think negatively about themselves and their performance, and leading to less emotional exhaustion on the job (Grant & Sonnentag, 2010).

This intervention is intended to supplement the after-action reviews that take place routinely in fire departments. Such reviews have a tendency to focus on “what went wrong” and how to prevent problems from happening again (which can, indeed, be a useful exercise). This intervention is intended to balance the focus on the negative with attention to the more positive effects of the job, and to remind firefighters individually and collectively that their efforts are making a difference. Examples can be large or small. They do not need to be big, momentous examples in order to be meaningful. Try to notice and appreciate small blessings, too.

Step 1: What happened today (or during this shift) that was good? (Come up with at least three examples individually or as a group.)

Step 2: (For each example) What did you (or your colleagues) do to contribute to the good event?

Step 3: What does the good thing mean to you (personally or as part of your group, department, or fire service)?

Step 4: What can you do to make this good event or something like it happen again in the future?

Measuring Effectiveness of Interventions to Foster More Realistic Thinking

The first three interventions in this Appendix are intended to foster more realistic and accurate thinking, which correlates with increased optimism and a greater tendency to problem solve (Gillham et al., 2014). The fourth is intended to generate positive emotion and perceived prosocial impact. Possible measures that can be used to evaluate the effectiveness of these interventions (as before and after tests with proper controls) are:

Life Orientation Test – Revised (LOT-R), a self-report measure that was developed to assess individual differences in optimism and pessimism (Carver, Scheier, & Segerstrom, 2010).

The Positive and Negative Affect Schedule (PANAS), a self-report measure that assesses positive and negative emotions on separate scales (Watson, Clark, & Tellegen, 1988).

Professional Quality of Life: Compassion Satisfaction and Fatigue Version 5 (ProQOL), a self-report measure that assesses how one feels in relation to both the positive and negative aspects of one's work in the helping professions (Hudnall Stamm 2009).

Other measures of individual and department-wide effectiveness to supplement self-report measures would require additional discussion.

Appendix 2: Sample Interventions to Increase Social Support

Presented here are examples of interventions that target factors demonstrated to lead to stronger relationships both at work and in other areas of life. The Active-Constructive Responding intervention is based on a technique taught as part of the Master Resilience Training in the U.S. Army (Reivich et al., 2011). The Building High-Quality Connections intervention derives from research presented by the University of Michigan's Ross School of Business (Dutton, 2003; Stephens, Heaphy, & Dutton, 2011).

Intervention: Active-Constructive Responding

People benefit from sharing good news. When someone shares something positive with you, the technical term for this is *capitalization* (Langston, 1994). There are potentially lots of opportunities to share positive information. Positive events occur at a 3:1 ratio to negative events, and people tend to share the best thing that happened that day 60-80% of the time (Gable & Haidt, 2005). Topics can range from routine events to more significant news. Capitalization has been shown to lead to increases in positive emotion, greater life satisfaction, and greater feelings of belonging. The more good news people share, the greater the benefits. (Lambert, Gwinn et al., 2012).

The way you respond to the news of others matters! How you respond to someone's good news has implications for the person who shared and for the health of your relationship with that person. Of four main styles of responding, only one has been shown to have positive implications for the relationship: Active-Constructive Responding (ACR). The other styles of responding (even passive-constructive) have negative effects on relationships (Gable, Reis, Impett, & Asher, 2004).

Style of Response	Constructive	Destructive
Active	Active-Constructive: Enthusiastic Support, Ask Positive Questions	Active-Destructive: Crush Enthusiasm Raise Negative Issues
Passive	Passive-Constructive: Subdued Positive Response, No Follow-up	Passive-Destructive: Ignore Event, Change Subject

Benefits of Active-Constructive Responding: Partners who give each other ACR report greater relationship satisfaction, greater intimacy (more understanding, caring, and trust) and a higher quality of relationship, with more daily happiness and fewer conflicts (Lambert, Gwinn et al., 2012). Relationships are at a higher risk to break up if ACR is not present in the relationship (Gable, Gonzaga, & Strachman, 2006).

Steps: Demonstrate each of the types of responding and discuss how they differ and how they make the recipient feel. Then practice ACR in one-on-one interactions and provide time for discussion and questions. Discussion points might include how ACR can be done in an authentic way when the responder is not “feeling” it, and whether every piece of good news shared requires the same level of acknowledgement.

Intervention: Building High-Quality Connections (HQCs)

What are High-Quality Connections and why do they matter? HQCs are brief positive interactions between two people at work – either between strangers or within ongoing relationships (Stephens et al., 2011). Among other benefits, HQCs have been found to improve working memory, cardiovascular and immune functioning, and recovery and adaptation from loss or illness in both people involved in the interaction (Stephens et al., 2011). At the organizational level, HQCs are associated with higher levels of psychological safety, which can result in greater learning from failures; with higher levels of trust, which can lead to greater cooperation; and with improved coordination and detection of errors (Stephens et al., 2011).

How are HQCs formed? HQCs can develop through three mechanisms (Stephens et al., 2011). Cognitive, or mental, processes include awareness of what others are doing, impressions of warmth and accepting, and taking the perspective of others. Emotional processes include sharing positive emotions; mimicking another's positive facial expressions, movements, and vocalizations; and feeling empathy toward another person. Behavioral mechanisms include showing esteem, dignity, and caring for others through respectful engagement; helping others perform or complete a task through task enabling; and bonding outside the normal work roles and behaviors in a light-hearted way through play.

Implementation steps. The plan is for a three-week intervention in which all fire department members are trained and encouraged to develop and maintain HQCs with their fellow department members. The key objective would be to create a culture of HQCs that would lead to a more cohesive workplace that is better able to function on a day-to-day basis as well as to withstand the more stressful events that may occur long-term.

Week 1: All department members trained on what high-quality connections are, the

mechanisms by which they can be achieved (emotional, cognitive, and behavioral), and the pathways within each mechanism, which provide specific ways of achieving HQCs (Dutton, 2003; Stephens et al., 2011).

All department members at the chief level (department chief, assistant chiefs, deputy chiefs, battalion chiefs) would receive an additional briefing during Week 1 on ways of establishing organizational values, policies, and practices within each of the mechanisms to foster HQCs around shared goals, shared knowledge, and mutual respect (Carmeli & Gittell, 2009). With the help of a facilitator, they would decide which values, policies, and practices to put into place and inform their members.

Weeks 2 and 3: Department members are asked to consciously foster HQCs within the fire department and to be responsible for at least 3 HQCs every day that they are working at the department. They will be given every-other-day email reminders and tips, as well as signs posted around the fire stations with suggestions for creating HQCs. Department members also would be encouraged to create HQCs outside work, but they would not be responsible for reporting on them. A check-in would take place between weeks 2 and 3 in order to informally gauge progress, answer questions and course-correct if necessary.

Measuring Effectiveness

The interventions described in this Appendix are intended to lead to stronger interpersonal relationships and greater social support. The following measures can be used to evaluate their effectiveness, as before and after tests with proper controls.

The Sources of Social Support Scale (SSSS), a self-report measure that assesses the kinds of help and support obtained from key individuals in the respondent's life (Carver, 2006).

A 10-item self-report questionnaire on High Quality Connections developed and validated by Carmeli and Gittell (2009) to address three features of high quality relationships: shared goals, shared knowledge, and mutual respect.

These measures can be supplemented by direct observation report by the department chief and by shift officers prior to the intervention and periodically thereafter. Measures pertaining to other aspects of department effectiveness would require further discussion.

References

- Almedom, A. M, & Glandon, D. (2007). Resilience is not the absence of PTSD any more than health is the absence of disease. *Journal of Loss and Trauma, 12*(2), 127-143.
- American Psychiatric Association (2013). *PTSD Fact Sheet*. Arlington, VA: American Psychiatric Publishing, Inc.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.
- Bandura, A. (1999). A social cognitive theory of personality. In L. Pervin & O. John (Eds.), *Handbook of personality* (2nd ed., pp. 154-196). New York, NY: Guilford Publications. (Reprinted in D. Cervone & Y. Shoda [Eds.], *The coherence of personality*. New York, NY: Guilford Press.)
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497-529.
- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy, 42*(10), 1129-1148.
- Benight, C. C., Swift, E., Sanger, J., Smith, A., & Zeppelin, D. (1999). Coping self-efficacy as a mediator of distress following a natural disaster. *Journal of Applied Social Psychology, 29*(12), 2443-2464.
- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*(1), 20-28.

- Boscarino, J. A., Figley, C. R., & Adams, R. E. (2004). Compassion fatigue following the September 11 terrorist attacks: A study of secondary trauma among New York City social workers. *International Journal of Emergency Mental Health, 6*(2), 57-66.
- Brunwasser, S. M., Gillham, J. E., & Kim, E. S. (2009). A meta-analytic review of the Penn Resiliency Program's effect on depressive symptoms. *Journal of Consulting and Clinical Psychology, 77*(6), 1042-1054.
- Bryant, R. A., & Guthrie, R. M. (2007). Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 75*(5), 812-815.
- CareerCast (2015). *The most stressful jobs of 2015*. Retrieved from <http://www.careercast.com/jobs-rated/most-stressful-jobs-2015>
- Carmeli, A., & Gittell, J. H. (2009). High-quality relationships, psychological safety, and learning from failures in work organizations. *Journal of Organizational Behavior, 30*, 709–729. doi:10.1002/job.565
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.
- Carver, C. S. (2006). Sources of Social Support Scale. <http://www.psy.miami.edu/faculty/ccarver/scISSSS.html>
- Carver, C. S., Scheier, M. F., Miller, C. J., & Fulford, D. (2009). Optimism. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford Handbook of Positive Psychology* (2nd ed., pp. 303-311). New York, NY: Oxford University Press.
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30*, 879-889.

- Chamberlin, M. J. A., & Green, H. J. (2010). Stress and coping strategies among firefighters and recruits. *Journal of Loss and Trauma, 15*(6), 548-560.
doi:10.1080/15325024.2010.519275
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper Perennial.
- Cutuli, J. J., Gillham, J. E., Chaplin, T. M., Reivich, K. J., Seligman, M. E. P., Gallop, R. J., ... & Freres, D. R. (2013). Preventing adolescents' externalizing and internalizing symptoms: Effects of the Penn Resiliency Program. *The International Journal of Emotional Education, 5*(2), 67-79.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology 92*(6), 1087-1101.
- Dutton, J. E. (2003). *Energize your workplace: How to create and sustain high-quality connections at work*. San Francisco, CA: Jossey-Bass.
- Fahy, R. F., LeBlanc, P. R., & Molis, J. L. (2015). *Firefighter fatalities in the United States - 2014*. Quincy, MA: National Fire Protection Association.
- Fisher, P., & Etches, B. (2003, October). *A comprehensive approach to workplace stress & trauma in fire-fighting: A review document prepared for the International Association of Firefighters 17th Redmond Symposium*.
- Frankl, V. E. (1985). *Man's search for meaning* (revised and updated). New York, NY: Washington Square Press.
- Frazier, P., Berman, M., & Steward, J. (2001). Perceived control and posttraumatic stress: A temporal model. *Applied and Preventive Psychology, 10*(3), 207-223.

- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The Broaden-and-Build Theory of positive emotions. *American Psychologist, 56*(3), 218-226.
doi:10.1037//0003-066X.56.3.218
- Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion, 24*(4), 237-258.
- Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology, 91*, 904–917.
- Gable, S. L., Reis, H. T., Impett, E. A., & Asher, E. R. (2004). What do you do when things go right? The intrapersonal and interpersonal benefits of sharing positive events. *Journal of Personality and Social Psychology, 87*, 228–245.
- Garnezy, N. (1991). Resilience and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist, 34*(4), 416-430.
- Gillham, J. E., Abenavoli, R. M., Brunwasser, S. M., Linkins, M., Reivich, K. J., & Seligman, M. E. P. (2014). Resilience education. In S. A. David, I. Boniwell, & A. Conley Ayers (Eds.), *The Oxford handbook of happiness* (pp. 609-630). Oxford, UK: Oxford University Press.
- Gist, R., Taylor, V. H., & Raak, S. (2011). *White paper: Suicide surveillance, prevention, and intervention measures for the U.S. fire service*. Baltimore, MD: National Fallen Firefighters Foundation.
- Gleitman, H., Gross, J., & Reisberg, D. (2011). *Psychology* (8th ed.). New York, NY: W. W. Norton & Company.

- Grant, A. M., & Sonnentag, S. (2010). Doing good buffers against feeling bad: Prosocial impact compensates for negative task and self-evaluations. *Organizational Behavior and Human Decision Processes*, *111*(1), 13-22.
- Harms, P. D., Herian, M. N., Krasikova, D. V., Vanhove, A., & Lester, P. B. (2013). *The comprehensive soldier and family fitness program evaluation report #4: Evaluation of resilience training and mental and behavioral health outcomes*. Monterey, CA: Office of the Deputy Under Secretary of the Army.
- Haynes, H. J. G., & Stein, G. P. (2014). *U.S. fire department profile*. Quincy, MA: National Fire Protection Association.
- Heinrichs, M., Wagner, D., Schoch, W., Soravia, L. M., Hellhammer, D. H., & Ehlert, U. (2014). Predicting posttraumatic stress symptoms from pretraumatic risk factors: A 2-year prospective follow-up study in firefighters. *American Journal of Psychiatry*, *162*(12), 2276-2286.
- Hobfoll, S. E. (1991). Traumatic stress: A theory based on rapid loss of resources. *Anxiety Research*, *4*(3), 187-197.
- Hudnall Stamm, B. (2009). *Professional Quality of Life: Compassion Satisfaction and Fatigue Version 5 (ProQOL)*. /www.isu.edu/~bhstamm or www.proqol.org.
- Huta, V. (2014). Eudaimonia. In S. A. David, I. Boniwell, & A. Conley Ayers (Eds.), *The Oxford handbook of happiness* (pp. 201-213). Oxford, UK: Oxford University Press.
- International Association of Fire Chiefs (2015). *National safety culture change initiative: Study of behavioral motivation on reduction of risk-taking behaviors in the fire and emergency service*. Retrieved from www.ffsafetyculture.org

International Association of Fire Fighters, AFL-CIO-CLC (n.d.). *Behavioral health*. Retrieved on July 9, 2015, from

<https://www.iaff.org/HS/wfiresource/BehavioralHealth/behavioralhealth.html>

Into the Fire [Motion picture on DVD]. (2006). Novato, CA: Fireman's Fund Insurance Company.

Jackson, S. A., Thomas, P. R., Marsh, H. W., & Smethurst, C. J. (2001). Relationships between flow, self-concept, psychological skills, and performance. *Journal of Applied Sport Psychology, 13*(2), 129-153. doi:10.1080/104132001753149865

Jahnke, S. A., Gist, R., Poston, W. S. C., & Haddock, C. K. (2014). Behavioral health interventions in the fire service: Stories from the firehouse. *Journal of Workplace Behavioral Health, 29*(2), 113-126.

James, W. (1902). *The varieties of religious experience*. Project Gutenberg Ebook. Retrieved from http://www.gutenberg.org/files/621/621-pdf.pdf?session_id=3282da0a9eb7d3d24a34c9772ab172ff553e66c1

Karter, Jr., M. J., & Molis, J. L. (2014). *U.S. firefighter injuries - 2013*. Quincy, MA: National Fire Protection Association.

Lambert, J. E., Benight, C. C., Harrison, E., & Cieslak, R. (2012). The Firefighter Coping Self-Efficacy Scale: Measure development and validation. *Anxiety, Stress & Coping, 25*(1), 79-91.

Lambert, N. M., Gwinn, A. M., Baumeister, R. F., Strachman, A., Washburn, I. J., Gable, S. L., & Fincham, F. D. (2012). A boost of positive affect: The perks of sharing positive experiences. *Journal of Social and Personal Relationships, 1-20*. doi:10.1177/0265407512449400

- Langston, C. A. (1994). Capitalizing on and coping with daily-life events: Expressive responses to positive events. *Journal of Personality and Social Psychology*, *67*, 1112–1125.
- Lee, S. H., & Olshfski, D. (2002). Employee commitment and firefighters: It's my job. *Public Administration Review*, *62*(S1), 108-114.
- Lester, P. B., Harms, P. D., Herian, M. N., Krasikova, D. V., & Beal, S. J. (2011). *The comprehensive soldier and family fitness program evaluation report #3: Longitudinal analysis of the impact of Master Resilience Training on self-reported resilience and psychological health data*. Washington, DC: Office of the Vice Chief of Staff, Department of the Army.
- Levine, S. Z., Laufer, A., Stein, E., Hamama-Raz, Y., & Solomon, Z. (2009). Examining the relationship between resilience and posttraumatic growth. *Journal of Traumatic Stress*, *22*(4), 282-286.
- Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology*, *12*, 857-885.
- Maddux, J. E. (2009). Self-efficacy: The power of believing you can. In C. R. Snyder & S. J. Lopez (Eds), *Oxford handbook of positive psychology* (2nd ed., pp. 335-344). New York, NY: Oxford University Press.
- Marsar, S. (2013). *Camaraderie in the firehouse*. Retrieved from www.firefighternation.com.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, *56*, 227-238.
- Masten, A. S., Cutuli, J. J., Herbers, J. E., & Reed, M. J. (2009). Resilience in development. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed., pp. 117-131). New York, NY: Oxford University Press, Inc.

- McCammon, S., Durham, T. W., Allison Jr, E. J., & Williamson, J. E. (1988). Emergency workers' cognitive appraisal and coping with traumatic events. *Journal of Traumatic Stress, 1*(3), 353-372.
- Melchert, N. (2002). *The great conversation: A historical introduction to philosophy* (4th ed.). Boston, MA: McGraw-Hill.
- Meyer, E. C., Zimering, R., Daly, E., Knight, J., Kamholz, B. W., & Gulliver, S. B. (2012). Predictors of posttraumatic stress disorder and other psychological symptoms in trauma-exposed firefighters. *Psychological Services, 9*(1), 1-15.
- Milen, D. (2009). The ability of firefighting personnel to cope with stress. *Journal of Social Change, 3*(1), 38-56.
- Mitchell, J. T. (undated). *Critical incident stress debriefing (CISD)*. Retrieved from North American Fire Fighter Veteran Network, <http://www.firefighterveteran.com/>
- National Fallen Firefighters Foundation (n.d.). Psychological support. *Everyone Goes Home® 16 Firefighter Life Safety Initiatives*. Retrieved on July 9, 2015, from <http://www.everyonegoeshome.com/16-initiatives/13-psychological-support/>
- National Fire Protection Association (2015). *NFPA 1500: Standard on Fire Department Occupational Safety and Health Program*. Retrieved on July 9, 2015, from <http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1500&tab=about>
- National Volunteer Fire Council (n.d.). *Share the Load™ support program for fire and EMS*. Retrieved on July 9, 2015, from <http://www.nvfc.org/hot-topics/share-the-load-support-program-for-fire-and-ems>

- Niemiec, R. M. (2013). VIA character strengths: Research and practice (The first 10 years). In H. H. Knoop & A. Delle Fave (Eds.), *Well-being and cultures: Perspectives on positive psychology* (pp. 11-30). New York, NY: Springer.
- Pawelski, J. O. (2014). *Defining the "positive" in positive psychology*. Unpublished manuscript. Philadelphia, PA: University of Pennsylvania.
- Peterson, C. (2006). *A primer in positive psychology*. New York, NY: Oxford University Press.
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford American Press and Washington DC: American Psychological Association.
- Peterson, C., & Steen, T. A. (2009). Optimistic explanatory style. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford Handbook of Positive Psychology* (2nd ed., pp. 313-321). New York, NY: Oxford University Press.
- Positive Psychology Center (2007). Resilience in children: The Penn Resiliency Project, overview and background. Retrieved on July 12, 2015, from <http://www.ppc.sas.upenn.edu/prpsum.htm>
- Prati, G., & Pietrantonio, L. (2010). The relation of perceived and received social support to mental health among first responders: A meta-analytic review. *Journal of Community Psychology*, 38(3), 403-417.
- Prati, G., Pietrantonio, L., & Cicognani, E. (2010). Self-efficacy moderates the relationship between stress appraisal and quality of life among rescue workers. *Anxiety, Stress and Coping*, 23(4), 463-470. doi:10.1080/10615800903431699
- Presidential Policy Directive PPD-8 (2011). *National preparedness*. Washington, DC: The White House.

- Regehr, C. (2001). Crisis debriefing groups for emergency responders: Reviewing the evidence. *Brief Treatment and Crisis Intervention, 1*(2), 87-100.
- Regehr, C. (2005). Bringing the trauma home: Spouses of paramedics. *Journal of Loss and Trauma, 10*(2), 97-114.
- Regehr, C. (2009). Social support as a mediator of psychological distress in firefighters. *The Irish Journal of Psychology, 30*(1-2), 87-98. doi:10.1080/03033910.2009.10446300
- Regehr, C., Dimitropoulos, G., Bright, E., George, S., & Henderson, J. (2005). Behind the brotherhood: Rewards and challenges for wives of firefighters. *Family Relations, 54*(3), 423-435.
- Regehr, C., Hill, J., Knott, T., & Sault, B. (2003). Social support, self-efficacy and trauma in new recruits and experienced firefighters. *Stress and Health, 19*(4), 189-193.
- Reivich, K. (2015). *Positive psychology and individuals* [PowerPoint slides], January 30, 2015. Philadelphia, PA: The Trustees of the University of Pennsylvania.
- Reivich, K. & Shatté, A. (2002). *The resilience factor: 7 Essential skills for overcoming life's inevitable obstacles*. New York, NY: Broadway Books.
- Reivich, K. J., Seligman, M. E. P., & McBride, S. (2011). Master resilience training in the U.S. Army. *American Psychologist, 66*(1), 25-34. doi:10.1037/a0021897
- Rowe, A., & Regehr, C. (2010). Whatever gets you through today: An examination of cynical humor among emergency service professionals. *Journal of Loss and Trauma, 15*(5), 448-464.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*(3), 316-331.

- Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Ryff, C. D., & Singer, B. (2002). From social structure to biology: Integrative science in pursuit of human health and well-being. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford handbook of positive psychology* (pp. 541-555). New York, NY: Oxford University Press.
- Ryff, C. D., Singer, B. H., & Love, G. D. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions of the Royal Society B*, 359, 1383-1394.
doi:10.1098/rtsb.2004.1521.
- Seligman, M. E. P. (1998). The president's address. In *APA 1998 Annual Report*, *American Psychologist*, August, 1999. Retrieved from <http://www.ppc.sas.upenn.edu/aparep98.htm>
- Salanova, M., Bakker, A. B., & Llorens, S. (2006). Flow at work: evidence for an upward spiral of personal and organizational resources. *Journal of Happiness Studies*, 7(1), 1-22.
- Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York, NY: Free Press.
- Seligman, M. E. P. (2006). *Learned optimism: How to change your mind and your life*. New York, NY: First Vintage Books.
- Seligman, M. E. P. (2011). *Flourish*. New York, NY: Atria Paperback.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14. doi: 10.1037//0003-066X.55.1.5
- Sliter, M., Kale, A., & Yuan, Z. (2014). Is humor the best medicine? The buffering effect of coping humor on traumatic stressors in firefighters. *Journal of Organizational Behavior*, 35(2), 257-272.

- Sonnentag, S., & Grant, A. M. (2012). Doing good at work feels good at home, but not right away: When and why perceived prosocial impact predicts positive affect. *Personnel Psychology, 65*(3), 495-530.
- Stephens, J. P., Heaphy, E., & Dutton, J. (2011). High-quality connections. In K. Cameron and G. Spreitzer (Eds.), *Handbook of positive organizational scholarship* (pp. 385-399). New York: Oxford University Press.
- Sweeney, P. (2014). *When serving becomes surviving: PTSD and suicide in the fire service*. Retrieved from www.crisisresponse.org
- Tedeschi, R. G. & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*(1), 1-18.
doi:10.1207/s15327965pli1501_01
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320-333.
- U.S. Fire Administration (2015a). *Firefighters and fire departments*. Retrieved from <http://www.usfa.fema.gov/data/statistics/>
- U.S. Fire Administration (2015b). *National Fire Department Census quick facts*. Retrieved from <https://apps.usfa.fema.gov/census/summary.cfm>
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner Jr, T. E. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575-600.
- Varvel, S. J., He, Y., Shannon, J. K., Tager, D., Bledman, R. A., Chaichanasakul, A., Mendoza, M. M., & Mallinckrodt, B. (2007). Multidimensional, threshold effects of social support

- in firefighters: Is more support invariably better? *Journal of Counseling Psychology*, 54(4), 458-465.
- VIA Institute on Character (2015). *VIA offers personality assessment focusing on character strengths*. Retrieved on July 9, 2015, from <http://www.viacharacter.org/www/Character-Strengths/Personality-Assessment#nav>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of personality and social psychology*, 54(6), 1063-1070.
- Williams, A., Hagerty, B. M., Andrei, A. C., Yousha, S. M., Hirth, R. A., & Hoyle, K. S. (2007). STARS: Strategies to assist Navy recruits' success. *Military Medicine*, 172(9), 942-949.
- Williams, A., Hagerty, B. M., Yousha, S. M., Horrocks, J., Hoyle, K. S., & Liu, D. (2004). Psychosocial effects of the Boot Strap intervention in Navy recruits. *Military Medicine*, 169(10), 814-820.
- Wilmoth, J. A. (2014, May-June). Trouble in mind. Special report: Firefighter behavioral health. *NFPA Journal*. Quincy, MA: National Fire Protection Association. Retrieved from <http://www.nfpa.org/newsandpublications/nfpa-journal/2014/may-june-2014/features/special-report-firefighter-behavioral-health>
- Yates, T. M. & Masten, A. S. (2004). Fostering the future: Resilience theory and the practice of positive psychology. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 521-539). Hoboken, NJ: John Wiley & Sons.